

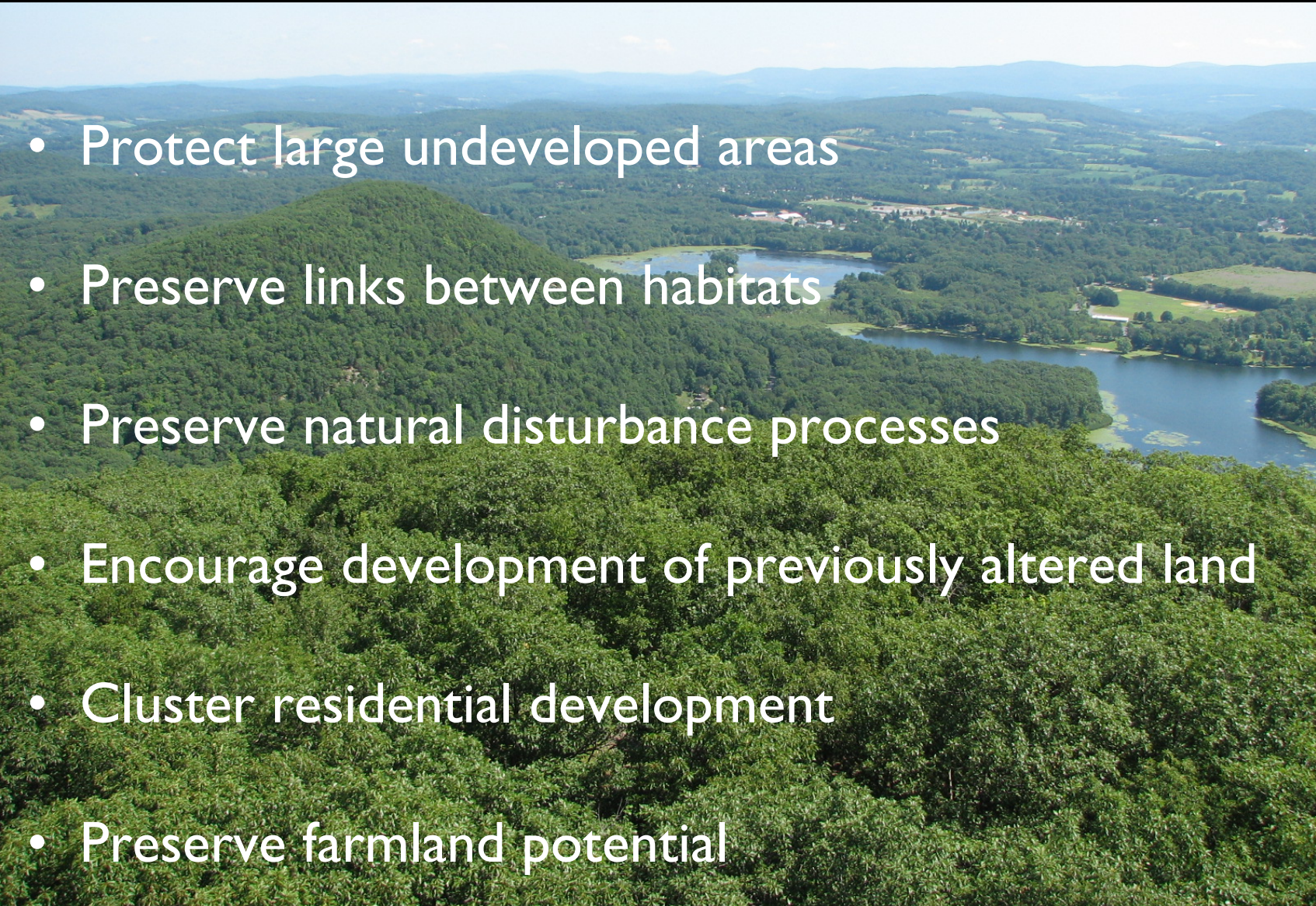
Planning for Biodiversity Conservation



Nava Tabak
Habitat mapping coordinator
Hudsonia Ltd



General conservation guidelines

- 
- An aerial photograph of a lush green landscape. In the foreground, there is a dense forest of green trees. In the middle ground, a large, winding lake is visible, surrounded by more forest and some developed areas with buildings and roads. The background shows rolling hills and mountains under a clear blue sky with a few clouds.
- Protect large undeveloped areas
 - Preserve links between habitats
 - Preserve natural disturbance processes
 - Encourage development of previously altered land
 - Cluster residential development
 - Preserve farmland potential

Biological diversity

Biological diversity is the variation in nature at all scales: genes, species, biological communities, and ecosystems.



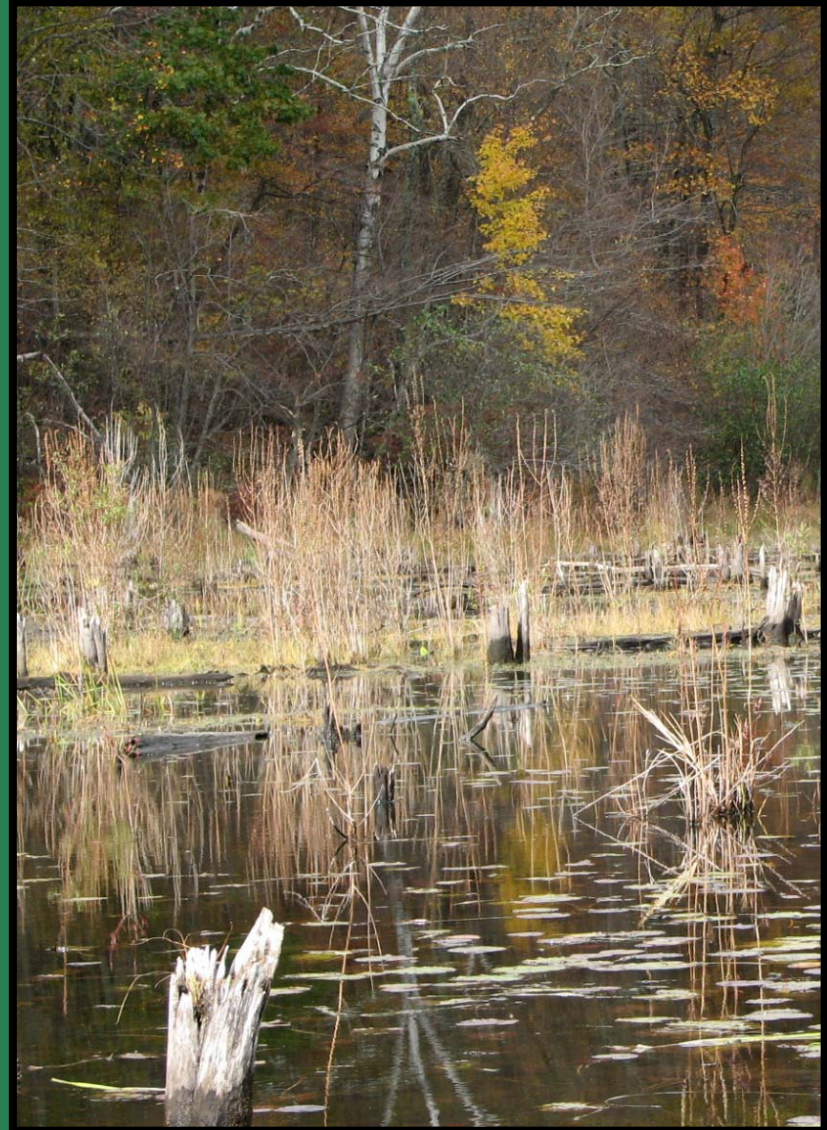
Habitats/natural communities

Habitat: all the biotic and abiotic components that make up the environment where an organism or community occurs.

Effective biodiversity conservation focuses on

- **species**,
- their **habitats**, and
- the **landscapes** that support those habitats.

Habitat diversity is a good surrogate for species diversity.



Habitats/natural communities

Upland meadow



Oak-heath barren



Hardwood swamp



fen

Information available to towns

- New York Natural Heritage Program: Important Areas Maps
 - Important areas for rare species and communities
 - Based on known records (no systematic evaluation)



Information available to towns

- New York Natural Heritage Program: Important Areas Maps
- State (DEC) and federal (NWI) wetlands and floodplain maps



Information available to towns

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- State (DEC) and federal (NWI) wetlands and floodplain maps
- Environmental reviews/assessments for individual sites
 - Protocols vary
 - Objectivity

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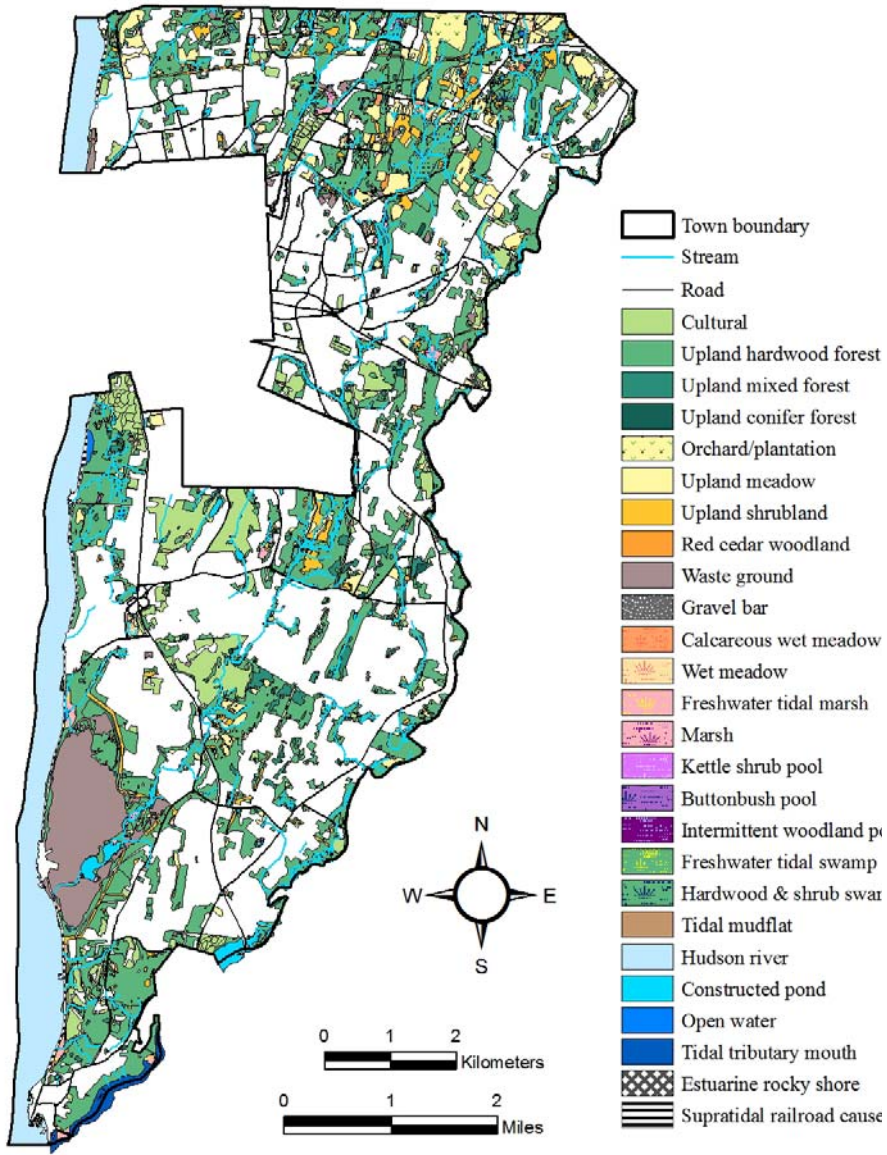
- **Natural Resources Inventory (NRI)**

Slopes, geology, soils, protected open space, agriculture, recreational areas, national land cover map, etc...

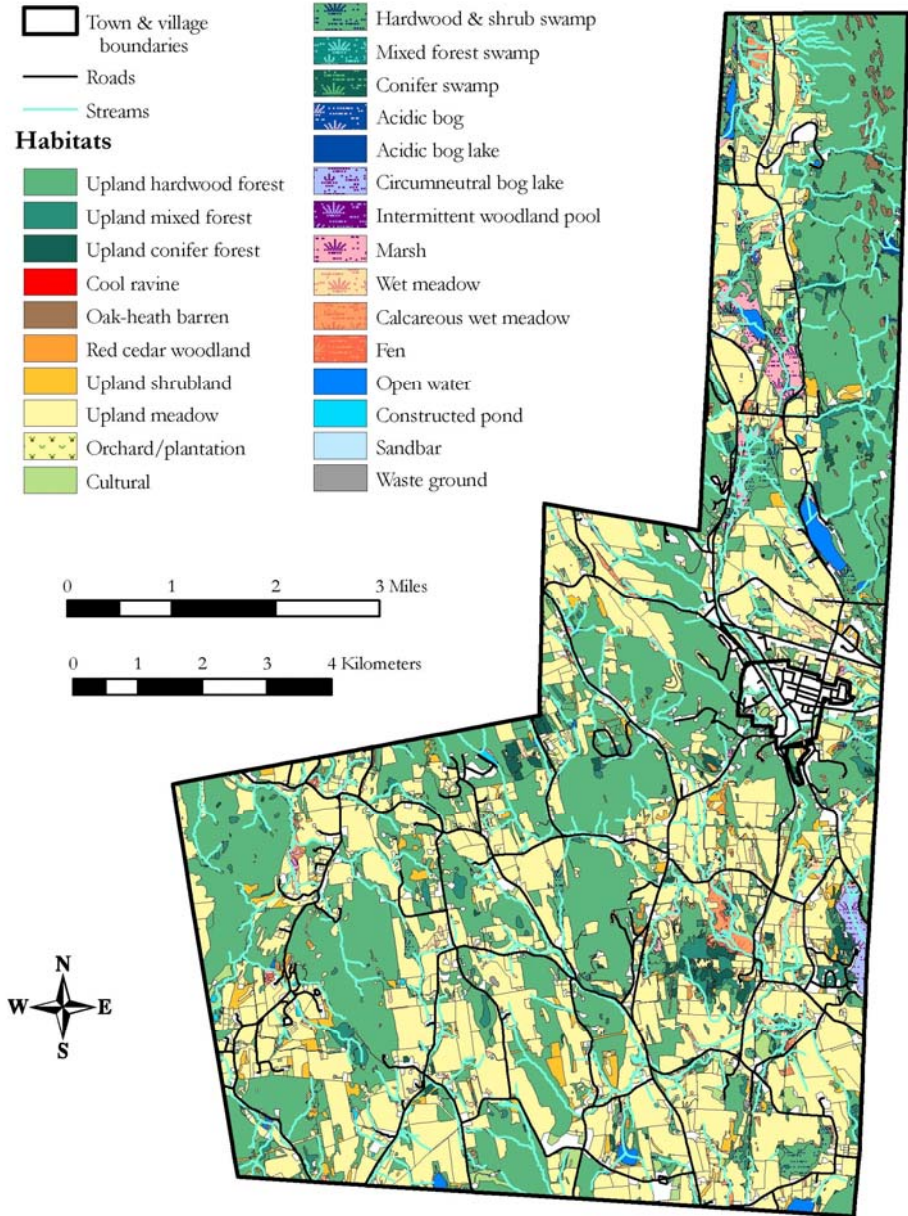
Information available to towns

- New York Natural Heritage Program: Important Areas Maps
- State (DEC) and federal (NWI) wetlands and floodplain maps
- Environmental reviews/assessments for individual sites
- Natural Resources Inventory (NRI)

Ideal: A comprehensive and systematic biodiversity assessment detailed enough for planning at the local level, but with a landscape perspective.



Ecologically Significant Habitats, Town of Poughkeepsie



Ecologically Significant Habitats, Town of North East

Establishing priorities



- Rare or declining habitats
- Habitats that support rare or declining species
- High-quality examples of common habitats

Priority habitat types in our region

- Extensive forests
- Extensive meadows
- Intermittent woodland pools
- Fens
- Crest, ledge, and talus
- Oak-heath barrens
- Wetland complexes
- Intermittent and perennial streams



Establishing priorities

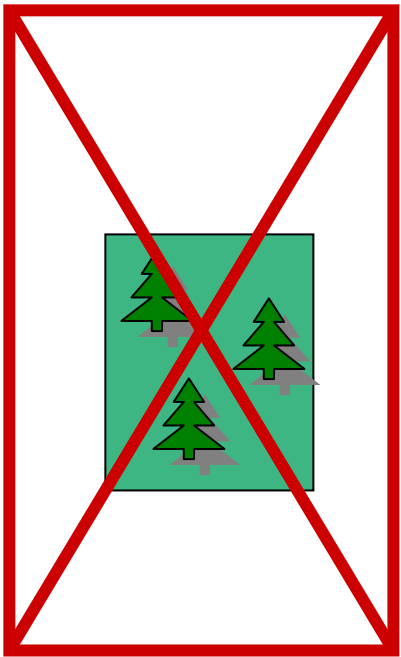
Which habitat occurrences should be protected?

Establish priorities based on relevant criteria:

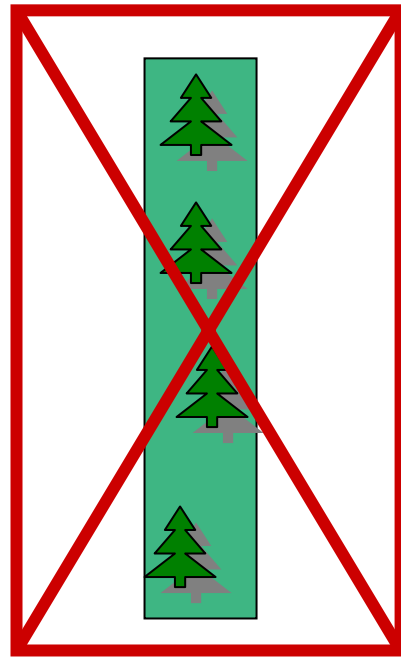
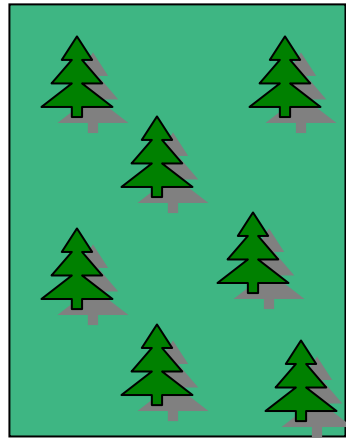
- rarity
- contiguity
- viability
- quality
- distribution

For some habitats, additional important criteria include:

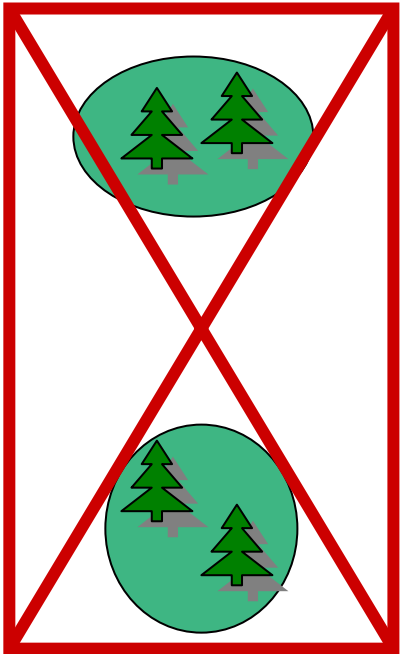
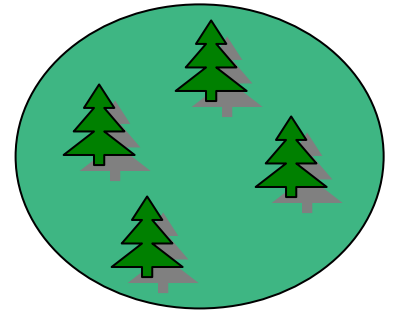
- age (e.g., forests and wetlands)
- size (e.g., forests, swamps, meadows, marshes)



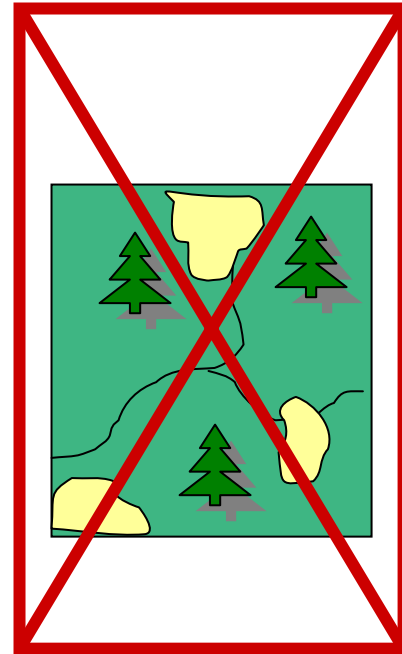
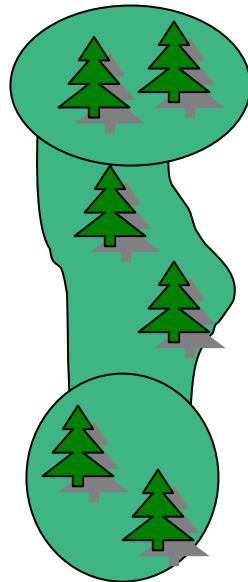
Larger



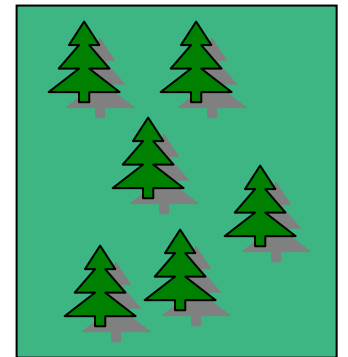
Rounder (Less edge)



More connected

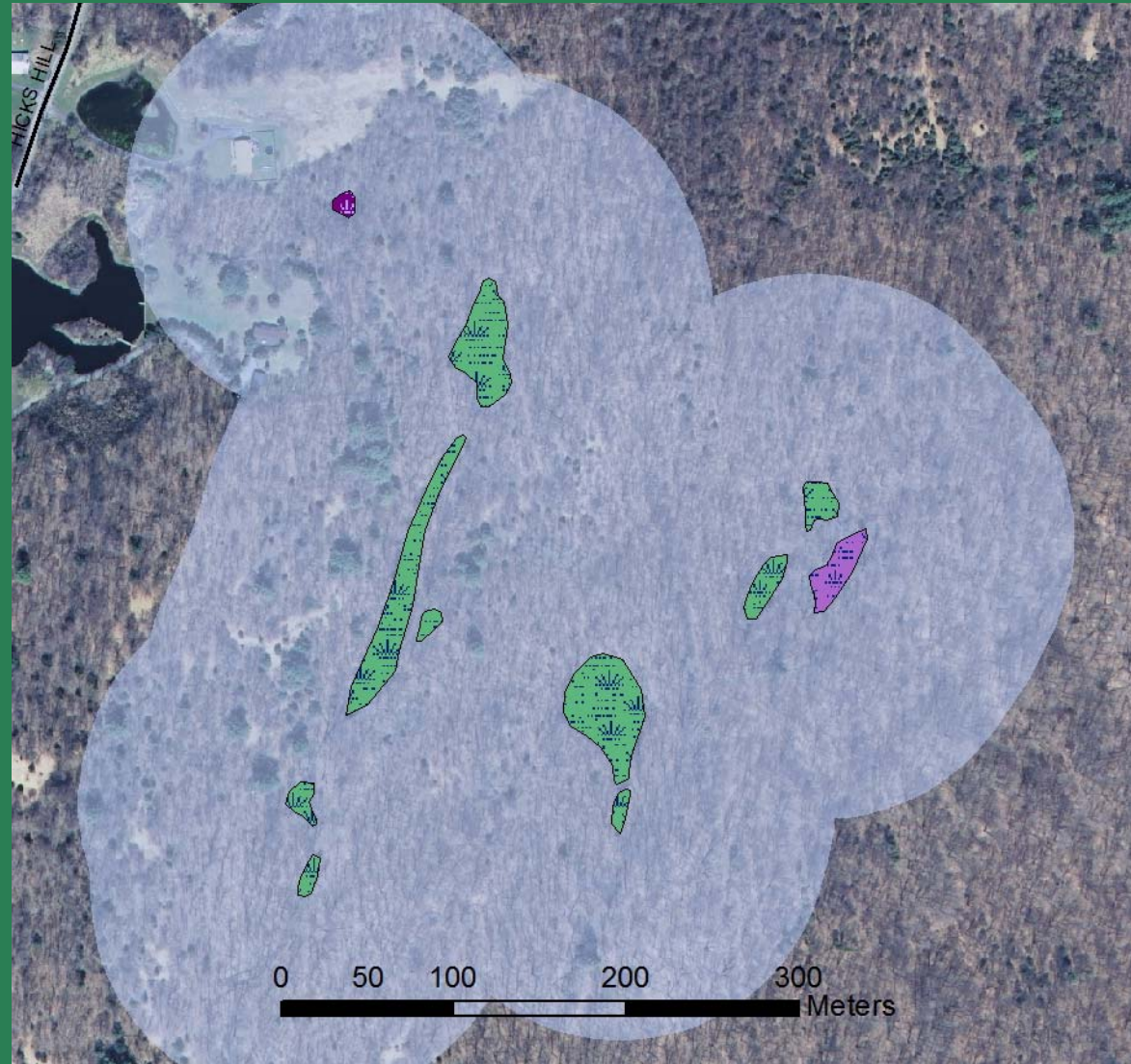


Less disturbed



Habitat complexes

Spotted Turtle



Priority habitats and conservation recommendations

- Large forests: avoid fragmentation



Photo: Peter Schoenberger



Photo: Peter Schoenberger

Priority habitats and conservation recommendations

- Large meadows: avoid fragmentation



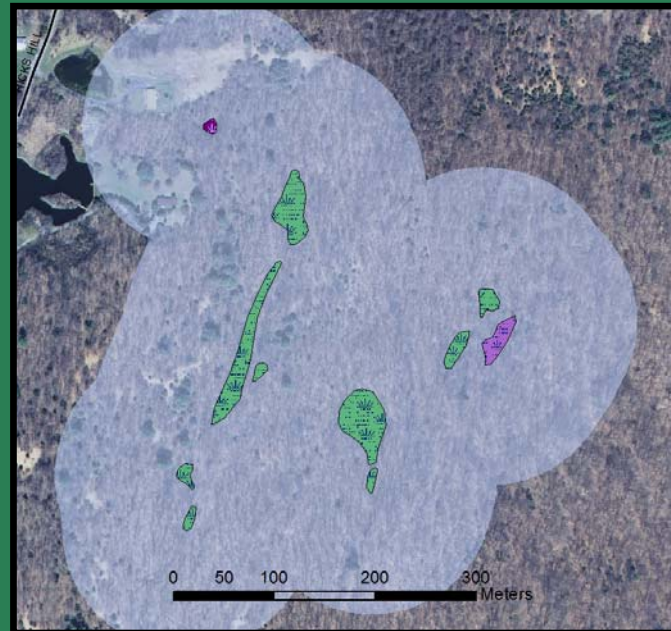
Priority habitats and conservation recommendations

- Perennial streams: protect shoreline and adjacent areas



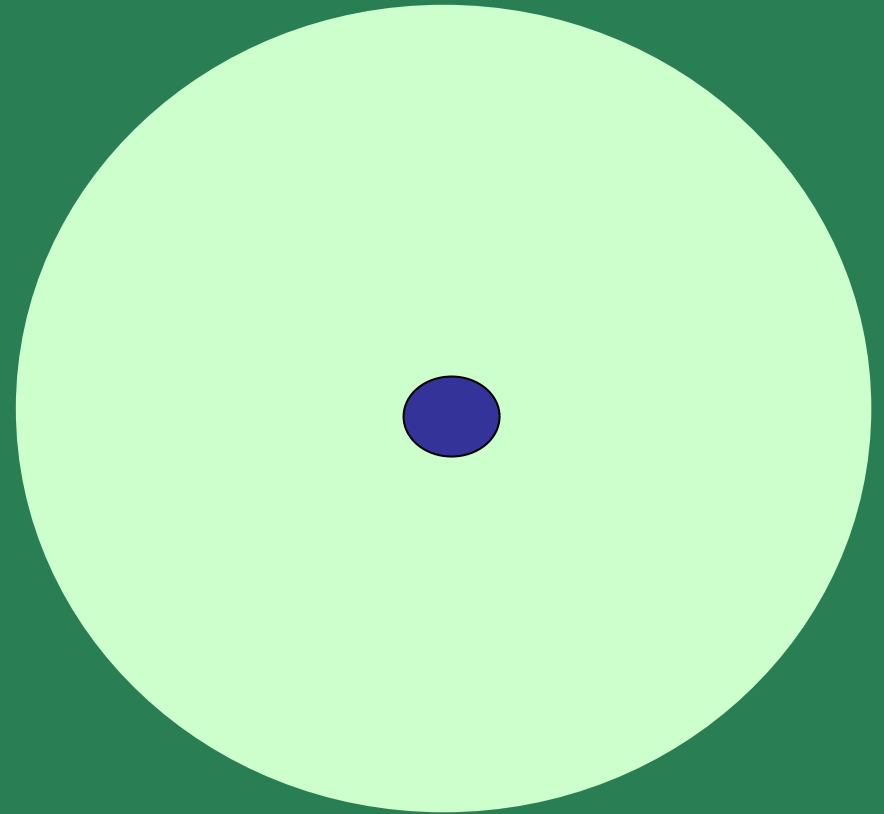
Priority habitats and conservation recommendations

- Wetland complexes: protect intervening uplands
- Intermittent woodland pools: protect pool and surrounding upland forest



Buffers and conservation zones

- Purpose of buffer and conservation zones
- How are they designated?



Conservation Zones

- Rare or important habitats
- Identify focal animal (or group)
- Establish a Conservation Zone based on the animal's requirements

Intermittent woodland pool



Pool-breeding amphibians



Surrounding forest needed for survival (from scientific literature):

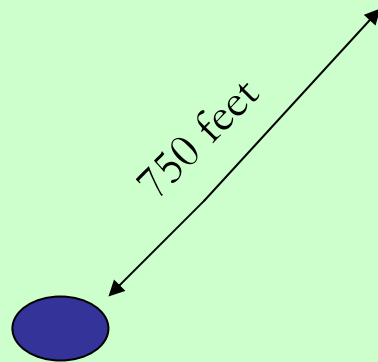
750 ft



Conservation Zone:
750-foot radius from each pool

Conservation Zones

Pool-breeding amphibians

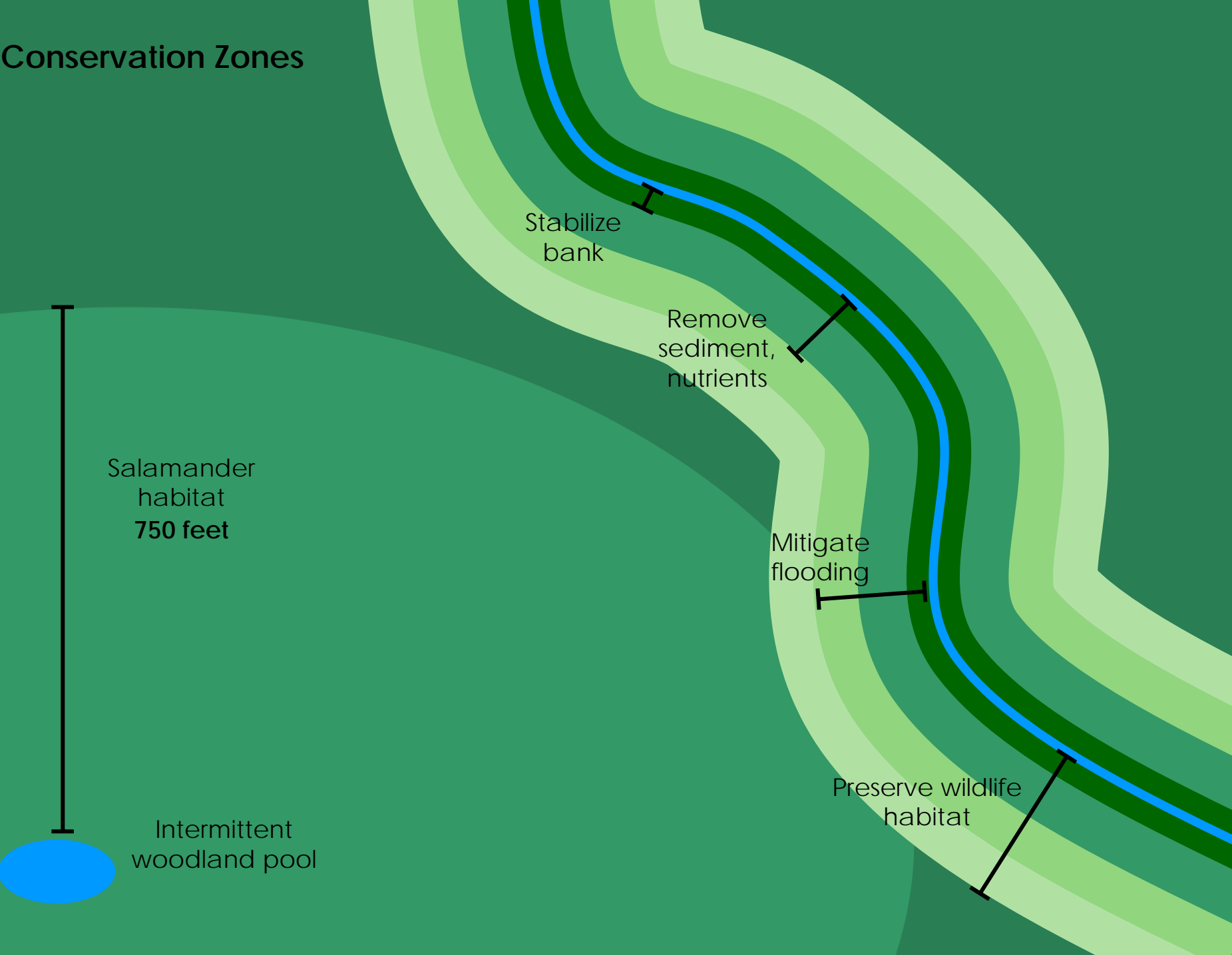


- Minimize new road construction
- Maintain pool water quality and quantity
- Avoid creating stormwater detention basins/
artificial depressions
- Modify pitfall hazards
- Schedule construction outside peak amphibian
movement period

Conservation Zone:

**750-ft radius from each
intermittent woodland pool**

Conservation Zones



Stabilize bank

Remove sediment, nutrients

Mitigate flooding

Preserve wildlife habitat

Salamander habitat
750 feet

Intermittent woodland pool

Using habitat information



- Town-wide planning
- Resource for landowners and land trusts
- Review of site-specific proposals

Using habitat information



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Site specific proposals

1. Which priority habitats are on and near the site?
2. What are the conservation zones and/or conservation guidelines for each?
3. Can the proposal can be designed or modified to minimize impacts on these habitats?



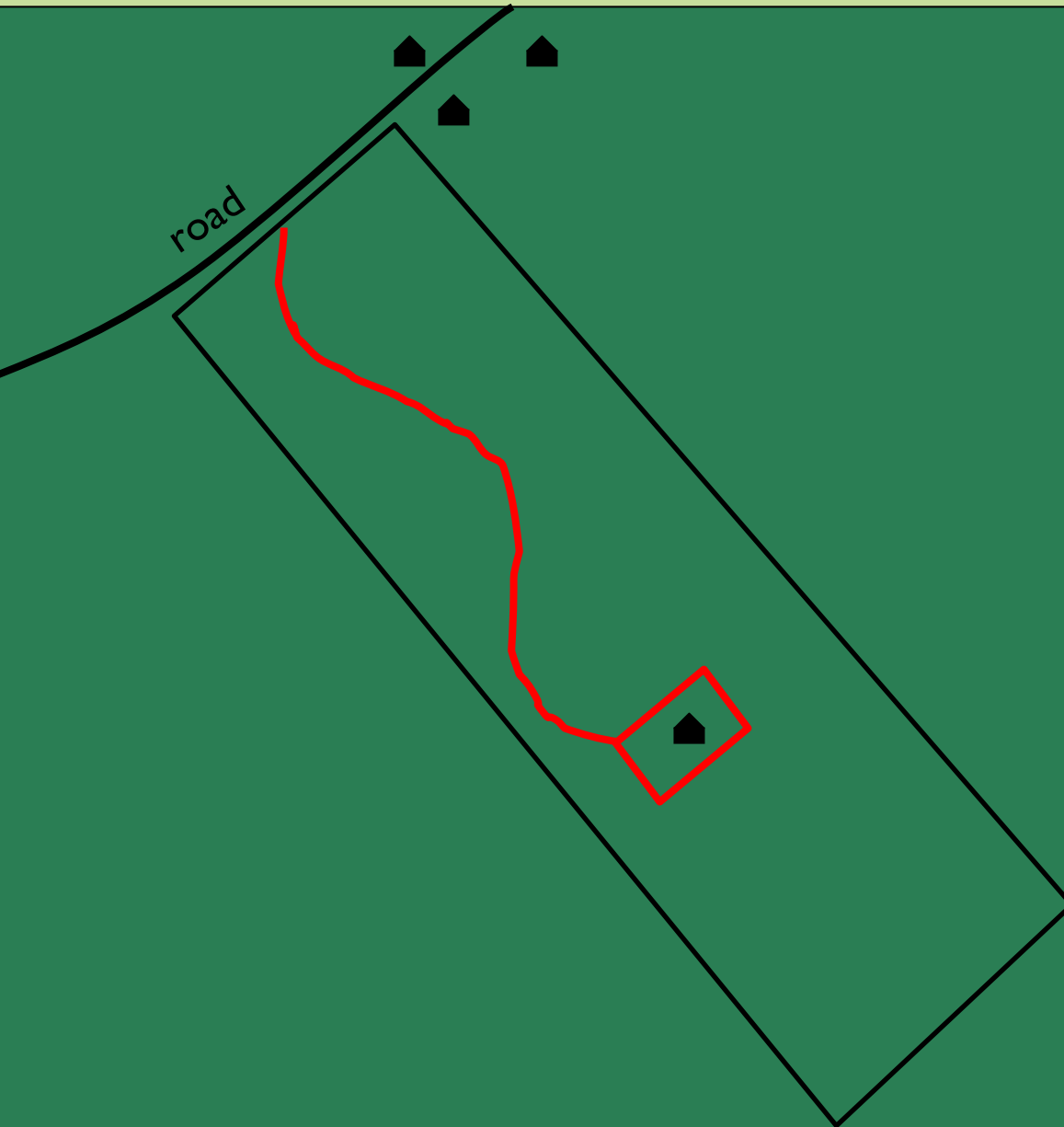
Site specific proposals

I. Which priority habitats are on and near the site?

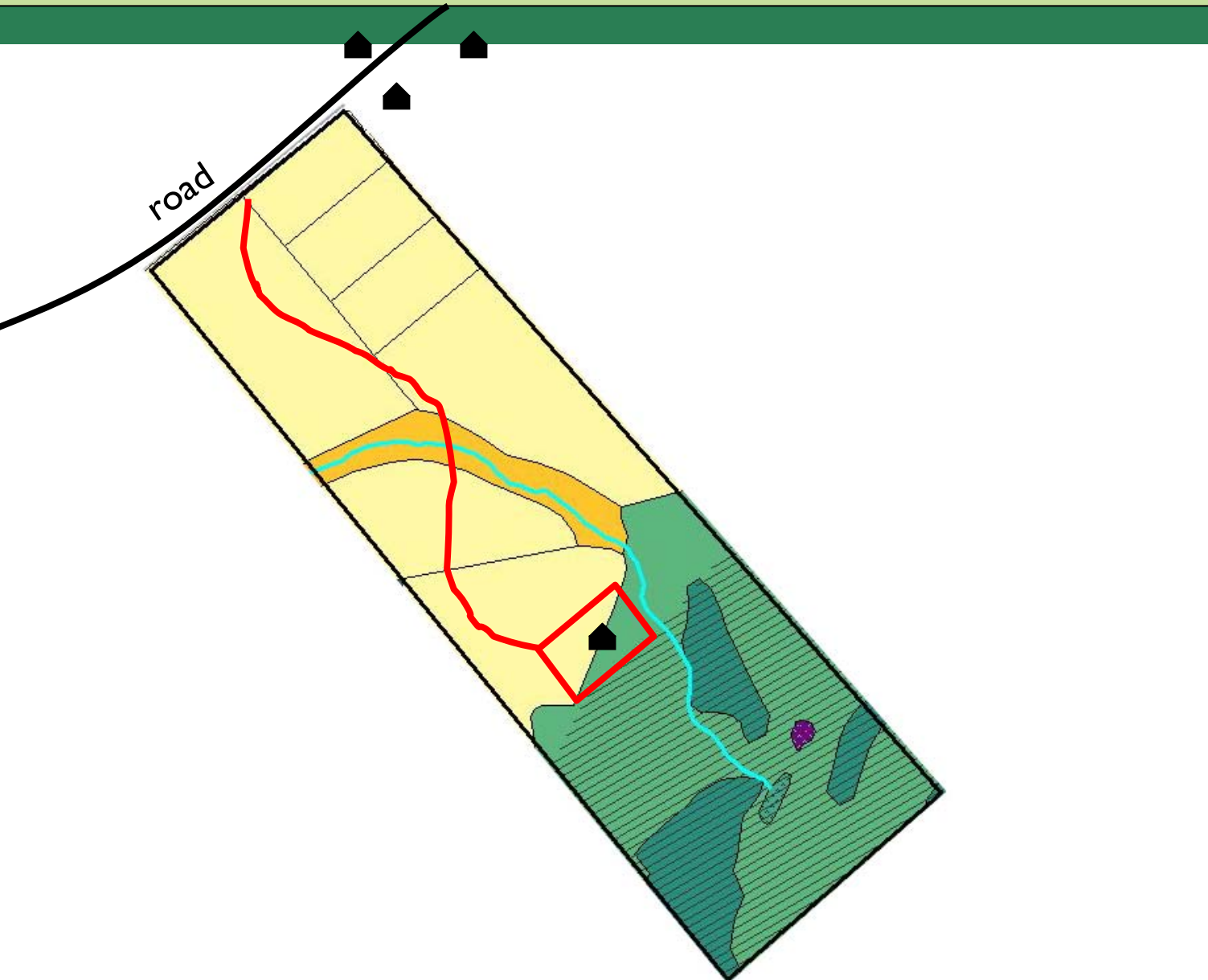
- Environmental Assessment Forms
- Scoping for Environmental Impact Statements



Site specific proposal- example



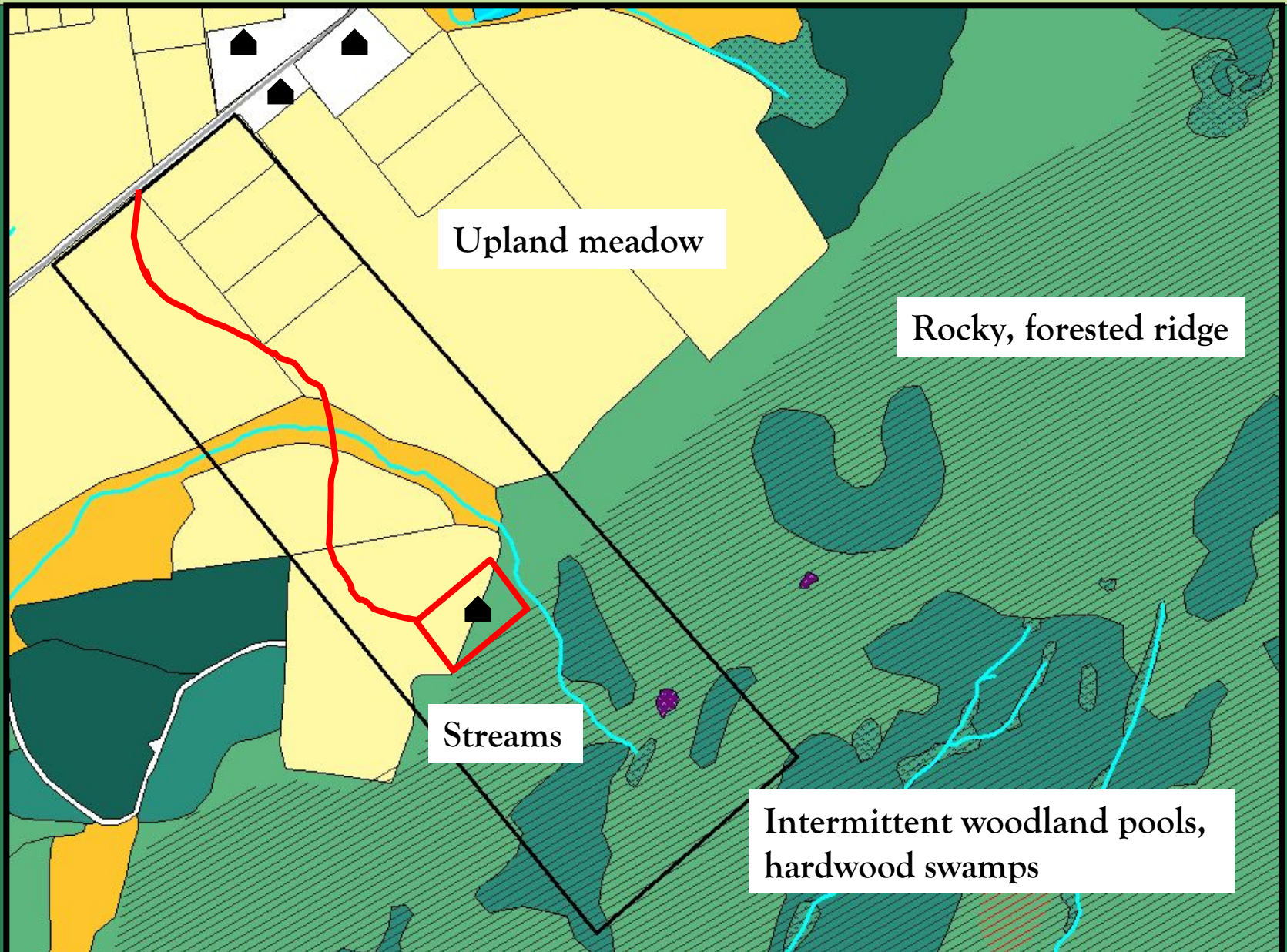
Site specific proposal- example



Site specific proposal- example



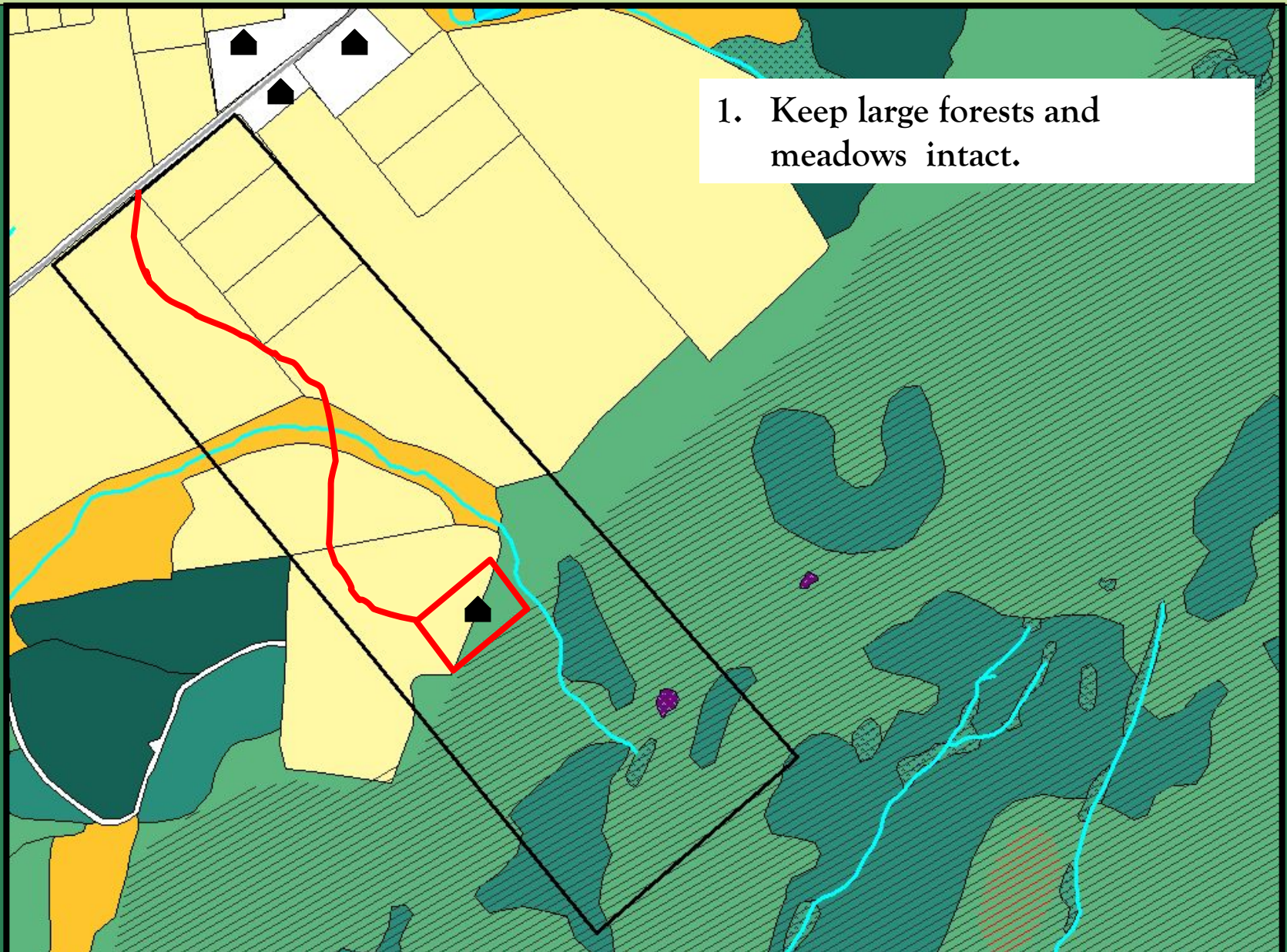
I. Are there priority habitats?



2. What are their conservation guidelines/zones?

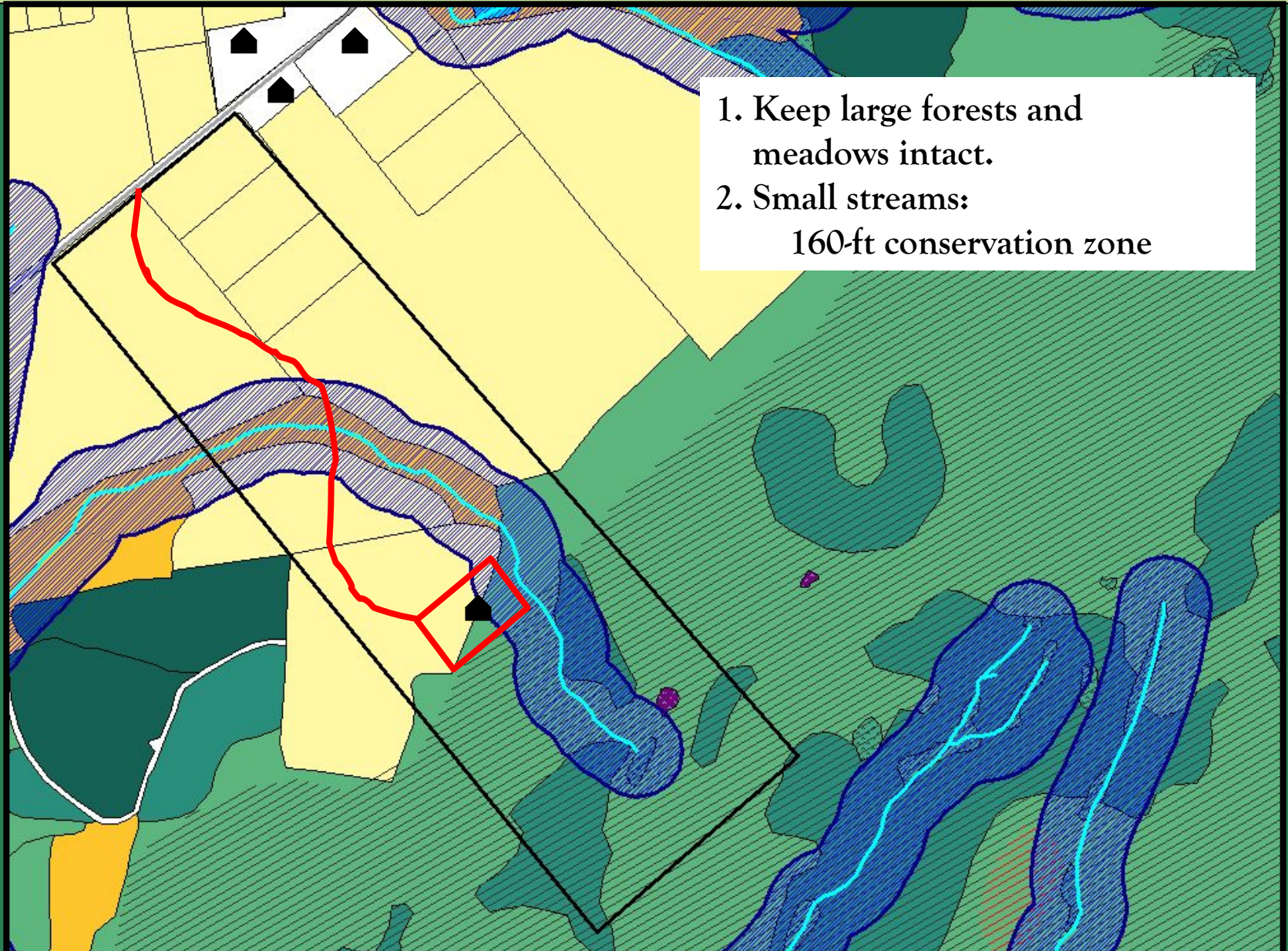


2. What are their conservation zones?



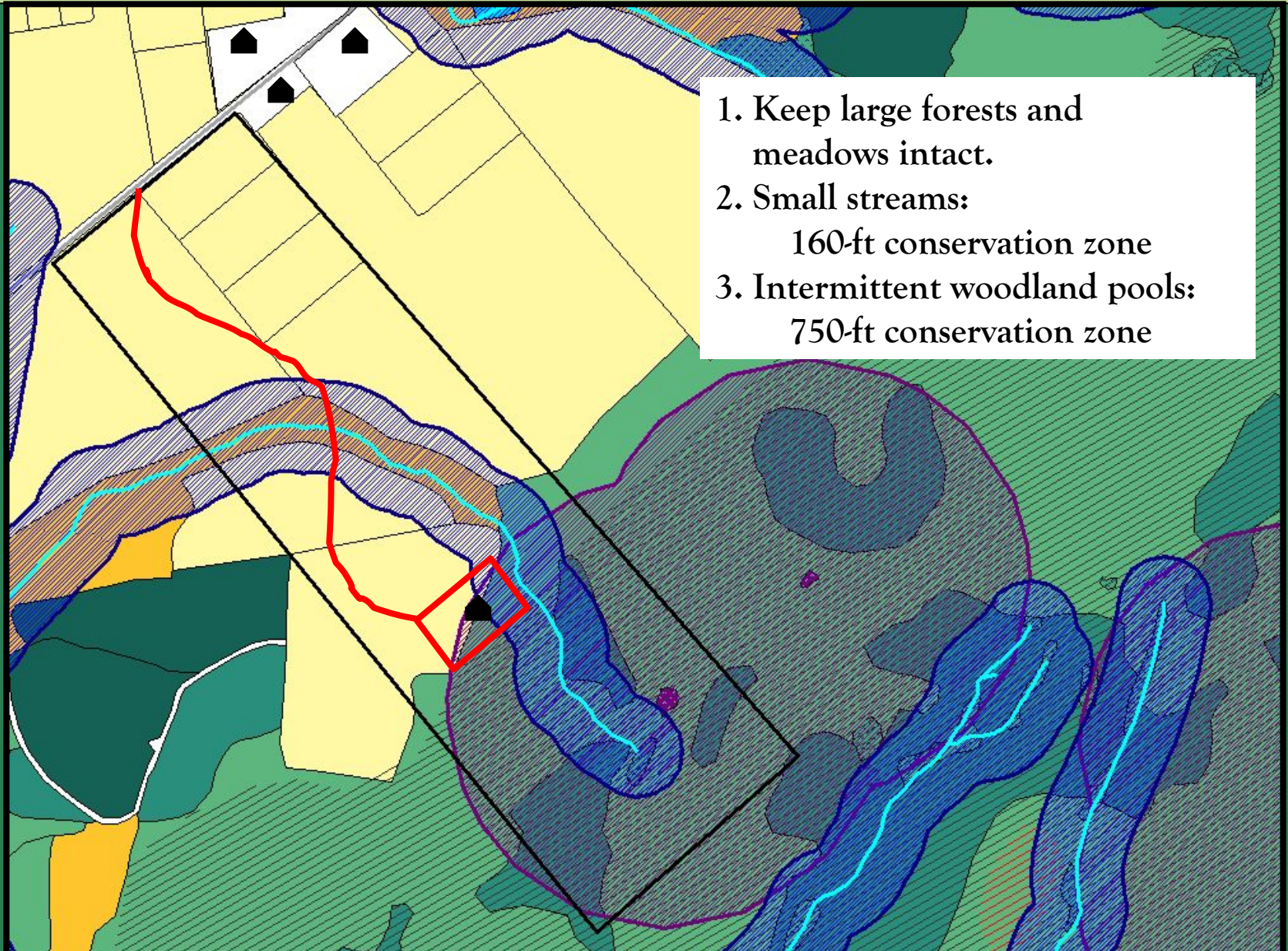
1. Keep large forests and meadows intact.

2. What are their conservation zones?



1. Keep large forests and meadows intact.
2. Small streams:
160-ft conservation zone

2. What are their conservation zones?



1. Keep large forests and meadows intact.
2. Small streams:
160-ft conservation zone
3. Intermittent woodland pools:
750-ft conservation zone

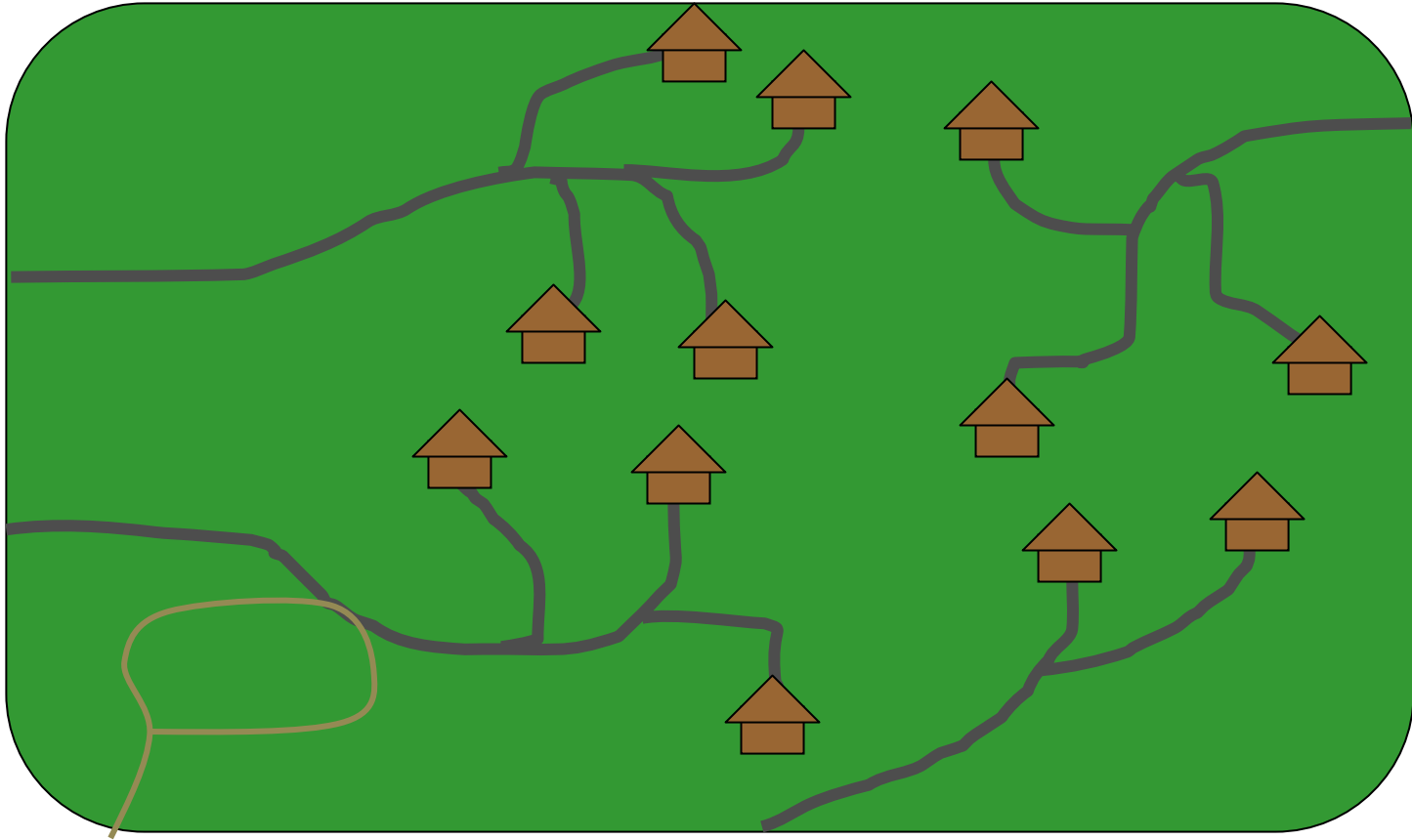
3. Can the proposal be modified?



3. Can the proposal be modified?



Cluster subdivision



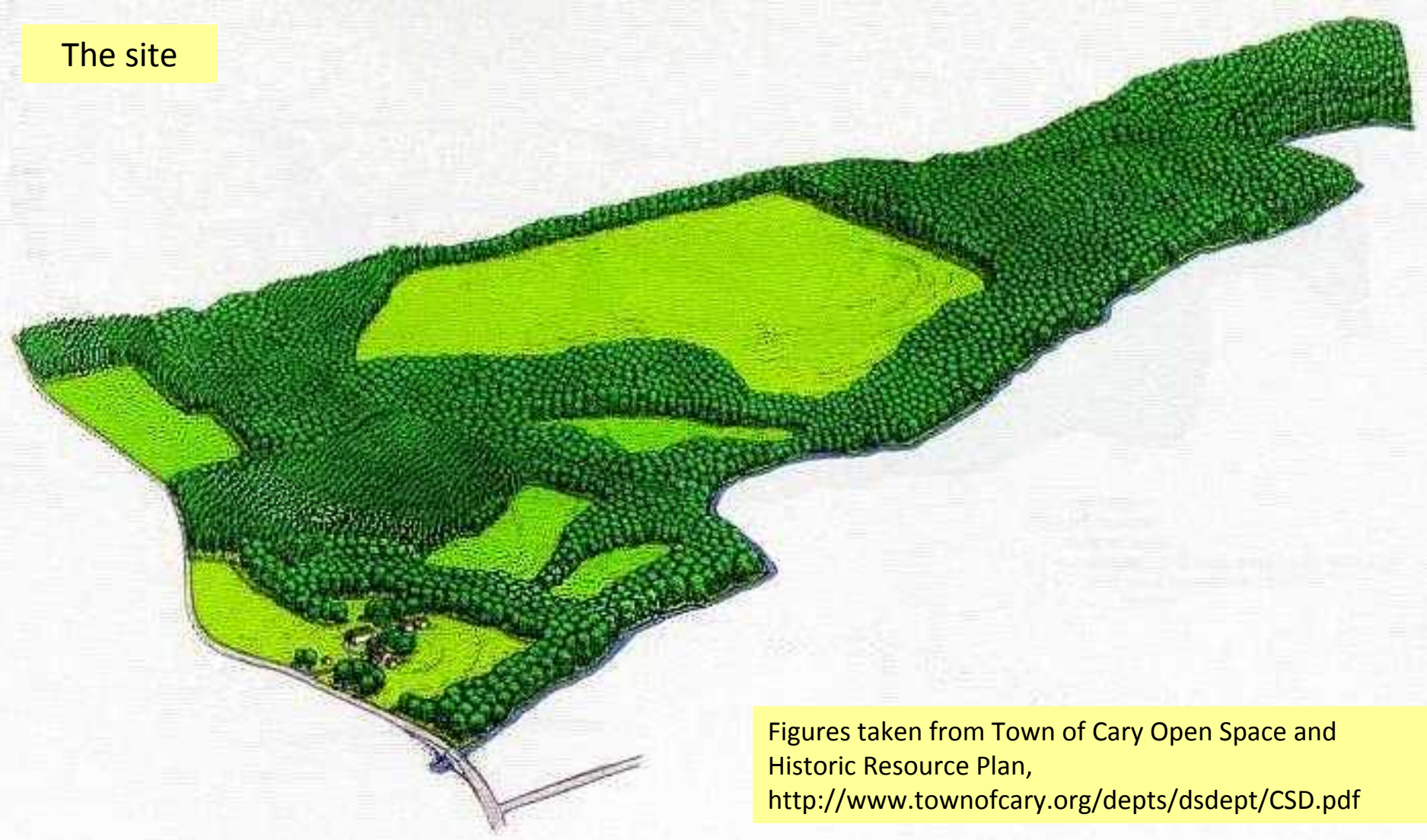
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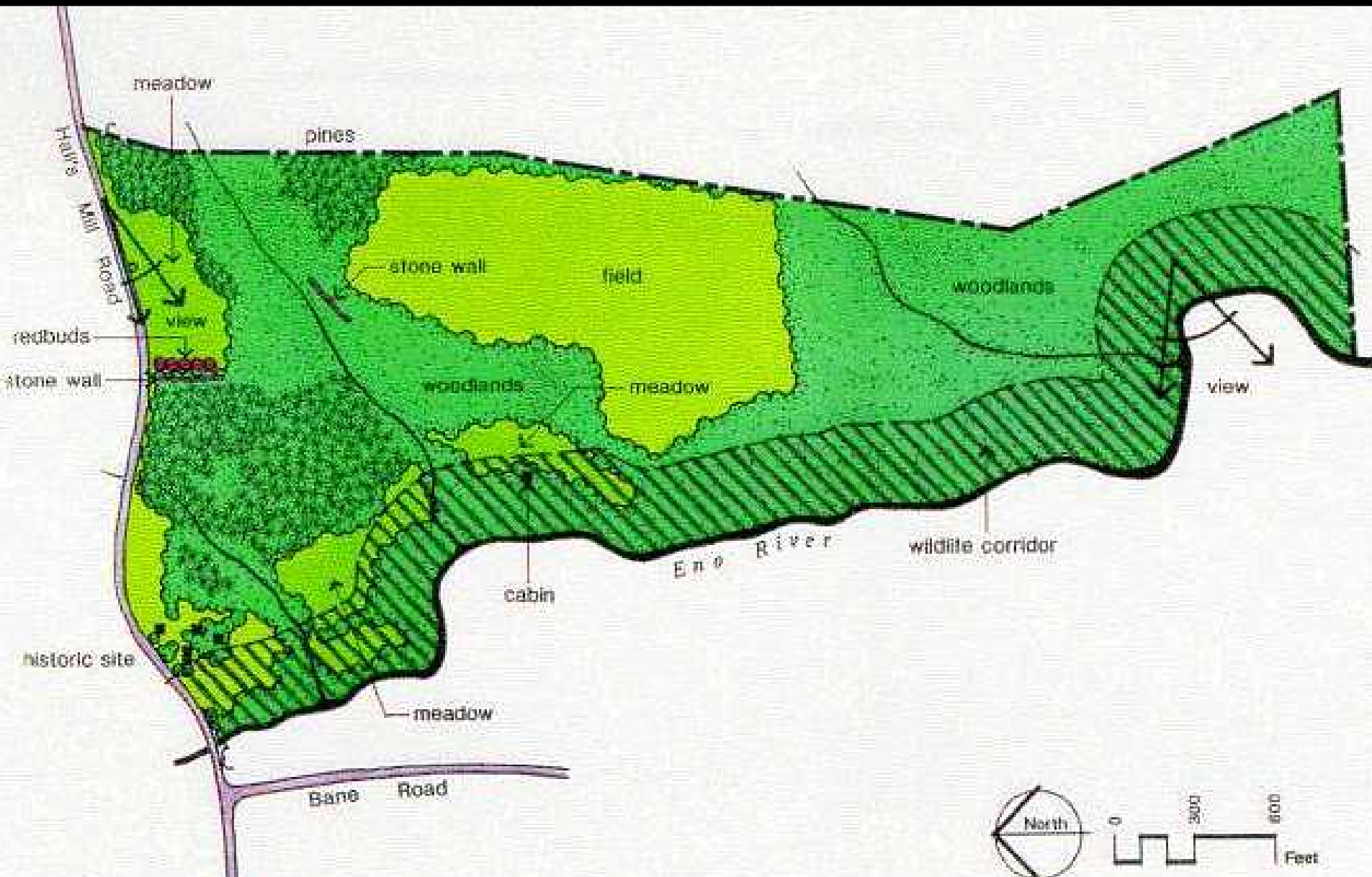
Subdivision- exercise

The site



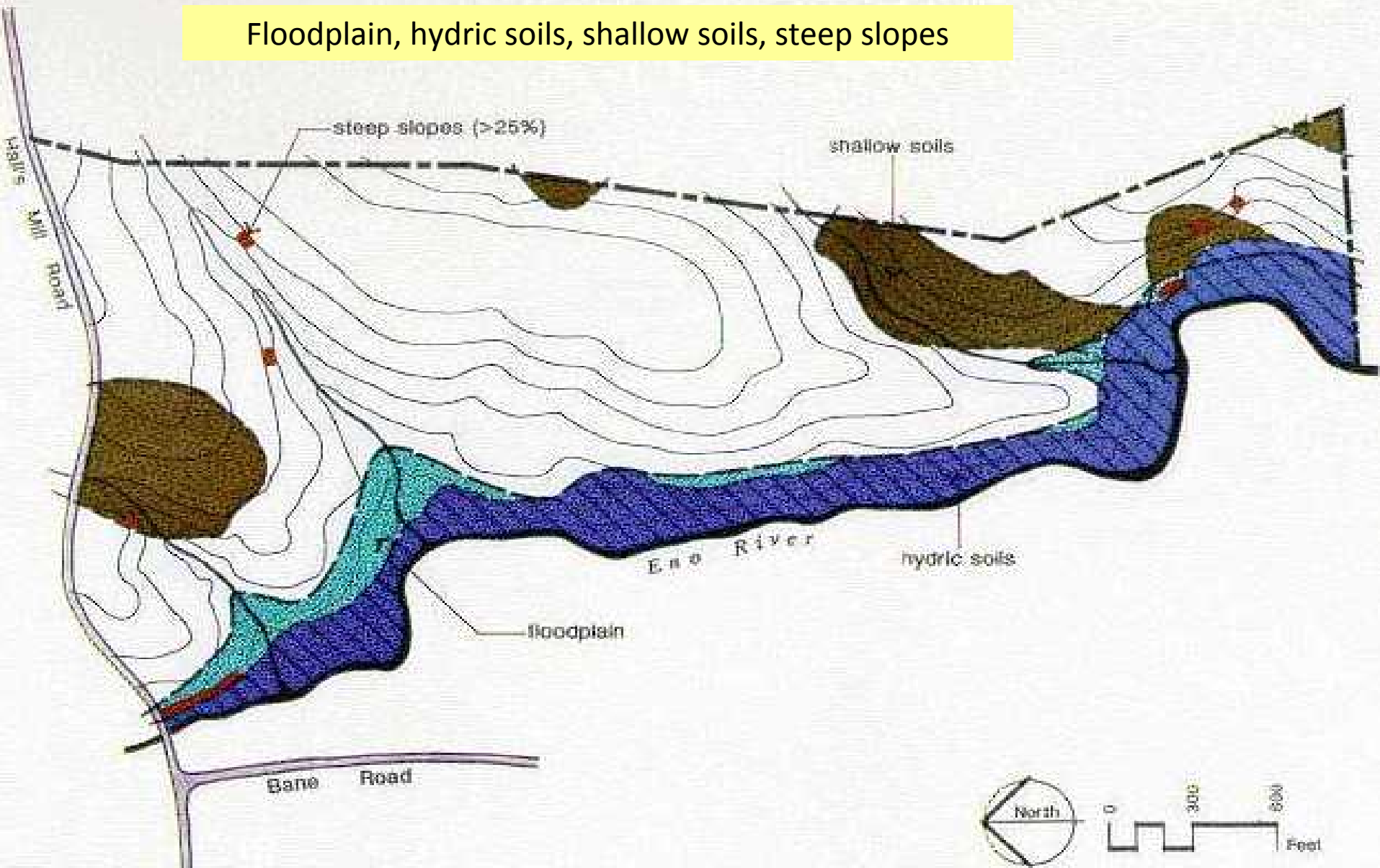
Figures taken from Town of Cary Open Space and
Historic Resource Plan,
<http://www.townofcary.org/depts/dsdept/CSD.pdf>

Vegetation and cultural resources



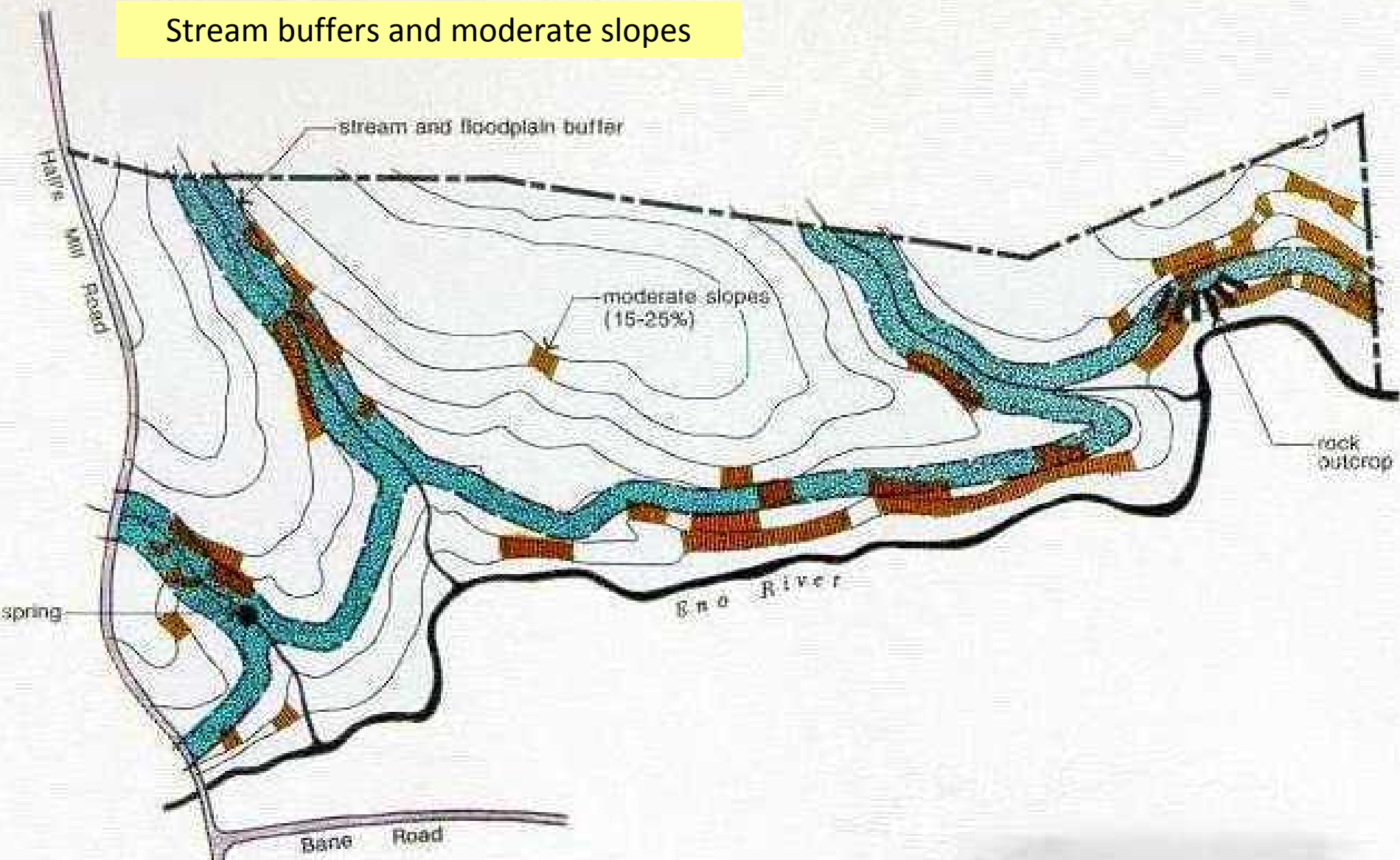
Natural constraints

Floodplain, hydric soils, shallow soils, steep slopes

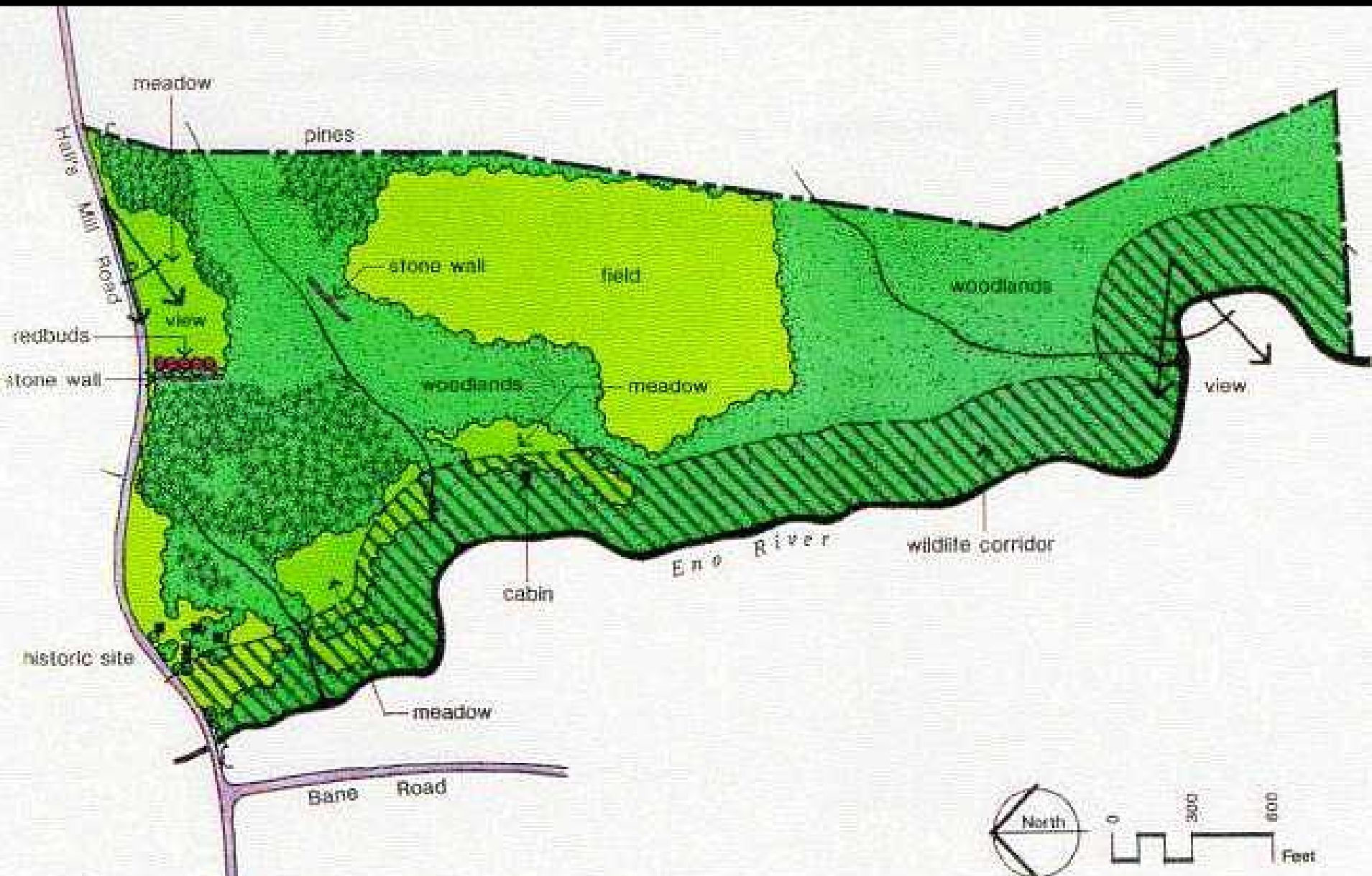


Natural constraints

Stream buffers and moderate slopes



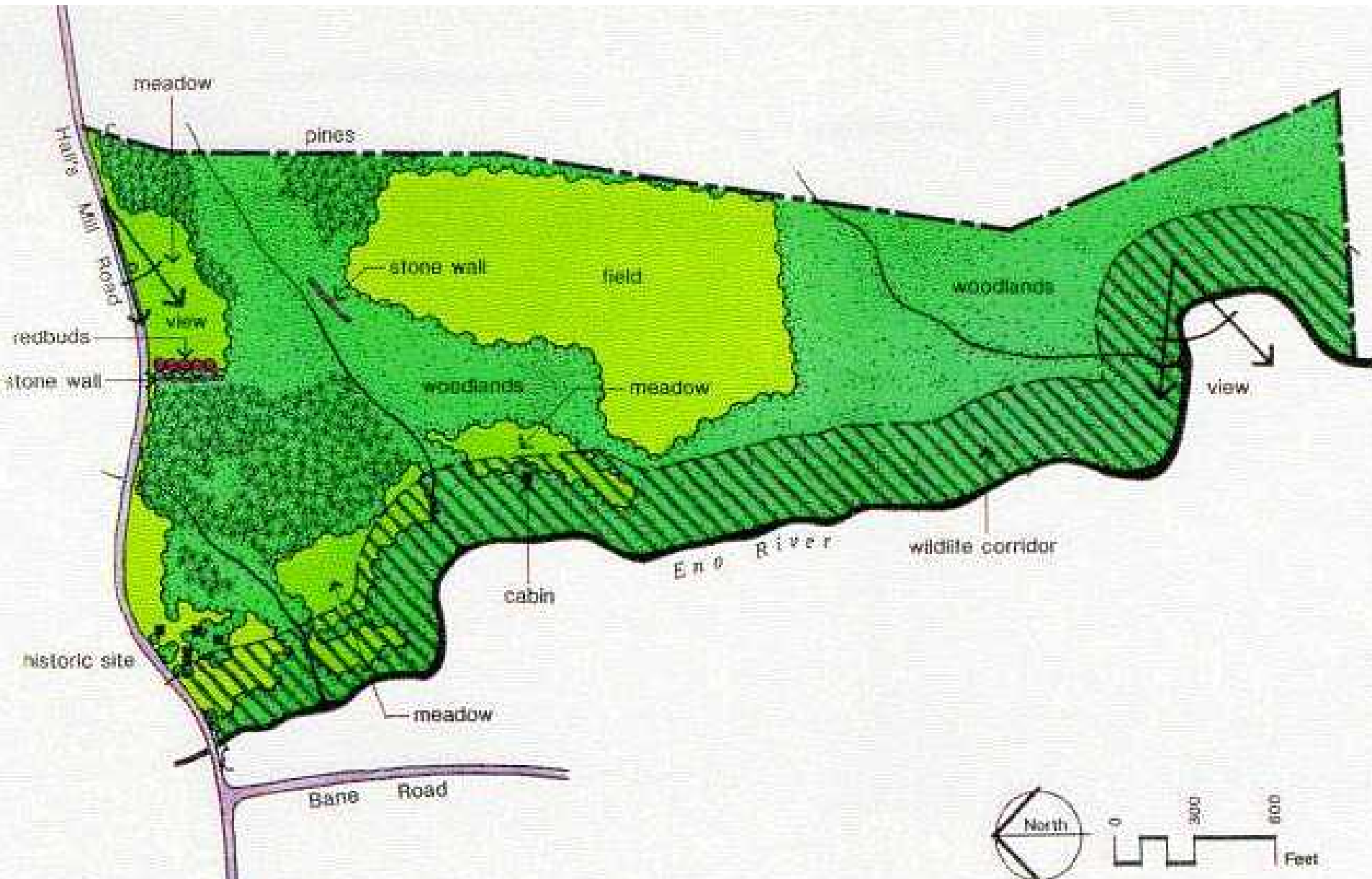
Vegetation and cultural resources



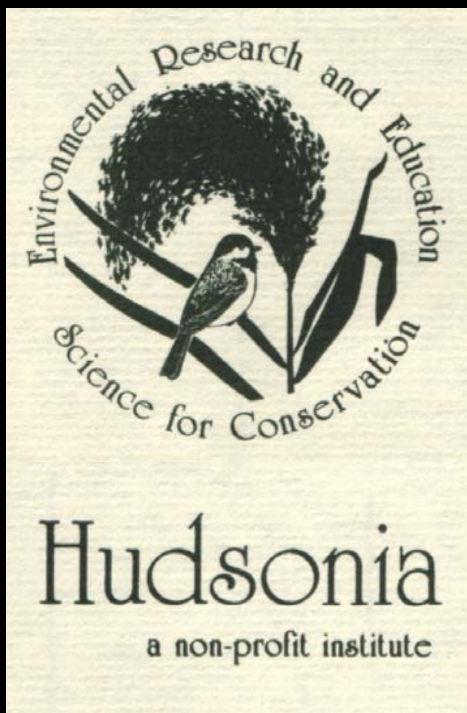
Conventional subdivision



Vegetation, wildlife, cultural resources



<http://www.co.ulster.ny.us/planning/open.html>



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