

# Where the Wild Things Aren't

*Expanding Ecological Representation  
in the Northeast*

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*GIS Consultant*



**Wildlands  
Woodlands  
Farmlands &  
Communities**

NORTHEAST







**WILDERNESS  
TRUST**

In collaboration with



# Outline:

-  Introduction and definitions
-  Vermont as a Case Study
-  Results, the tool, and feedback
-  Q & A

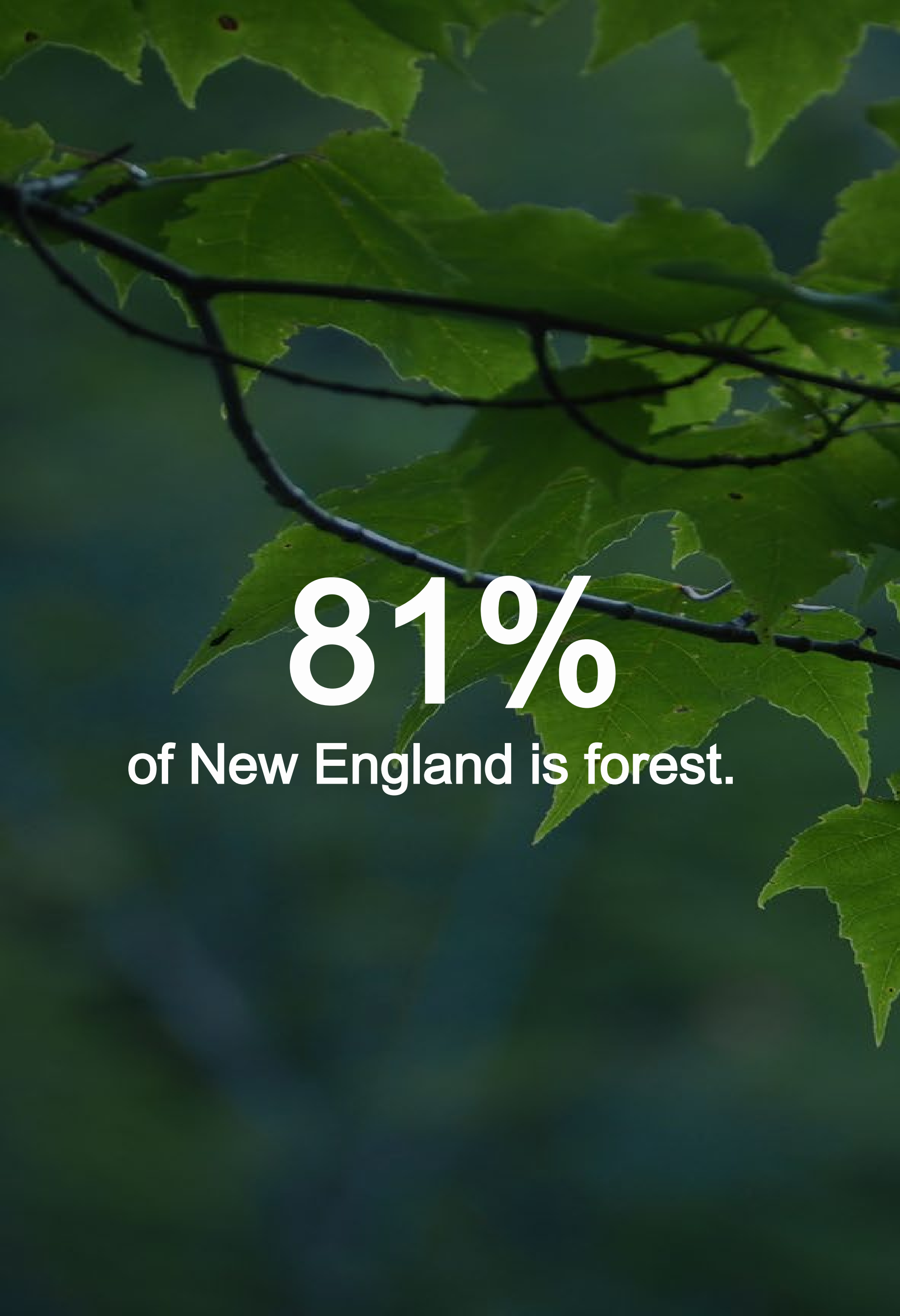
# What are Wildlands?

Wildlands are tracts of any size and current condition, permanently protected from development, in which management is explicitly intended to allow natural processes to prevail with “free will” and minimal human interference. Humans have been part of nature for millennia and can coexist within and with Wildlands without intentionally altering their structure, composition, or function.

Definition from *Wildlands in New England (2023)*

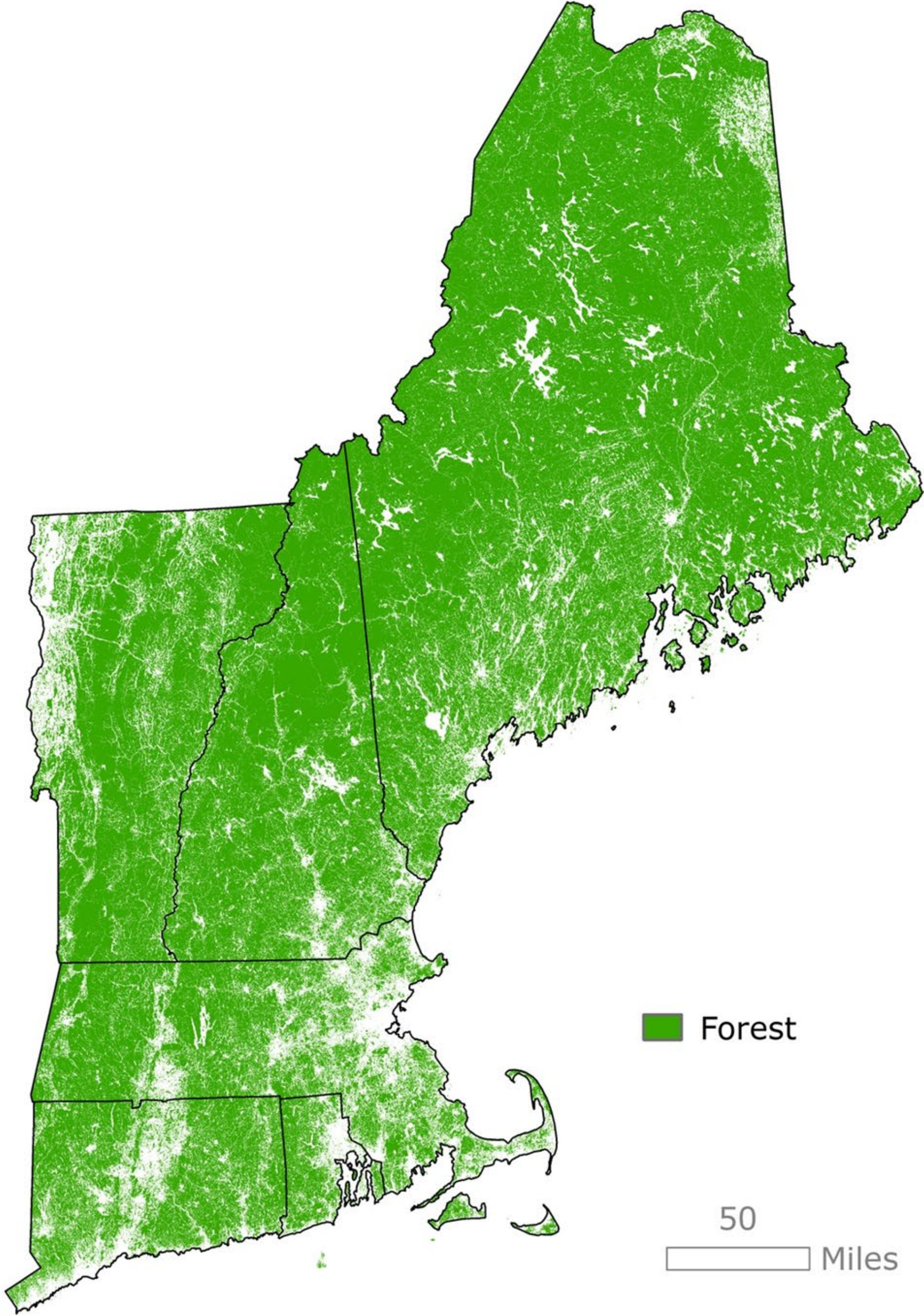
*Wildlands in New England*  
*Past, Present, and Future*

Wildlands  
Woodlands  
Farmlands &  
Communities  
An Integrated Conservation Initiative

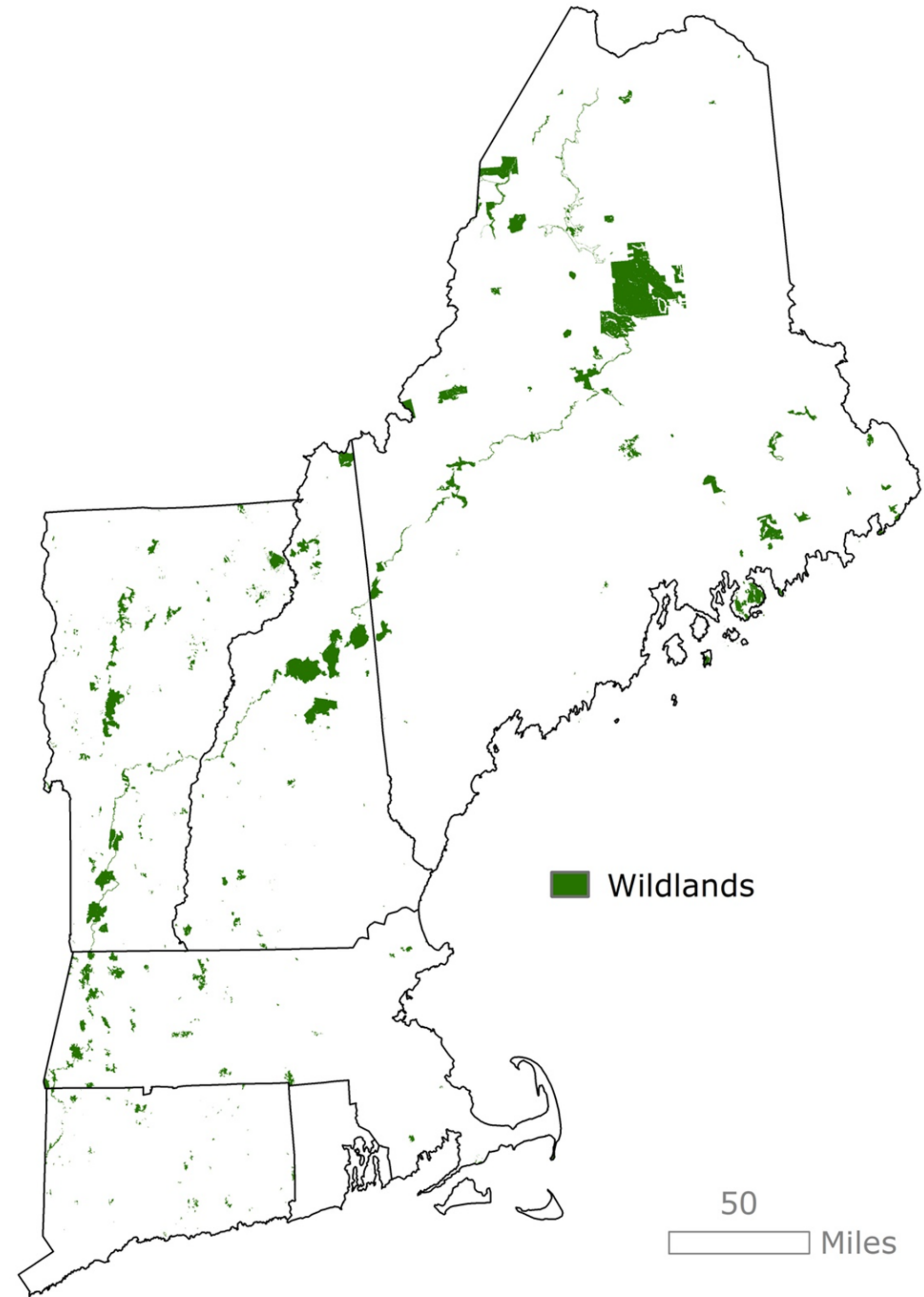


81%

of New England is forest.



**3.3%**  
is Wildlands.



# Wildlands vs. Old Forests



# Wildlands vs. Old Forests

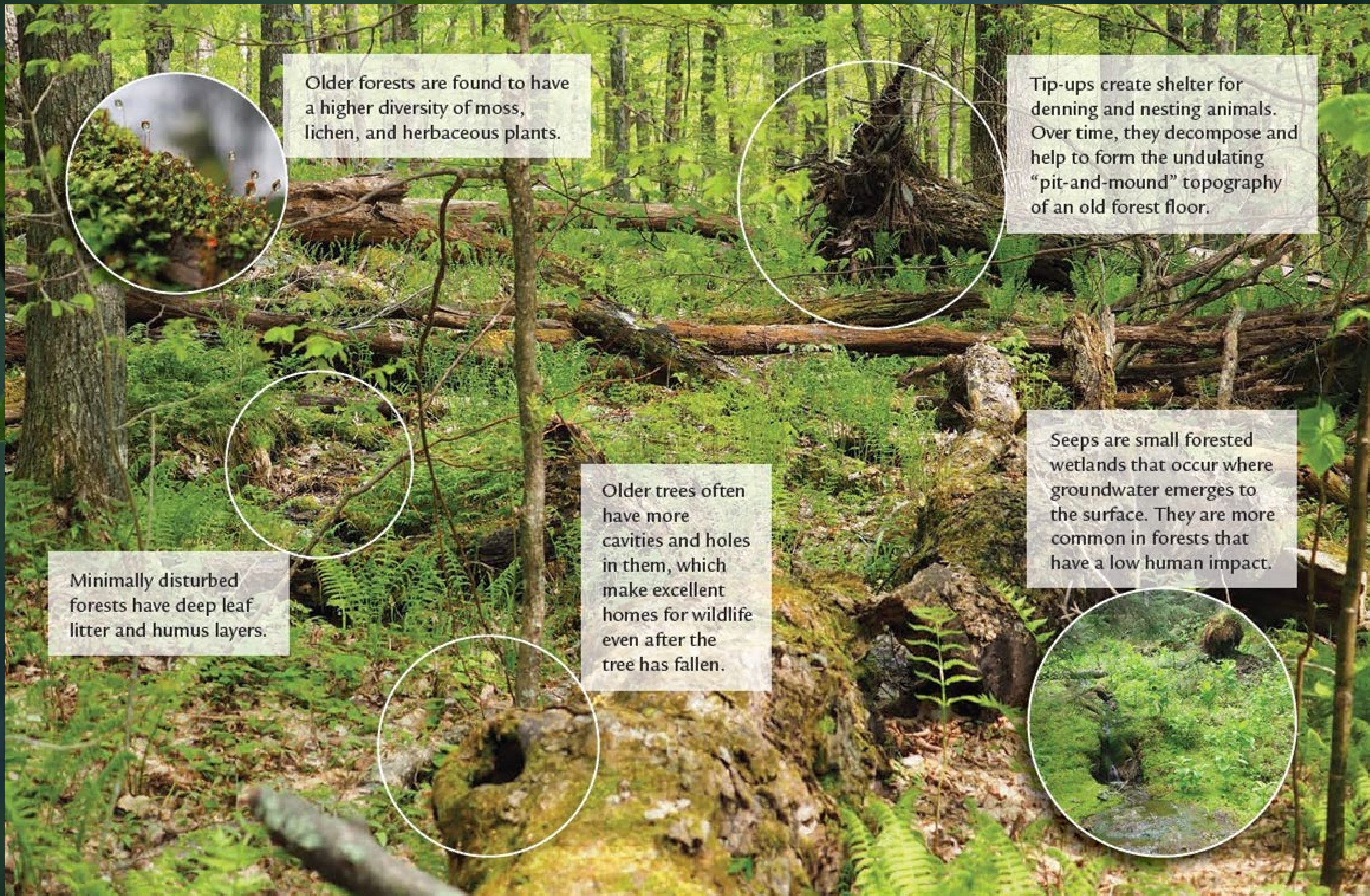
3.7%

Of VT is  
protected as  
Wildlands.



<0.5%

Of VT has the  
characteristics  
of old forest



Older forests are found to have a higher diversity of moss, lichen, and herbaceous plants.



Tip-ups create shelter for denning and nesting animals. Over time, they decompose and help to form the undulating "pit-and-mound" topography of an old forest floor.



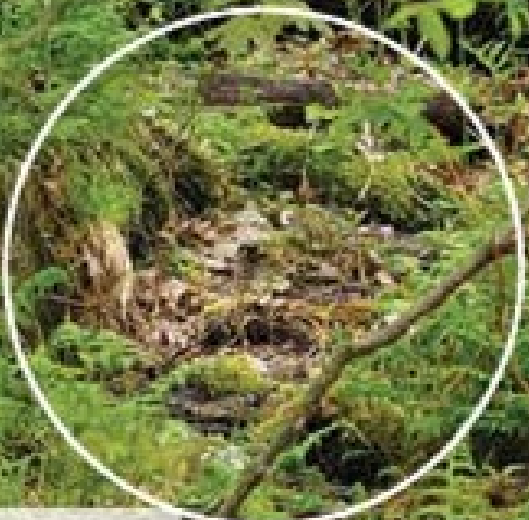
Seeps are small forested wetlands that occur where groundwater emerges to the surface. They are more common in forests that have a low human impact.

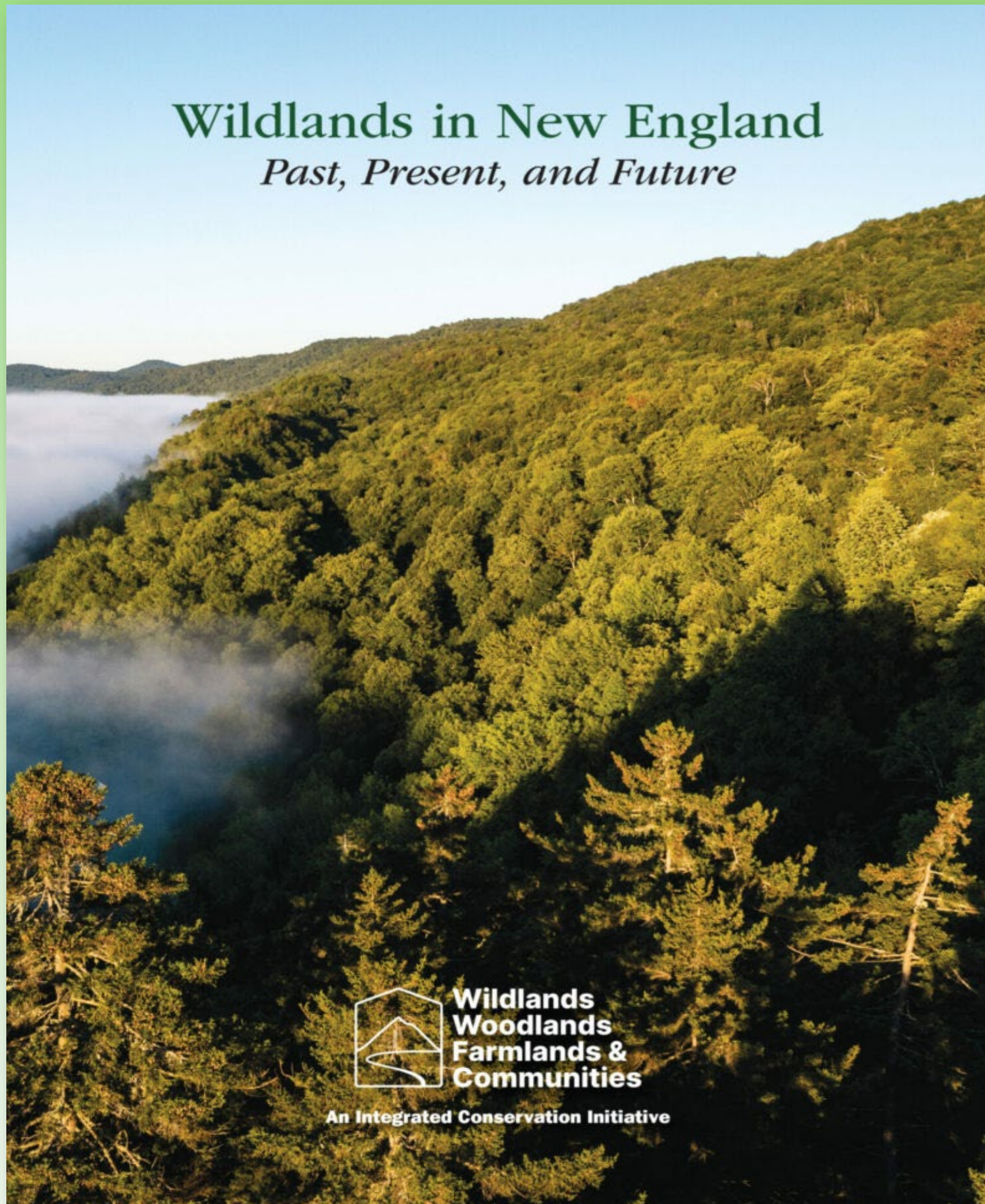


Older trees often have more cavities and holes in them, which make excellent homes for wildlife even after the tree has fallen.



Minimally disturbed forests have deep leaf litter and humus layers.





## **Wildlands In New England Recommended:**

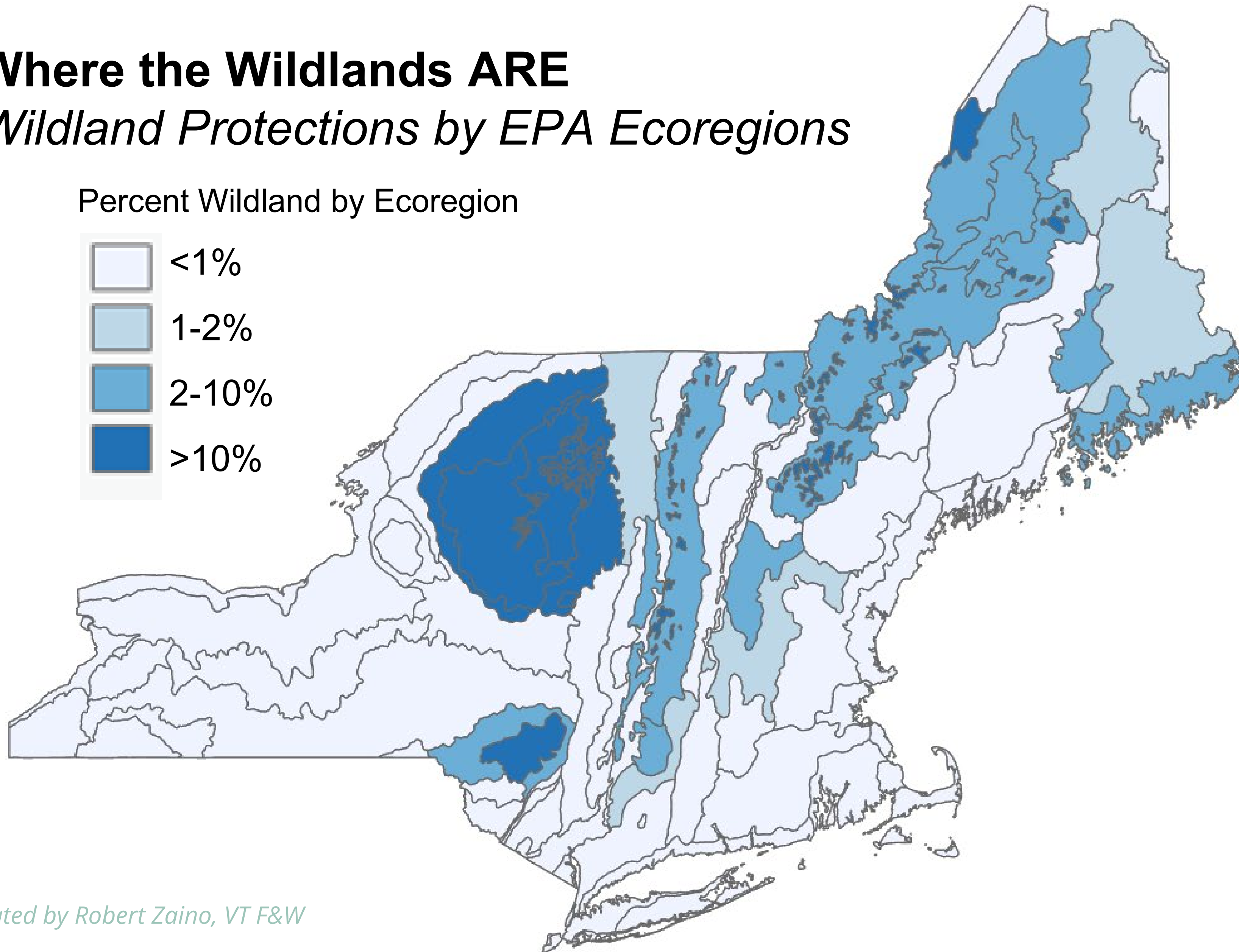
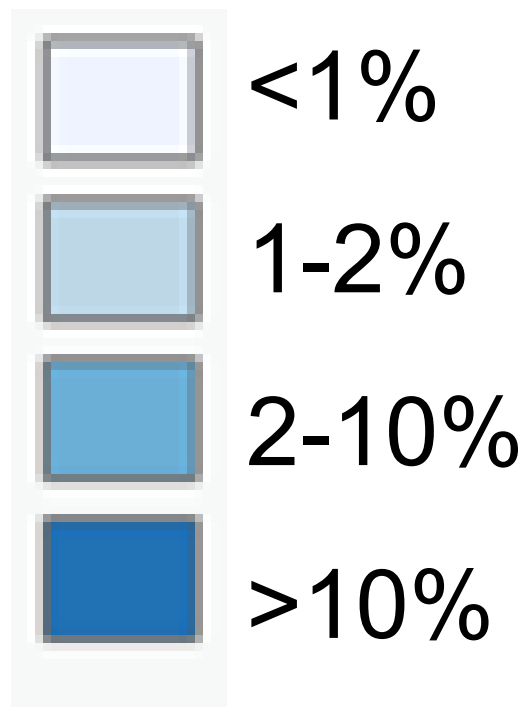
**“Establish many more and larger Wildlands in a regionally connected network that secures the full diversity of nature.”**

**Distribute Wildlands in all biophysical regions and all geophysical settings—appropriately sized, connected, and buffered by protected lands to provide their full ecological function.”**

# Where the Wildlands ARE

## *Wildland Protections by EPA Ecoregions*

Percent Wildland by Ecoregion



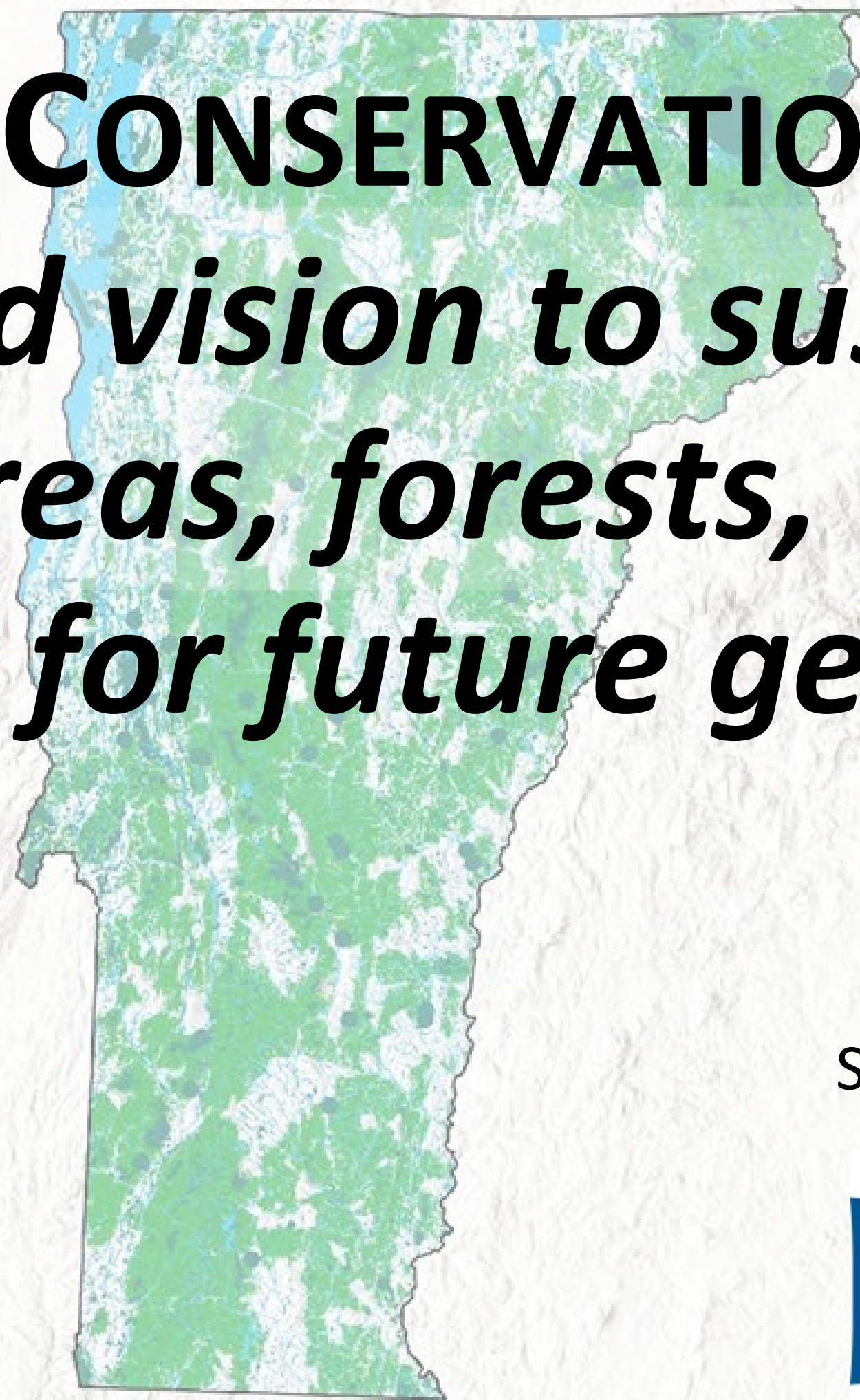
Map created by Robert Zaino, VT F&W

# Goals for Ecological Representation in Wildlands

Building on the recommendations in *Wildlands in New England*:

- ***Protect at least 10 percent of the natural land in every ecoregion as Wildland.***
- ***Represent each ecoregion's natural communities in Wildlands.***
- ***Establish Wildlands, when feasible, in large and connected natural lands.***

**VERMONT CONSERVATION DESIGN**  
*is a science-based vision to sustain the state's  
valued natural areas, forests, waters, wildlife,  
and plants for future generations*



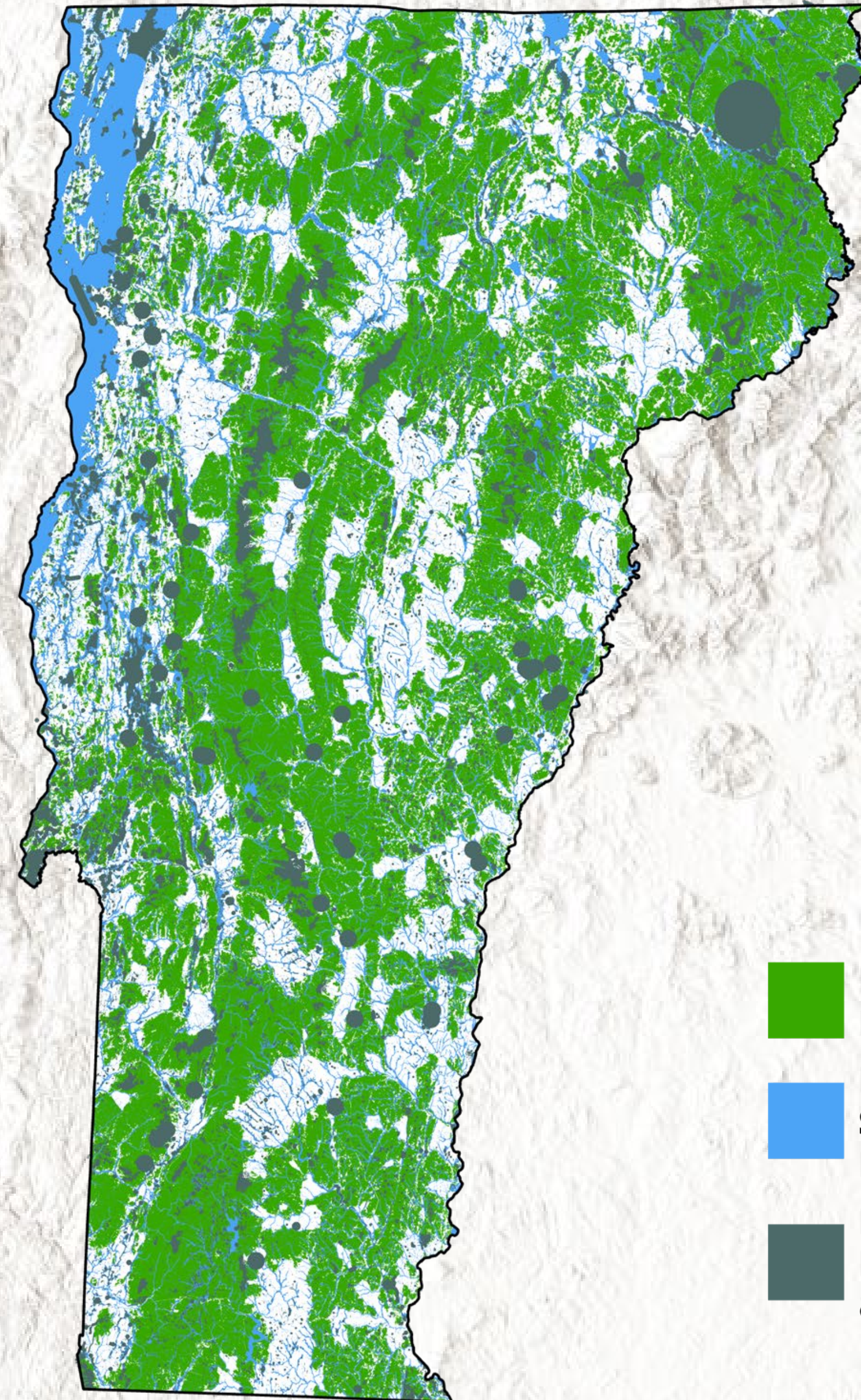
See VCD on



<https://anrmaps.vermont.gov/websites/BioFinder4/>

# AN ECOLOGICALLY FUNCTIONAL LANDSCAPE IS...

- *Intact*
- *Connected*
- *Diverse*



-  Highest Priority Landscape Blocks
-  Highest Priority Surface Waters & Riparian Areas
-  Highest Priority Natural Community & Habitat Features

# Young and Old Forest Targets

- 3-5% young forest
- ≈10% old forest

*Distributed across Vermont  
and proportional to matrix  
forest types*

*Conservation vision –  
not a mandate*

*In most cases, old forests  
can develop under passive  
management*

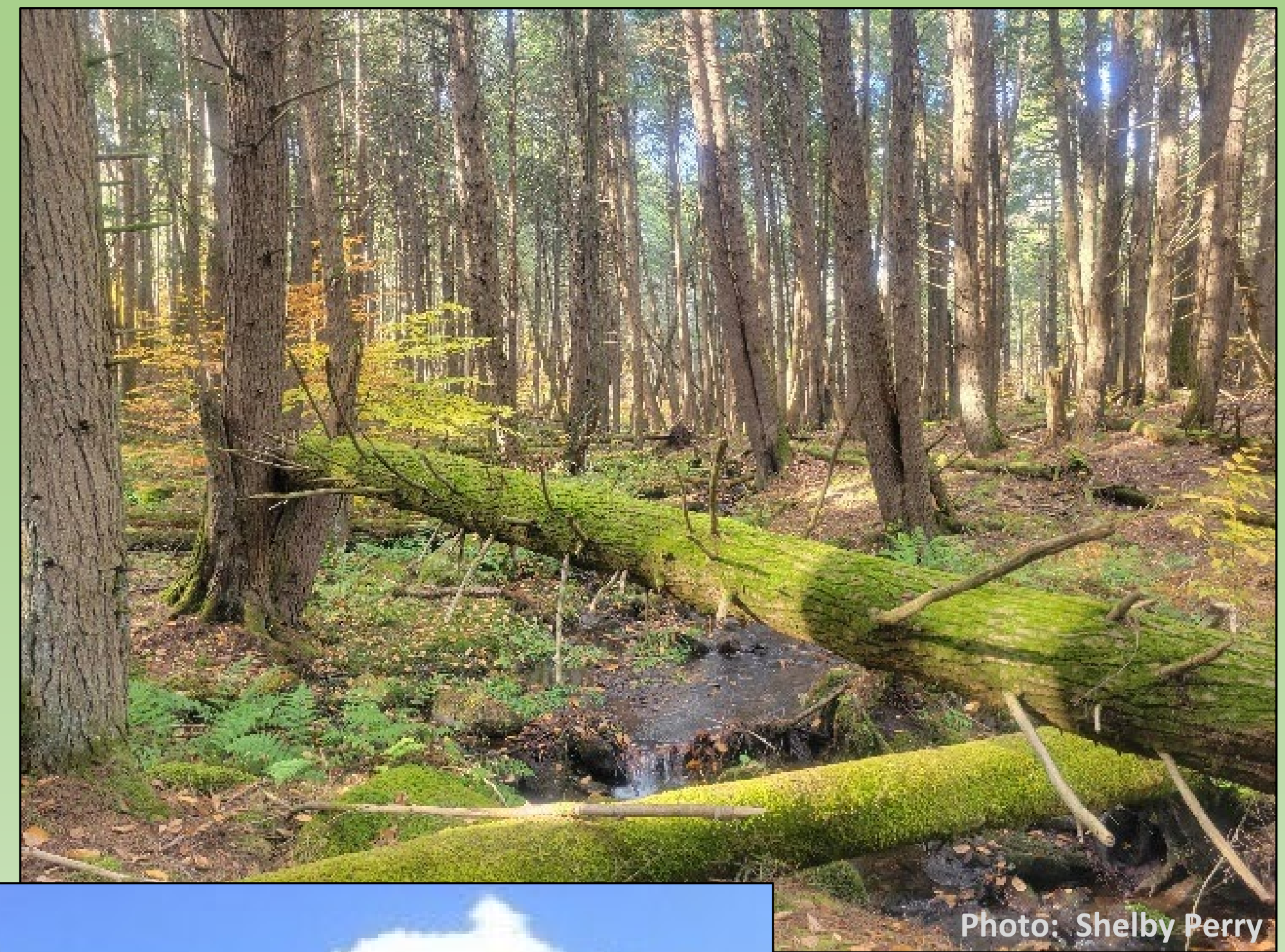
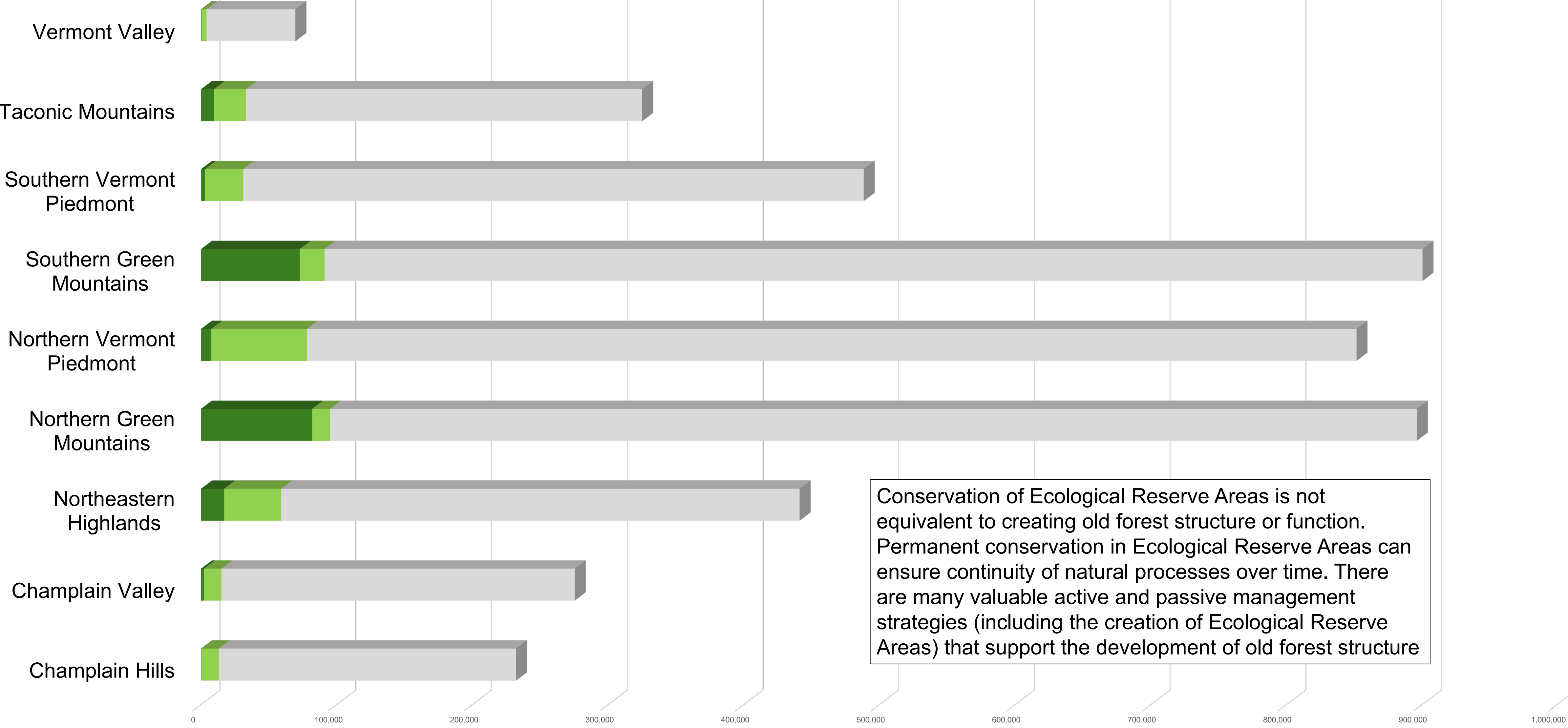


Photo: Shelby Perry



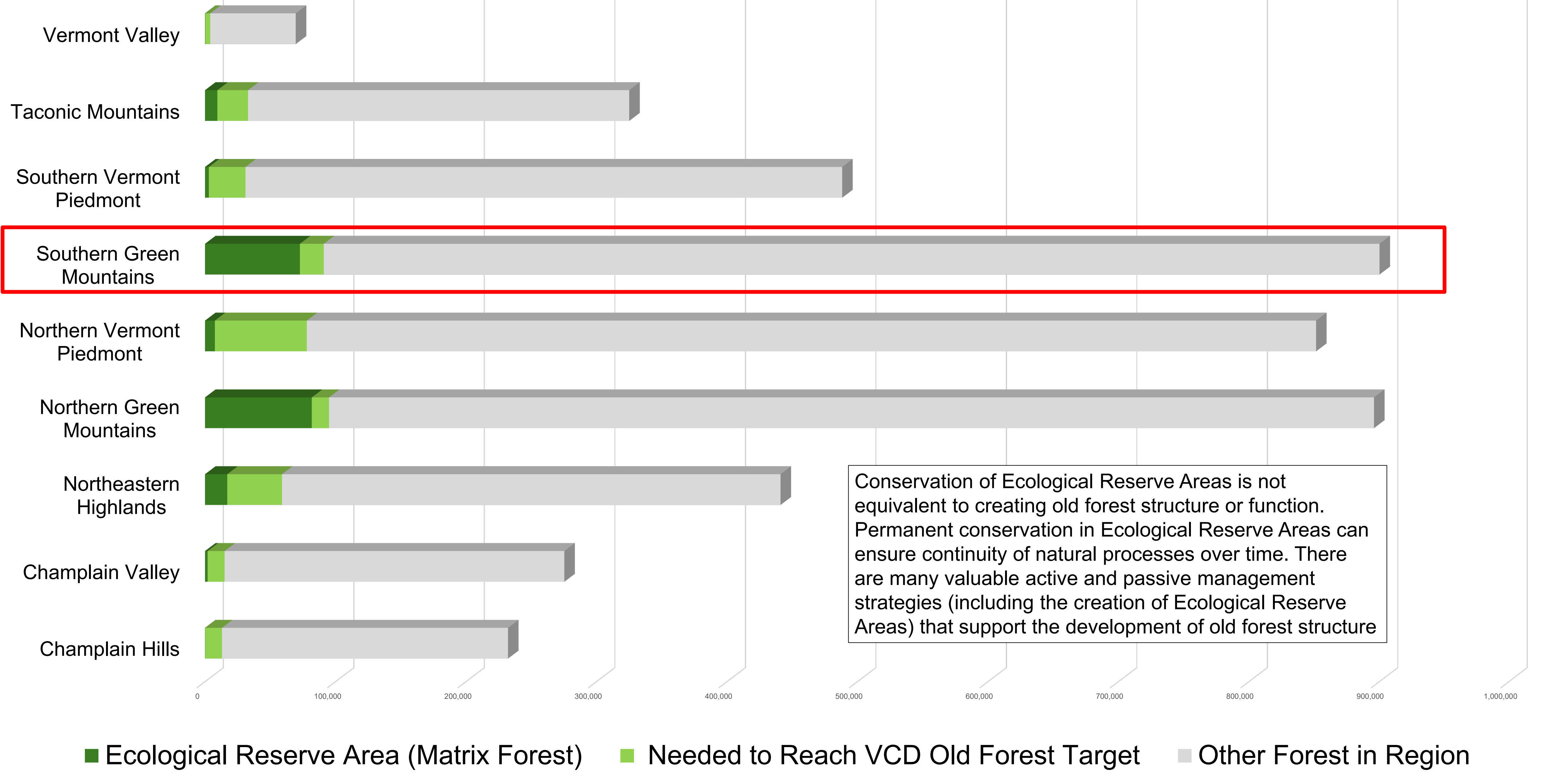
# Spatial Contribution of Ecological Reserves to Permanently Protecting Future Old Forest



Conservation of Ecological Reserve Areas is not equivalent to creating old forest structure or function. Permanent conservation in Ecological Reserve Areas can ensure continuity of natural processes over time. There are many valuable active and passive management strategies (including the creation of Ecological Reserve Areas) that support the development of old forest structure

■ Ecological Reserve Area (Matrix Forest)
 ■ Needed to Reach VCD Old Forest Target
 ■ Other Forest in Region

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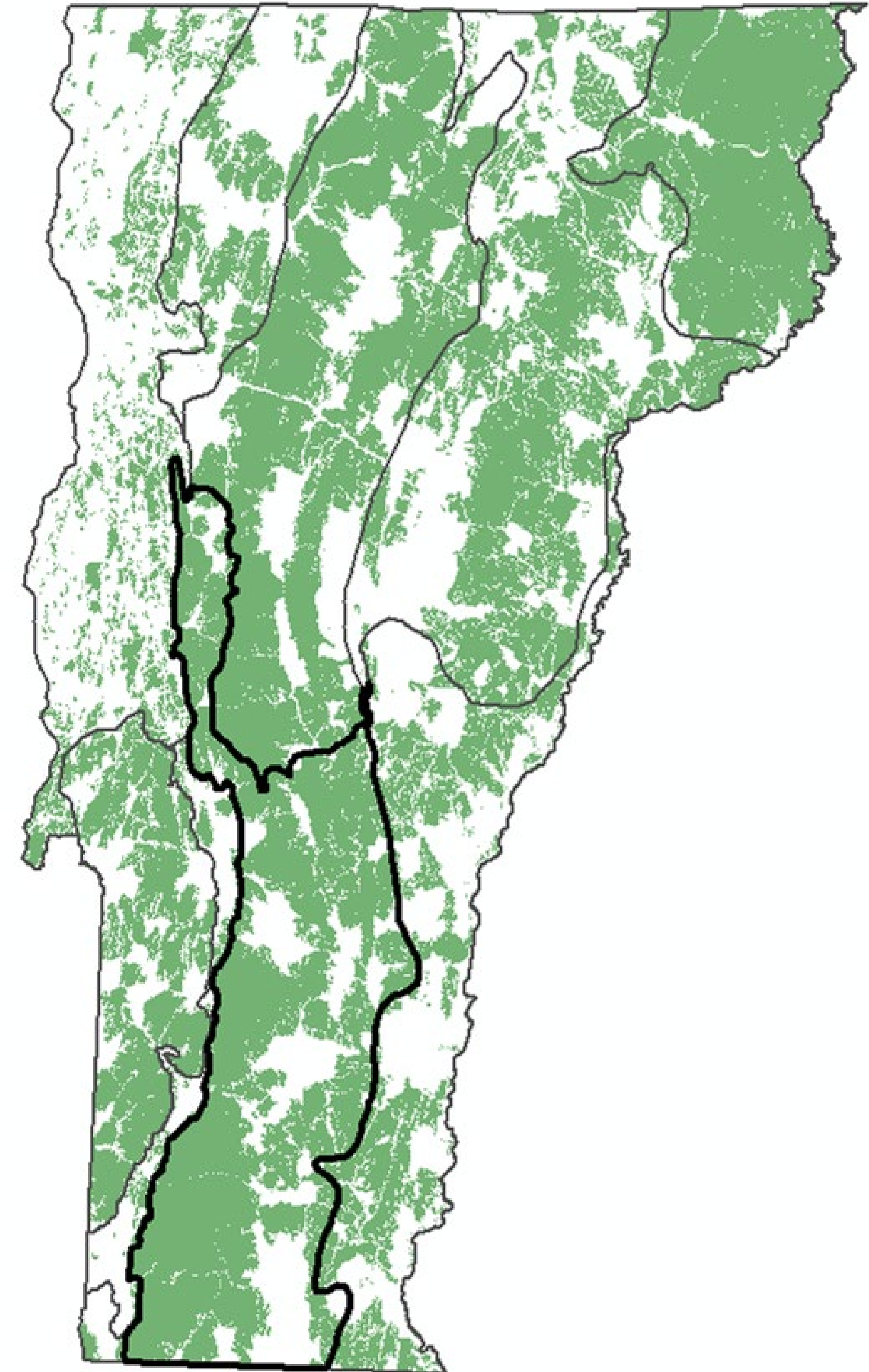
# Southern Green Mountains

## Vermont Conservation Design

old forest target: 91,000 acres

Acres of Wildlands: 87,780 acres (96%)

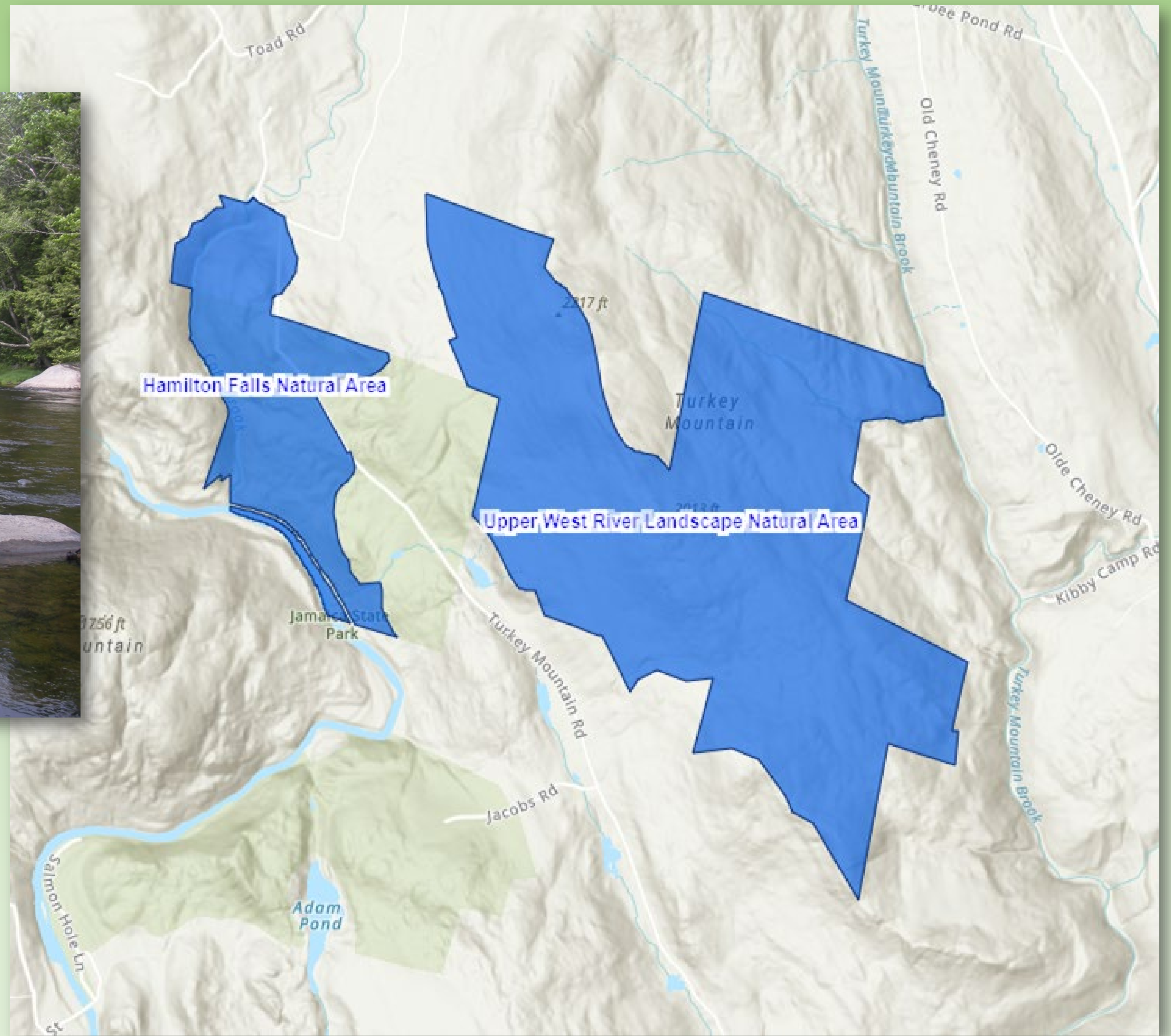
*Preferred minimum patch size: 4,000 acres*





Bourne Pond, Lye Brook Wilderness (18,000 acres), Green Mountain National Forest

Photo: Scott Wixsom



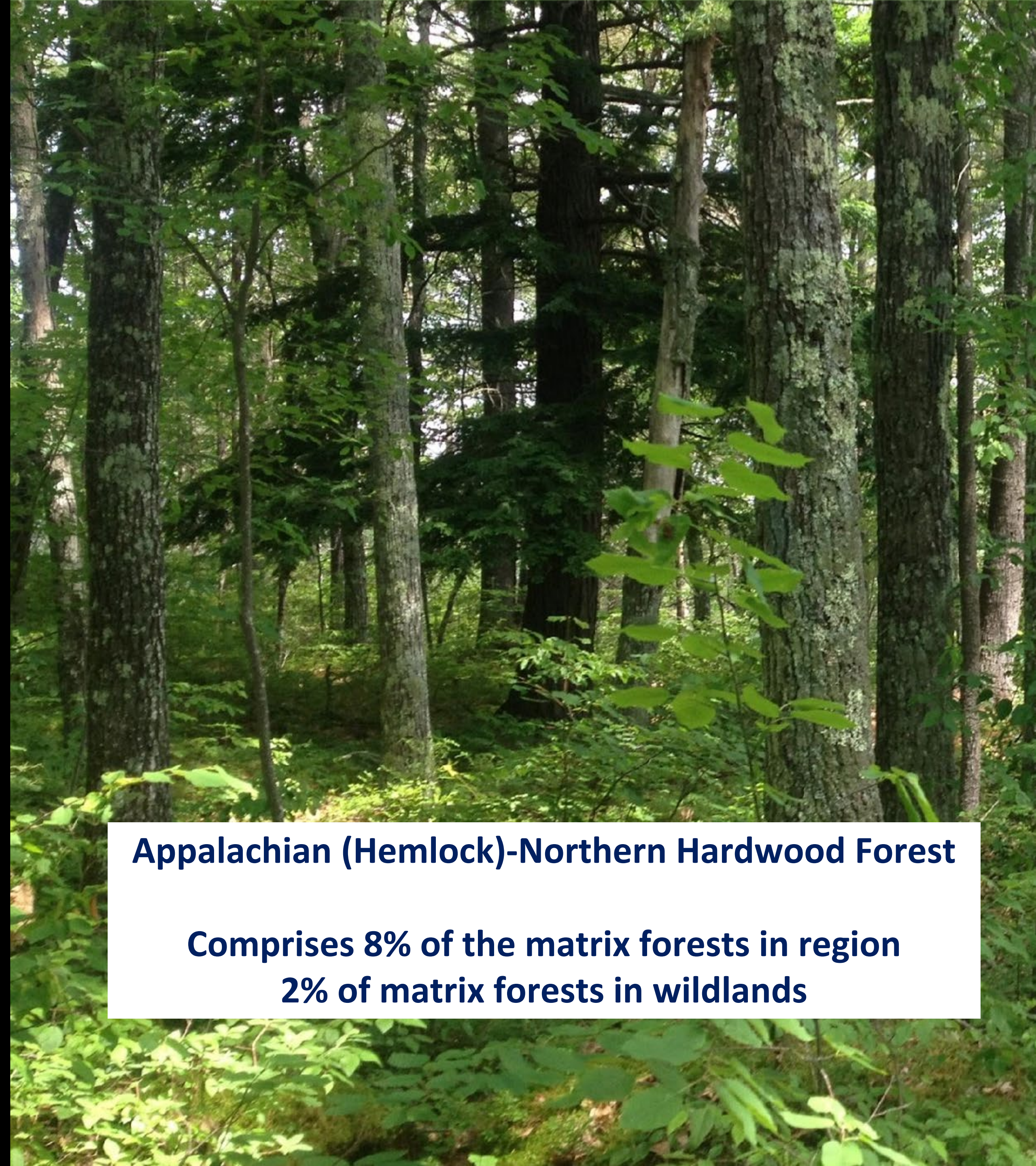
# Representation of Matrix Forest Types – Southern Green Mountains Wildlands





**Acadian-Appalachian Montane Spruce-Fir Forest**

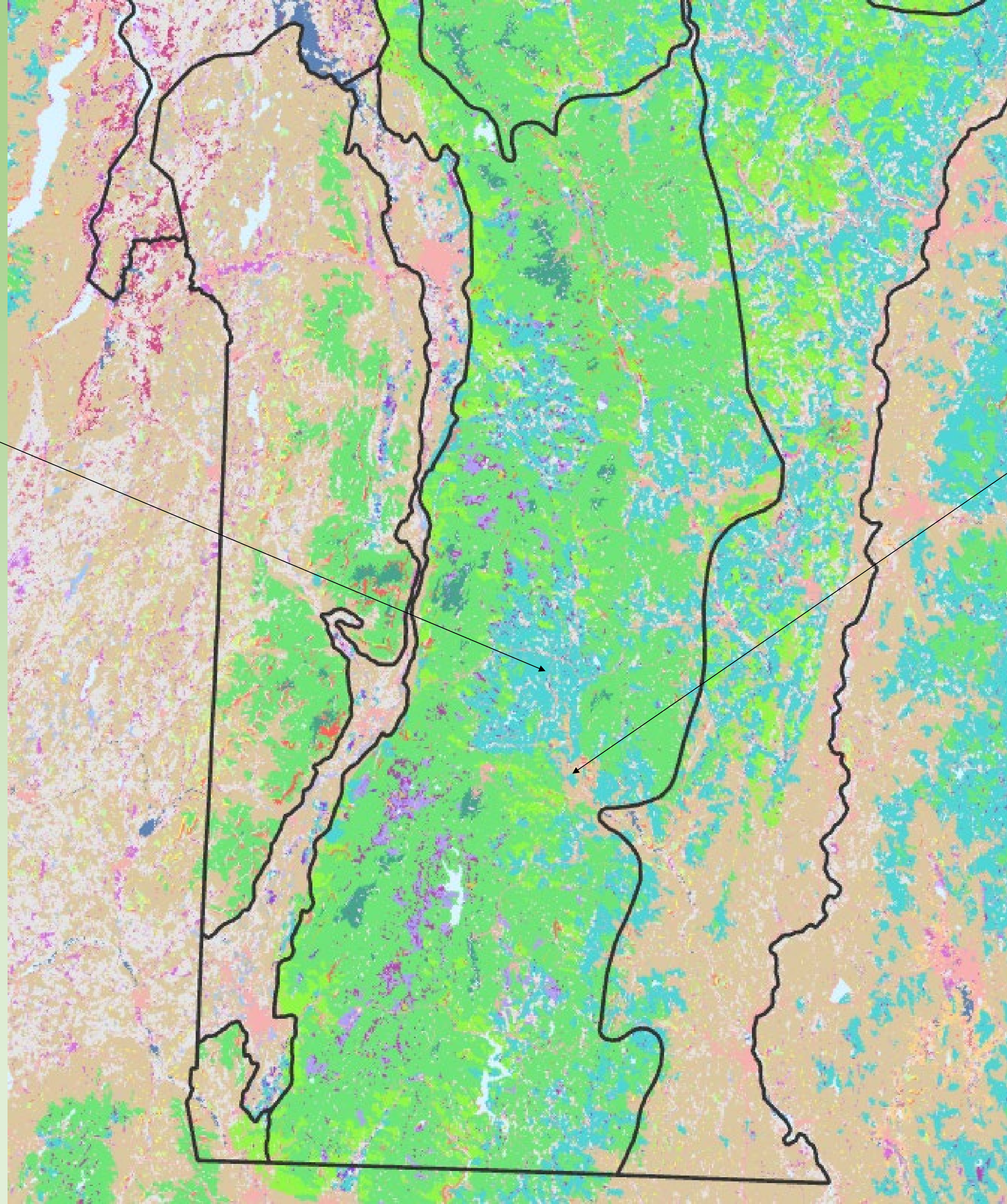
**Comprises 1% of the matrix forests in region  
10% of matrix forest in wildlands**



**Appalachian (Hemlock)-Northern Hardwood Forest**

**Comprises 8% of the matrix forests in region  
2% of matrix forests in wildlands**

**Laurentian-Acadian Pine-  
Hemlock-Hardwood Forest  
(blue-green)**



**Appalachian  
(Hemlock)-Northern  
Hardwood Forest  
(brown-pink)**

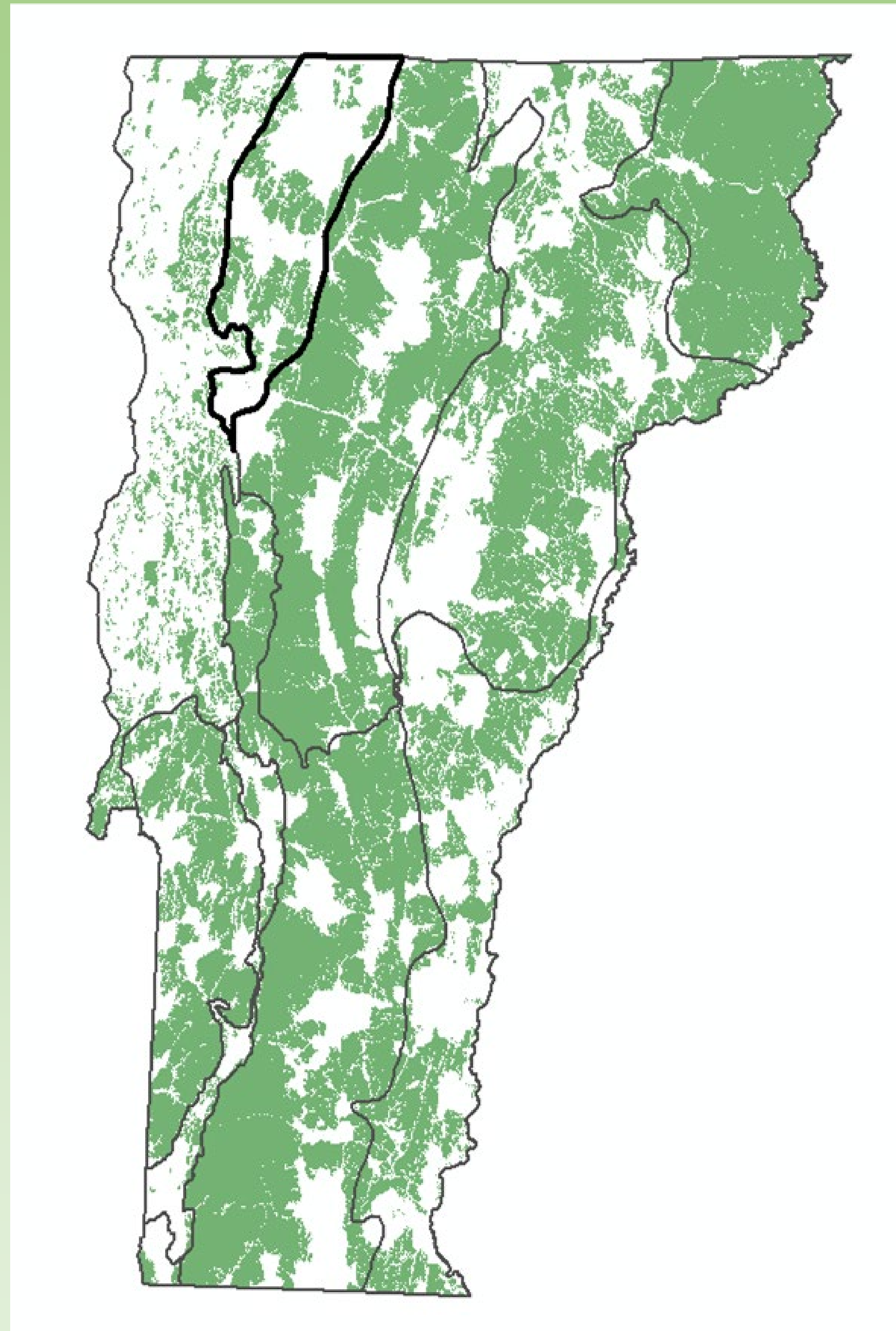
# Champlain Hills

## Vermont Conservation Design

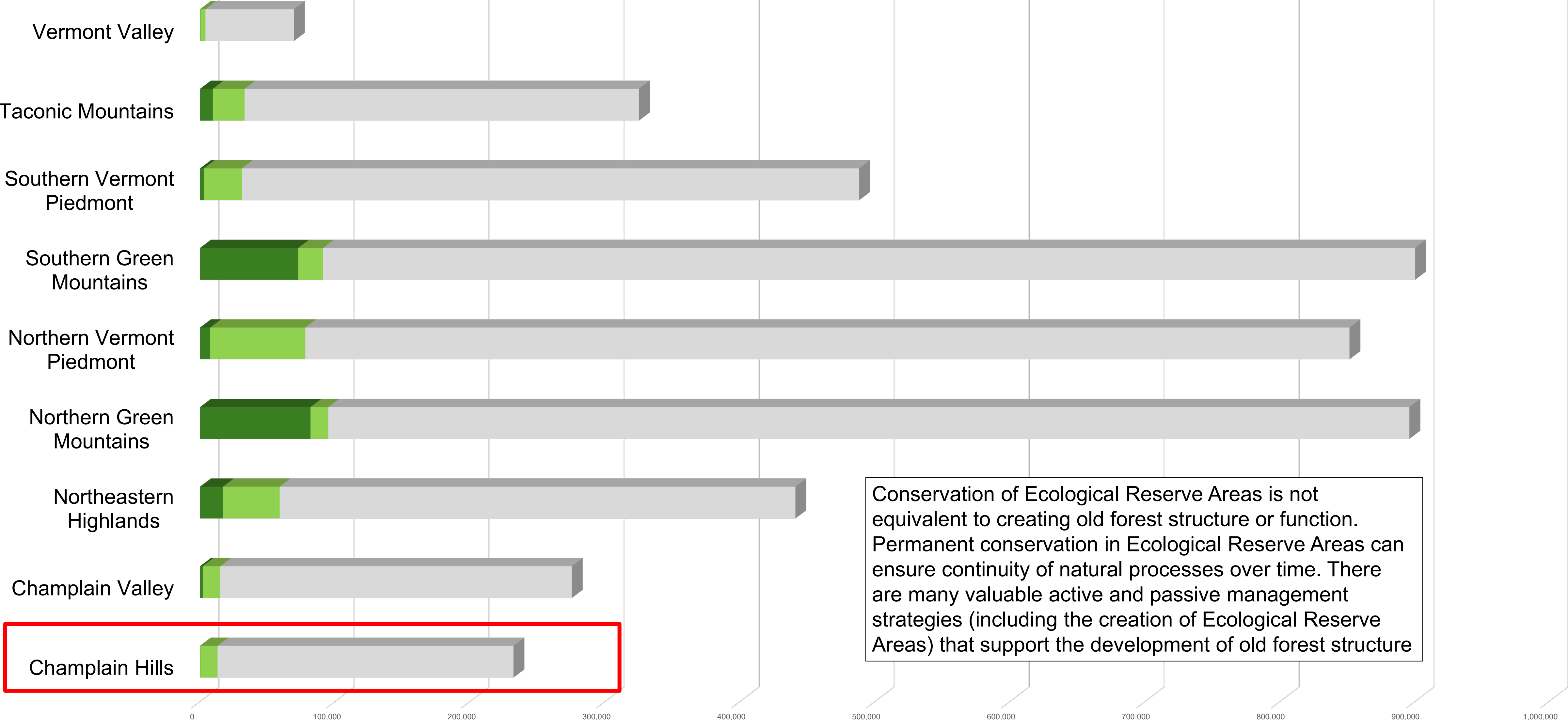
old forest target: 13,000 acres

Acres of Wildlands: 184 (1.4%)

*Preferred minimum patch size: 1,000 acres*



# Spatial Contribution of Ecological Reserves to Permanently Protecting Future Old Forest



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■ Ecological Reserve Area (Matrix Forest)   ■ Needed to Reach VCD Old Forest Target   ■ Other Forest in Region



# Champlain Hills

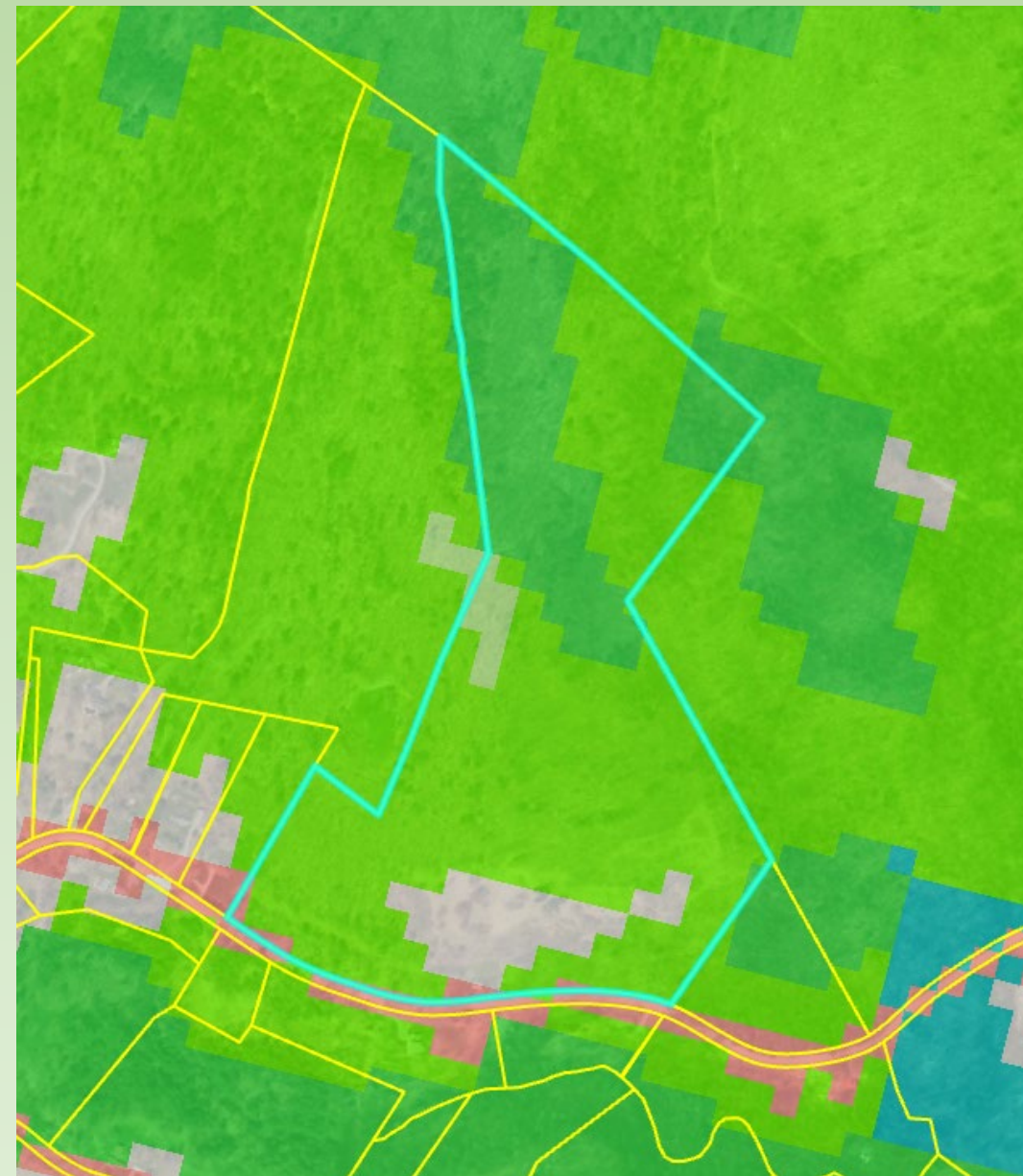
## Vermont Conservation Design

old forest target: 13,000 acres

Acres of Wildlands: 184 (1.4%)

*Preferred minimum patch size: 1,000 acres*

<b><i>Unprotected</i></b>	<b>206,653</b>
<b><i>Protected, Not Wildland</i></b>	<b>28,886</b>
<b><i>Wildland, Weak</i></b>	<b>24</b>
<b><i>Wildland, Strong</i></b>	<b>161</b>



Private Lands Easement




Lake Carmi Bog Natural Area


## **Overall Approach/Steps:**

- Quantify the % of each major forest Habitat type in Wildlands (Biorepresentation).
- Identify the most intact landscapes for each Habitat (Local Connectedness).
- Combine 1 and 2 in simple manner and share with others.



# Habitats

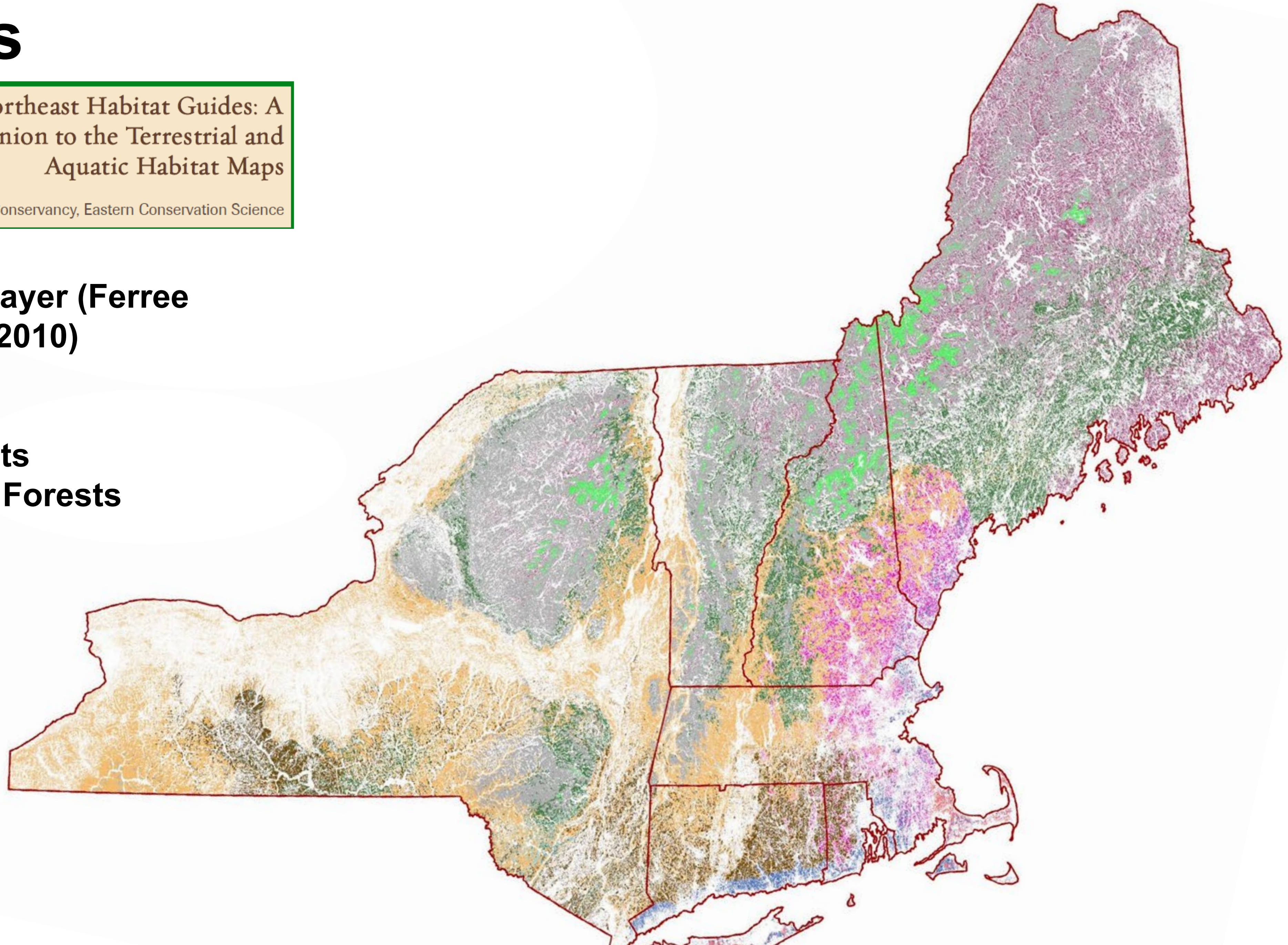
 Northeast Habitat Guides: A Companion to the Terrestrial and Aquatic Habitat Maps

 The Nature Conservancy, Eastern Conservation Science

## TNC Habitats Layer (Ferree and Anderson 2010)

### Only modelled

- Matrix Forests
- Large Patch Forests





# Wildlands in Eco-Habs

■ Wildlands in New England, Gap 1 in New York

□ Ecoregions

HABITATS: Matrix Forest Types

■ Acadian Low Elevation Spruce-Fir-Hardwood Forest

■ Acadian-Appalachian Montane Spruce-Fir-Hardwood Forest

■ Appalachian (Hemlock)-Northern Hardwood Forest

■ Dry Oak-Pine Forest, Central Apps and Southern Piedmont

■ Laurentian-Acadian Northern Hardwood Forest

■ Laurentian-Acadian Pine-Hemlock-Hardwood Forest

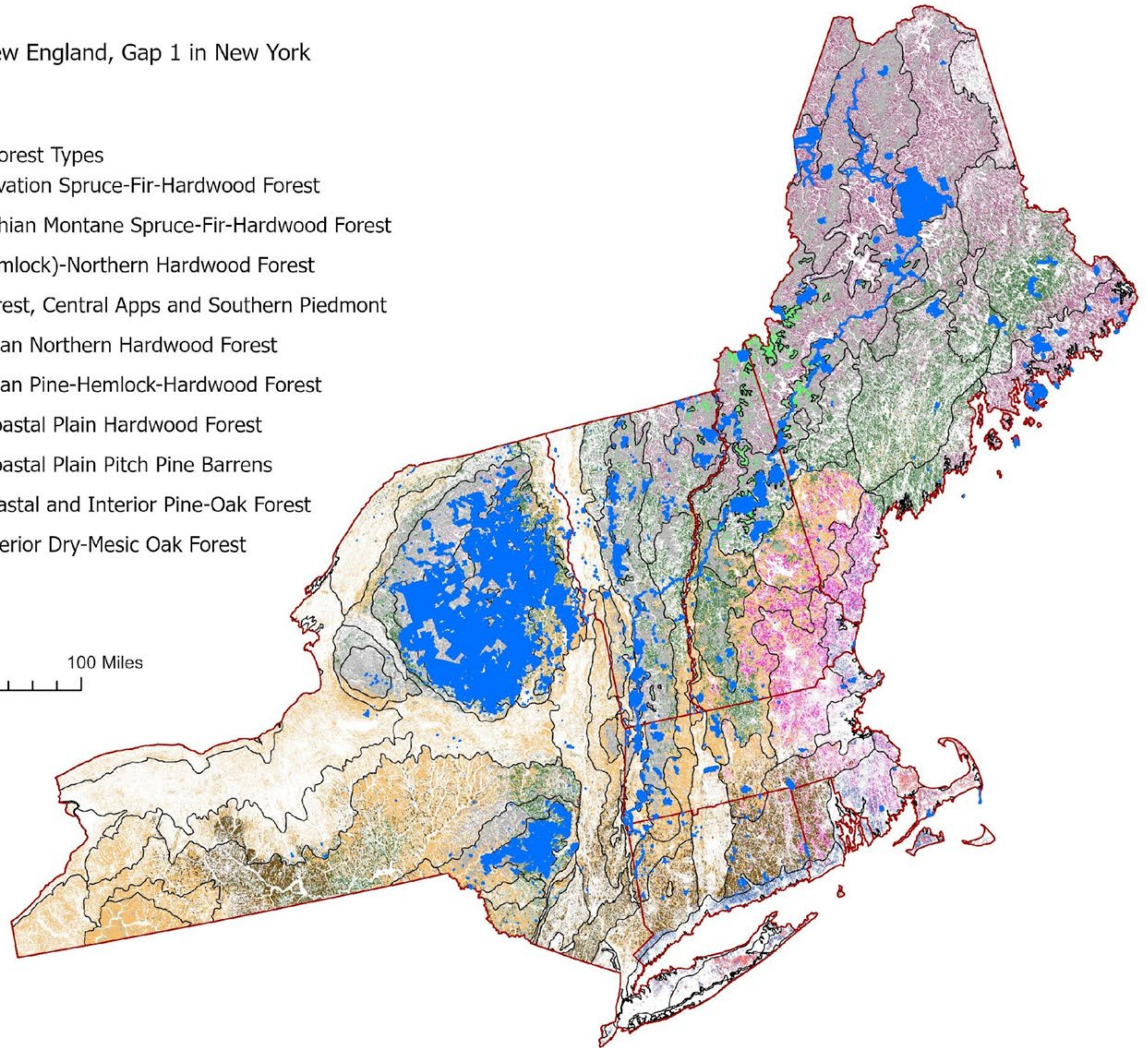
■ North Atlantic Coastal Plain Hardwood Forest

■ North Atlantic Coastal Plain Pitch Pine Barrens

■ Northeastern Coastal and Interior Pine-Oak Forest

■ Northeastern Interior Dry-Mesic Oak Forest

0 25 50 100 Miles

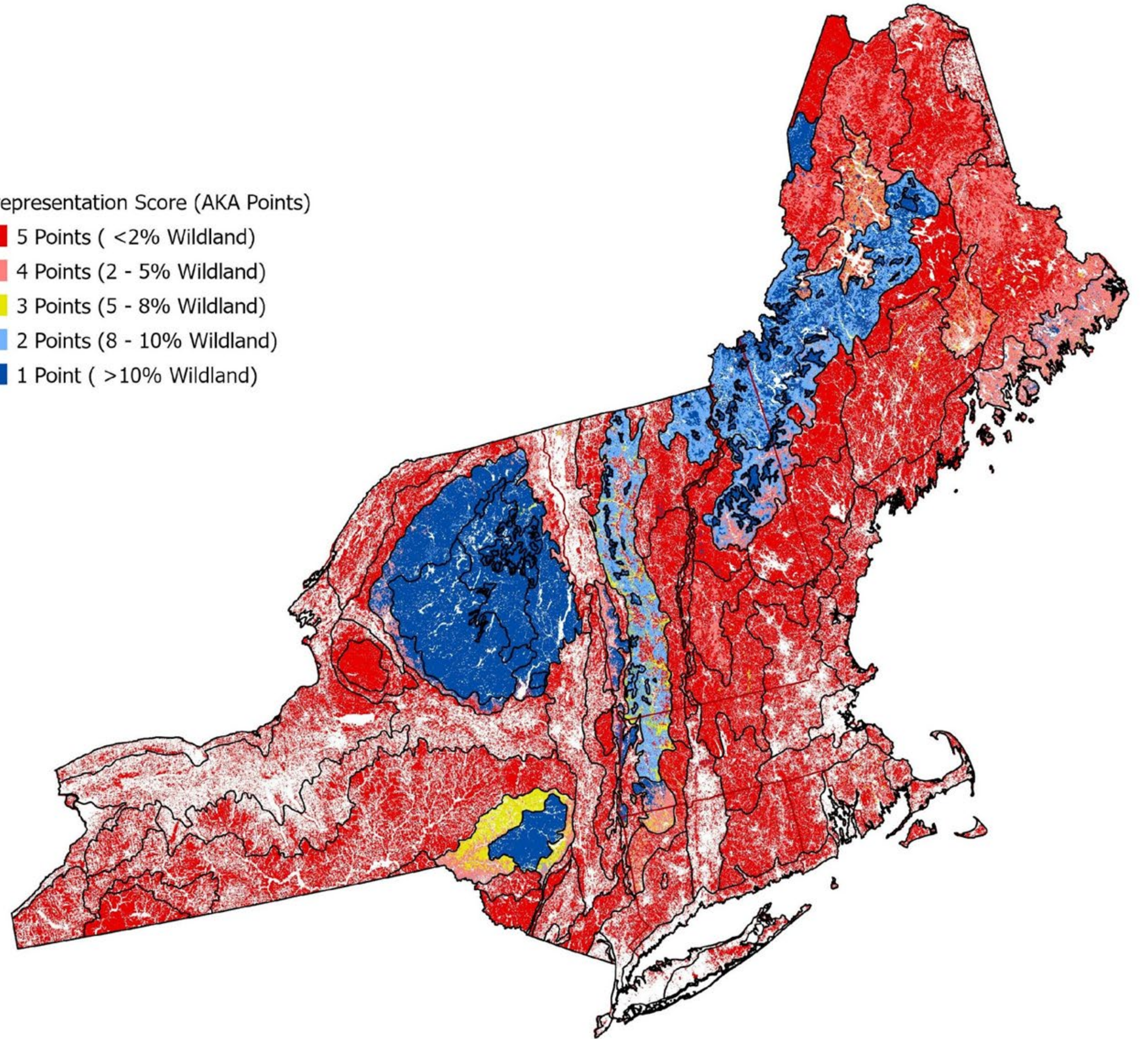


# Representation Score

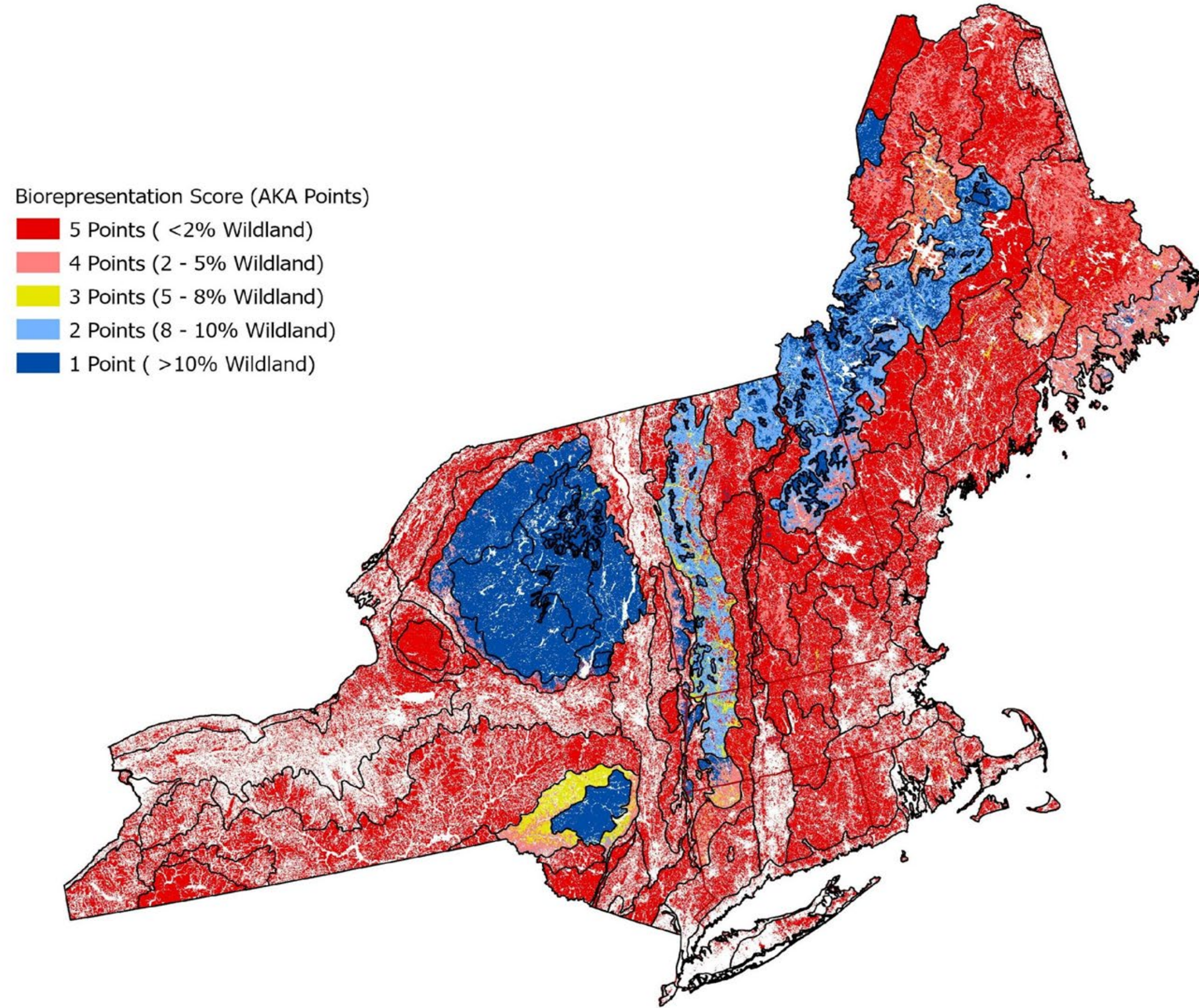
more under-represented  
in Ecoregion -->

Biorepresentation Score (AKA Points)

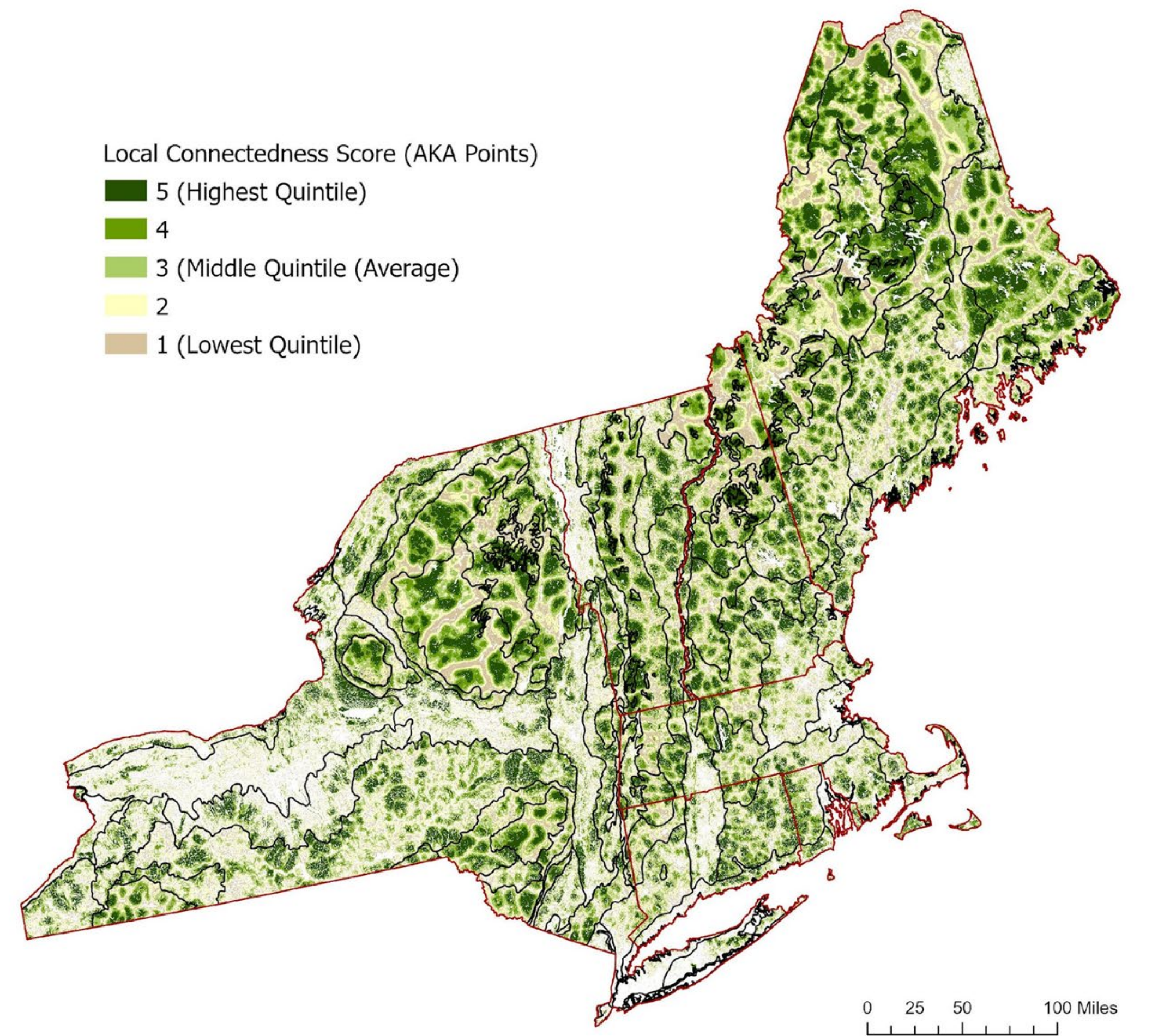
- 5 Points ( <2% Wildland)
- 4 Points ( 2 - 5% Wildland)
- 3 Points ( 5 - 8% Wildland)
- 2 Points ( 8 - 10% Wildland)
- 1 Point ( >10% Wildland)



# To create a simpler product for users:



&



# Priority Categories

Landscape Context (Local Connectivity) Quintiles

1 (least connected)    2    3    4    5 (most connected)



Need For More Ecological Representation

1 (least need)

2

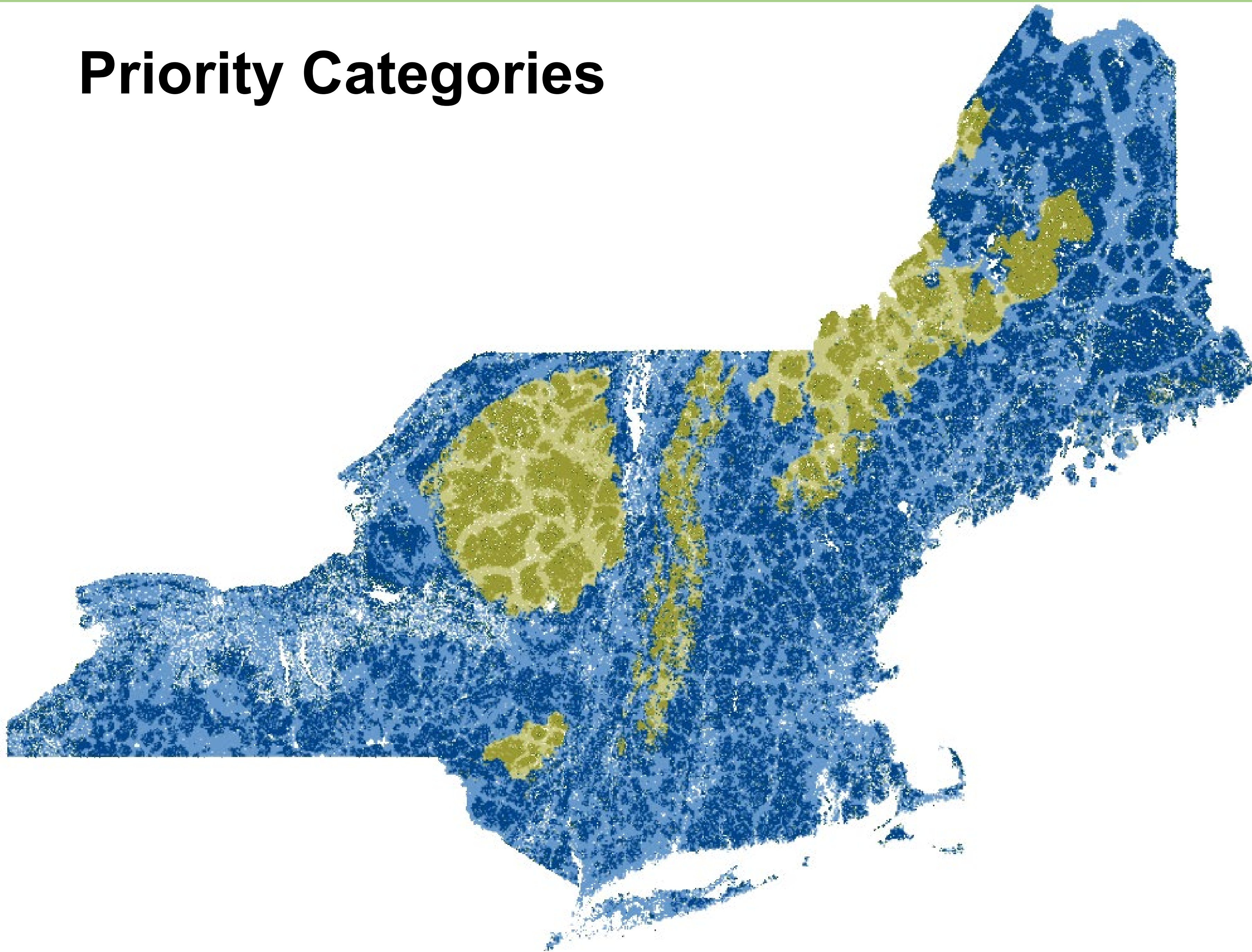
3

4

5 (greatest need)

Low Representational Need & Low Relative Connectivity	Low Representational Need & High Relative Connectivity
Low Representational Need & High Relative Connectivity	High Representational Need & High Relative Connectivity

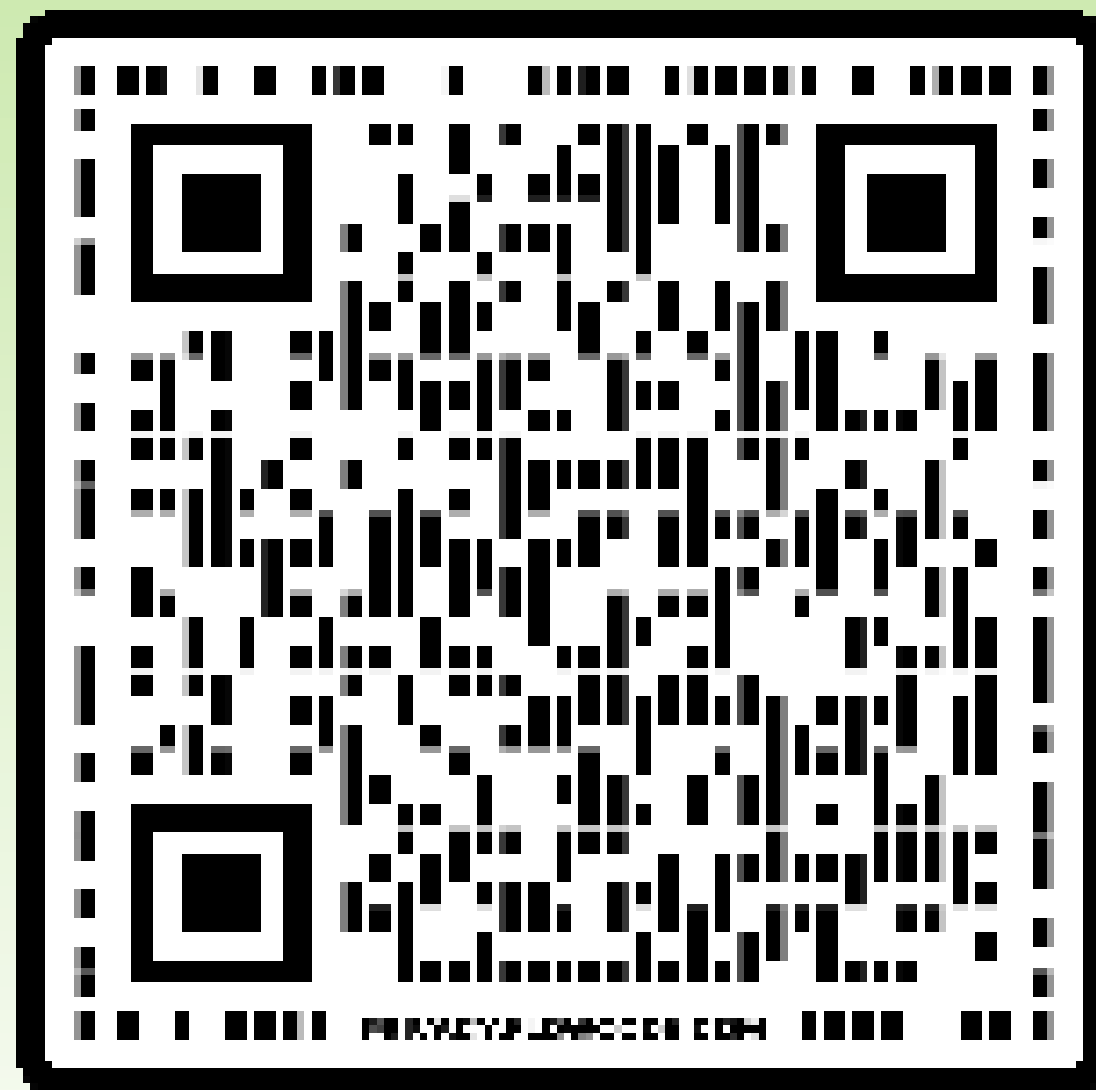
# Priority Categories



# Where the Wild Things Aren't

*Visit our website and view the web map tool*

[www.wildlandsandwoodlands.org/resources/wildlands-prioritization/](http://www.wildlandsandwoodlands.org/resources/wildlands-prioritization/)



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