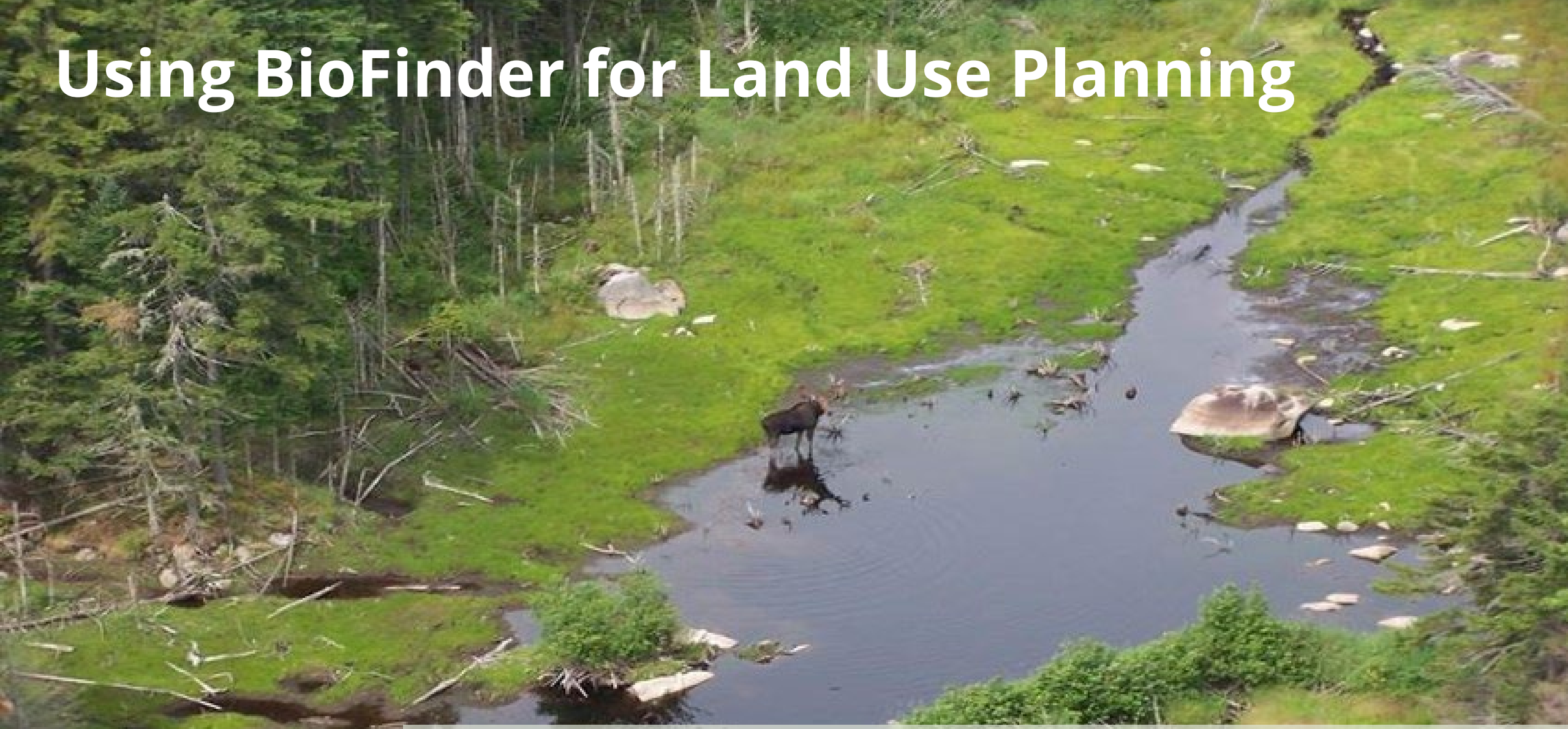
Using BioFinder for Land Use Planning



- Jens Hilke | Conservation Planning Biologist, Vermont Fish & Wildlife Department

AGENDA

- Why is land use pattern important for climate
- Translating science into planning
- Six step process

NEXT UP:

SECTION 1 OF 3

The Vermont Fish & Wildlife Department

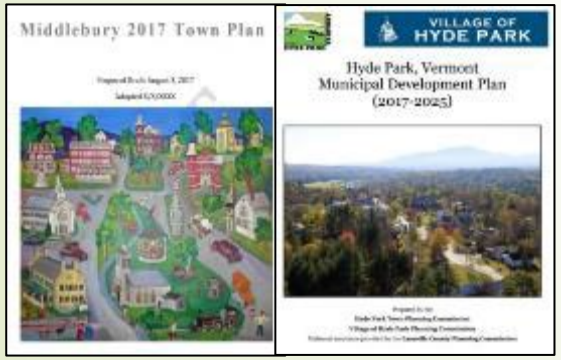
The mission of the Vermont Fish & Wildlife Department is the conservation of our fish, wildlife, plants and their habitats for the people of Vermont

Community Wildlife Program

Presentations & Workshops

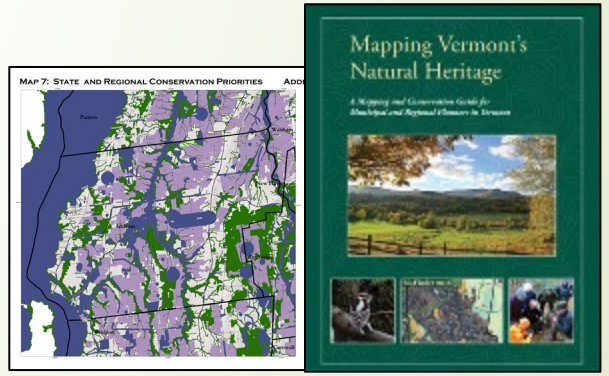
Support for Planning

Support for Conservation

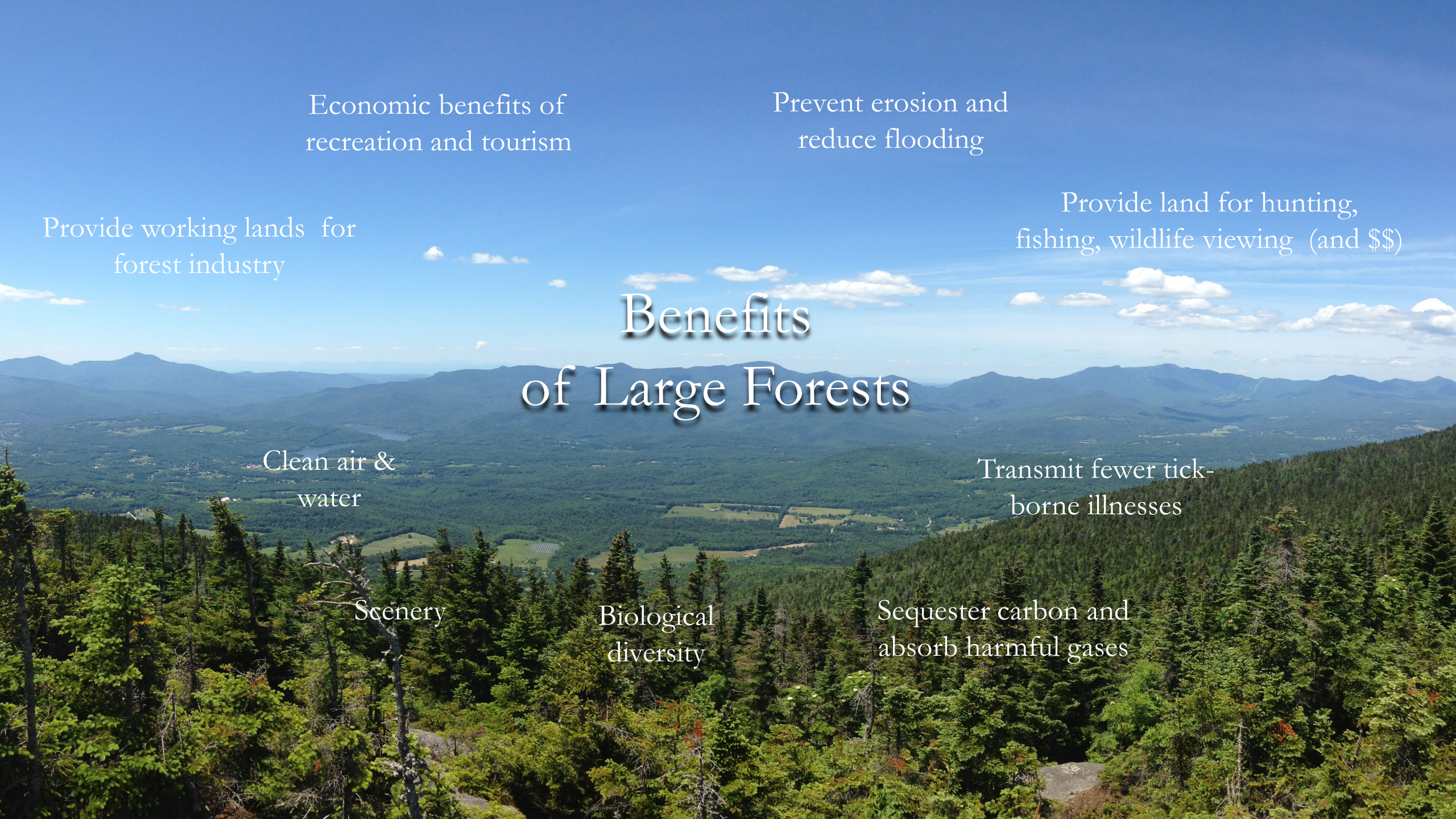


Connecting Communities to Each Other

Understanding Ecological and Community Context

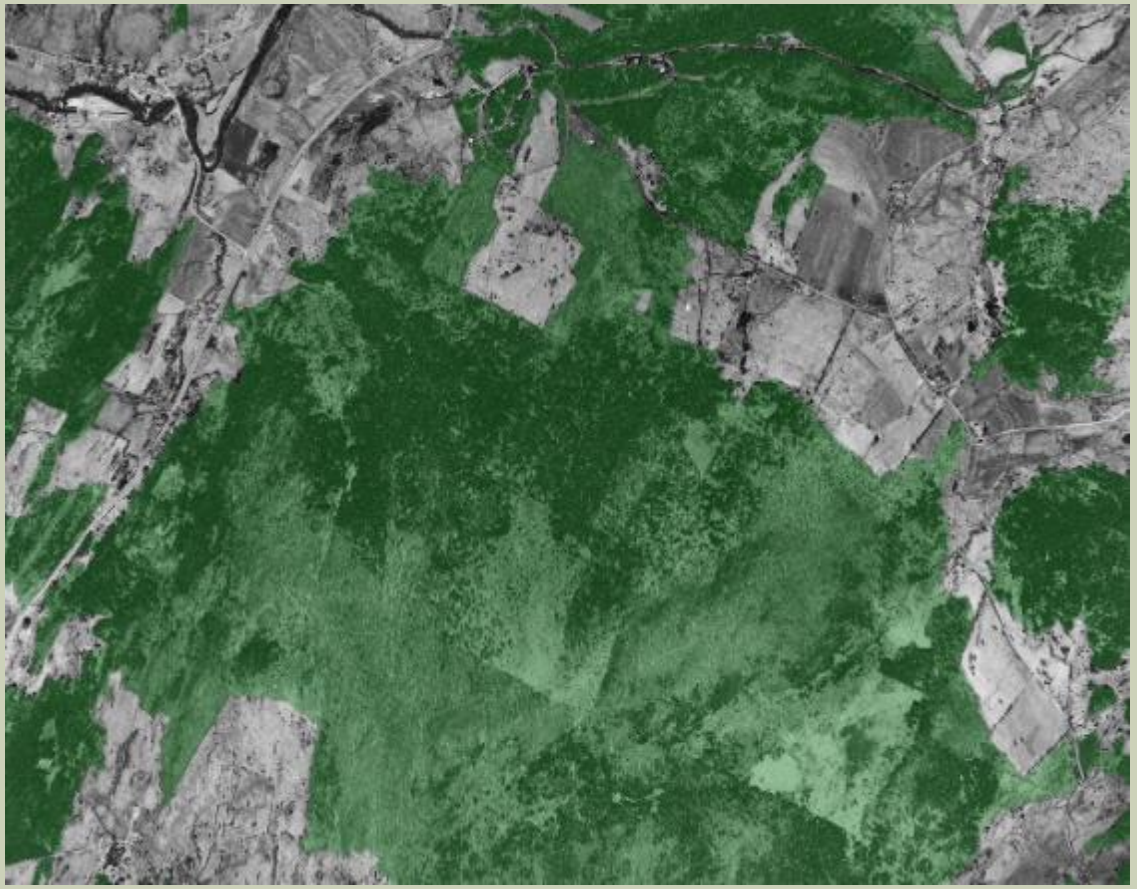


Creation/Interpretation of Resources

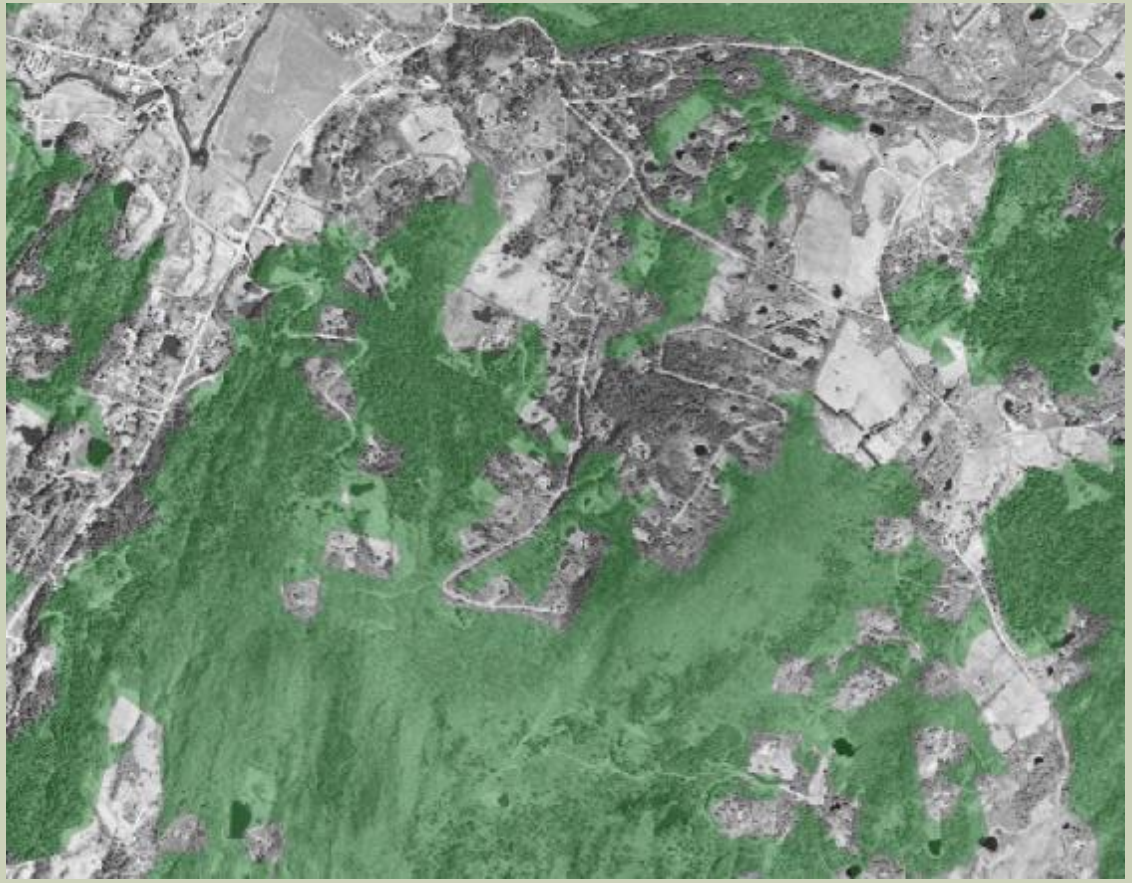

Economic benefits of recreation and tourism
Prevent erosion and reduce flooding
Provide working lands for forest industry
Provide land for hunting, fishing, wildlife viewing (and $$)
Benefits of Large Forests
Clean air & water
Transmit fewer tick-borne illnesses
Scenery
Biological diversity
Sequester carbon and absorb harmful gases

LOSING WILDLIFE HABITAT & WORKING FOREST

1962



2011



EFFECTS OF FOREST FRAGMENTATION

Forest products economy

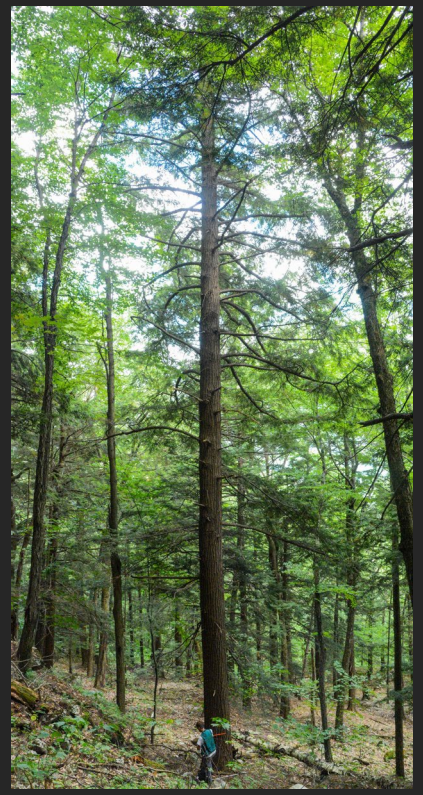
Scenery, Fall Foliage, Tourism, and Recreation

Clean water and flood protection

Clean air and climate mitigation

Wildlife and biodiversity

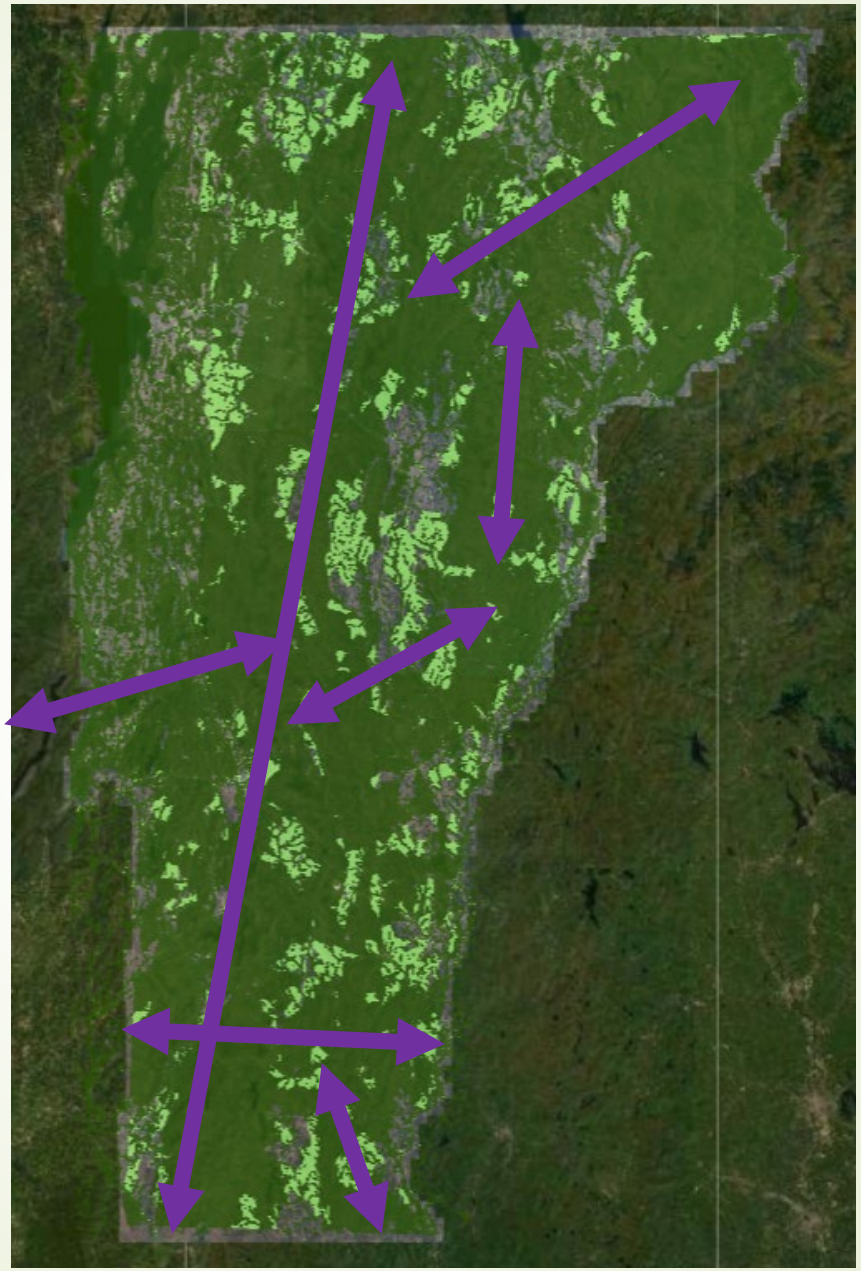
Human health, quality of life, and cultural heritage



- Practicing forestry becomes operationally impractical, economically non-viable, and culturally unacceptable
- Degrades the recreational experience
- Less soil infiltration and water filtration & Increased water flow and erosive power
- Releases carbon stored in soils and vegetation & Reduced capacity to sequester and store carbon
- Mortality from vehicle collisions & Modification of animal behavior
- Reduces human health benefits from forests
- Loss of rural nature valued by Vermonters


The Nature Conservancy
Protecting nature. Preserving life.™
MIGRATIONS IN MOTION
As climate change alters habitats and disrupts ecosystems, where will animals move to survive? And will human development prevent them from getting there?
This map shows the average direction mammals, birds, and amphibians need to move to track hospitable climates as they shift across the landscape.
The Nature Conservancy
Prev
Next
Gulf of Maine
Mammals
Birds
Amphibians
Basemap data: © Mapbox © OpenStreetMap Improve this map

WILDLIFE ON THE MOVE

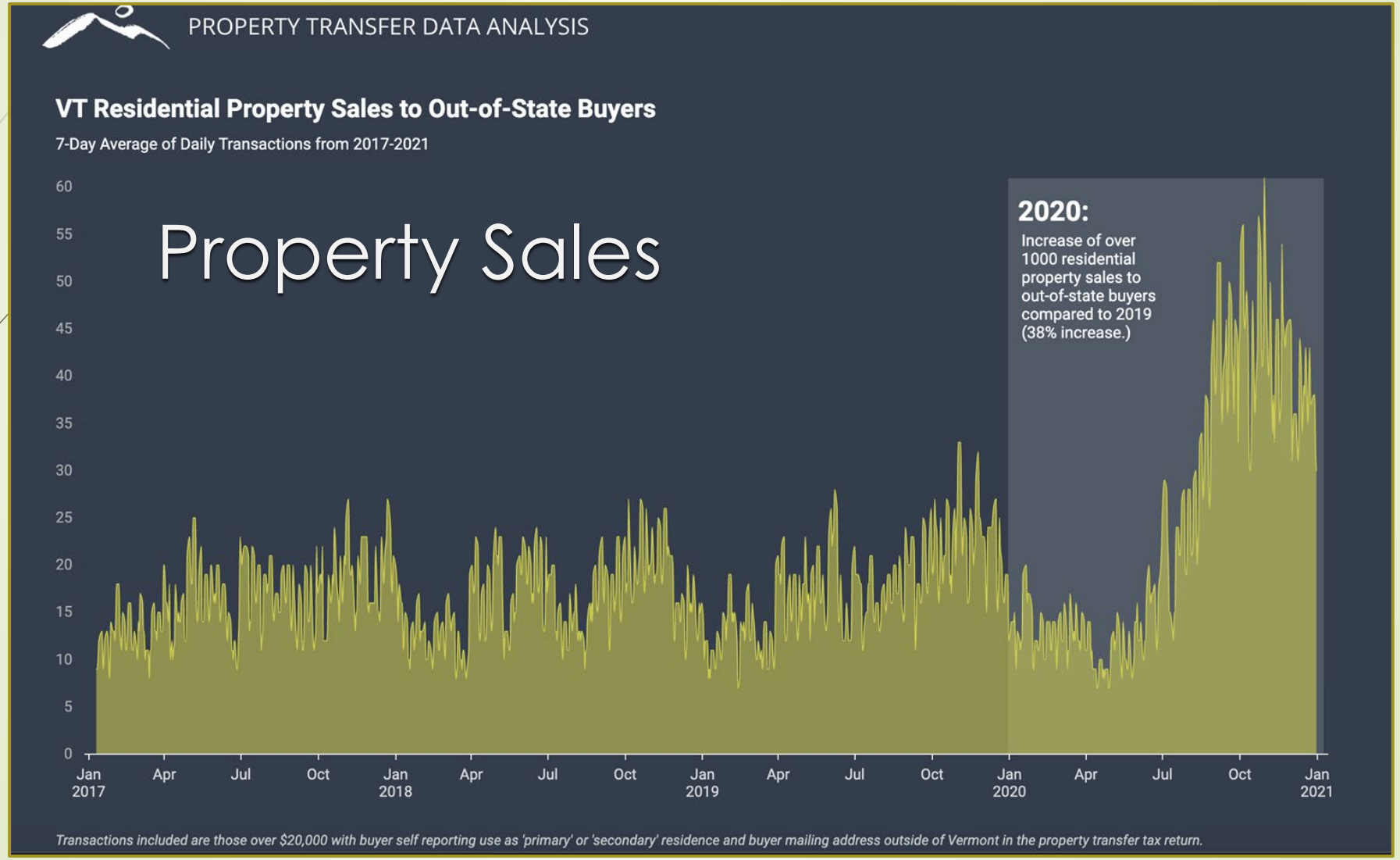


Male Bear M0063

October 11 2017 – November 11 2017

Approximately 140 km.

PEOPLE ARE ON THE MOVE TOO!



PROPERTY SALES

VT Residential Property Sales to Out-of-State Buyers

Search in table

Page 1 of 17

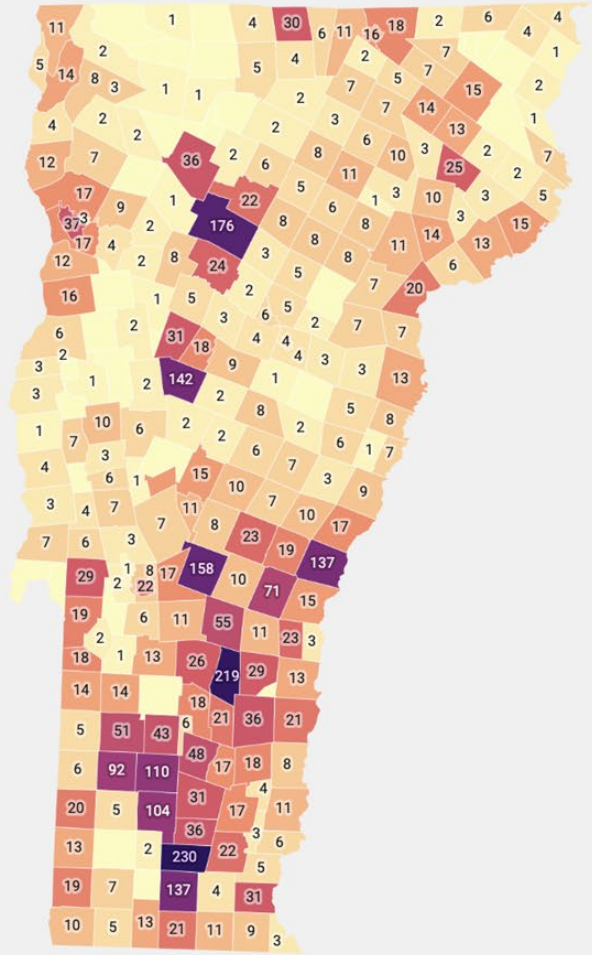
0 25M 132M

	Town	Sales	2017	2018	2019	2020
1	Stowe	156 176	84.7M	104.2M	66.8M	132.1M
2	Ludlow	142 219	44.7M	65.4M	75M	97.9M
3	Dover	126 230	38M	37M	32.6M	72.7M
4	Stratton	63 104	31.4M	29.9M	31.5M	65.4M
5	Wilmington	96 137	37.6M	19.4M	21.3M	53.8M
6	Woodstock	48 71	37.9M	21.8M	28.7M	53M
7	Warren	104 142	23.2M	25M	29M	49.3M
8	Winhall	48 110	20.1M	23.8M	24.8M	49.2M
9	Manchester	39 92	16.1M	22.9M	25.3M	46M
10	Killington	140 158	27.5M	31.8M	43.5M	43.9M
11	Hartford	85 137	20.1M	27.7M	29.5M	41.8M
12	Dorset	20 51	9.2M	11.8M	15.7M	37M
13	Plymouth	25 55	5.7M	11M	11M	20.4M
14	Burlington	32 37	12.4M	10.4M	6.7M	17.6M
15	Pomfret	5 19	2.1M	7M	1.6M	17.4M

Residential Property Sold to Out-of-State Buyers in 2020

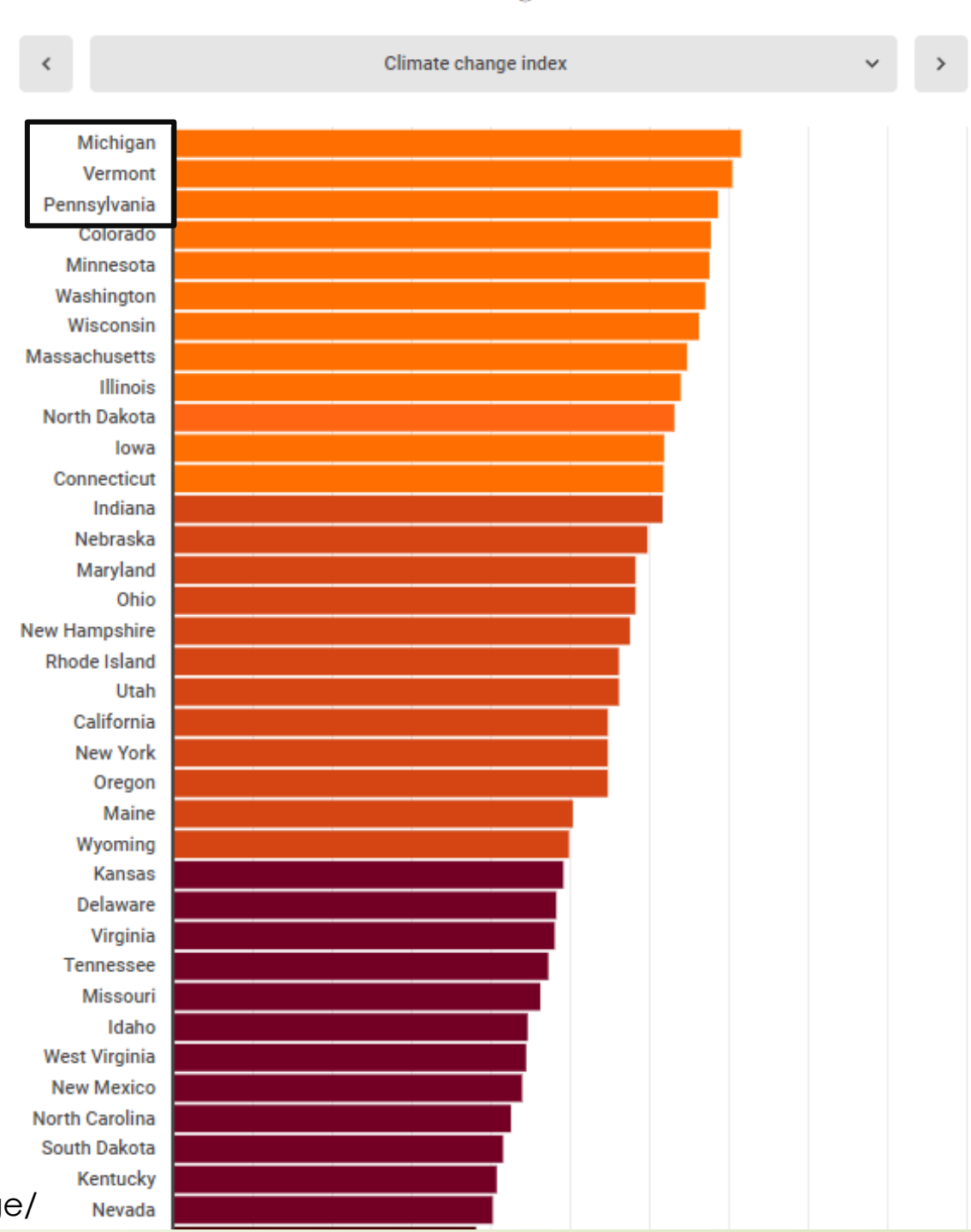
of transactions where buyer listed out of state mailing address

0 25 230



SAFEST STATES FOR CLIMATE CHANGE

- Drought
- Extreme heat
- Wildfires
- Flooding
- Climate Change preparedness



https://www.policygenius.com/homeowners-insurance/best-and-worst-states-for-climate-change/


Core Forest Blocks
Wildlife Road Crossings
Small, "stepping stone" forests
Streamside Connectors

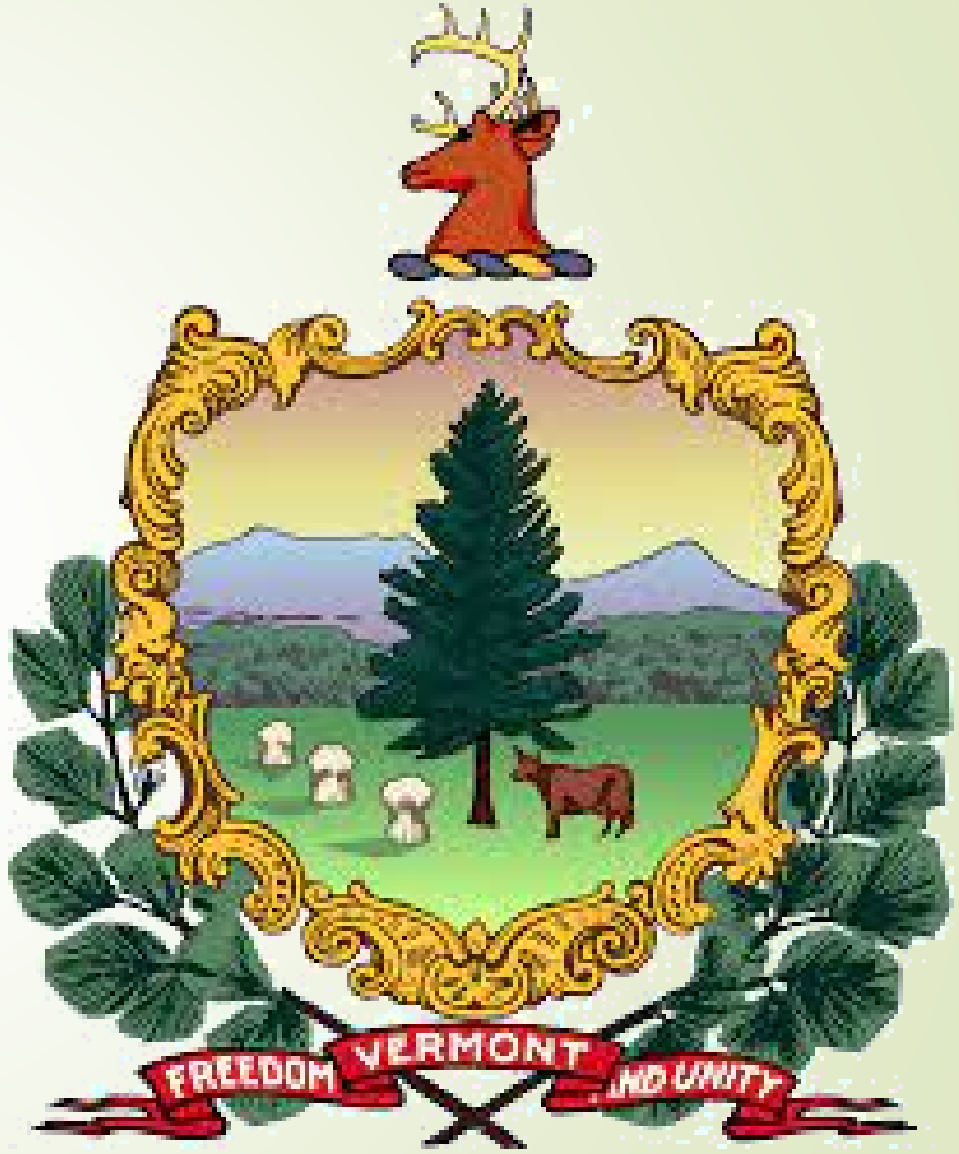
Break & Questions

NEXT UP:

SECTION 2 OF 3

FREEDOM & UNITY

Balancing Individual liberty and community responsibility since 1791



ACT 171 PLANNING PROVISIONS

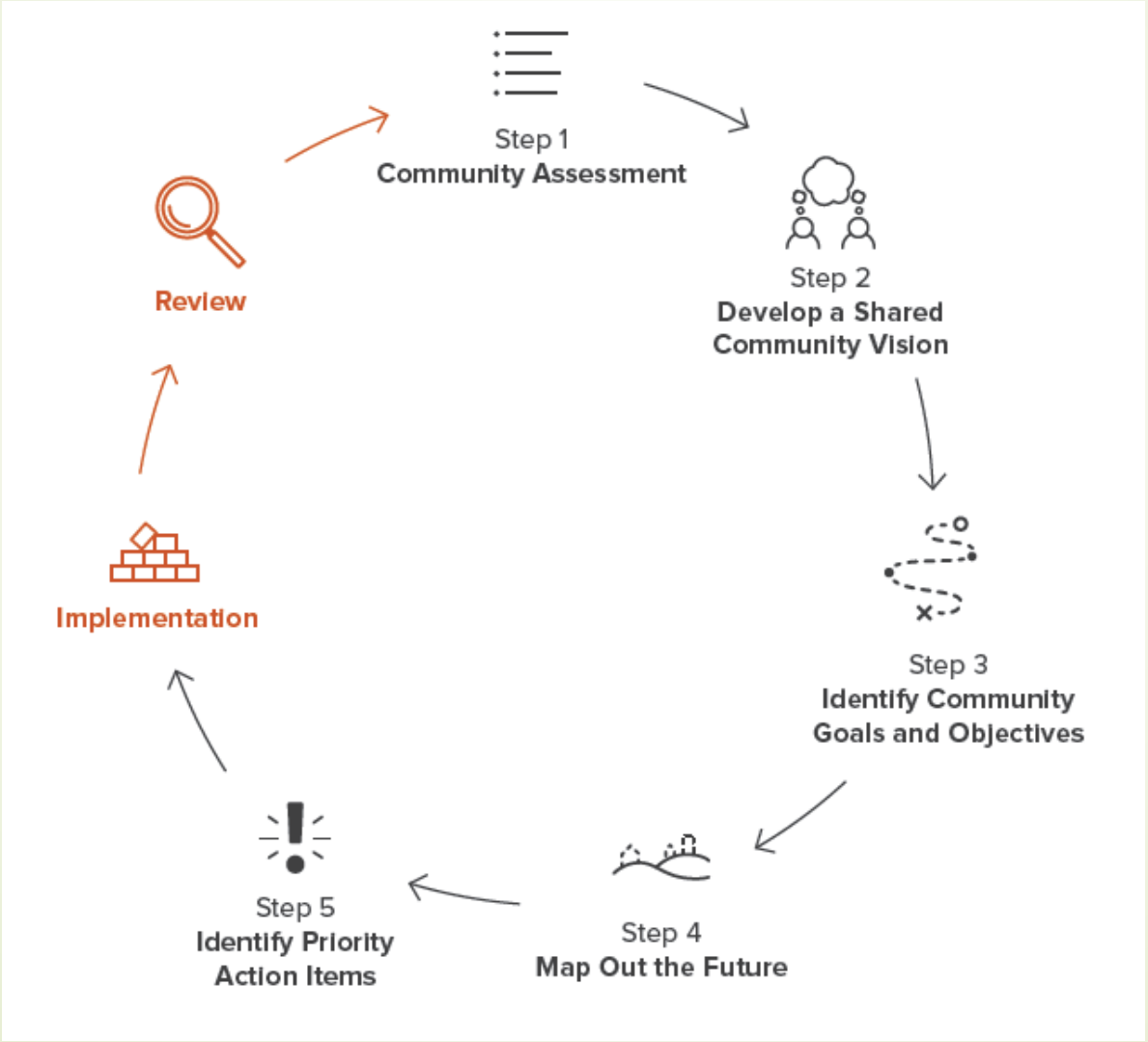
Requires town and regional plans to:

- **indicate those areas that are important as forest blocks and habitat connectors**
- **plan for land development in those areas to minimize forest fragmentation and promote the health, viability, and ecological function of forests.**

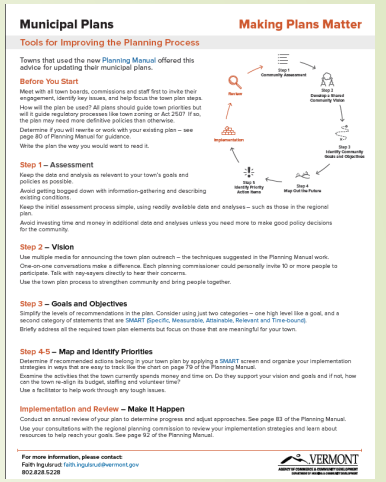
Agency of Natural Resources Guidance on Act 171

https://anr.vermont.gov/act171_forestplanning

PLANNING PROCESS



Resources


Municipal Plans — Making Plans Matter

Tools for Improving the Planning Process

Towns that used the new Planning Manual offered this advice for updating their municipal plans.

Before You Start

Meet with all town boards, commissions and staff first to invite their engagement, identify key issues, and help focus the town plan steps.

How will the plan be used? All plans should guide town priorities but will it guide regulatory processes like town zoning or Act 250? If so, the plan may need more definitive policies than otherwise.

Determine if you will rewrite or work with your existing plan – see page 80 of Planning Manual for guidance.

Write the plan the way you would want to read it.

Step 1 – Assessment

Keep the data and analysis as relevant to your town's goals and policies as possible.

Avoid getting bogged down with information-gathering and describing existing conditions.

Keep the initial assessment process simple, using readily available data and analyses – such as those in the regional plan.

Avoid investing time and money in additional data and analyses unless you need more to make good policy decisions for the community.

Step 2 – Vision

Use multiple media for announcing the town plan outreach – the techniques suggested in the Planning Manual work.

One-on-one conversations make a difference. Each planning commissioner could personally invite 10 or more people to participate. Talk with key-players directly to hear their concerns.

Use the town plan process to strengthen community and bring people together.

Step 3 – Goals and Objectives

Simplify the levels of recommendations in the plan. Consider using just two categories – one high level like a goal, and a second category of statements that are SMART (Specific, Measurable, Attainable, Relevant and Time-bound).

Briefly address all the required town plan elements but focus on those that are meaningful for your town.

Step 4-5 – Map and Identify Priorities

Determine if recommended actions belong in your town plan by applying a SMART screen and organize your implementation strategies in ways that are easy to track like the chart on page 79 of the Planning Manual.

Examine the activities that the town currently spends money and time on. Do they support your vision and goals and if not, how can the town re-align its budget, staffing and volunteer time?

Use a facilitator to help work through any tough issues.

Implementation and Review – Make It Happen

Conduct an annual review of your plan to determine progress and adjust approaches. See page 83 of the Planning Manual.

Use your consultations with the regional planning commission to review your implementation strategies and learn about resources to help reach your goals. See page 92 of the Planning Manual.

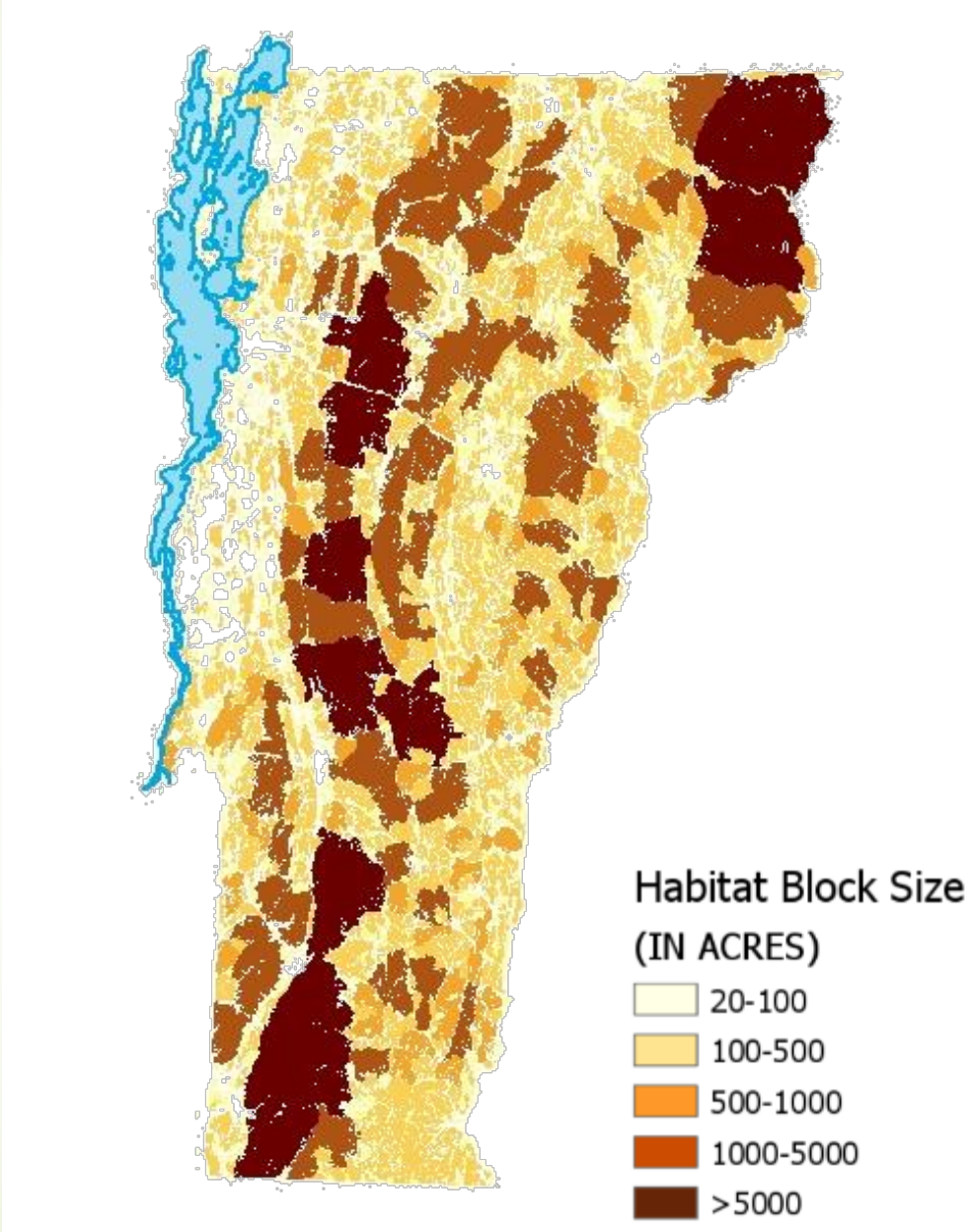
For more information, please contact:
Faith Ingulsrud faith.ingulsrud@vermont.gov
802.828.5228

VERMONT
AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT

Habitat Blocks

Areas of natural cover

(no roads, development or agriculture)



Habitat Blocks

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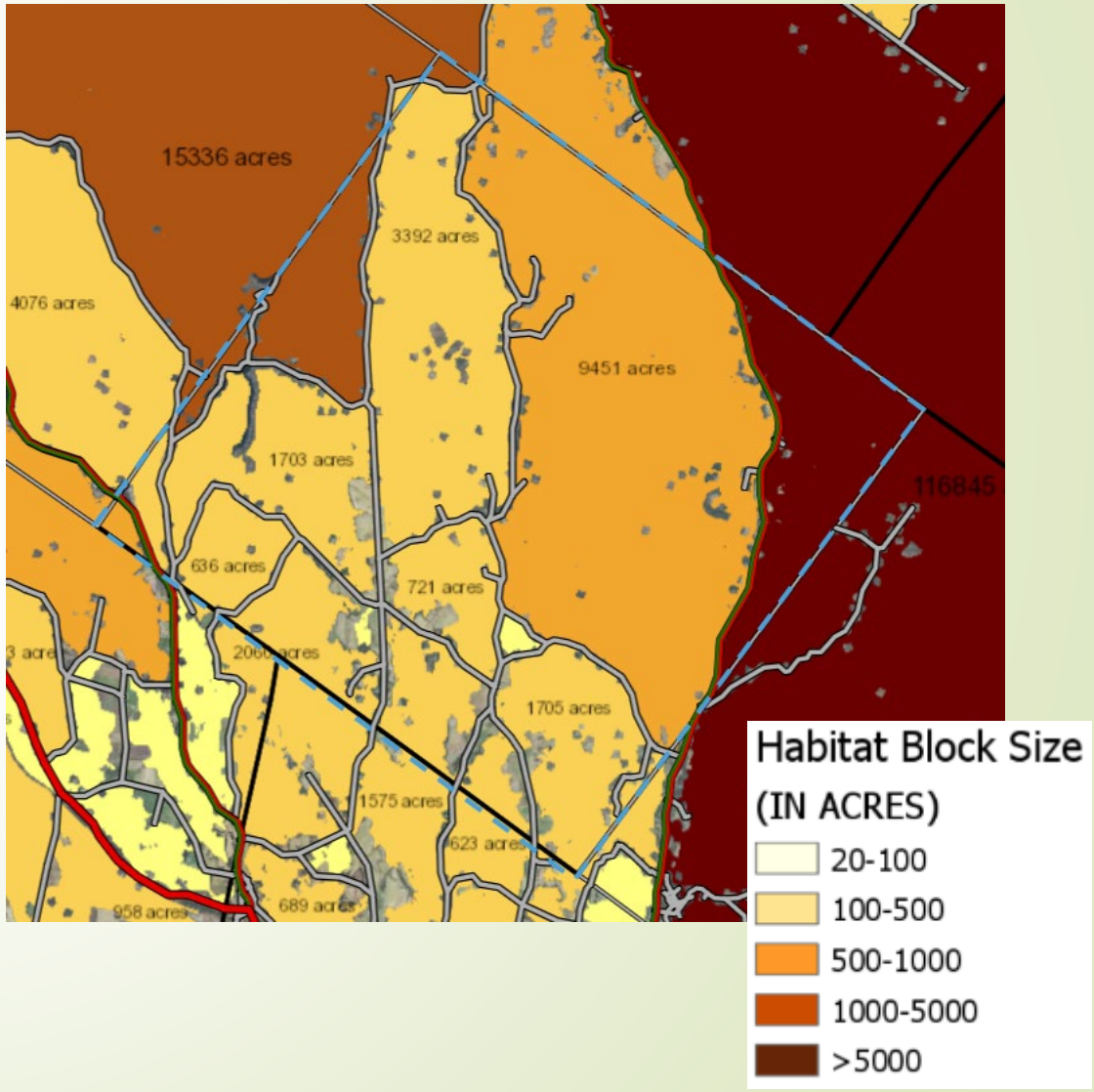
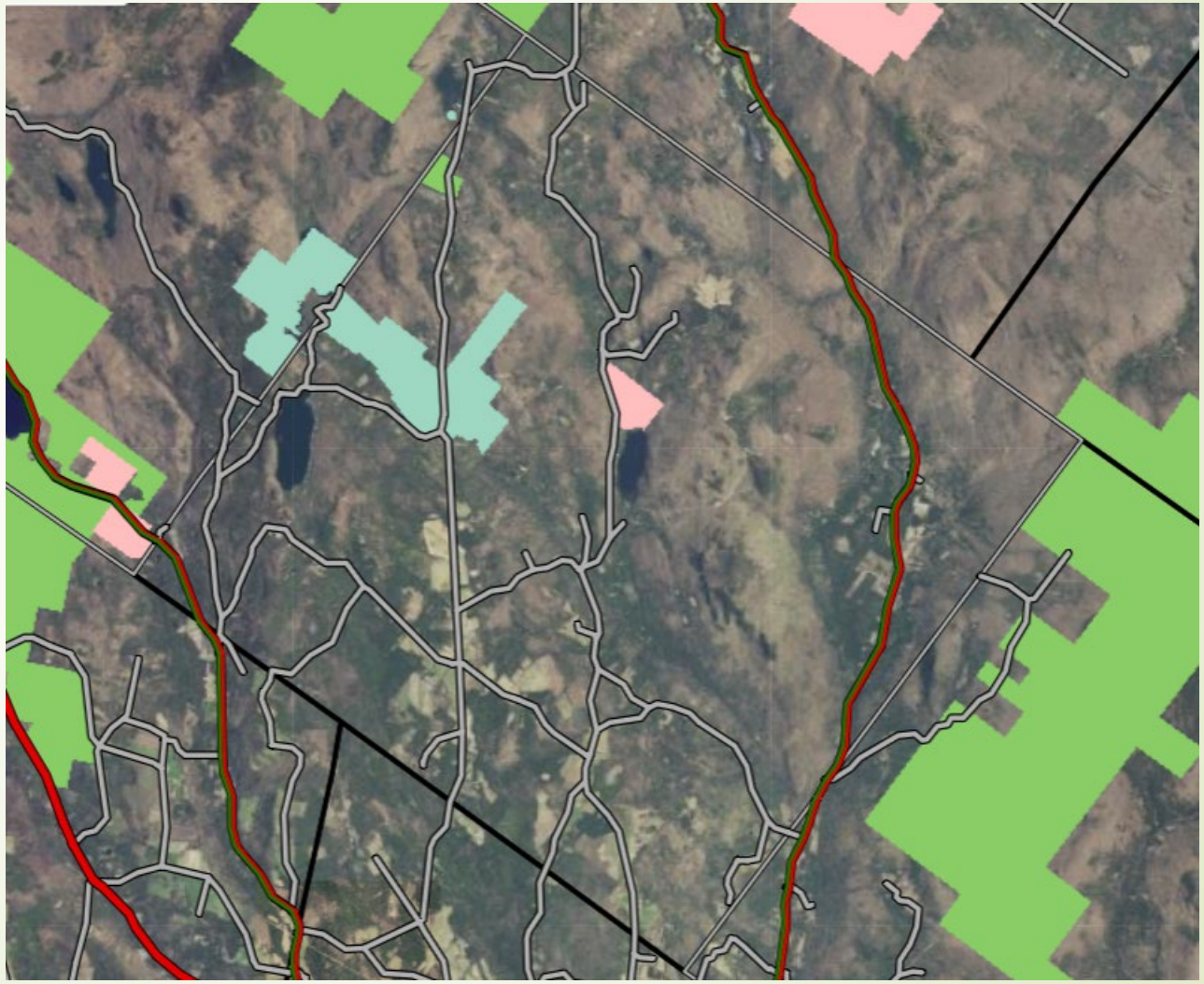


Conserved Land



Use Value Appraisal

Vermont Conservation Design

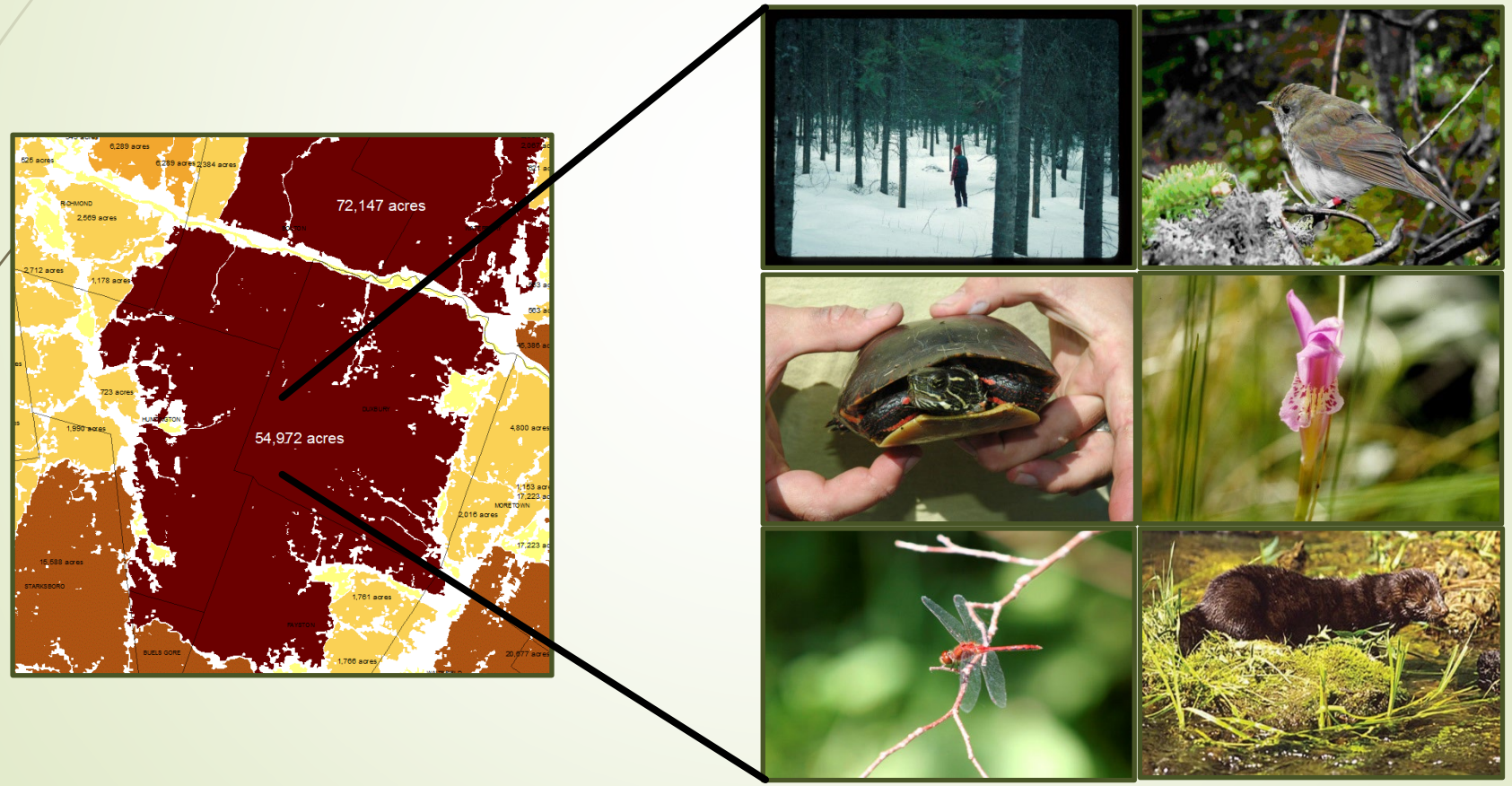
most important lands and waters for maintaining ecological function now and into the future

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

A set of coarse-filter features offer high confidence in maintaining biological diversity and ecological processes into the future.

Coarse filter

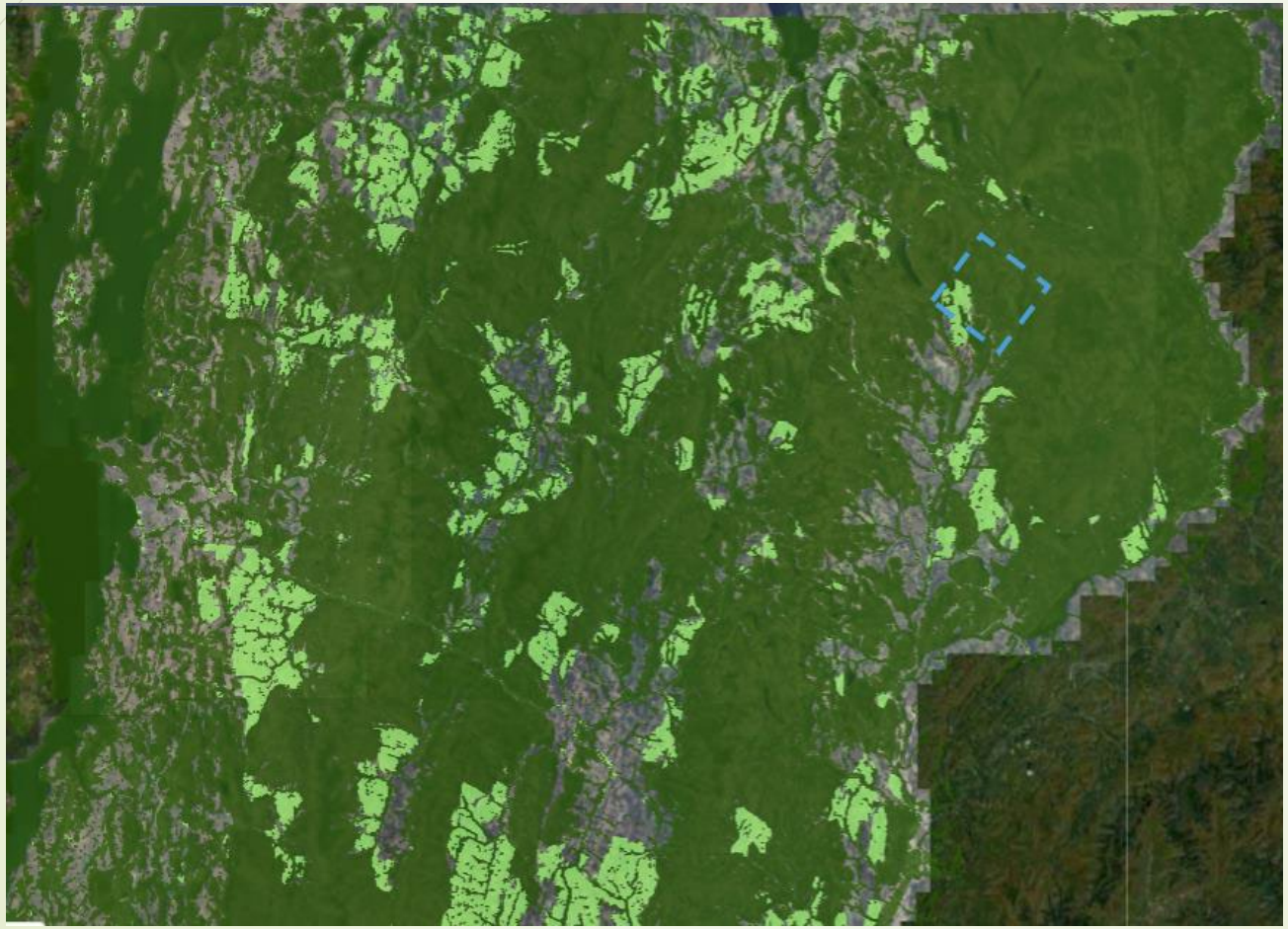
If examples of all coarse-filter elements are conserved at the scale at which they naturally occur, most of the species they contain—from the largest trees and mammals to the smallest insects—will also be conserved.



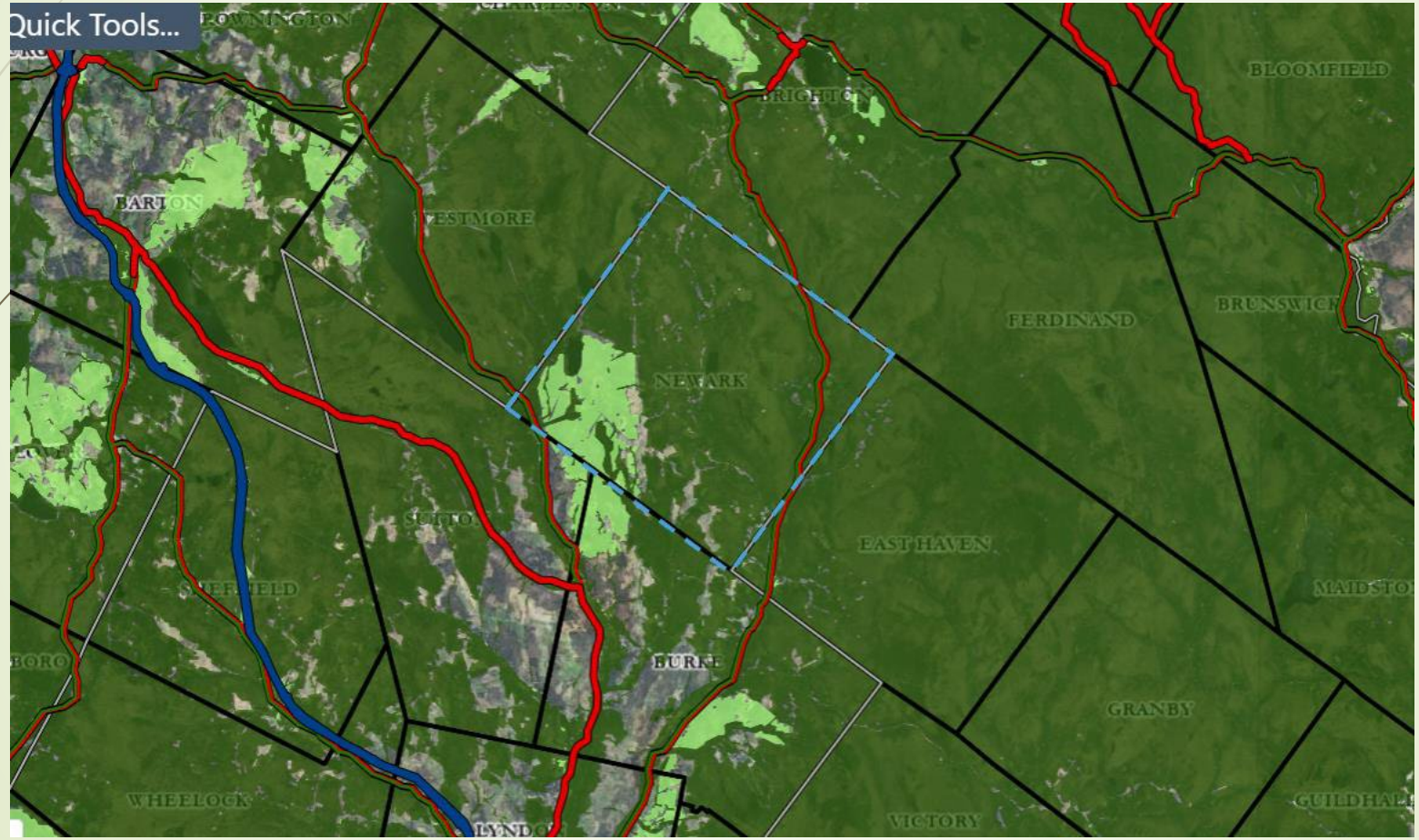
Wildlife Present in Forest Patches

From Above and Beyond." Campoli, J., Humstone, E., & MacLean, A. 2002.

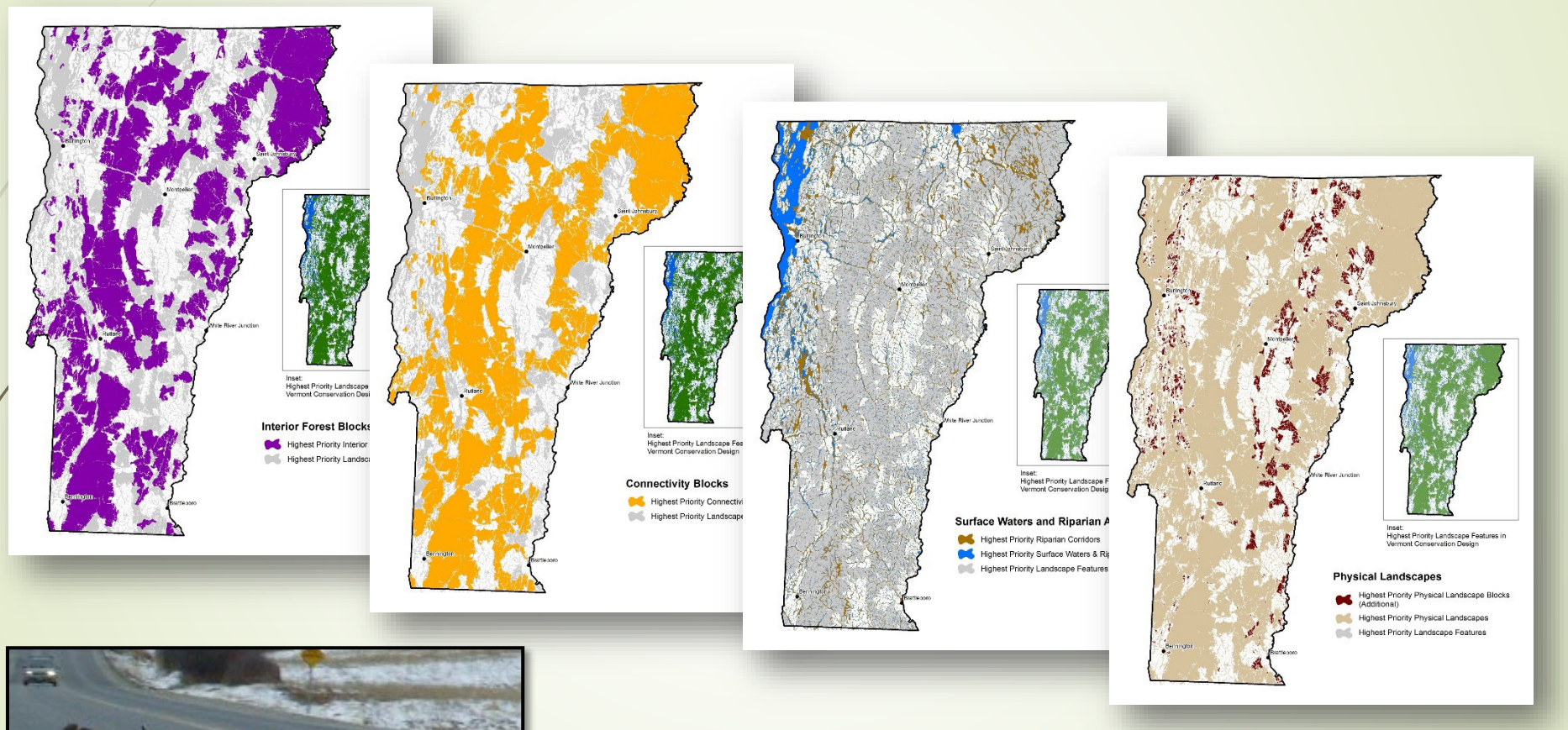
Vermont Conservation Design



Vermont Conservation Design



Landscape Priorities



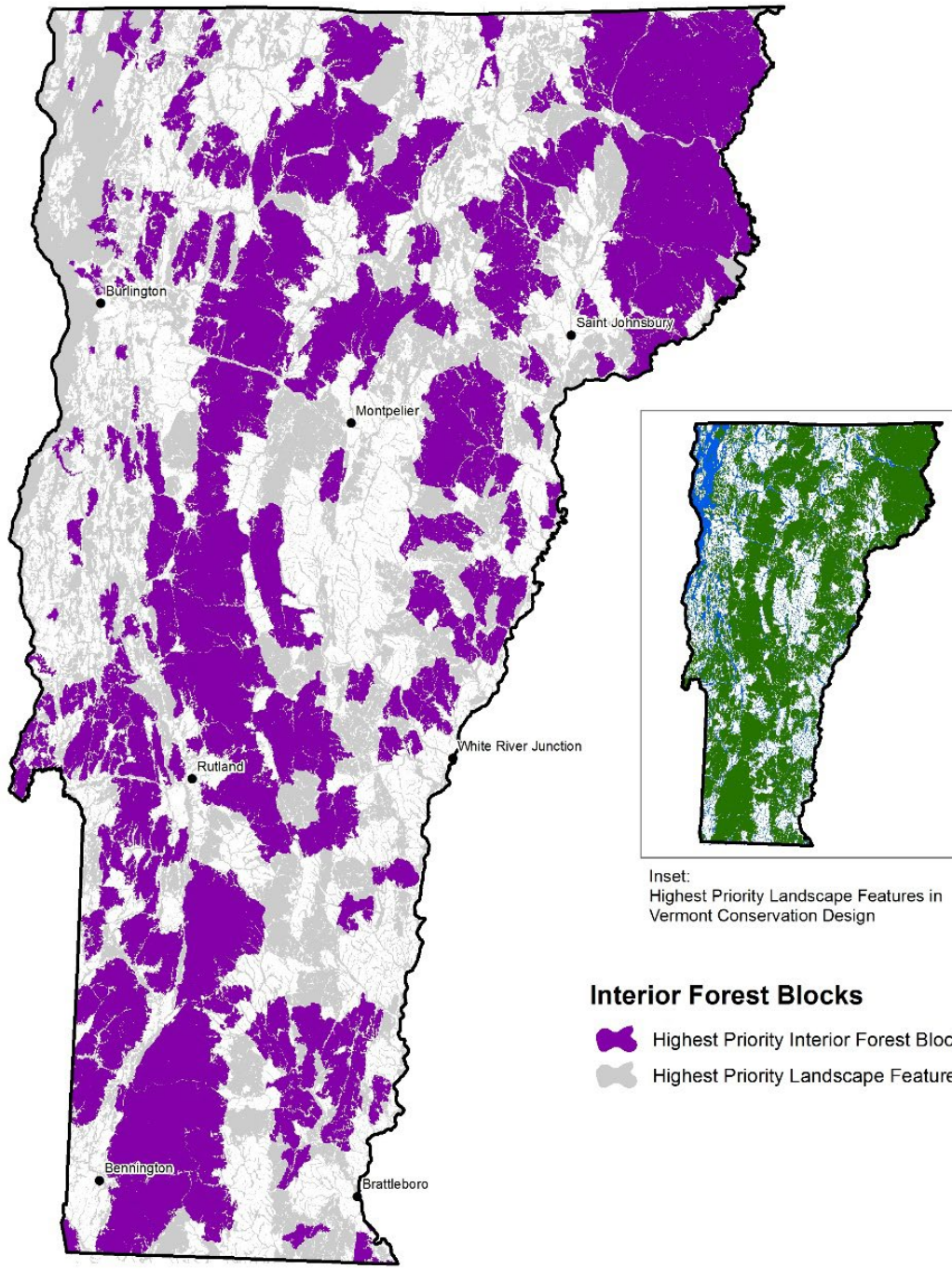
Maintain the specific functions of each element

Interior Forest Blocks

Ecological Function Supports:

- Habitat for forest species;
- Air and water quality protection;
- Climate change resilience.

Subset of the Habitat Blocks



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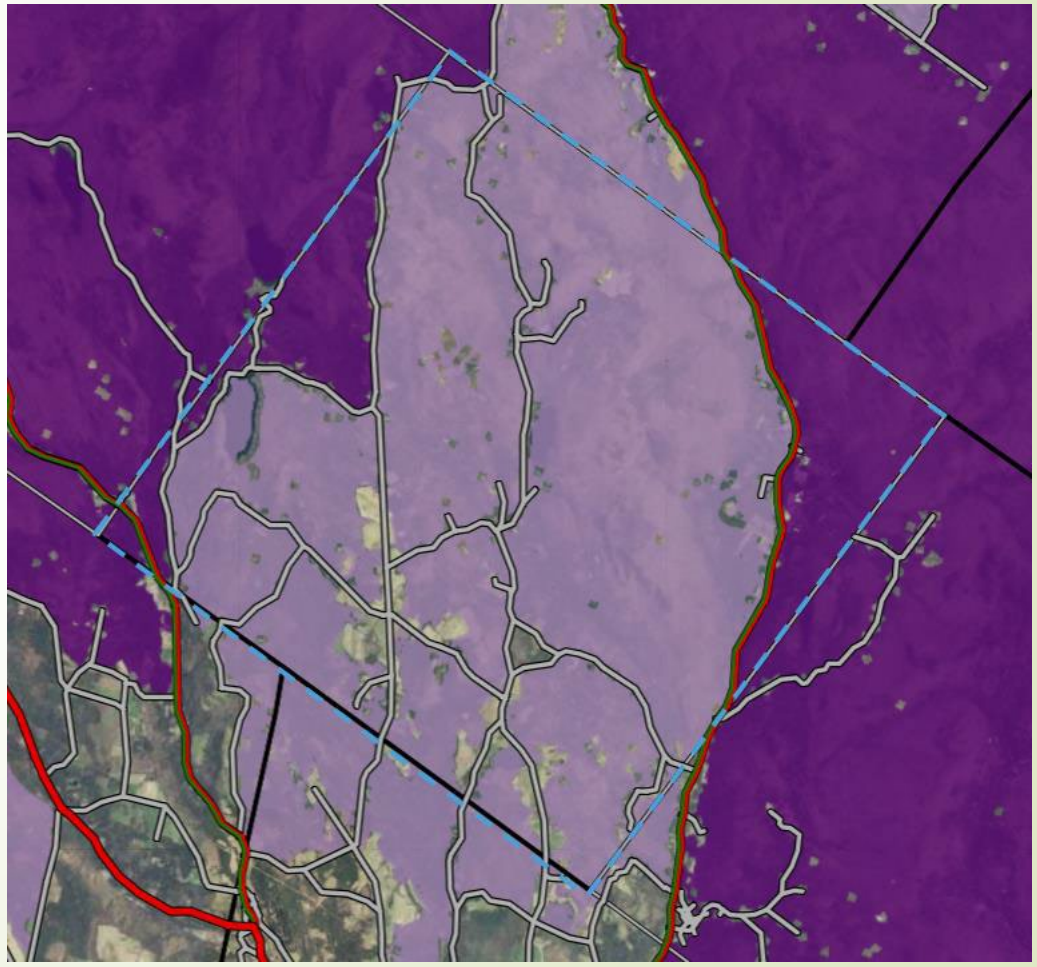
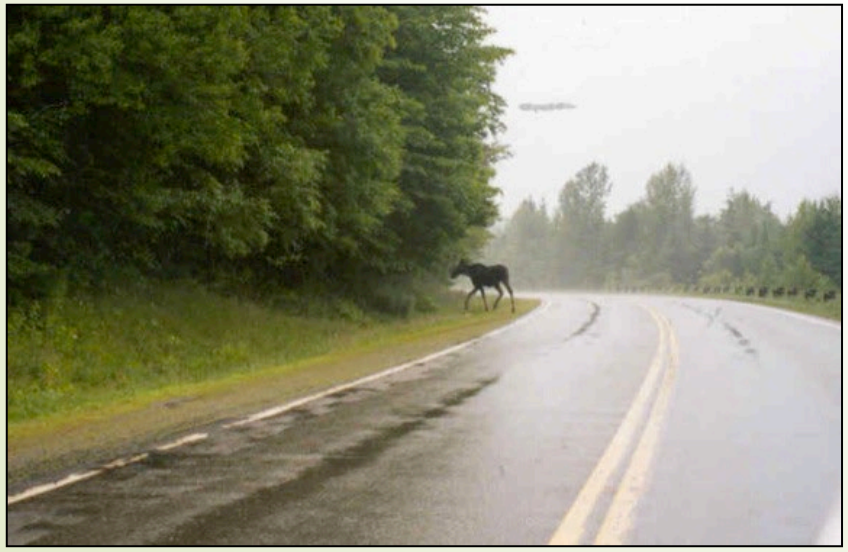
Subset of the Habitat Blocks

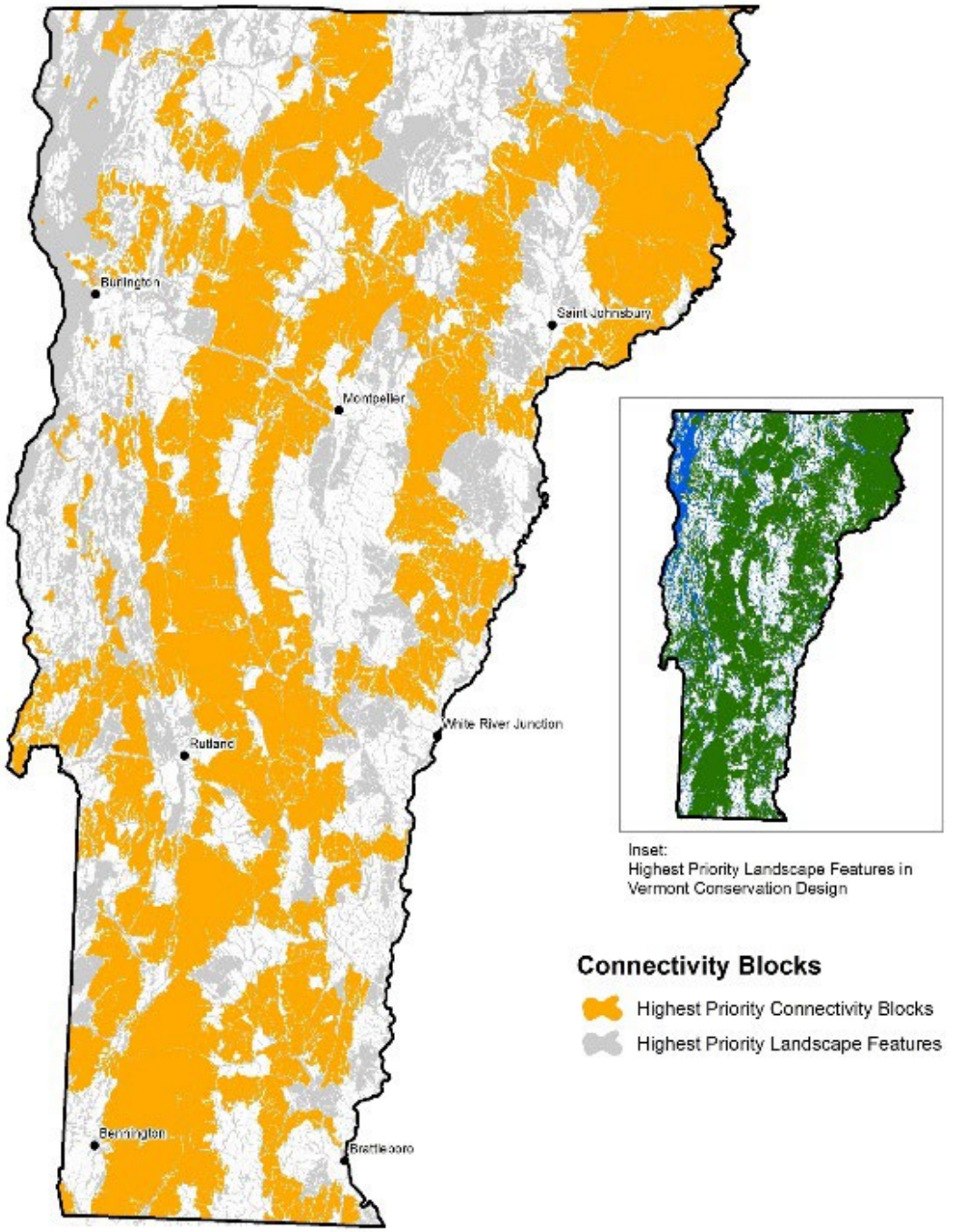


Connectivity Blocks

Ecological Function Supports:

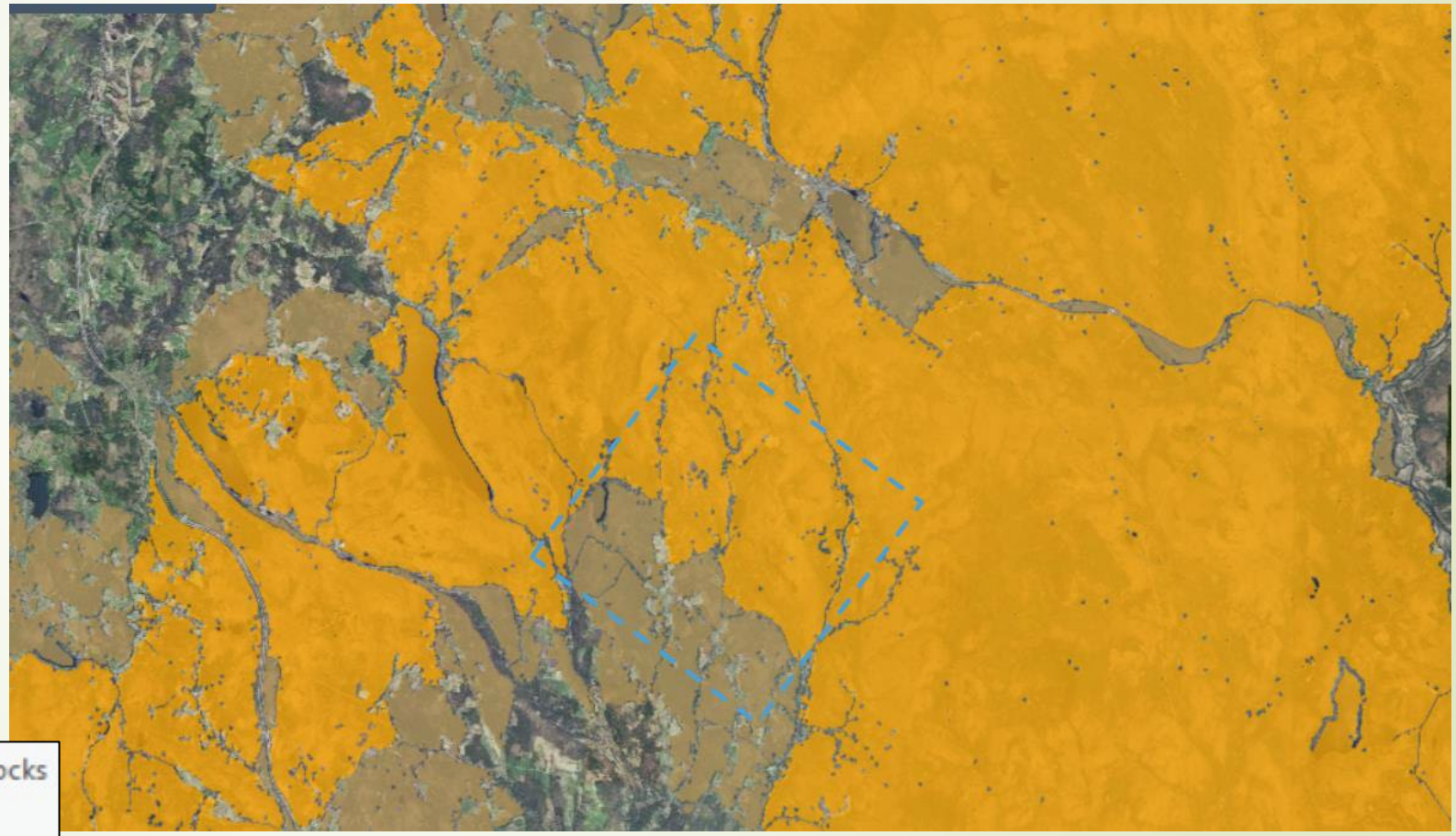
- Wildlife movement and dispersal;
- Climate resilience;
- Genetic exchange between populations.





Connectivity Blocks

Connectivity Blocks

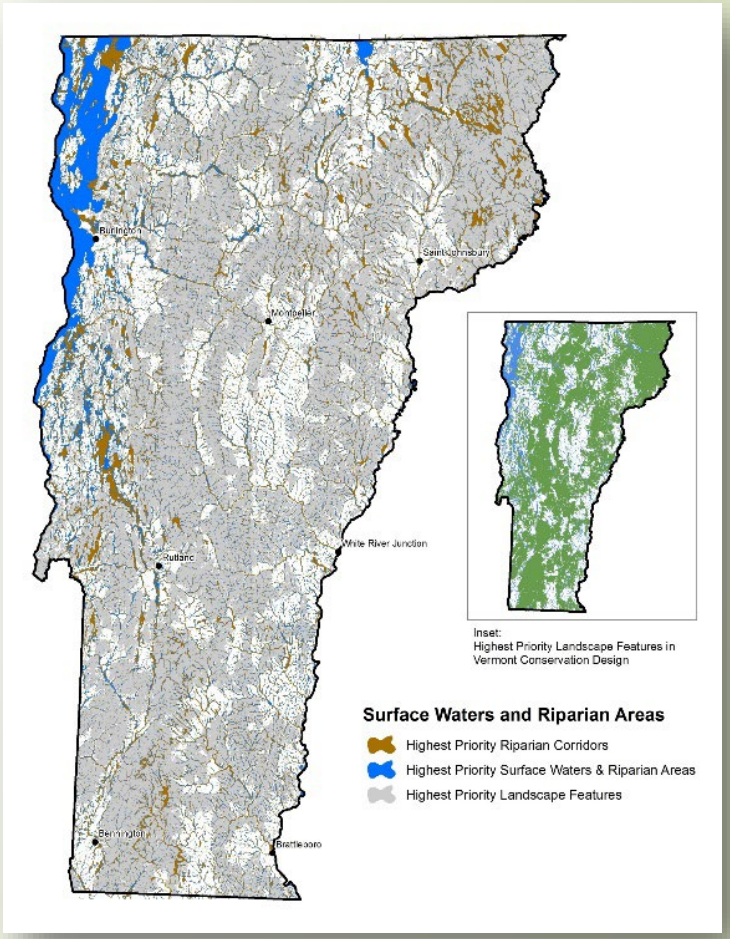


Connectivity Blocks

Surface Water and Riparian Areas

Ecological Function:

- Aquatic Habitats & Biota
- Wildlife habitat & corridors
- Floodwater storage
- Shoreline and water quality protection



Surface Water and Riparian Areas

Ecological Function:

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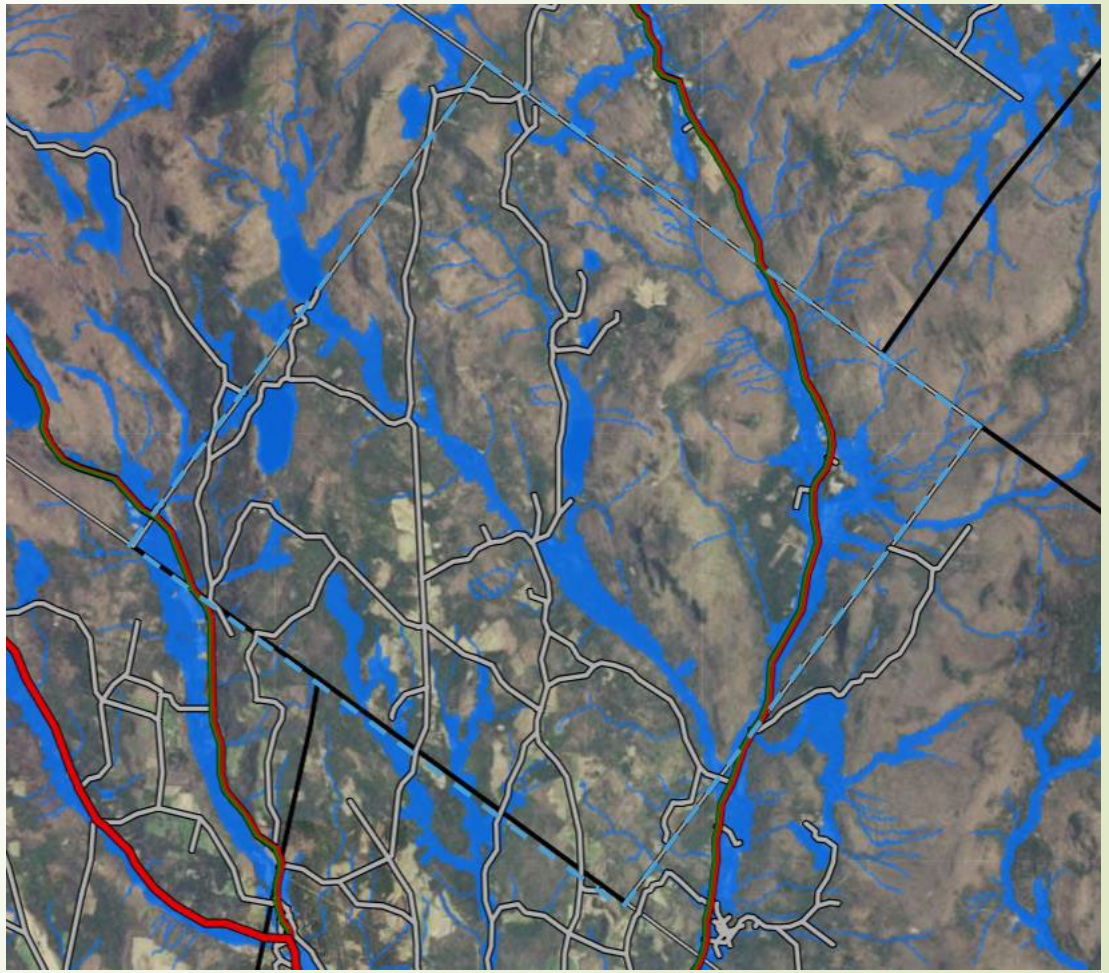


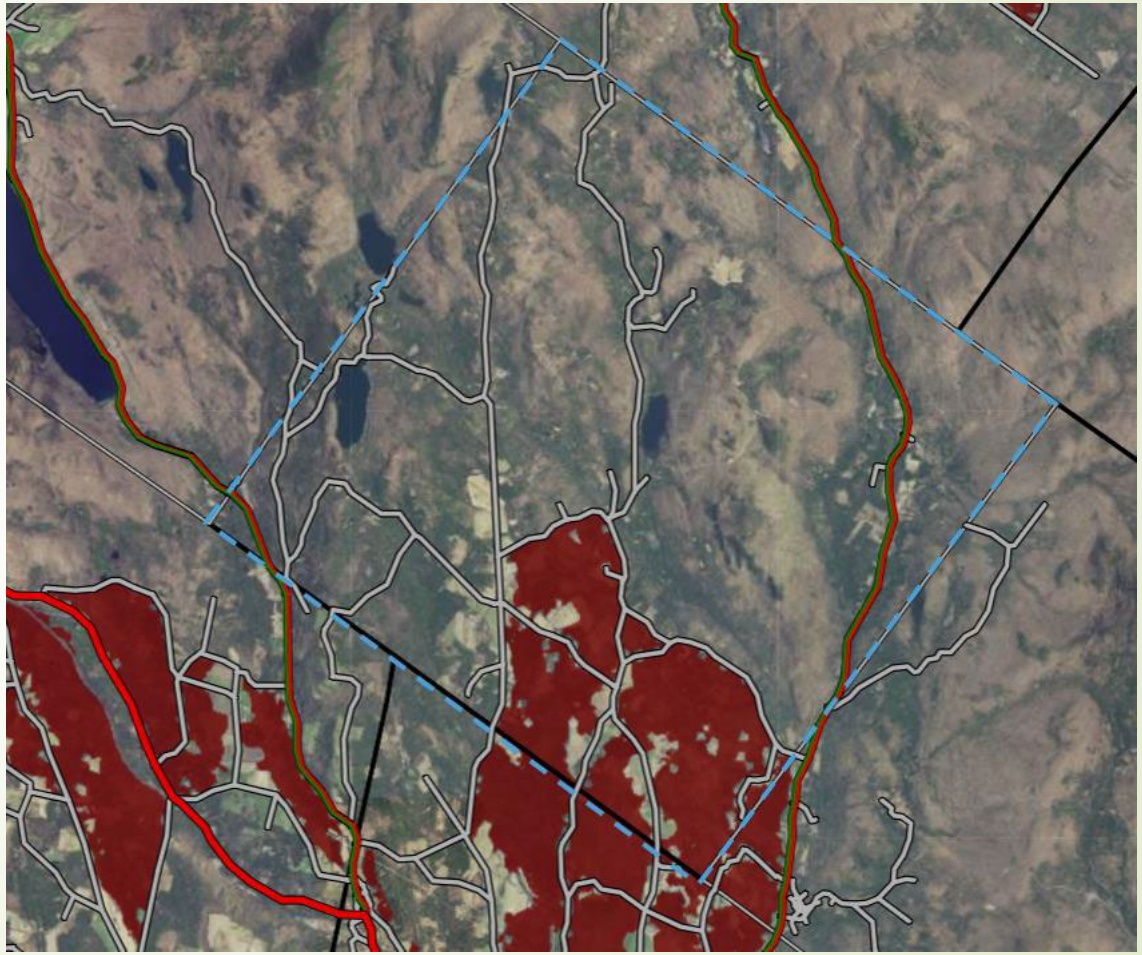
Physical Landscape Diversity & Blocks

Ecological Function:

- Diverse bedrock, soils, elevations, & landforms have the most biodiversity;
- Climate change resilience;
- Protects future biodiversity.

Physical Landscape Diversity & Blocks

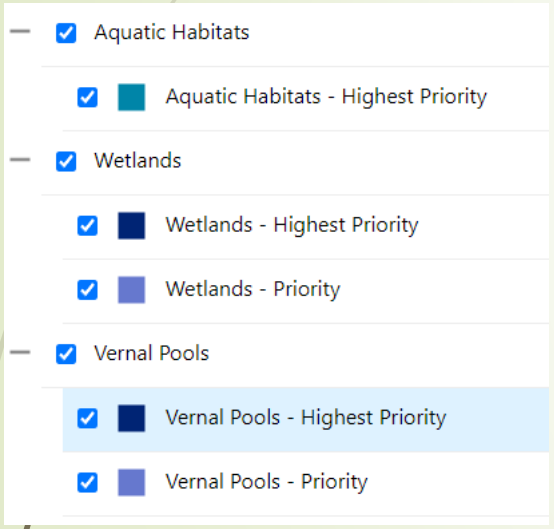
Low-to-mid elevation transitional : Calcareous sed/metased : Dry flats



Community & Species Components

- Natural Communities
- Aquatic Habitats
- Rare & Uncommon Species
- Wildlife Road Crossings
- Vernal Pools
- Wetlands
- Caves and Mines (Not Mapped)

Community & Species Components



Break & Questions

NEXT UP:

SECTION 3 OF 3

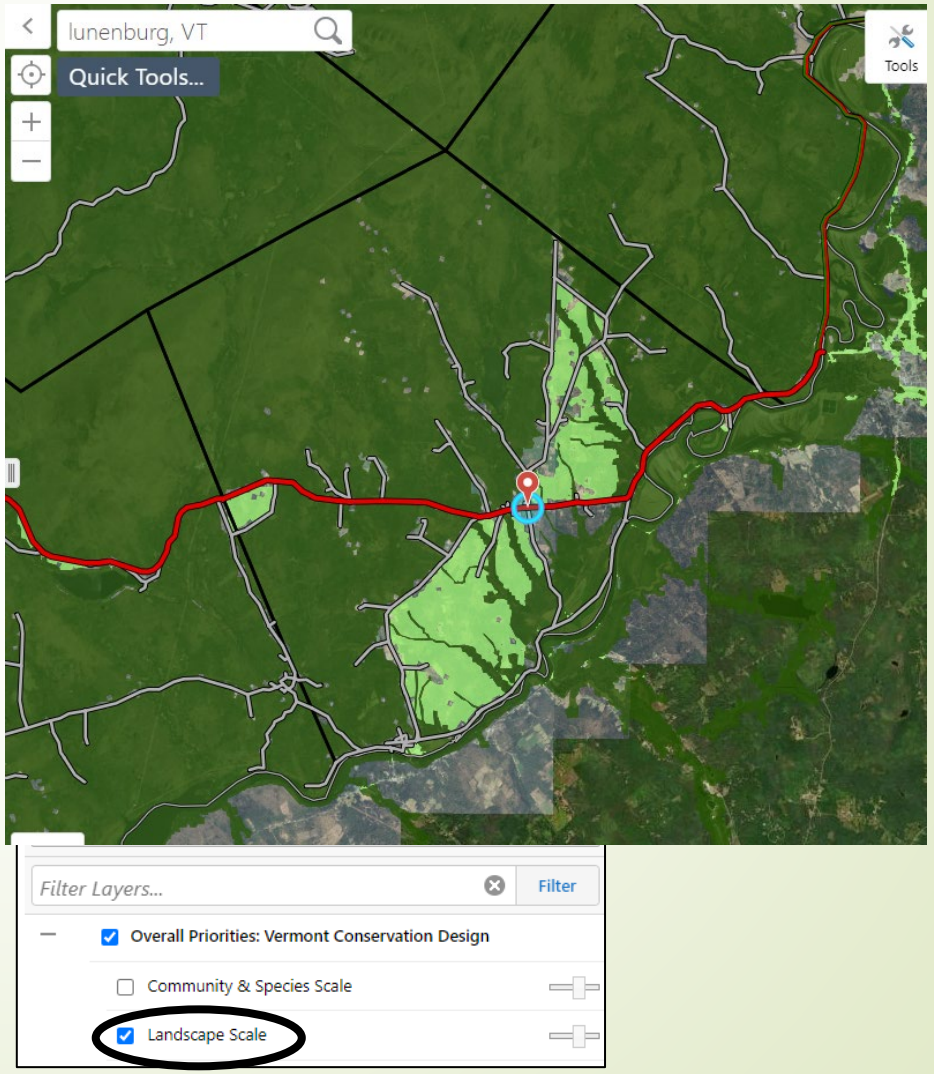
Six steps for prioritizing

DETERMINE ECOLOGICAL CONTEXT			IDENTIFY AREAS OF HIGH PUBLIC VALUE	DEVELOPING & CHOOSING OPTIONS	
1	2	3	4	5	6
Locate priorities at the landscape scale	Locate priorities at the species and natural communities scales	Identify important components within priority areas	Identify areas of high public value	Establish options	Evaluate and choose options

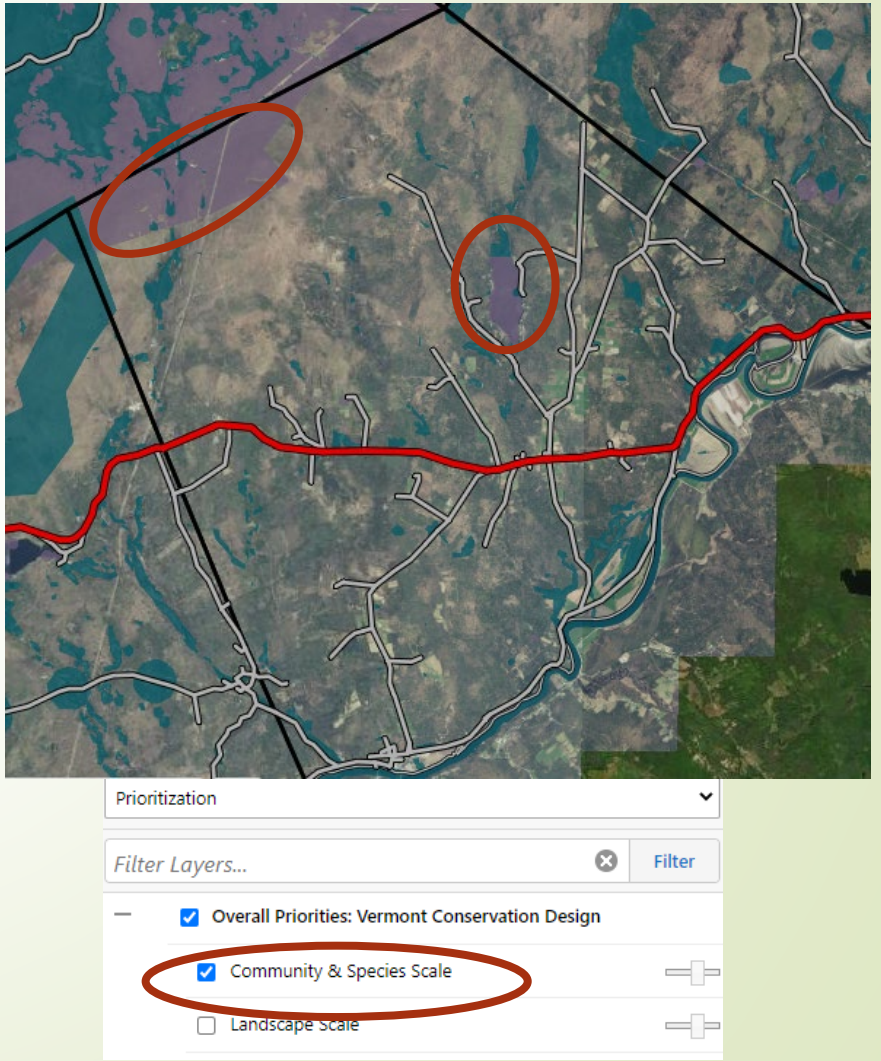
PARTICIPATION

Step 1: Locate priorities at the landscape scale

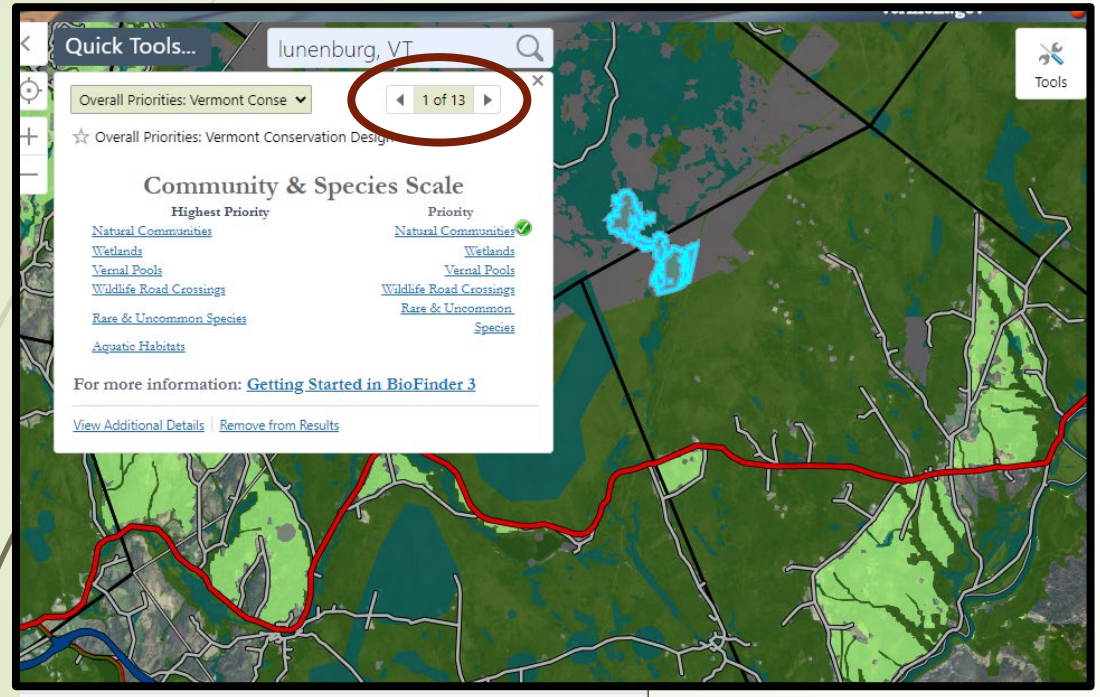
Lunenburg, VT

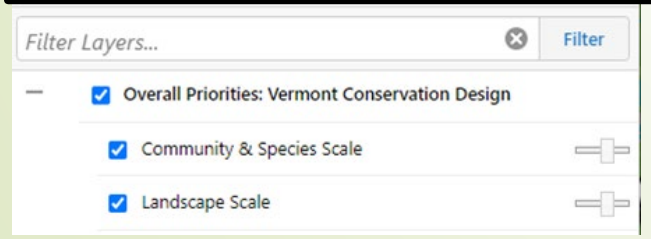


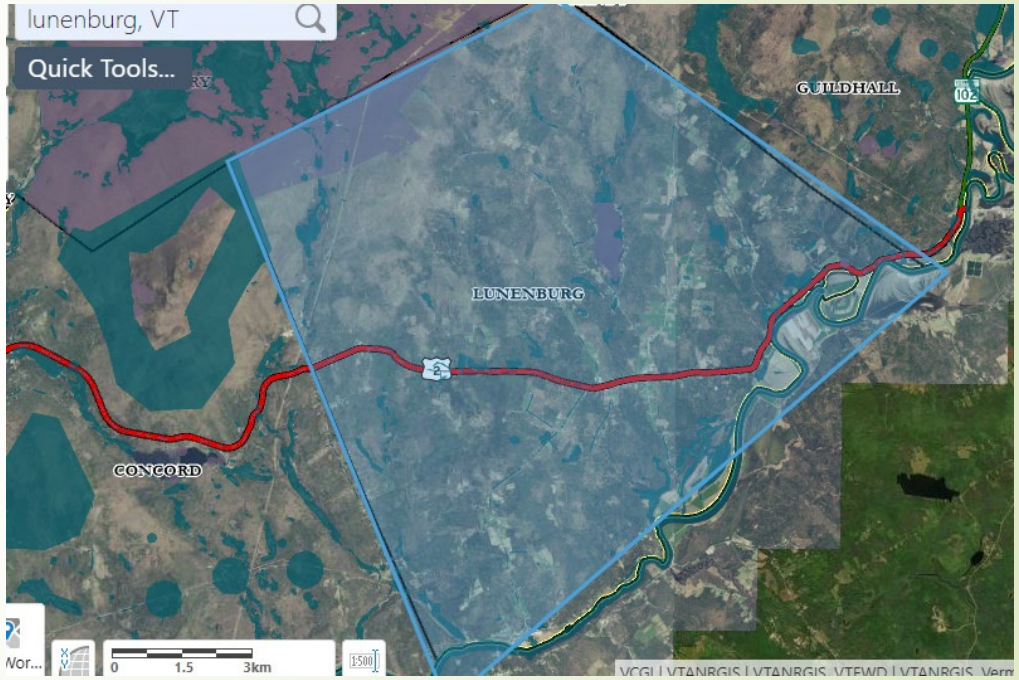
Step 2: Locate priorities at the community and species scales

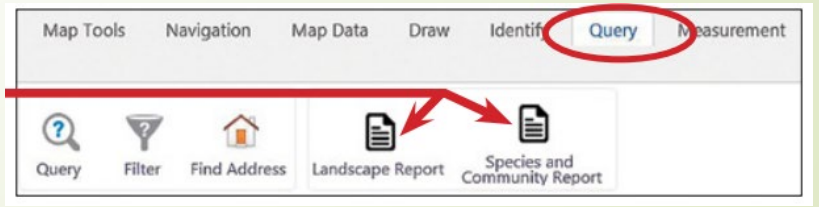


Step 3: Identify important components within priority areas

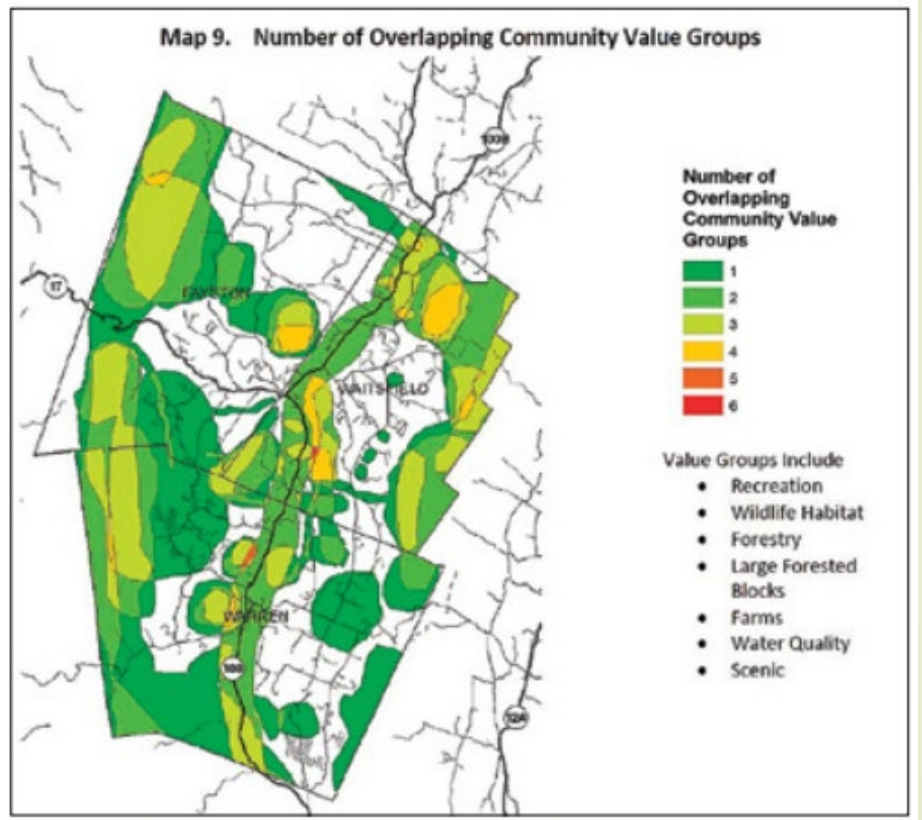






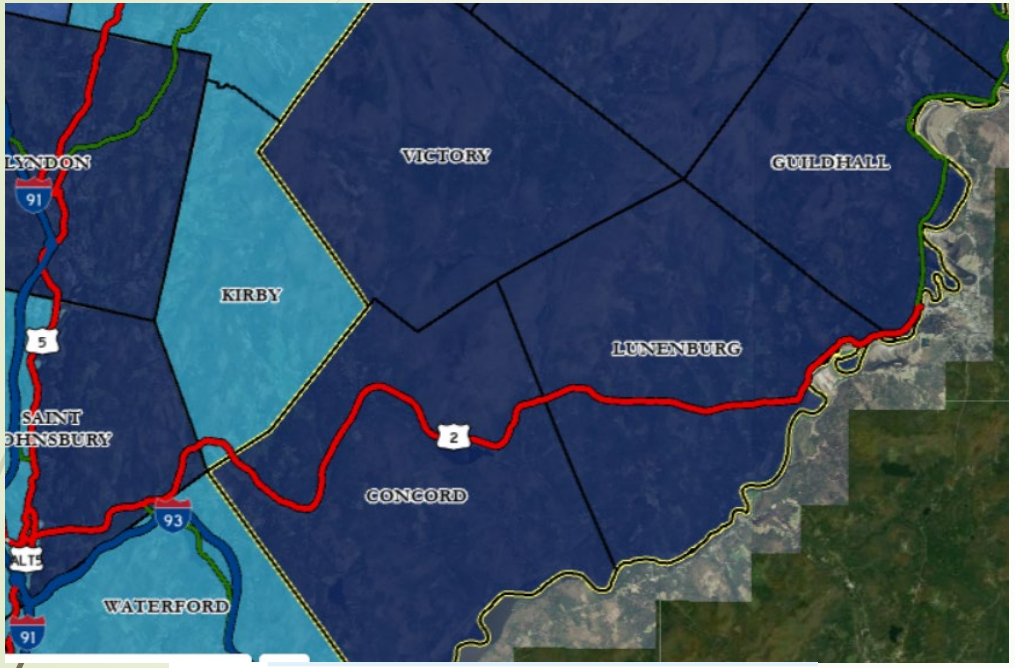


Step 4: Identify areas of high public value



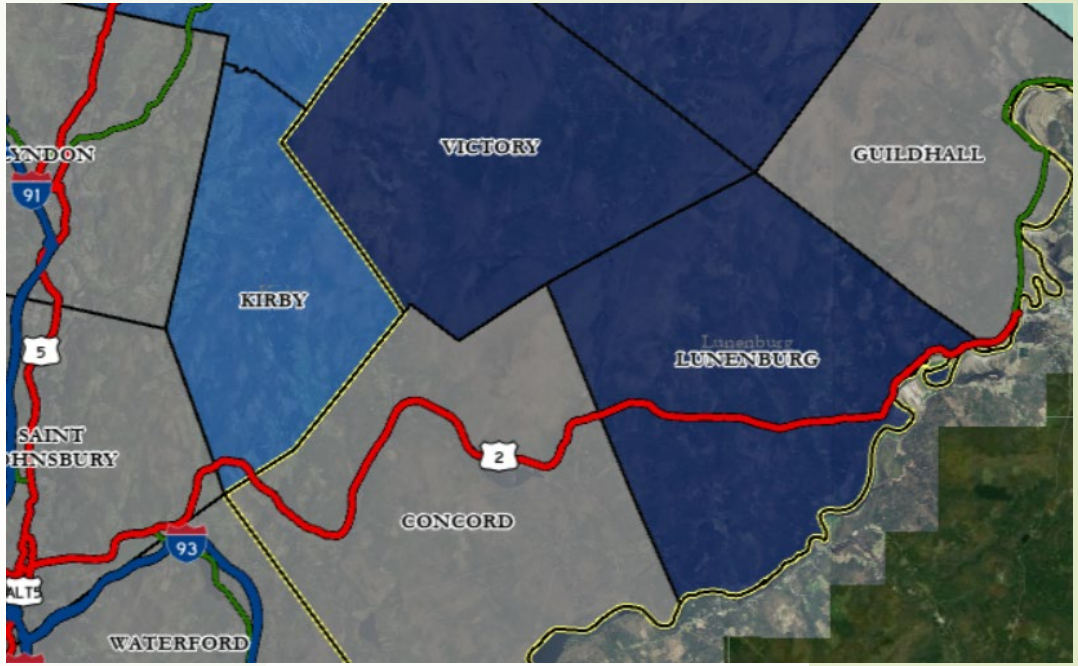
This map, from a Community Values Mapping session in the Mad River Valley, shows the number of community values groups identified in each location across the region.

Social and Environmental Factors



Unemployment

- .7% to 3%
- 3% to 4.5%
- 4.5% to 5.3%
- 5.3% to 6.3%
- 6.3% to 8%
- >8%



Property Data

Percent change in land value ($) per acre

- -100% to 35%
- 35% to 53.3%
- 53.3% to 70.4%
- 70.4% to 101.8%
- >101.8%
- No Data

Identify the problem

- Problem
- People
- Consensus

Step 5: Establish options

- Current level of protection?
- Review town plan
- Visualize Change
- Brainstorm
  - Walks and talks
  - Outreach to Landowners
  - Natural Resources Inventory
  - Establish Town Forest
  - Zoning
  - Subdivision

Step 6: Evaluate and choose options

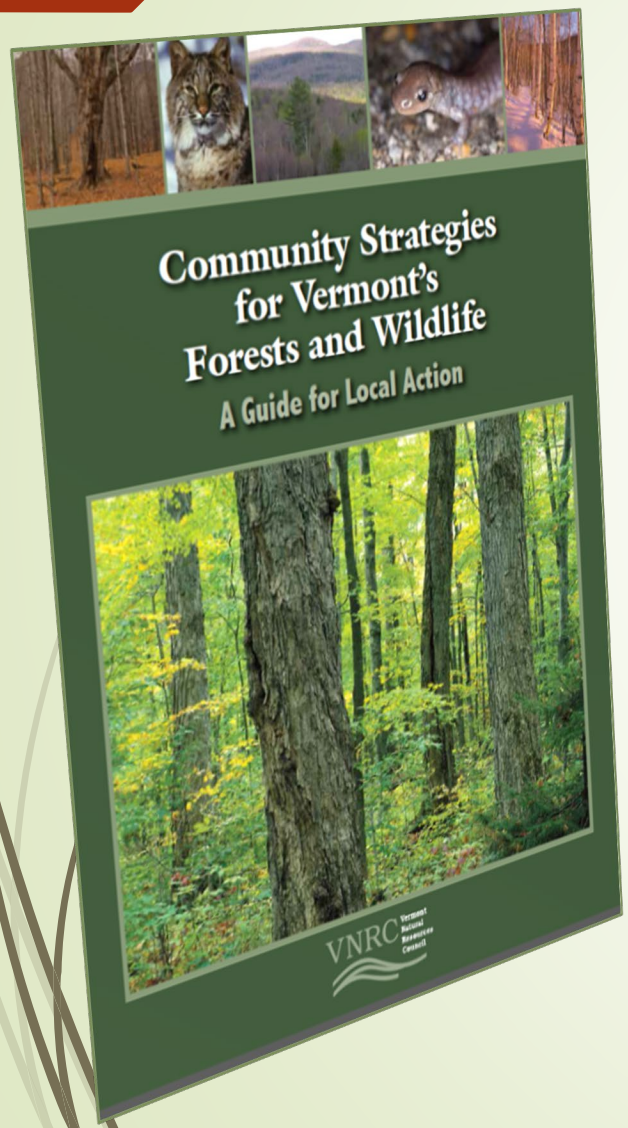
For each strategy, consider…

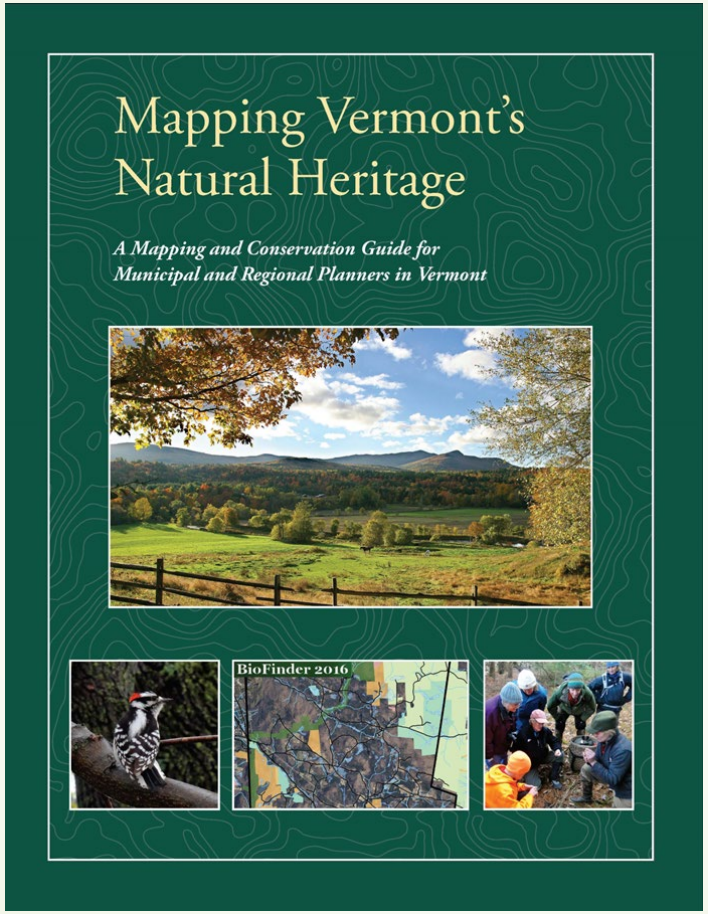
- Does it help the problem statement
- Does it align with community values?
- Does your town have capacity? Timing?
- Cost?
- Who else can help? Opportunity to build on existing efforts?

DETERMINE ECOLOGICAL CONTEXT			IDENTIFY AREAS OF HIGH PUBLIC VALUE	DEVELOPING & CHOOSING OPTIONS	
1	2	3	4	5	6
Locate priorities at the landscape scale	Locate priorities at the species and natural communities scales	Identify important components within priority areas	Identify areas of high public value	Establish options	Evaluate and choose options

Tools	Does It Help the Problem?	Cost	Internal Capacity	Effort	Align with Comm. Values?	Potential Partners	Build on Existing Efforts?
Walks/Talks Series	Low/Med	Low	Low	Low	Yes	ANR, Master Naturalist	Yes
Outreach to Landowners	Low/Med	Low	Med	Med	Yes	Coverts, Audubon	Yes
Natural Resources Inventory	Med	High	Med	Med	Yes	FWD, ACCD, Consult.	Yes
Establish Town Forest	Low	High	High	High	Yes	TPL, Co. Foresters, ANR	No
Zoning	High	Low - High**	High	High	Depends	RPC, ANR	No
Subdivision	High	Low - High**	High	High	Depends	RPC, ANR	No
** Depending on if you hire consultant.							

Resources


Community Strategies for Vermont's Forests and Wildlife
A Guide for Local Action
VNRC


Mapping Vermont's Natural Heritage
A Mapping and Conservation Guide for Municipal and Regional Planners in Vermont
BioFinder 2016


The Municipal Plan
State Planning Manual - Module 1
April 2017
VERMONT

How you can support conservation in Vermont

Vermont Habitat Stamp

Nongame Wildlife Fund

http://vtfishandwildlife.com/donate

Thank You!

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