CRAFTSBURY: NATURAL RESOURCE CONSERVATION AND TOWN PLANNING THROUGH THE LENS OF ACT 171

Jens Hilke – Conservation Planner

VT Fish & Wildlife Department

The Vermont Fish & Wildlife Department

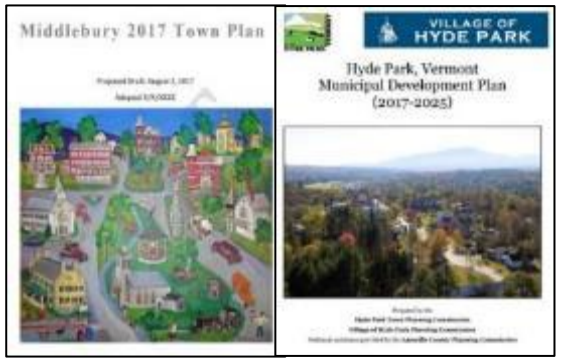
The mission of the Vermont Fish & Wildlife Department is the conservation of our fish, wildlife, plants and their habitats for the people of Vermont

Community Wildlife Program

Presentations & Workshops

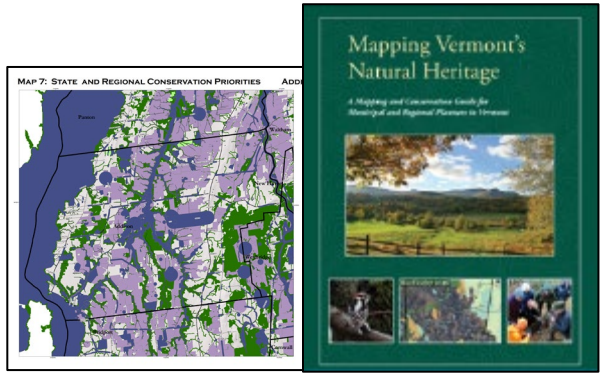
Support for Planning

Support for Conservation

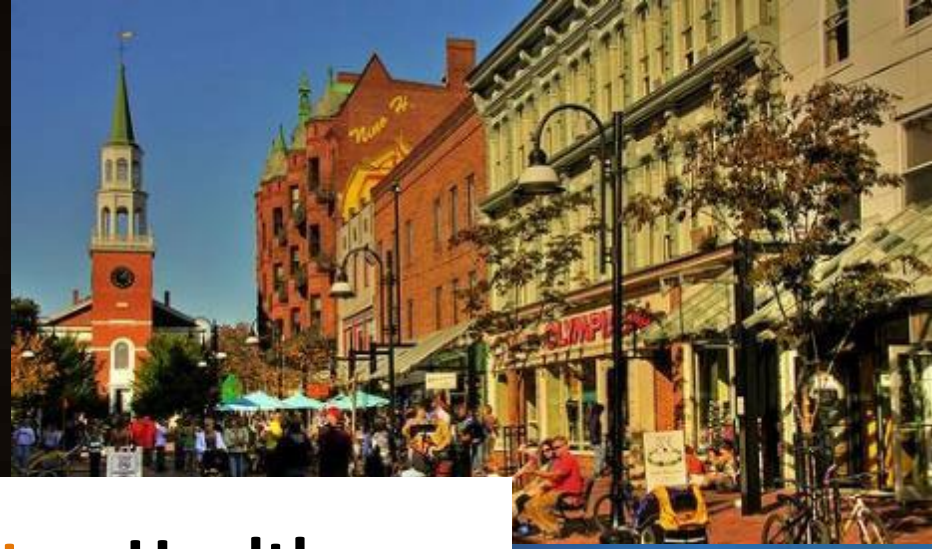


Connecting Communities to Each Other

Understanding Ecological and Community Context



Creation/Interpretation of Resources



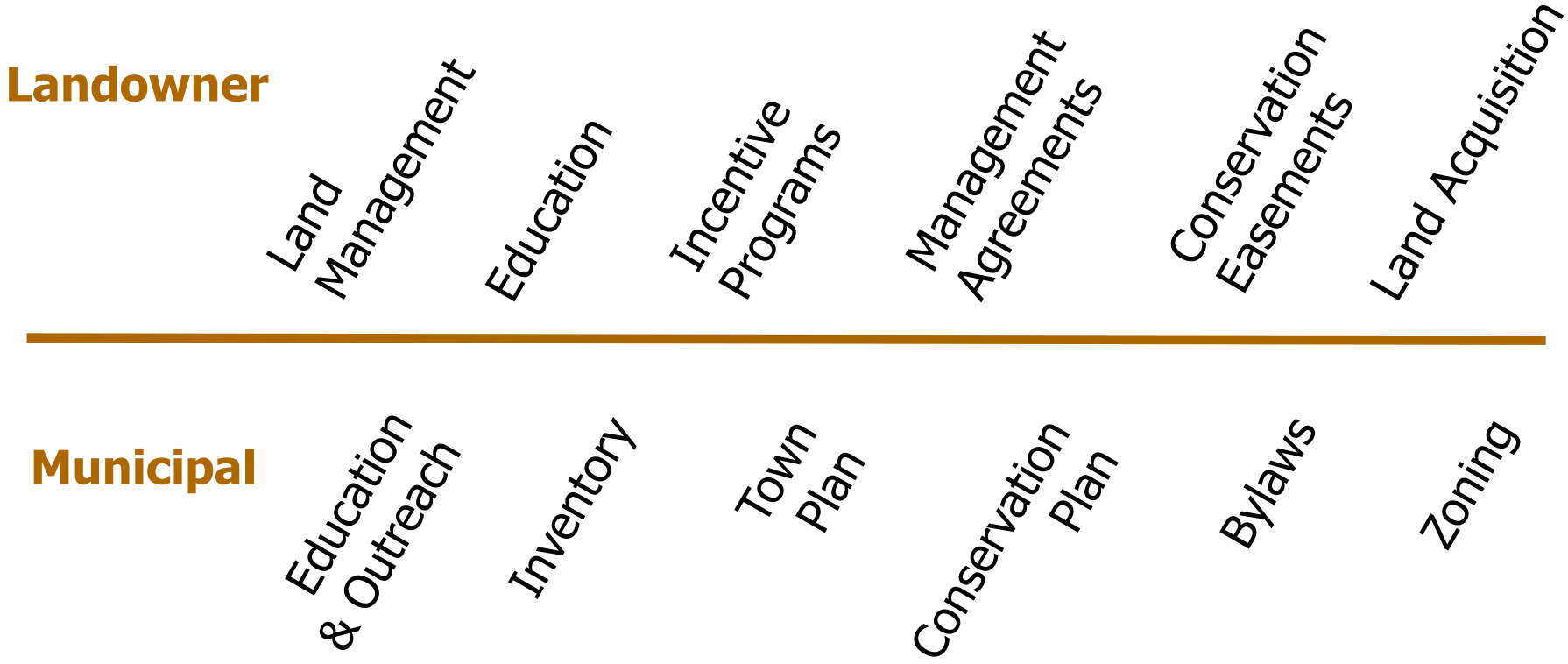
Healthy Forests, Healthy Economy Healthy Community

Freedom & Unity

Balancing Individual liberty and community responsibility since 1791

Many Ways of Moving Forward

Range of options

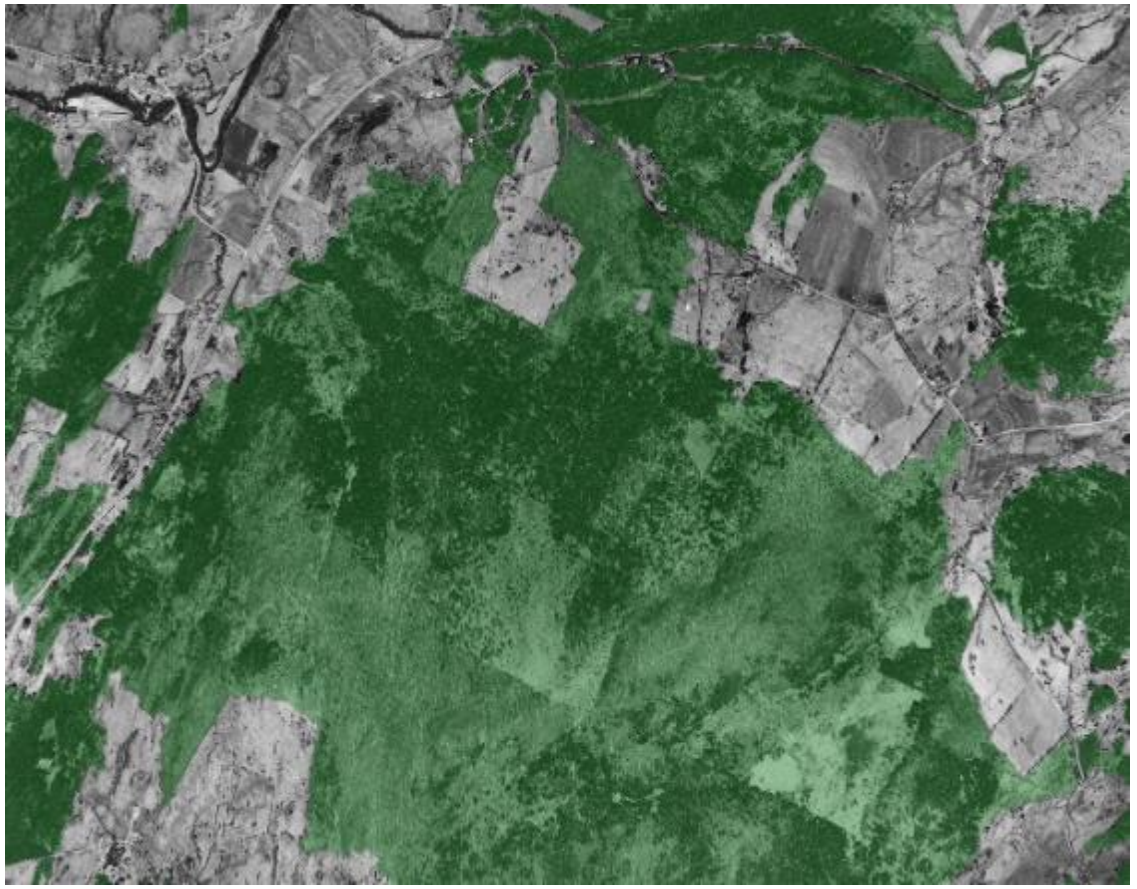


No one tool is right for every landowner or town

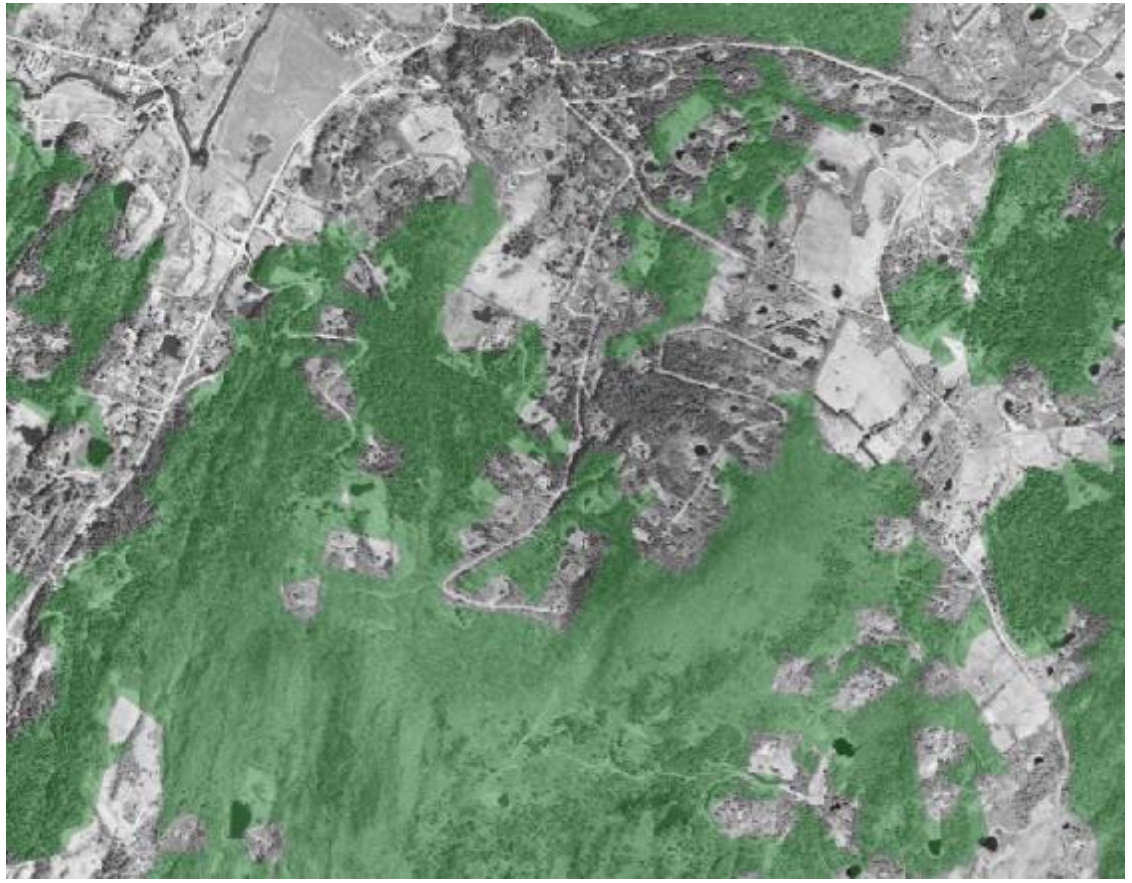

Economic benefits of recreation and tourism
Prevent erosion and reduce flooding
Provide working lands for forest industry
Benefits of Large Forests
Provide land for hunting, fishing, wildlife viewing (and $$)
Clean air & water
Transmit fewer tick-borne illnesses
Scenery
Biological diversity
Sequester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

LOSING WILDLIFE HABITAT & WORKING FOREST

1962



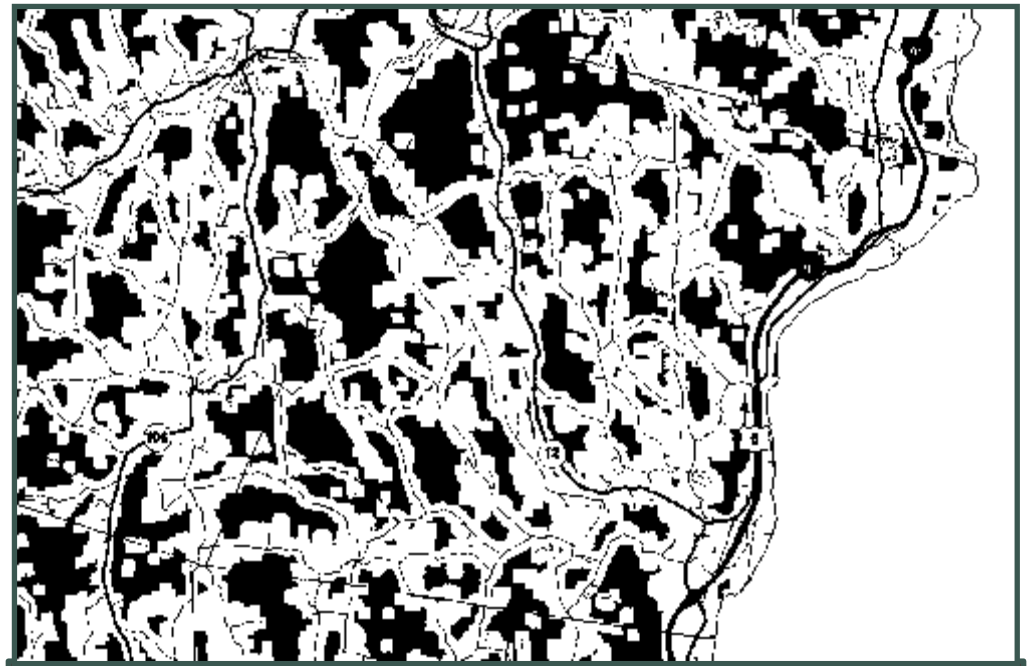
2011



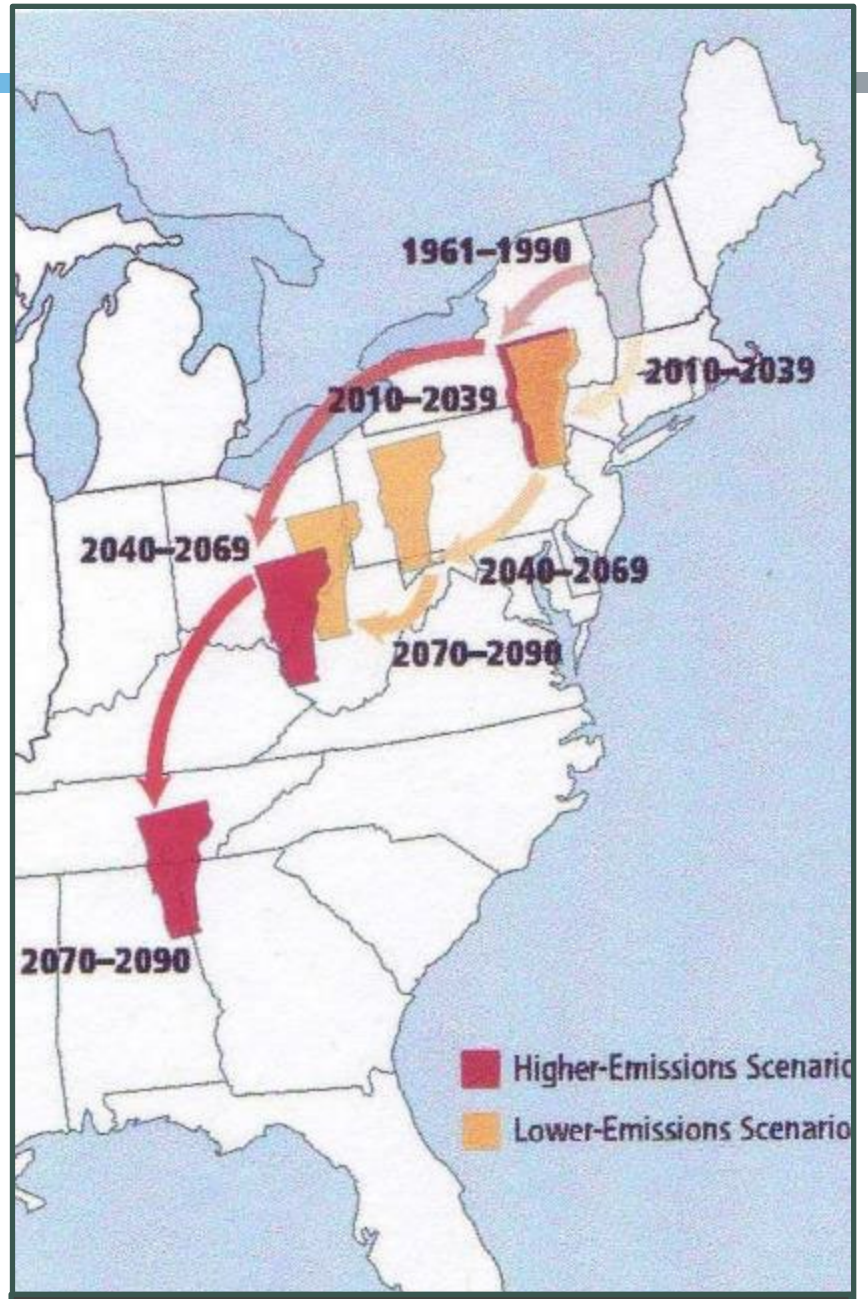
Fragmentation

+ A CHANGING CLIMATE

= a **BIG** challenge



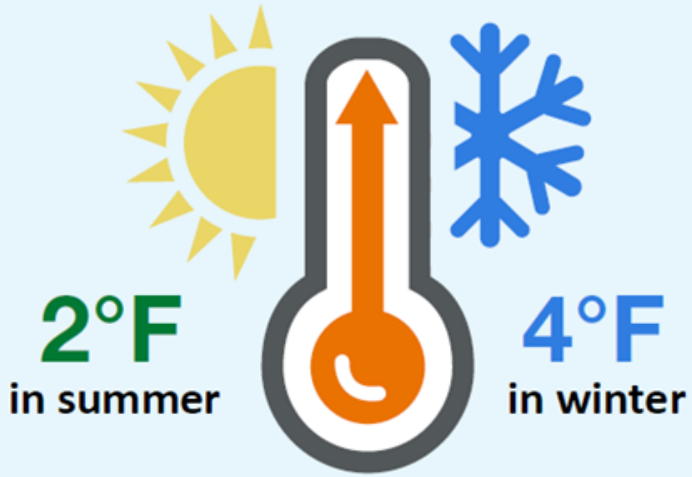
Fragmented Forest Blocks in Hartland, VT

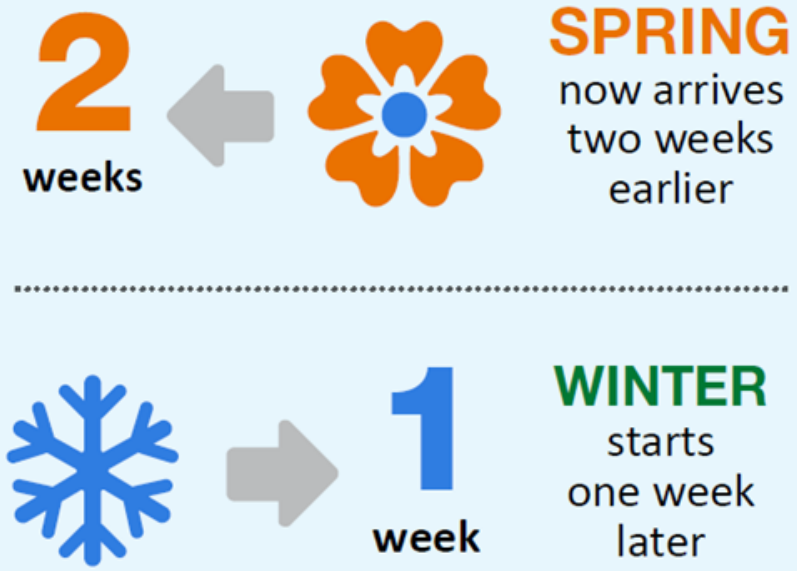


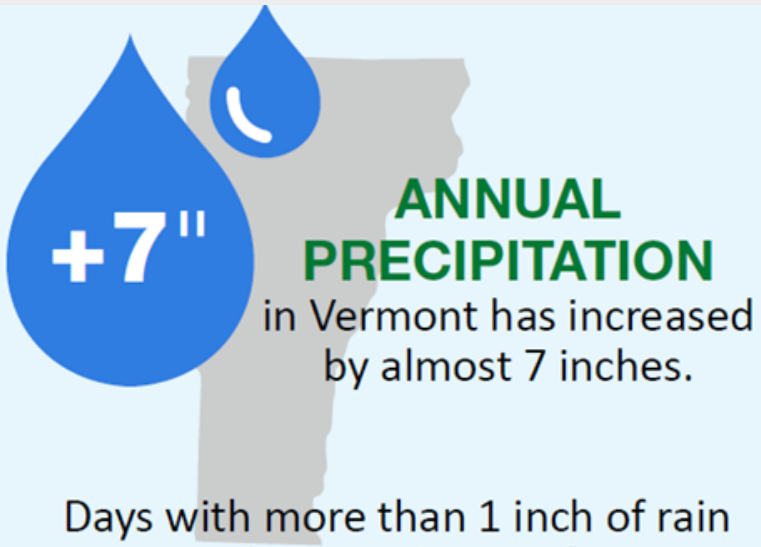
From Union of Concerned Scientists – Confronting Climate Change in the Northeast (NECIA 2007)

CLIMATE CHANGE IN VERMONT

More rain and flooding, changes to agriculture, different forests



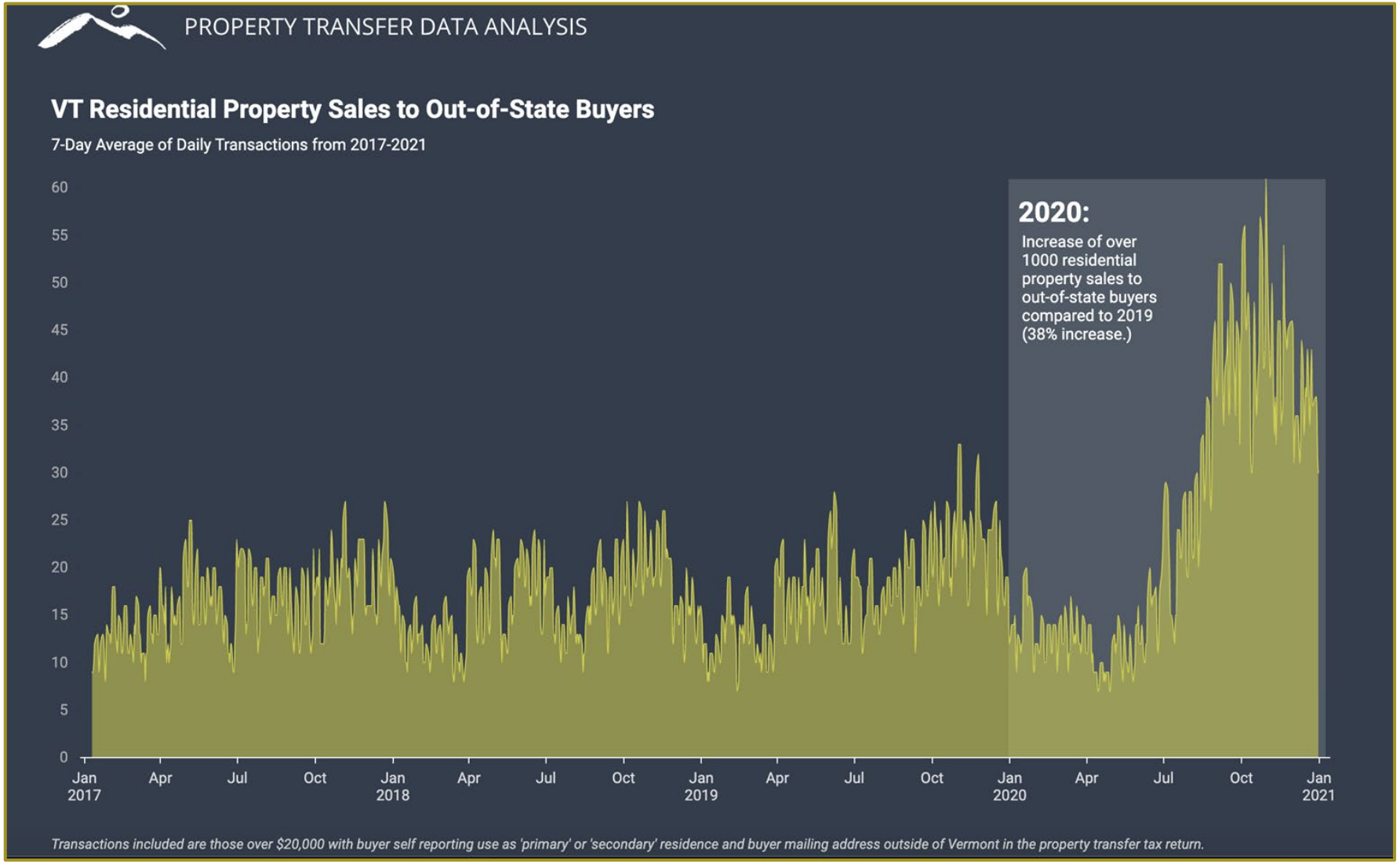




healthvermont.gov

Not everyone is impacted equally

PROPERTY SALES & COVID/CLIMATE MIGRATION



PROPERTY SALES

VT Residential Property Sales to Out-of-State Buyers

Search in table

Page 1 of 17

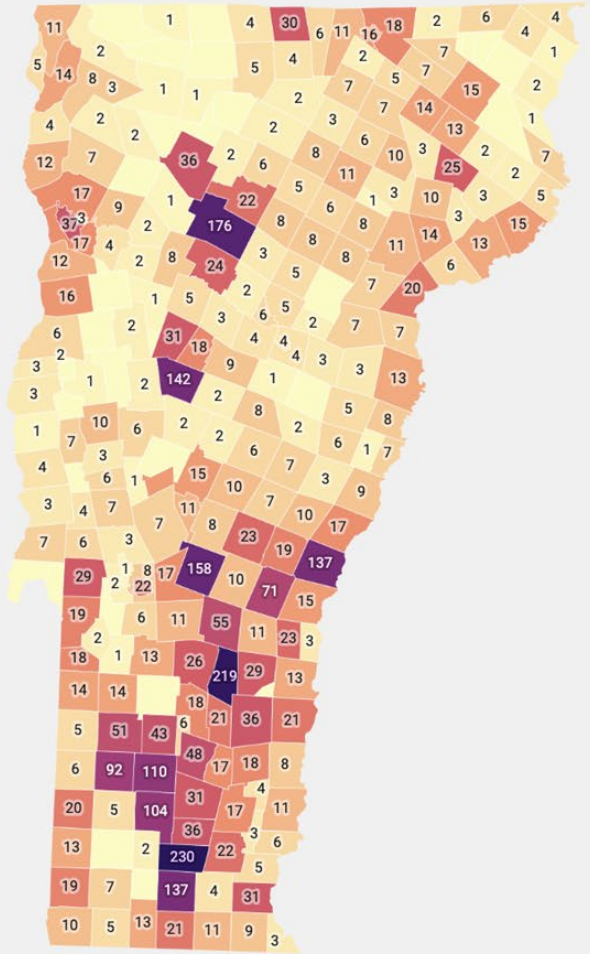
0 25M 132M

	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



Vermont ANR - BioFinder3 | Vermont ANR - Natural Resource | VT PARCELIZATION WEBSITE - Da

vtforesttrends.vnrc.org/explorer

Apps | BioFinder PAGE | BioFinder 3.0 | AVCC | Timesheet | Atlas ANR | Google Maps | VT Planning Atlas | VT Geodata Portal | SCI | Add LOG - CWP | Staff Availability Dai... | Other bookmarks

VT PARCELIZATION WEBSITE

Home | Data Explorer | Reports | Trainings | Downloads | About

Geography

- 1) TOWN
- 2) COUNTY
- 3) RPC
- 4) STATE

Type of Metric

Parcel Size

Metric

# of acres by Parcel Size: g) 100 to 200 acres

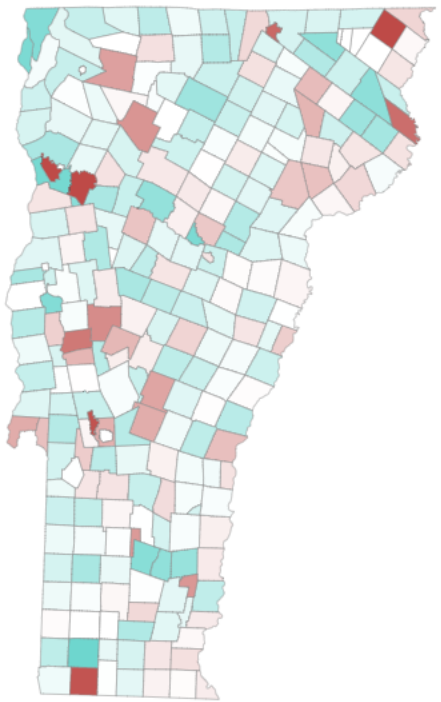
Start Year

2004

End Year

2016

Percentage Difference



Name	Start Year	Start Value	End Year	End Value	Percentage Difference
Brownington	2004	4169	2016	4090	-1.9 %
Brunswick	2004	1503	2016	1302	-13.4 %
Buels Gore	2004	145	2016	145	0.0 %
Burke	2004	1873	2016	1650	-11.9 %
Burlington	2004	120	2016	302	151.7 %
Cabot	2004	5885	2016	5480	-6.9 %
Calais	2004	7245	2016	7403	2.2 %
Cambridge	2004	5864	2016	7577	29.2 %
Canaan	2004	4146	2016	4632	11.7 %
Castleton	2004	4634	2016	3790	-18.2 %
Cavendish	2004	4992	2016	4885	-2.1 %
Charleston	2004	6991	2016	5664	-19.0 %
Charlotte	2004	5458	2016	4949	-9.3 %
Chelsea	2004	6914	2016	6467	-6.5 %
Chester	2004	7659	2016	7519	-1.8 %
Chittenden	2004	2366	2016	2324	-1.8 %
Clarendon	2004	4888	2016	4085	-16.4 %
Colchester	2004	3231	2016	2564	-20.6 %
Concord	2004	4412	2016	4885	10.7 %
Corinth	2004	10297	2016	9138	-11.3 %
Cornwall	2004	2434	2016	2749	12.9 %
Coventry	2004	3219	2016	2938	-8.7 %
Craftsbury	2004	4733	2016	4108	-13.2 %
Danby	2004	3844	2016	3262	-15.1 %
Danville	2004	8603	2016	9929	15.4 %
Derby	2004	6418	2016	5767	-10.1 %
Dorset	2004	5170	2016	5038	-2.6 %
Dover	2004	2719	2016	2192	-19.4 %
Dummerston	2004	3302	2016	3364	1.9 %
Duxbury	2004	2233	2016	2599	16.4 %
East Haven	2004	2032	2016	1541	-24.2 %
East Montpelier	2004	3805	2016	4384	15.2 %

Microsoft Power BI

ACT 171 PLANNING PROVISIONS

New land use planning goal:

to manage Vermont's forestlands so as to **maintain and improve forest blocks and habitat connectors**.

ACT 171 PLANNING PROVISIONS

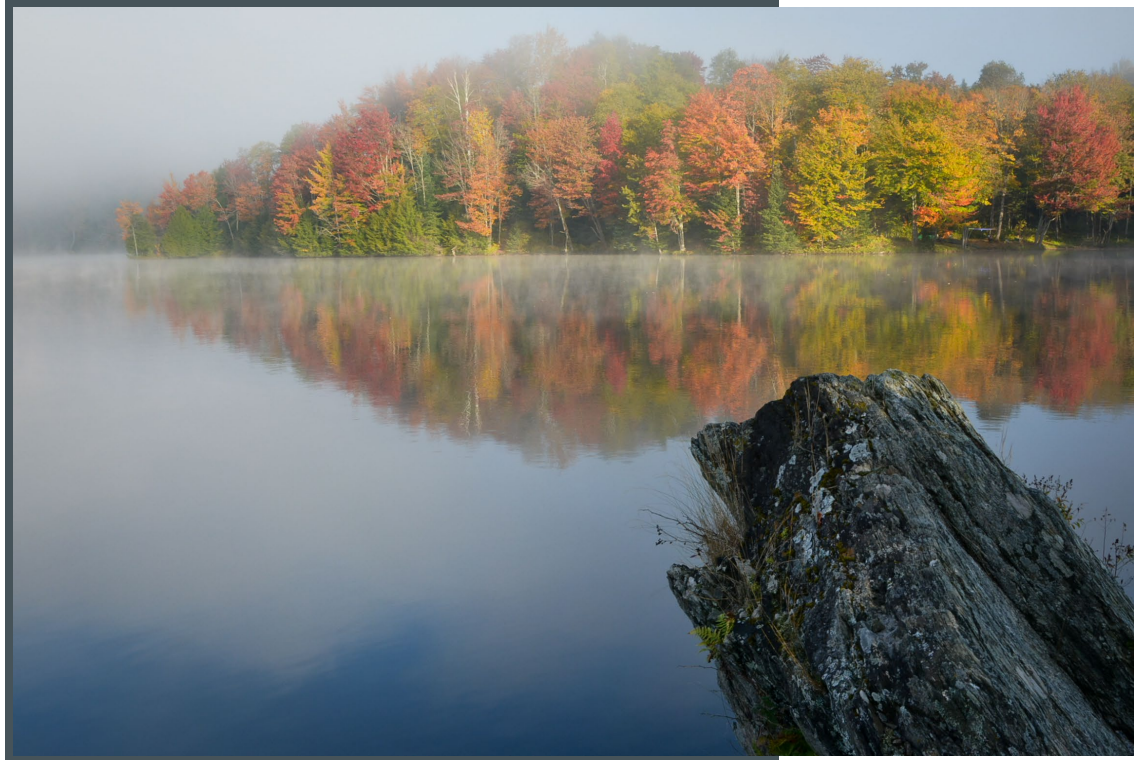
Requires town and regional plans to:

- 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.

Act 171 ANR Guidance Document

https://anr.vermont.gov/act171_forestplanning

CRAFTSBURY TOWN PLAN 2016 - 2024



Forestland

The land in the town of Craftsbury is over 75 percent forested. These forests have provided a utilitarian base for the local economy since times of early settlement. As well, Craftsbury forests offer an aesthetic backdrop for the town's pastoral setting and for the distant vistas.

The forests are often affected by insects and diseases: spruce budworm defoliated balsam fir and spruce trees and caused mortality in 1978-1984; we are currently approaching the time when this insect's population cycle is increasing again. Other insects and diseases which are currently present include forest tent caterpillars, sugar maple borers, white pine blister rust, Dutch elm disease and hypoxylon canker. Another threat to our forests is the nonnative, invasive plant species that are aggressively occupying the understory.

Potentially rapid changes in our climate will most likely change forest growing conditions. Adaptive responses to deal with this problem are underway. The U.S. Forest Service and universities are providing insightful research into how to practice forestry to prepare forest stands to be more resilient to these changes. Another concern in Craftsbury has been some heavy cutting and water violations, but for the most part, the quality of the work in our forests has been steadily improving.

The present ownership pattern is almost exclusively private with only one tract owned by Atlas Timber Partnership with the Vermont Land Trust and Nature Conservancy. The town and the Craftsbury Academy own five tracts totaling approximately 300 acres; these are the only publicly owned forests. The Municipal Forest Committee in town manages these forests for the benefit of the community. Within the past thirty years, an increasing number of private forestland owners in Craftsbury have sought to apply the principles of forestry in managing the lands. These principles and the resulting practice of forestry were borrowed and adapted from European forestry techniques. With this concern for proper care of forests and the continued development of a local land ethic to guide the relationship between the people of Craftsbury and their forests, this valuable resource will continue to play an important role in the town's future. More than 10,000 acres of Craftsbury's forestlands are enrolled in Vermont's Use Value Appraisal program, also known as Current Use. This program is fostering active stewardship of our forestlands for today and tomorrow. More information about enrollment can be found in the Land Use Profile.

Significant Natural Communities and Species

The Vermont Nongame and Natural Heritage Program through the Vermont Department of Fish and Wildlife, in February 2009, mapped fourteen sites in Craftsbury that have state-significant natural communities or rare, threatened or endangered plant and animal species. Significant Natural Communities include: Northern White Cedar Swamp, Sedge Meadow, Alluvial Shrub Swamp, Sweet Gale Shoreline Swamp, and Spruce-Fir Tamarack Swamp. Plant species include: Showy Lady's Slipper, Small Lady's Slipper, Large Yellow Lady's Slipper, Ram's Head Lady's Slipper, Mild Water-pepper, Mare's-tail, Straight-leaf Pondweed, Marsh Valerian, and Shining Rose. Animals include: Common Loon, Black-backed Woodpecker and Long-eared Owl.

Conservation Commission
Conservation Fund
Three Village Centers designated
No Zoning
No Subdivision

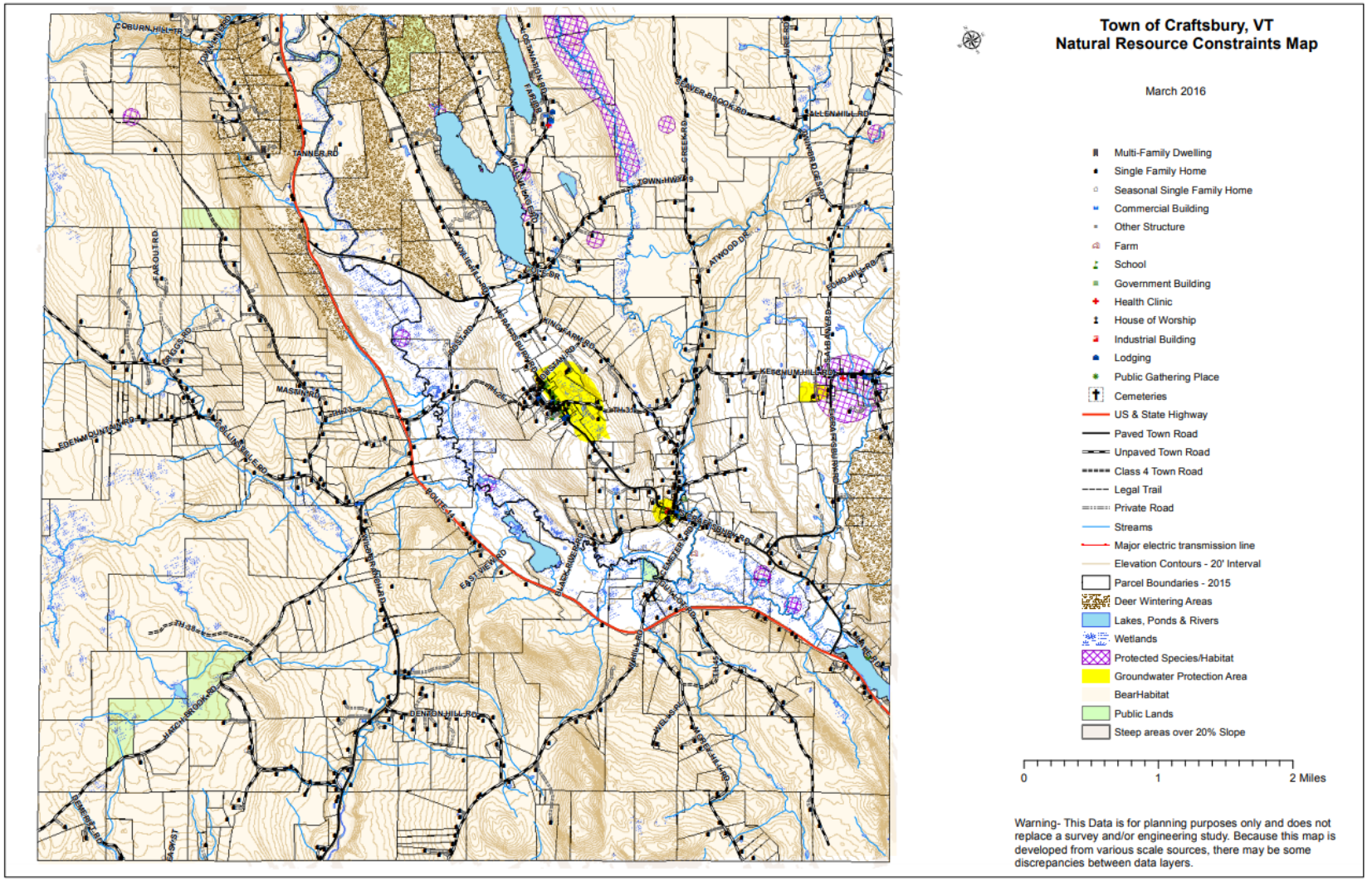
CRAFTSBURY TOWN PLAN 2016 - 2024

Goals

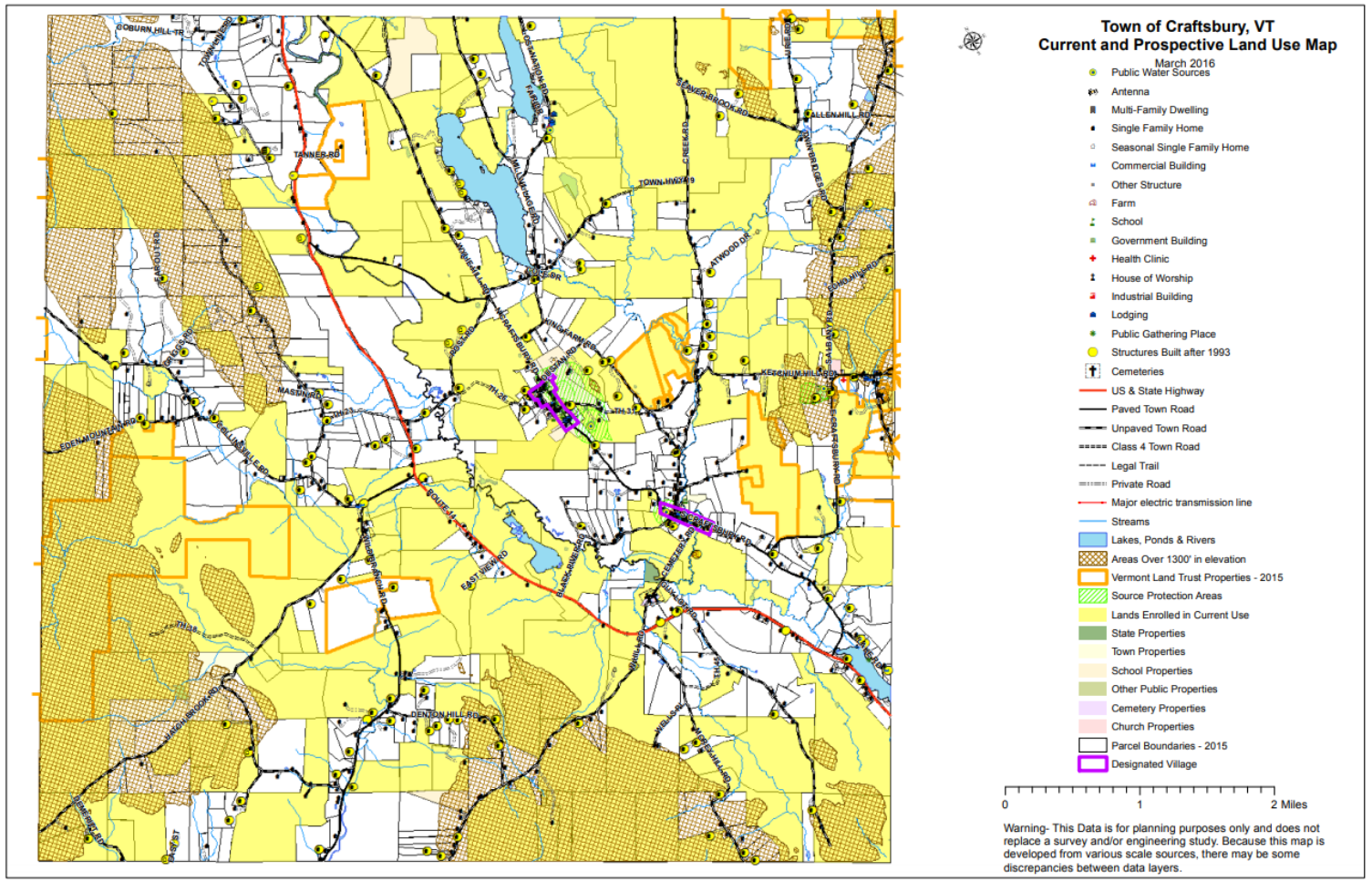
- Protect and manage Craftsbury's natural heritage and biodiversity.
- Identify and understand the natural resources within Craftsbury and their ecological significance.
- Raise community awareness about Craftsbury's natural heritage through education and local conservation planning.
- Manage our town and school forests as models of land stewardship.
- Restore ecological health and integrity of rivers, streams, lakes, and ponds

- Action Steps:
- Collaborate with Sterling College, Craftsbury Academy, Craftsbury Outdoor Center, town committees, government institutions, agencies, and organizations regarding education and conservation activities.
- Develop and utilize maps on land use patterns to understand current agricultural areas, contiguous forestland, and residential/commercial development impacts on natural heritage.
- Investigate open space planning, possibly including a land evaluation and site assessment to develop a consensus-based vision for future conservation efforts, and address the long-range implications on taxes.
- Maintain the natural heritage database located at Sterling College.
- Identify and map natural communities and critical wildlife features, including deeryards, bear production areas, vernal pools, and wildlife corridors.
- Identify and map species of greatest conservation concern such as bats, bees, butterflies, and their habitats.

NATURAL RESOURCE "CONSTRAINTS"



CURRENT & PROSPECTIVE LAND USE

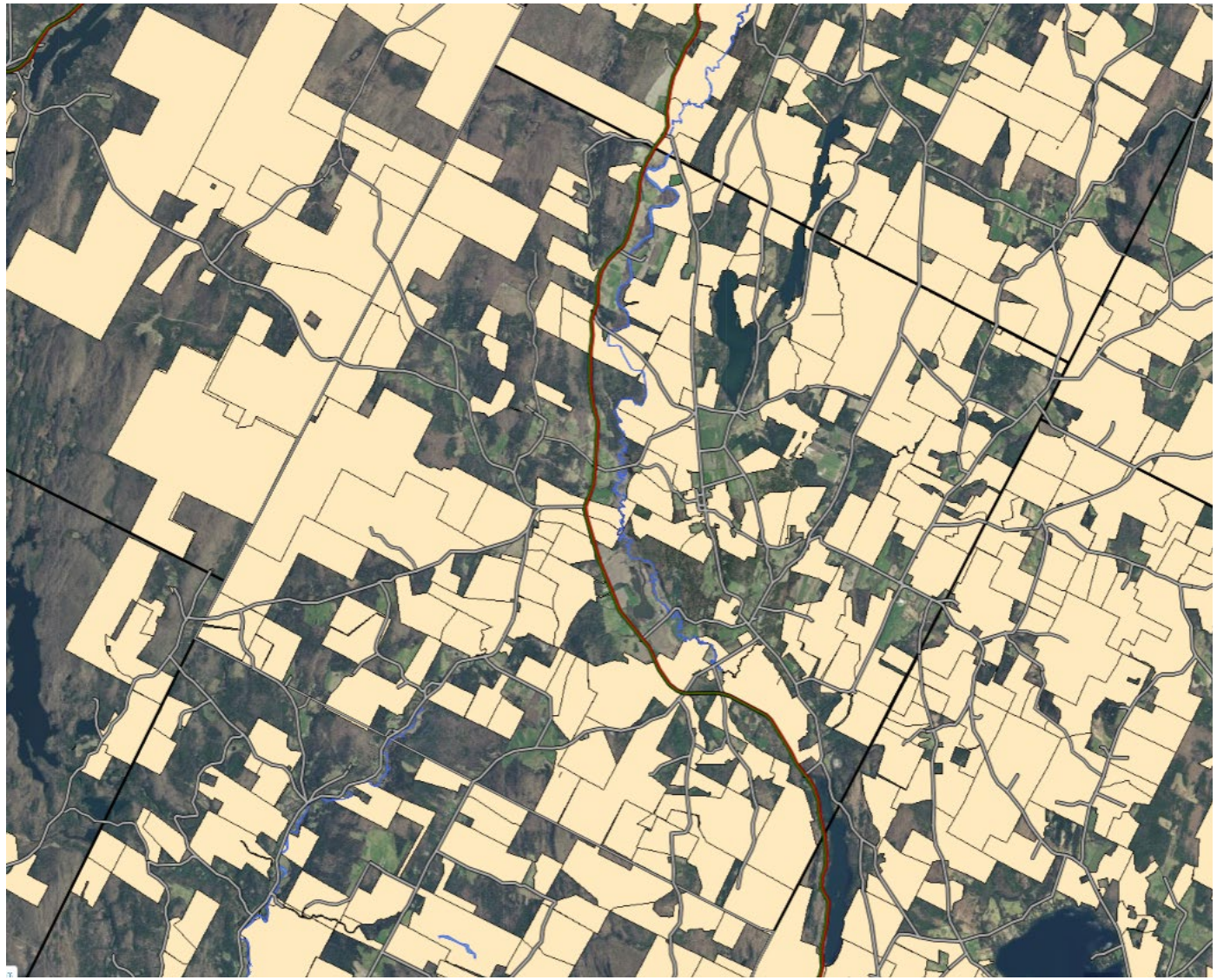


CELEBRATE!

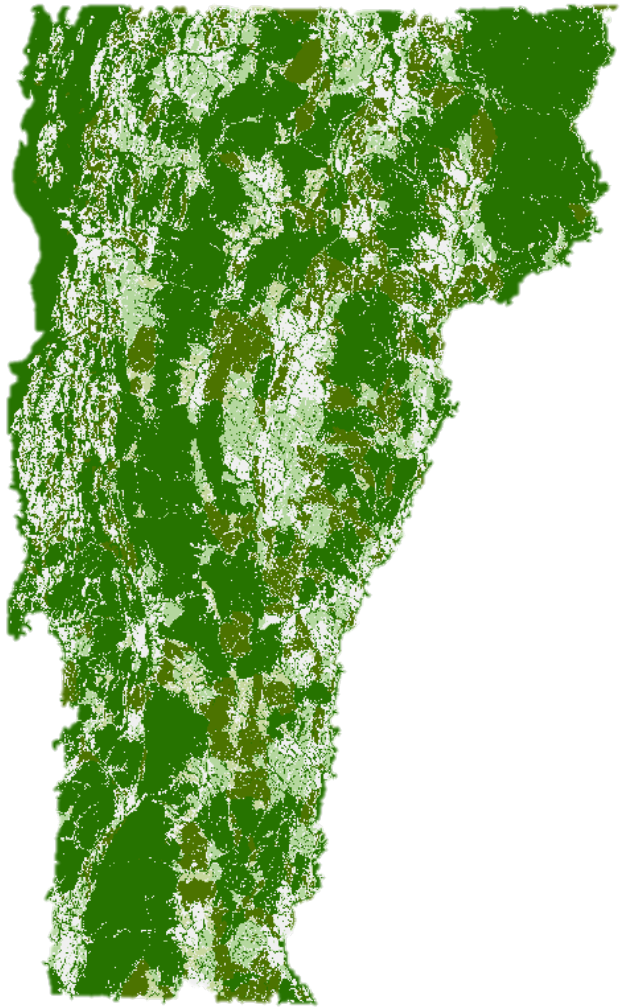
- Use of Conservation Fund to preserve and enhance the natural environment

CONSERVED LAND

USE VALUE APPRAISAL



VERMONT CONSERVATION DESIGN



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

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

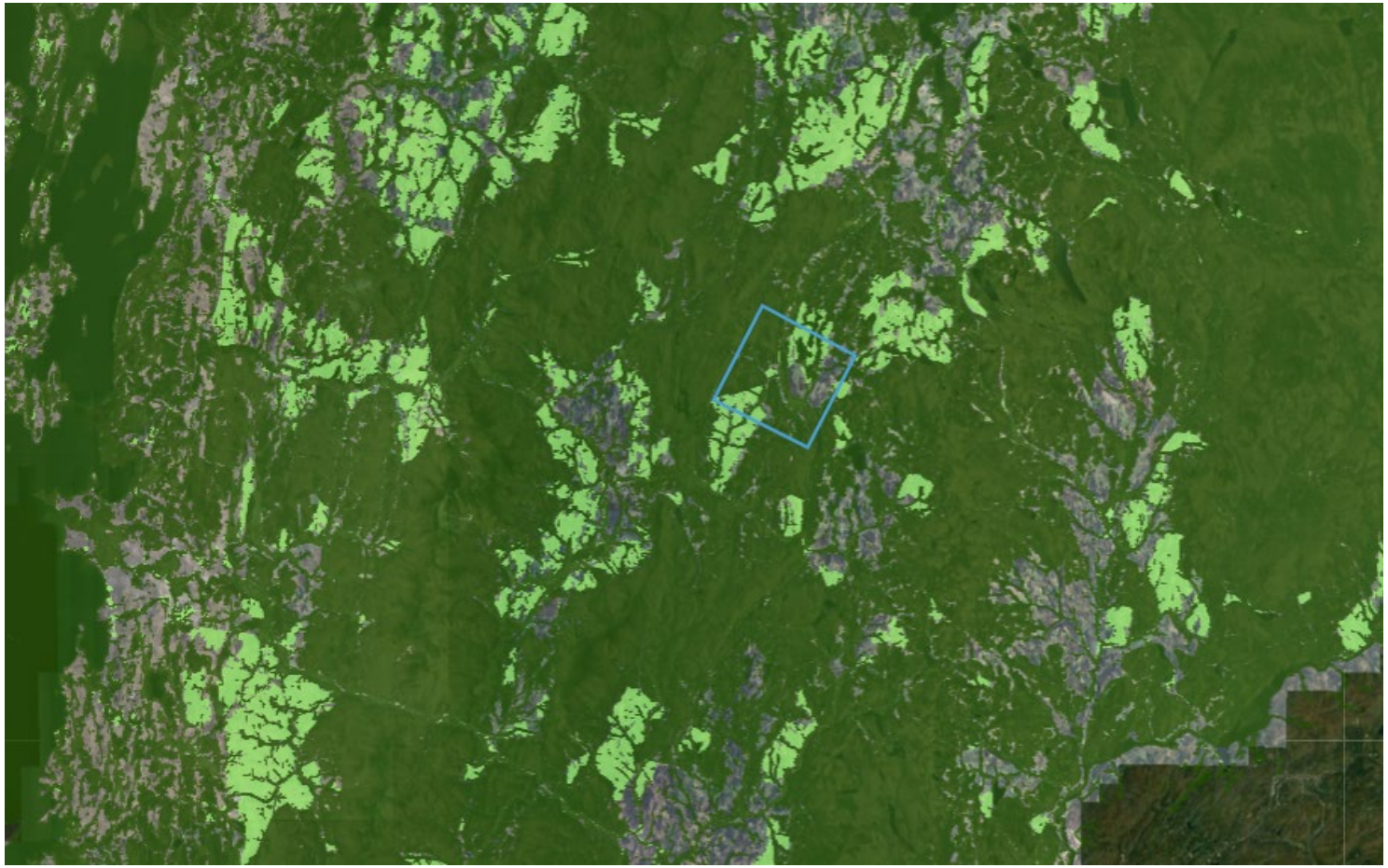
A set of coarse-filter features

offer high confidence in maintaining biological diversity and ecological processes

into the future.

VERMONT CONSERVATION DESIGN

BioFinder™



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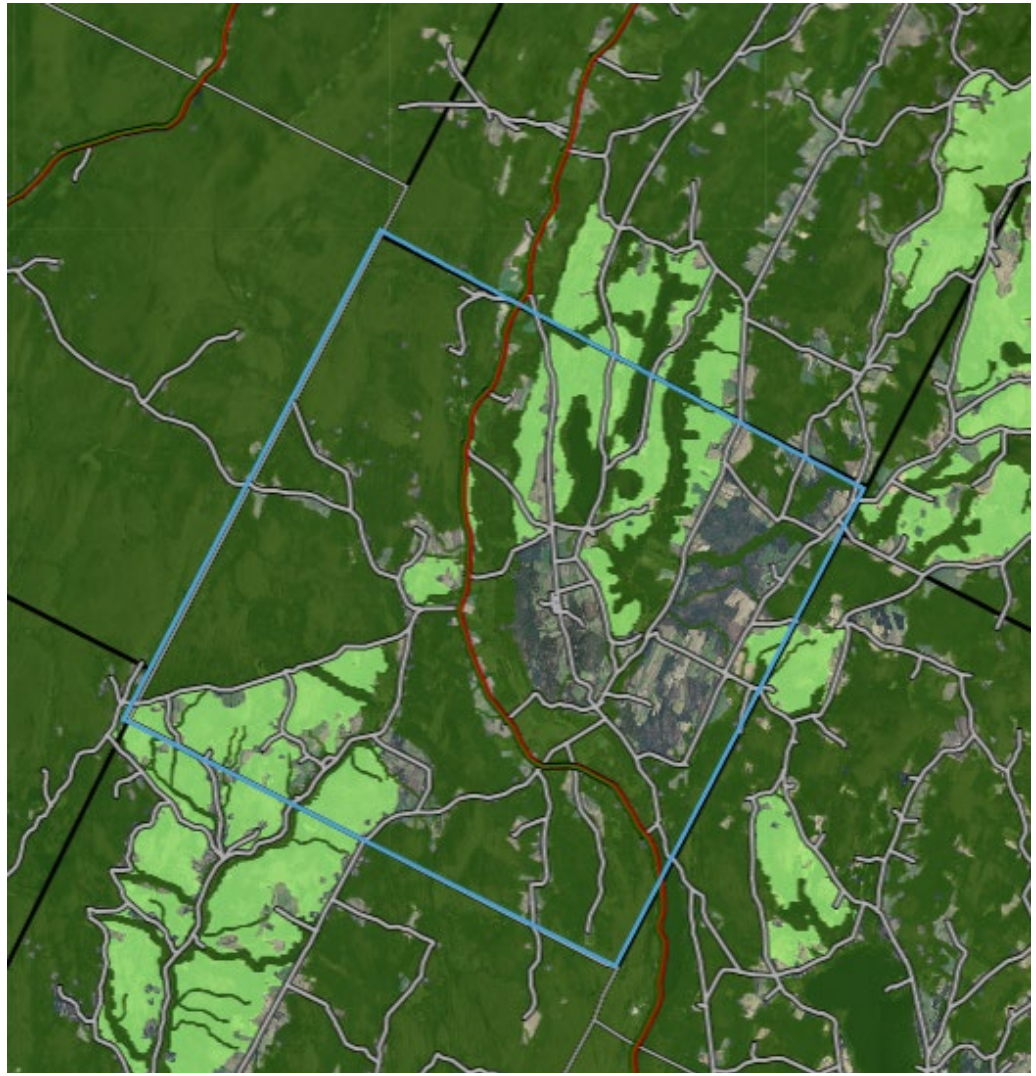
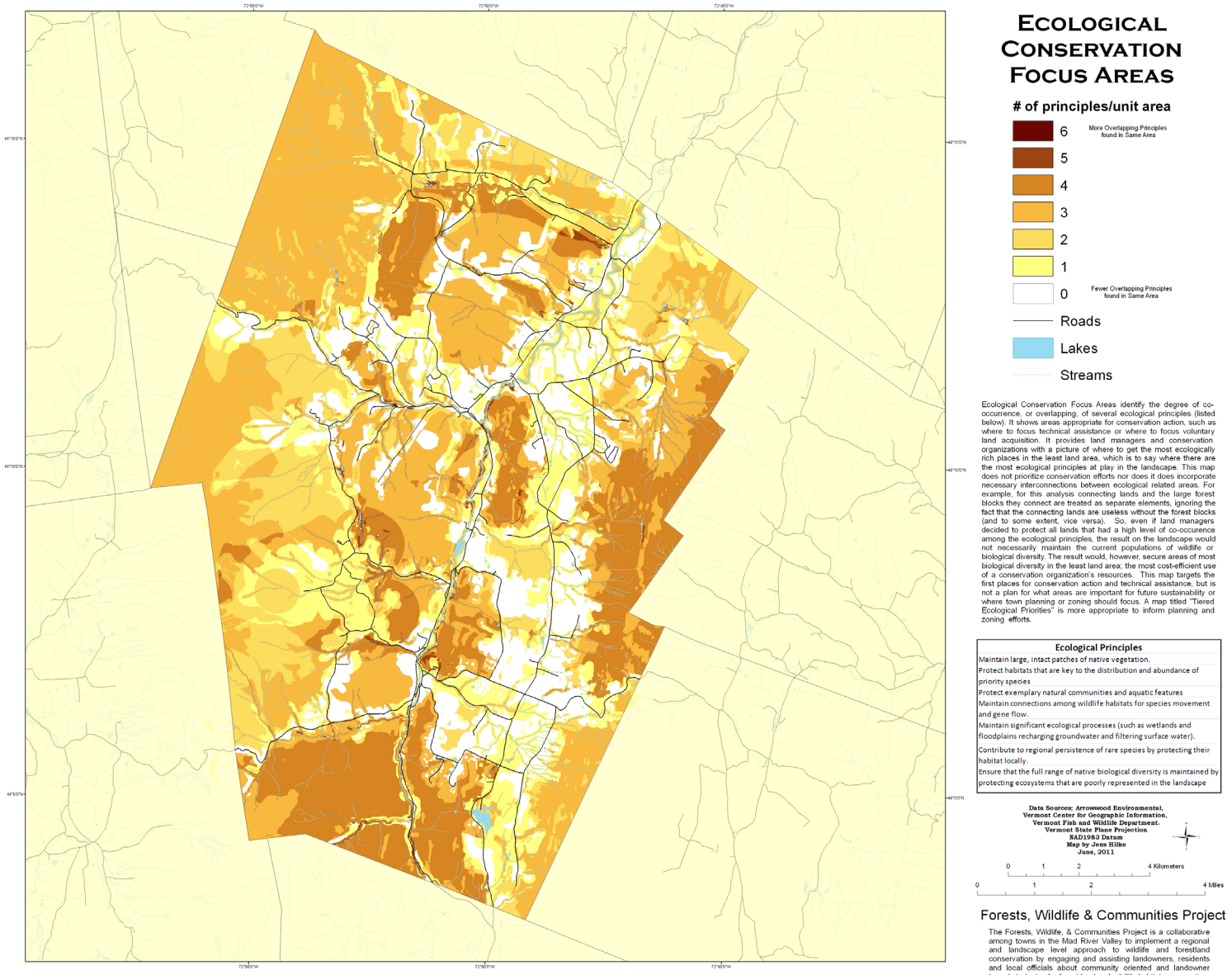




Ecological Conservation Focus Areas

# of principles/unit area

- 6 — More Overlapping Principles found in Same Area
- 5
- 4
- 3
- 2
- 1
- 0 — Fewer Overlapping Principles found in Same Area
- Roads
- Lakes
- Streams

Ecological Conservation Focus Areas identify the degree of co-occurrence, or overlapping, of several ecological principles (listed below). It shows areas appropriate for conservation action, such as where to focus technical assistance or where to focus voluntary land acquisition. It provides land managers and conservation organizations with a picture of where to get the most ecologically rich places in the least land area, which is to say where there are the most ecological principles at play in the landscape. This map does not prioritize conservation efforts nor does it does incorporate necessary interconnections between ecological related areas. For example, for this analysis connecting lands and the large forest blocks they connect are treated as separate elements, ignoring the fact that the connecting lands are useless without the forest blocks (and to some extent, vice versa). So, even if land managers decided to protect all lands that had a high level of co-occurence among the ecological principles, the result on the landscape would not necessarily maintain the current populations of wildlife or biological diversity. The result would, however, secure areas of most biological diversity in the least land area; the most cost-efficient use of a conservation organization's resources. This map targets the first places for conservation action and technical assistance, but is not a plan for what areas are important for future sustainability or where town planning or zoning should focus. A map titled "Tiered Ecological Priorities" is more appropriate to inform planning and zoning efforts.

Ecological Principles
Maintain large, intact patches of native vegetation.
Protect habitats that are key to the distribution and abundance of priority species
Protect exemplary natural communities and aquatic features
Maintain connections among wildlife habitats for species movement and gene flow.
Maintain significant ecological processes (such as wetlands and floodplains recharging groundwater and filtering surface water).
Contribute to regional persistence of rare species by protecting their habitat locally.
Ensure that the full range of native biological diversity is maintained by protecting ecosystems that are poorly represented in the landscape

Data Sources; Arrowwood Environmental, Vermont Center for Geographic Information, Vermont Fish and Wildlife Department.
Vermont State Plane Projection
NAD1983 Datum
Map by Jens Hilke
June, 2011

0 1 2 4 Kilometers

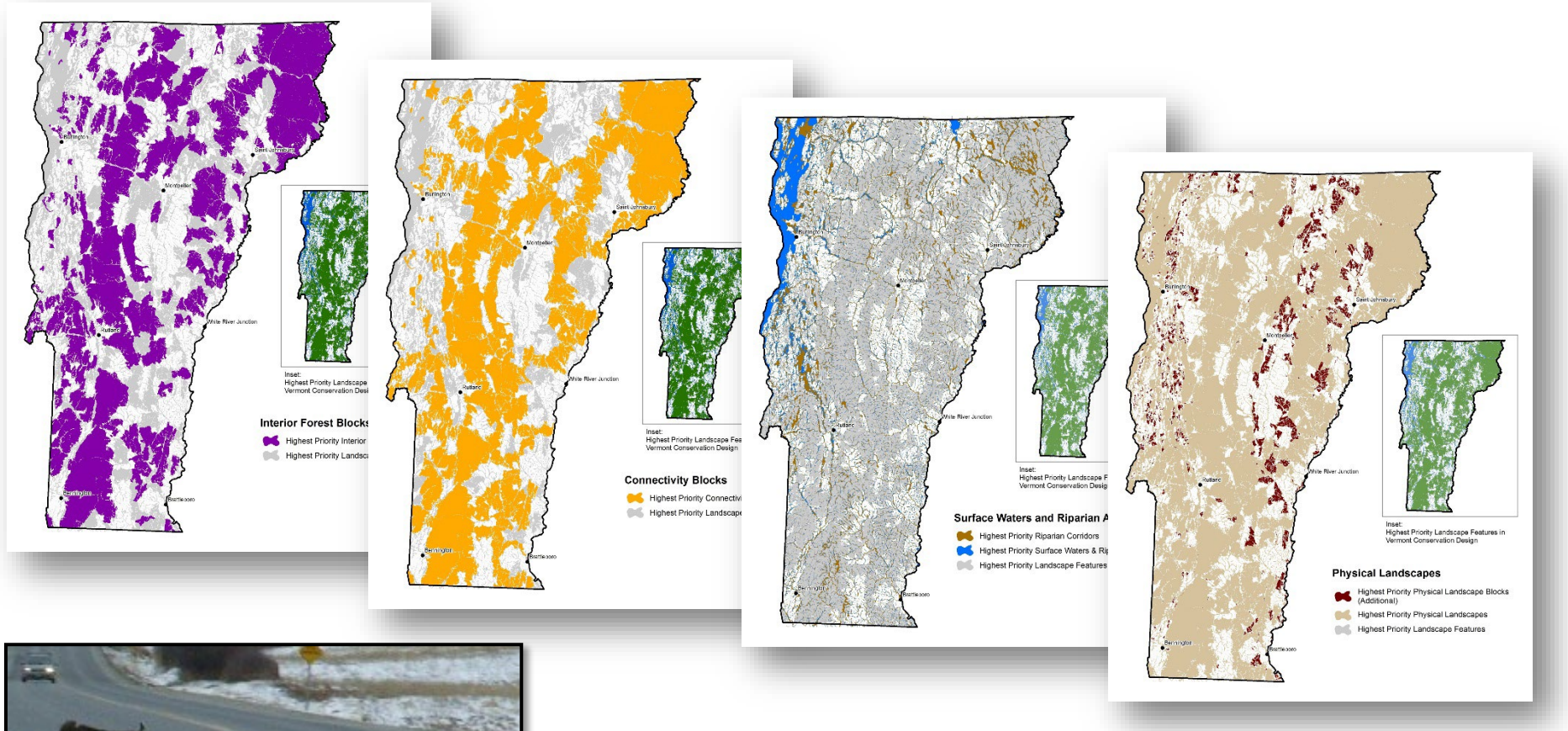
0 1 2 4 Miles

Forests, Wildlife & Communities Project

The Forests, Wildlife, & Communities Project is a collaborative among towns in the Mad River Valley to implement a regional and landscape level approach to wildlife and forestland conservation by engaging and assisting landowners, residents and local officials about community oriented and landowner based strategies for forest land and wildlife habitat conservation.

Overlapping priorities
Shows cost-effectiveness
Does not show the full ecological pattern

LANDSCAPE PRIORITIES



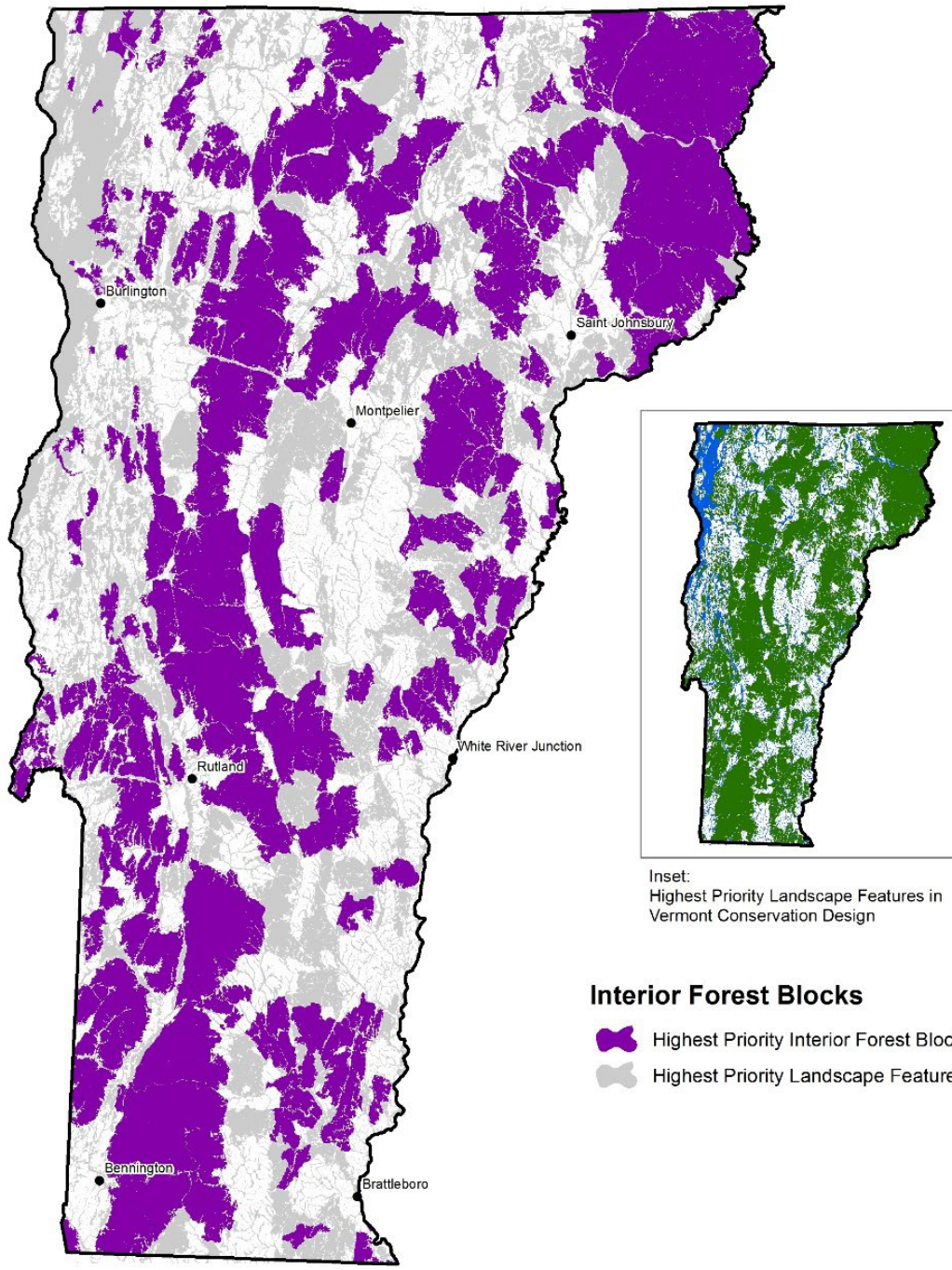
Maintain the specific functions of each element

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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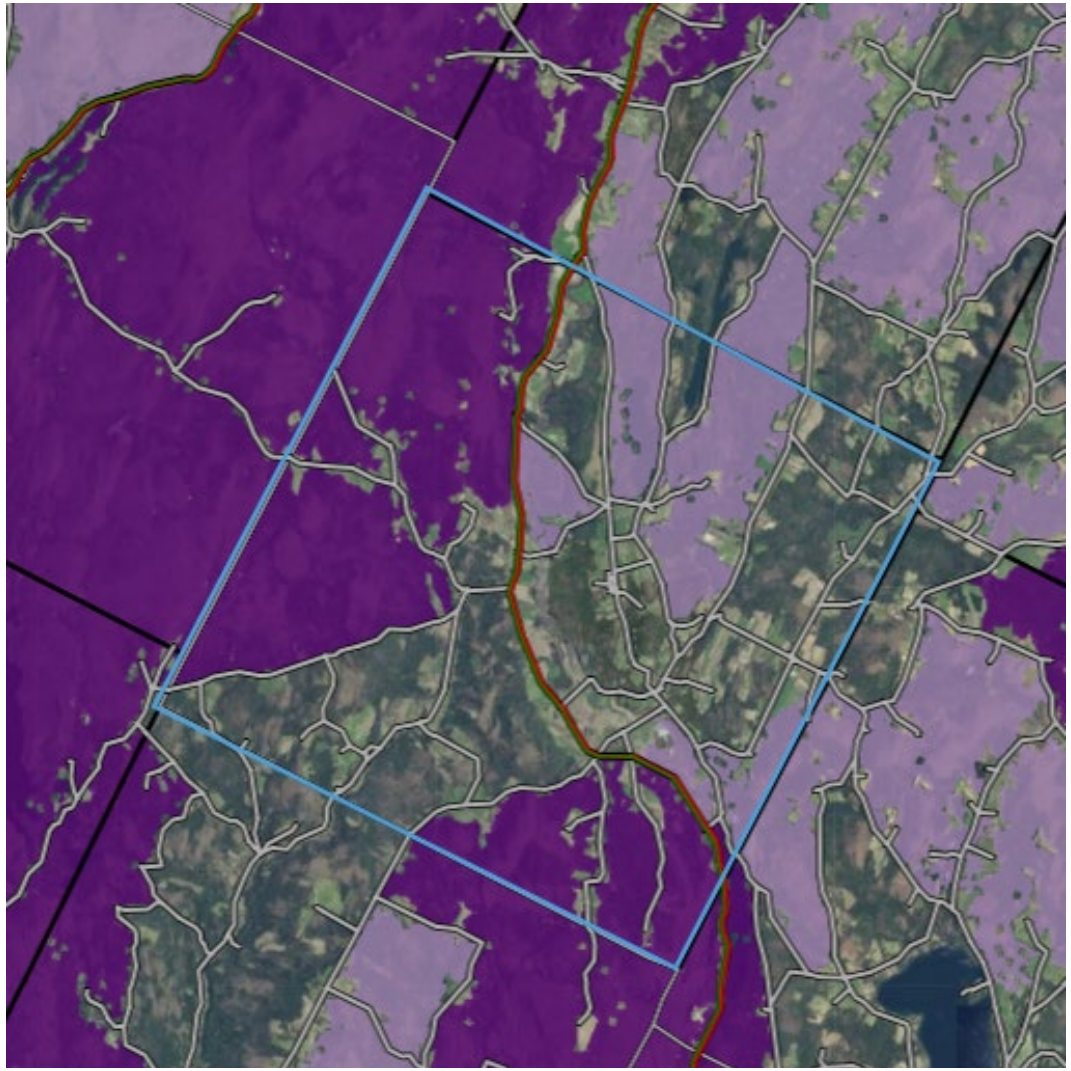
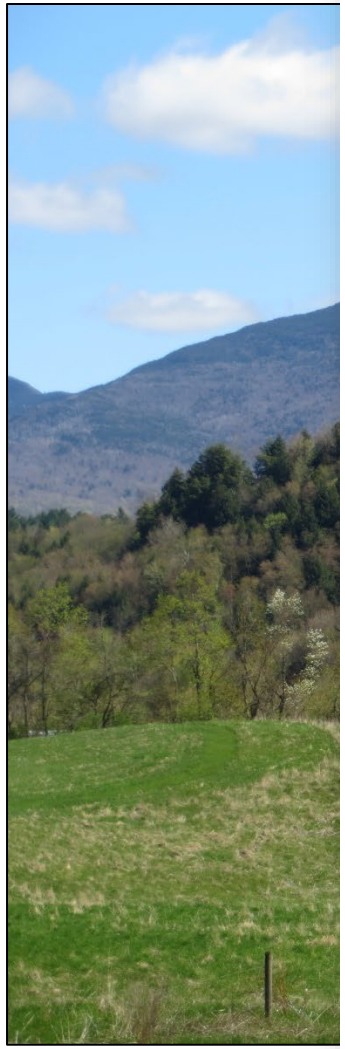
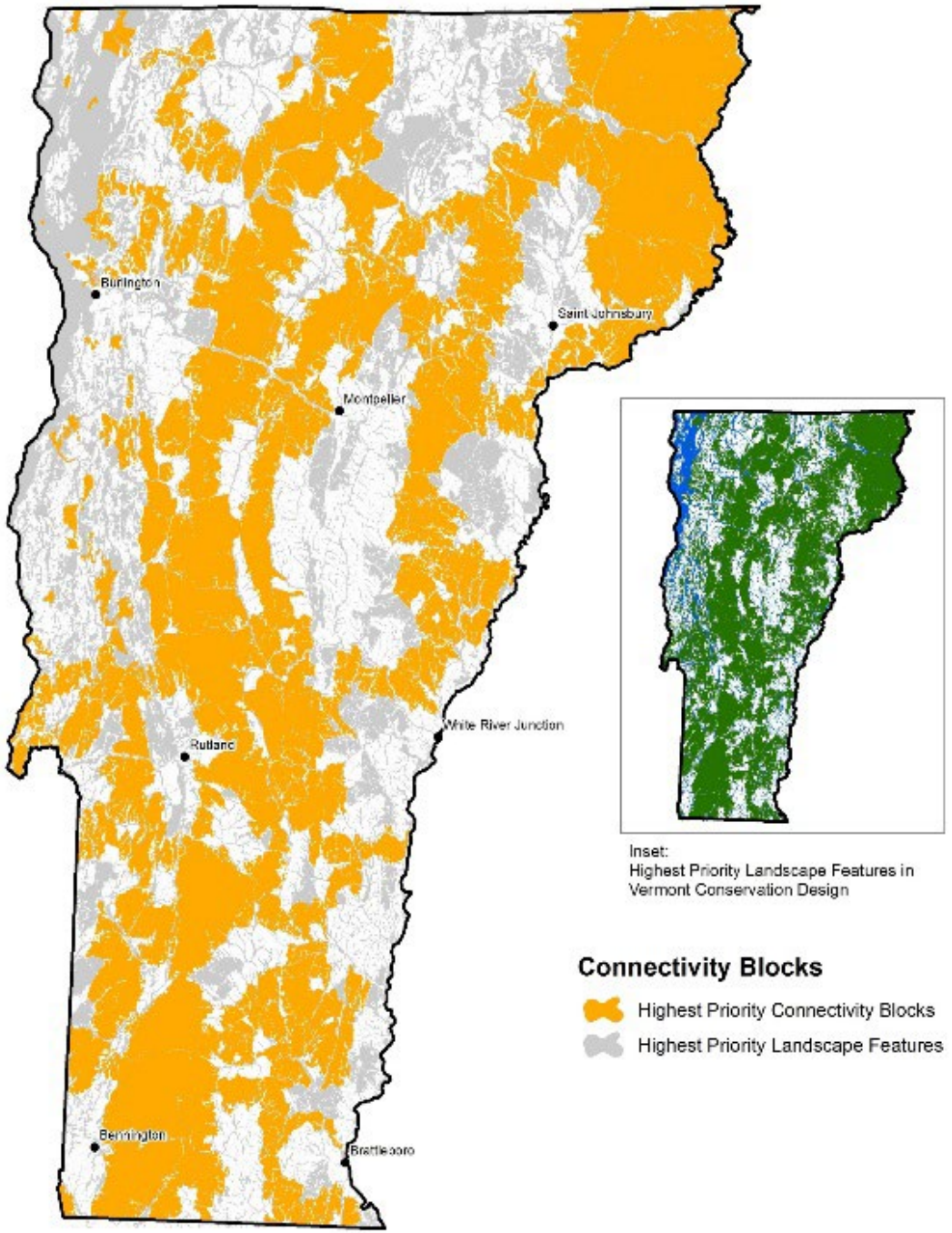


CONNECTIVITY BLOCKS

Ecological Function Supports:

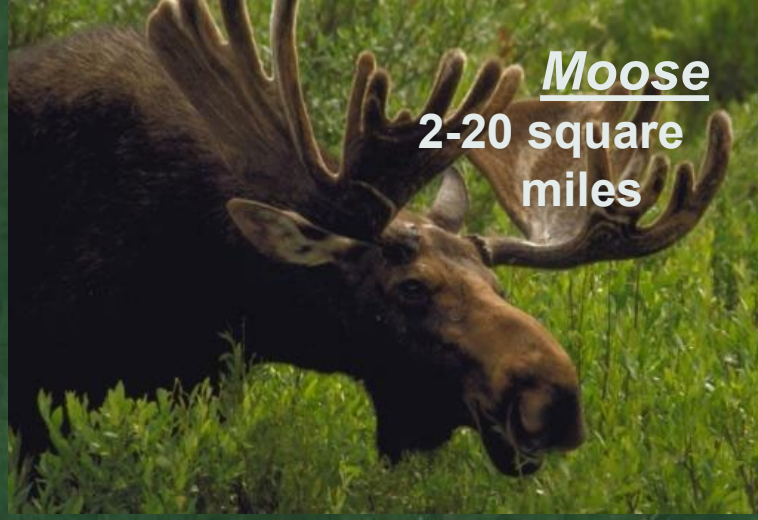
- Wildlife movement and dispersal;
- Climate resilience;
- Genetic exchange between populations.





Black Bear

30+ square miles



Moose

2-20 square miles

Perry

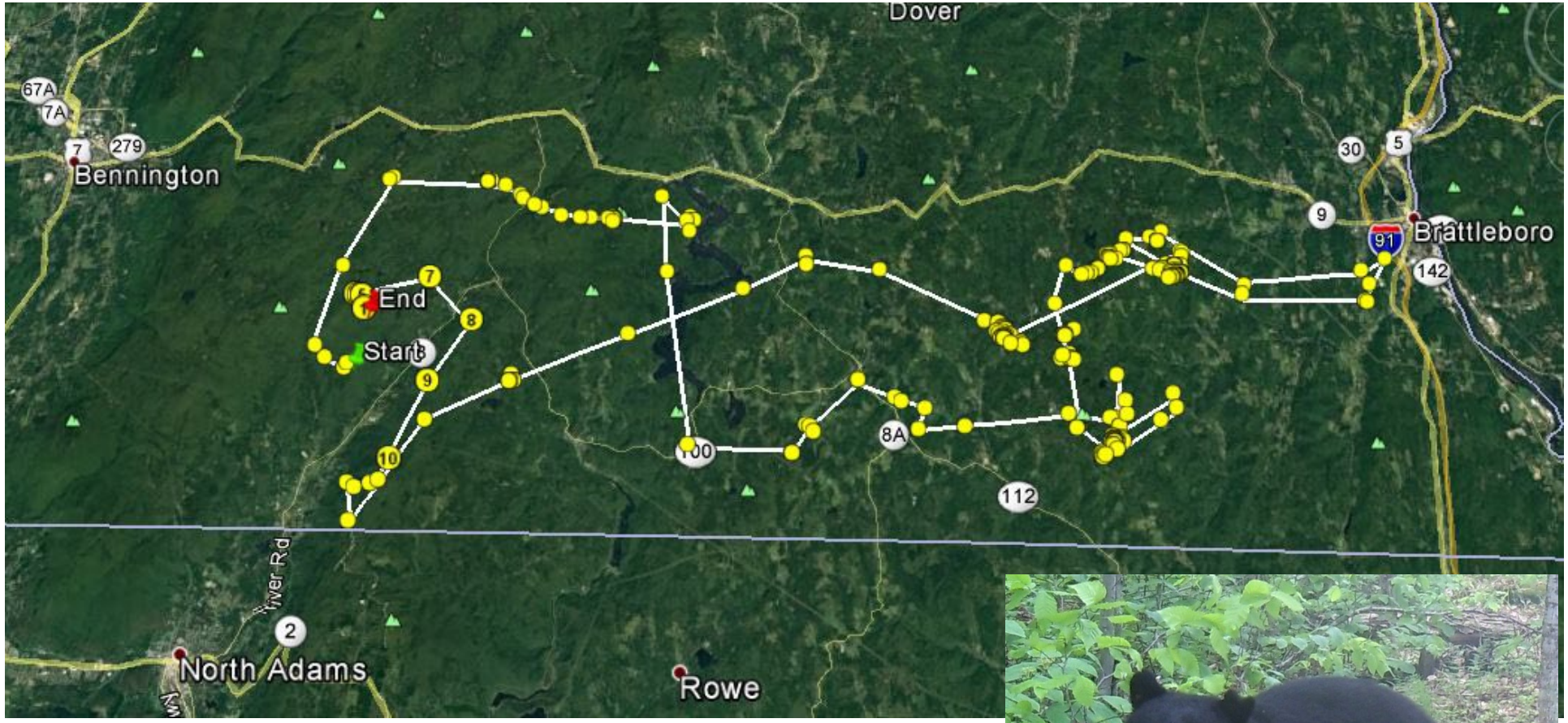
Newark

River Otter

15-30 linear miles

Bobcat

27 square miles



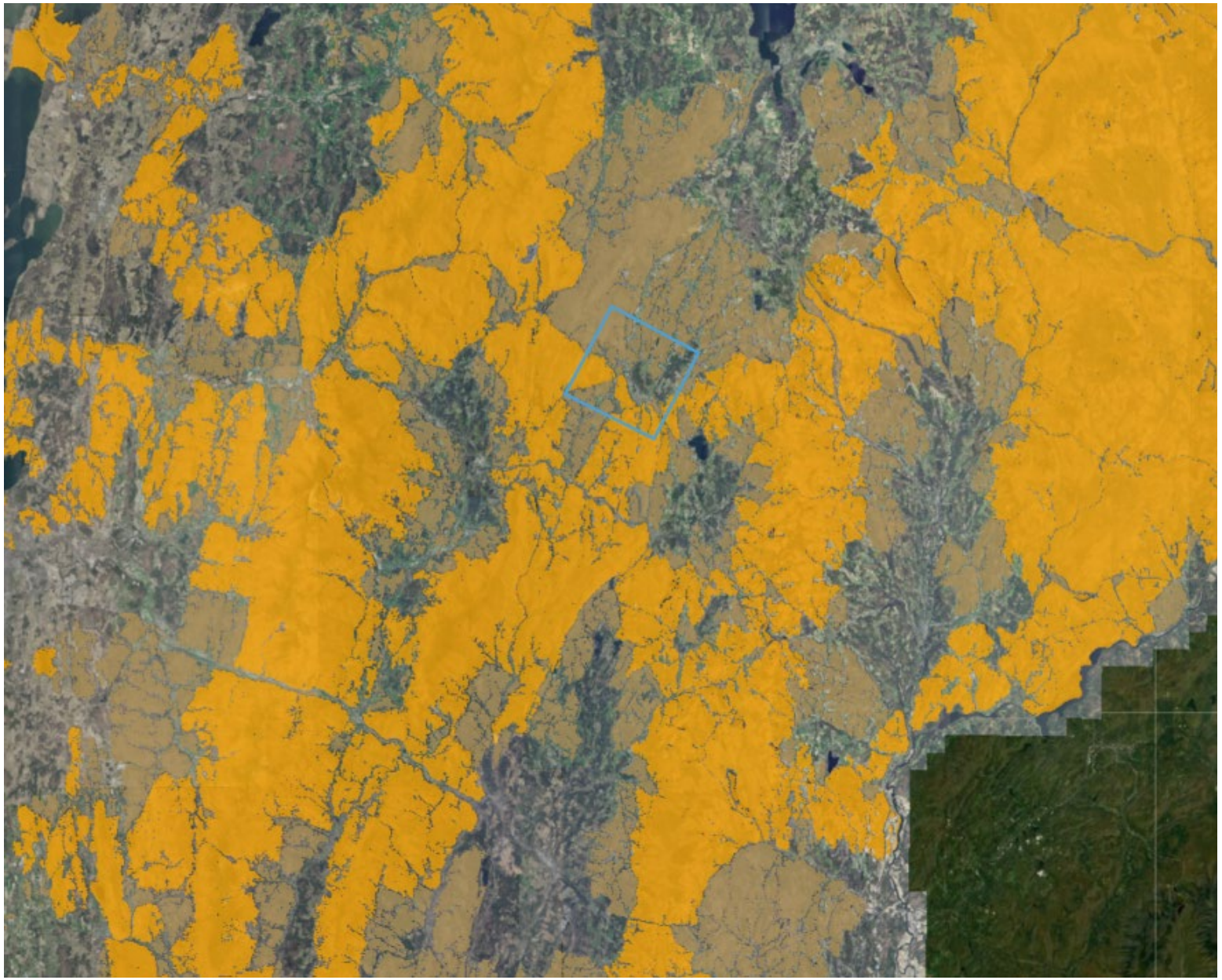
Male Bear M0063

October 11 2017 – November 11 2017

Approximately 140 km.

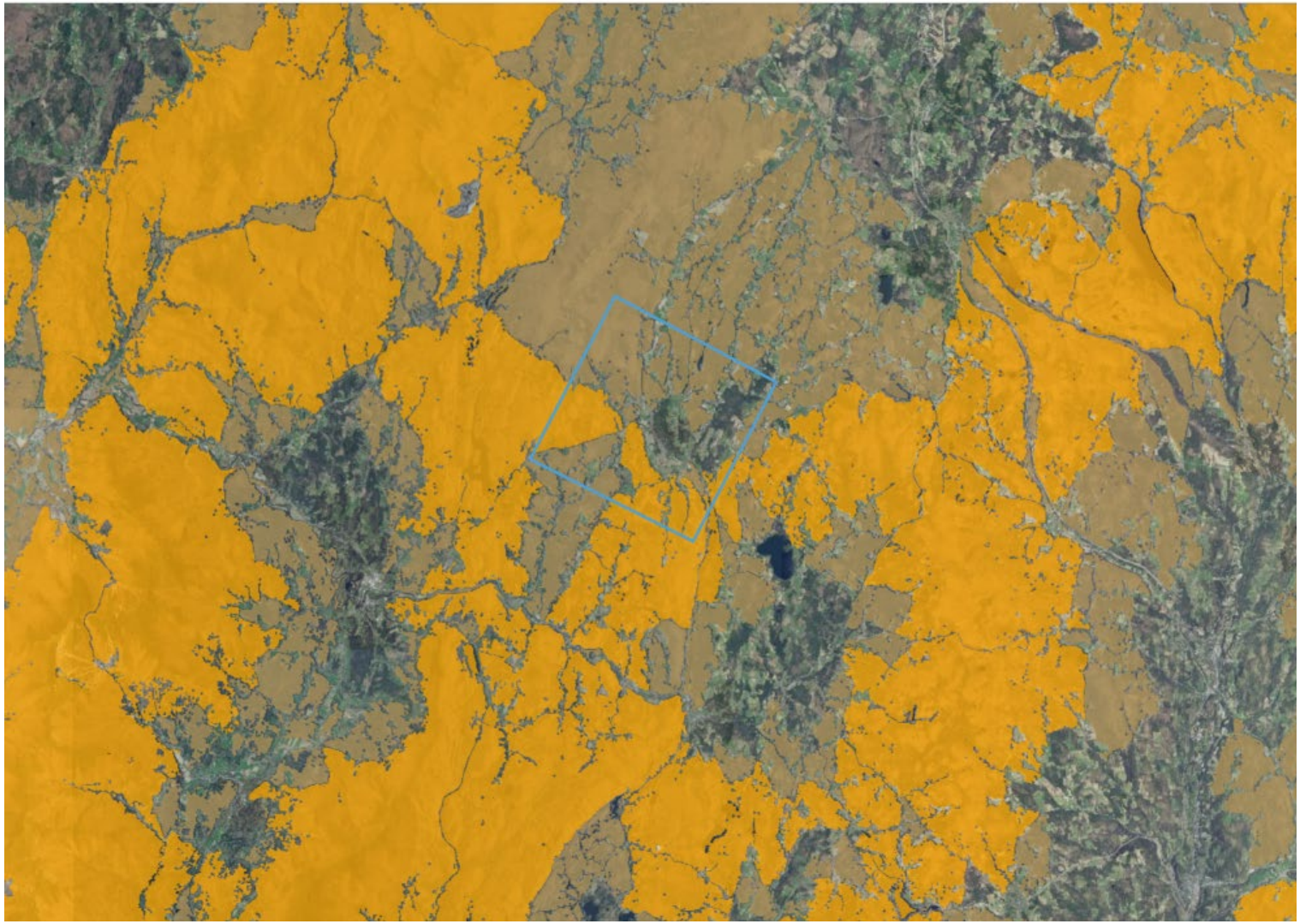

Core Forest Blocks
Wildlife Road Crossings
Small, "stepping stone" forests
Streamside Connectors

CONNECTIVITY BLOCKS



- [x] Highest Priority Connectivity Blocks
- [x] Priority Connectivity Blocks

CONNECTIVITY BLOCKS



- [x] Highest Priority Connectivity Blocks
- [x] Priority Connectivity Blocks

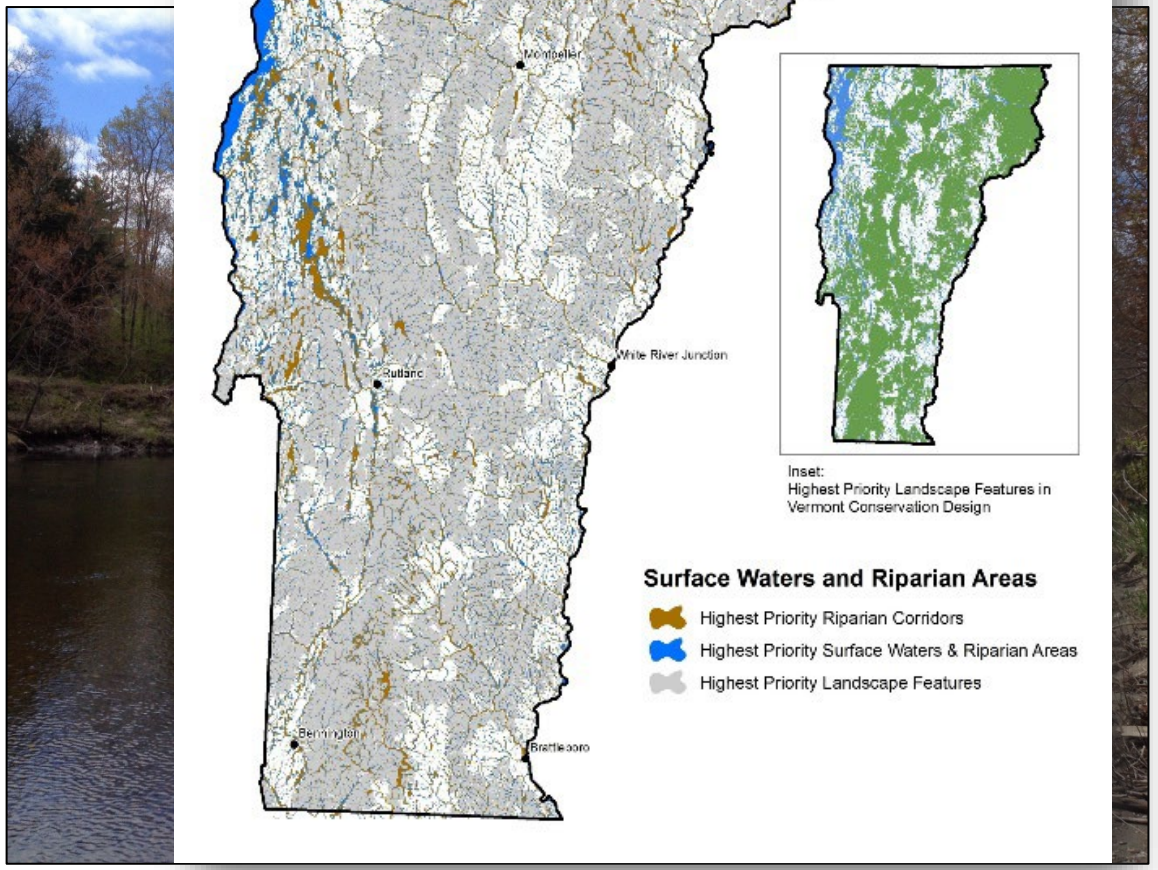
CONNECTIVITY BLOCKS

- [x] Highest Priority Connectivity Blocks
- [x] Priority 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:

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

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

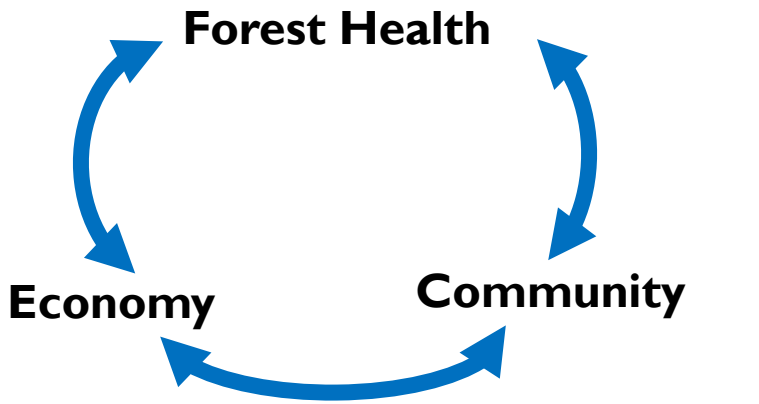
Low-to-mid elevation transitional : Calcareous sed/metased : Valley/toeslope

COMMUNITY & SPECIES COMPONENTS

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

- Identify natural resource conservation approaches

WORKING FORESTS



Goal: To Maintain Function

(Ecological, Economic *and* for Community Values)

Encourage support for businesses that use local forest products.

Institute a local products purchasing policy for municipal purchases.

GOAL:

SUPPORT WORKING FORESTS

Encourage management plans and/or Current Use

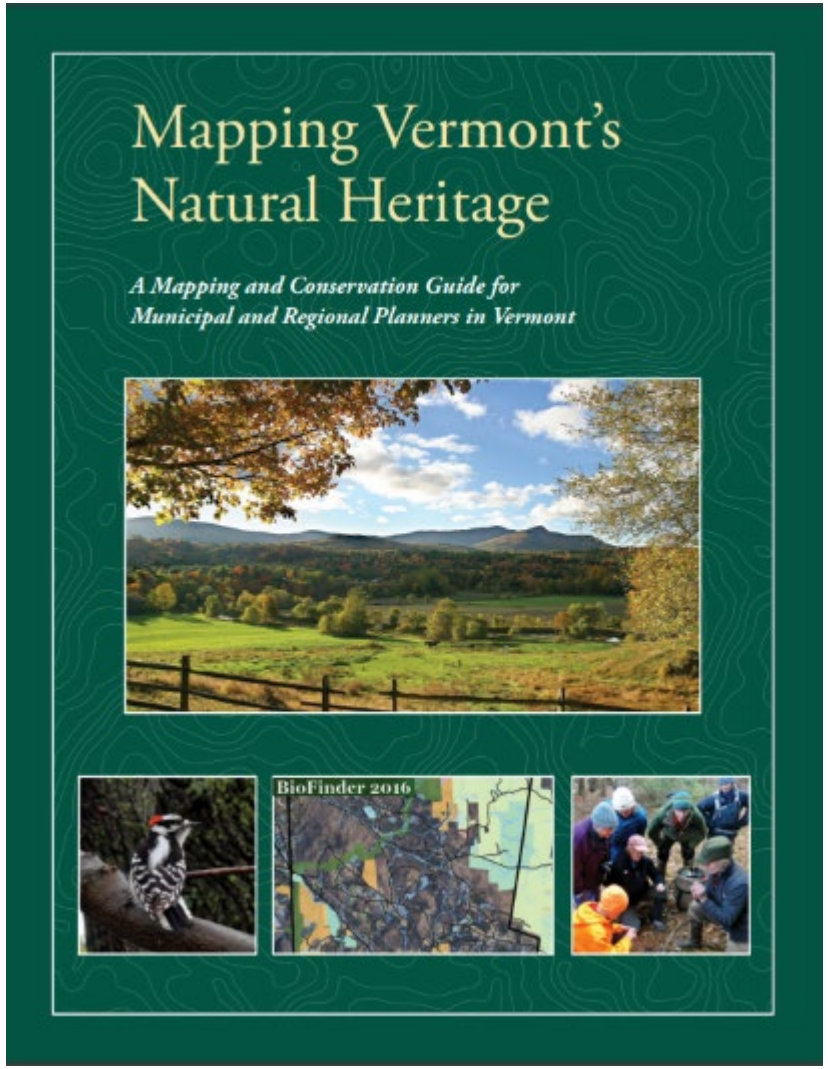
Connect landowners to incentives programs

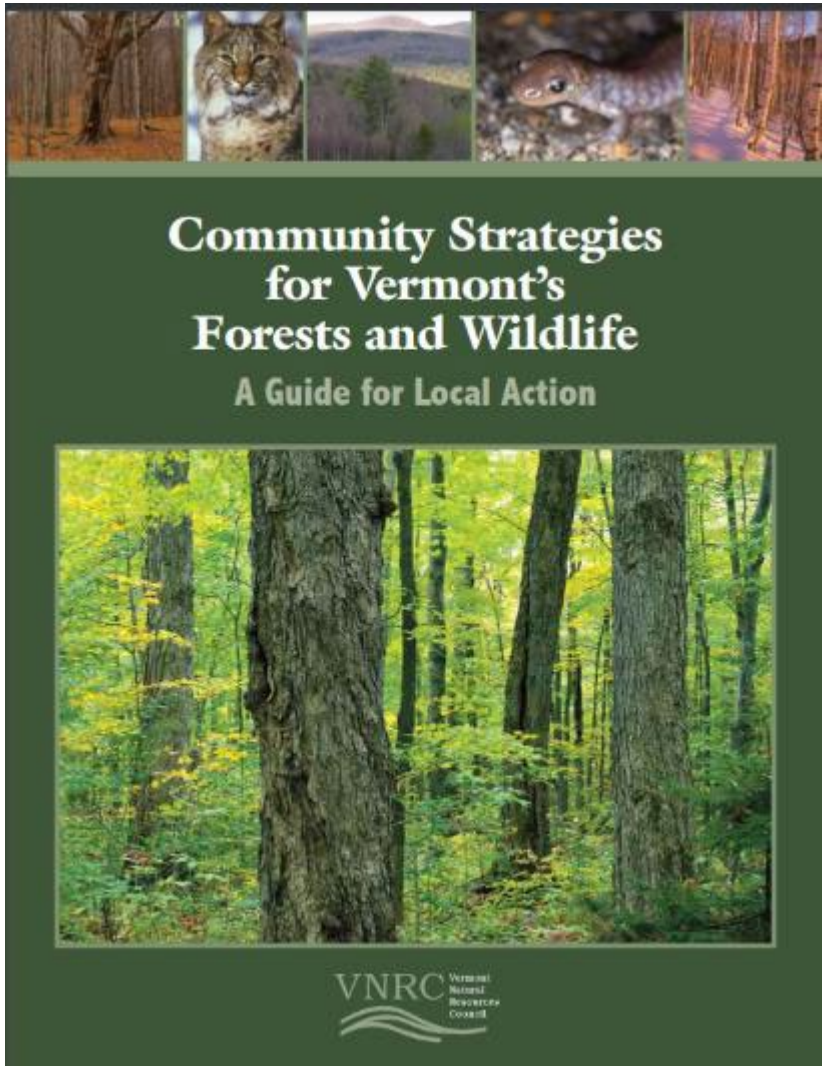

Where possible, keep development to the edges rather than penetrating into the middle of blocks.
Adopt or evaluate subdivision regs.
GOAL:
MAINTAIN LARGE FOREST BLOCKS
Encourage land conservation in important areas.
Consider a conservation, forest or overlay district.
Limit driveway length or establish building envelopes/clearing standards.
Encourage estate planning.


Encourage estate planning.
Consider in conjunction with habitat connectors
Adopt or evaluate subdivision regs.
GOAL:
MAINTAIN CONNECTIONS BETWEEN BLOCKS
Encourage land conservation in important areas.
Limit driveway length or establish building envelopes/clearing standards.
Consider a conservation, forest, or overlay district.


Encourage estate planning.
Adopt or evaluate subdivision regs.
GOAL:
INCLUDE PHYSICAL LANDSCAPE DIVERSITY WHEN IDENTIFYING FOREST BLOCKS AND CONNECTIONS
Encourage land conservation in important areas.
Limit driveway length or establish building envelopes/clearing standards.
Consider a conservation or forest district.

RESOURCES


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


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

- Steps homeowners, landowners, foresters and farmers can take to preserve and enhance our natural assets

HOW YOU CAN SUPPORT CONSERVATION IN VERMONT

Vermont Habitat Stamp

Nongame Wildlife Fund

http://vtfishandwildlife.com/donate


THANK YOU!
Jens.Hilke@vermont.gov