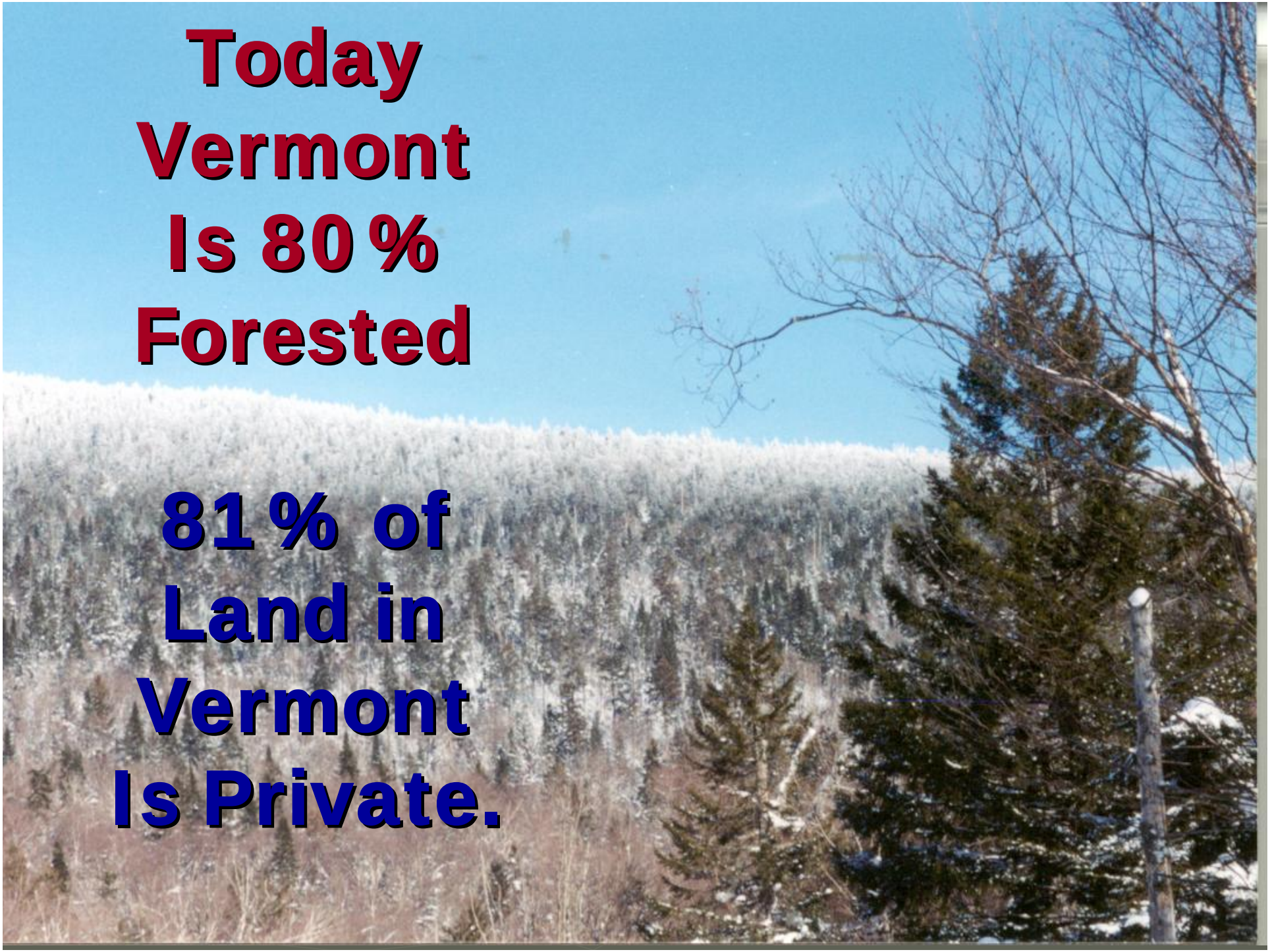
Conservation Planning in Vermont

Today's outline

1. A primer on conservation biology
2. VT Wildlife Action Plan
3. How VTRANS & Fish and Wildlife work together
4. Discussion: How can we better work together?


Today
Vermont
Is 80%
Forested
81% of
Land in
Vermont
Is Private.

However, Vermont Is Losing Wildlife Habitat

- Vermont designated one of “America’s most endangered places.”
- Rate of development is 2.5 times rate of population growth.
- Vermont loses an estimated 6500 acres/year to development.

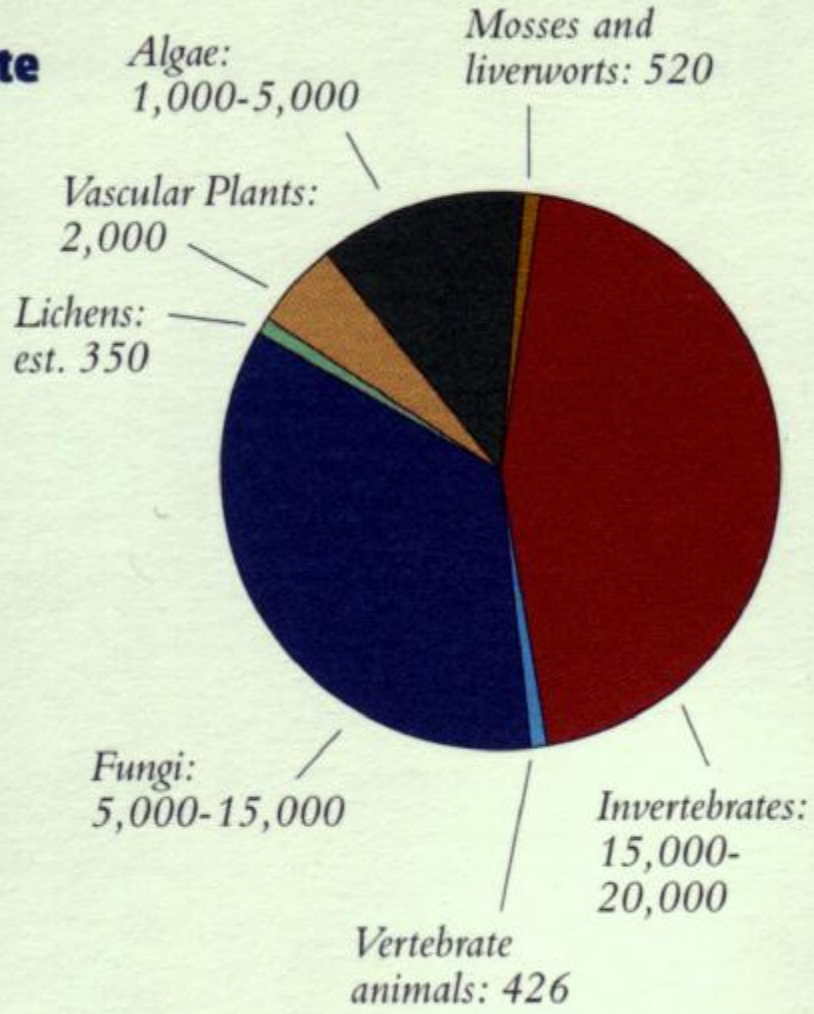
Photo from Above and Beyond." Campoli, J., Humstone, E., & MacLean, A. 2002.

Vermont's land-based culture is changing too

- 40% of farms lost since 1960
- Replaced with commercial and residential development
- Shift from land-based to tourism economy

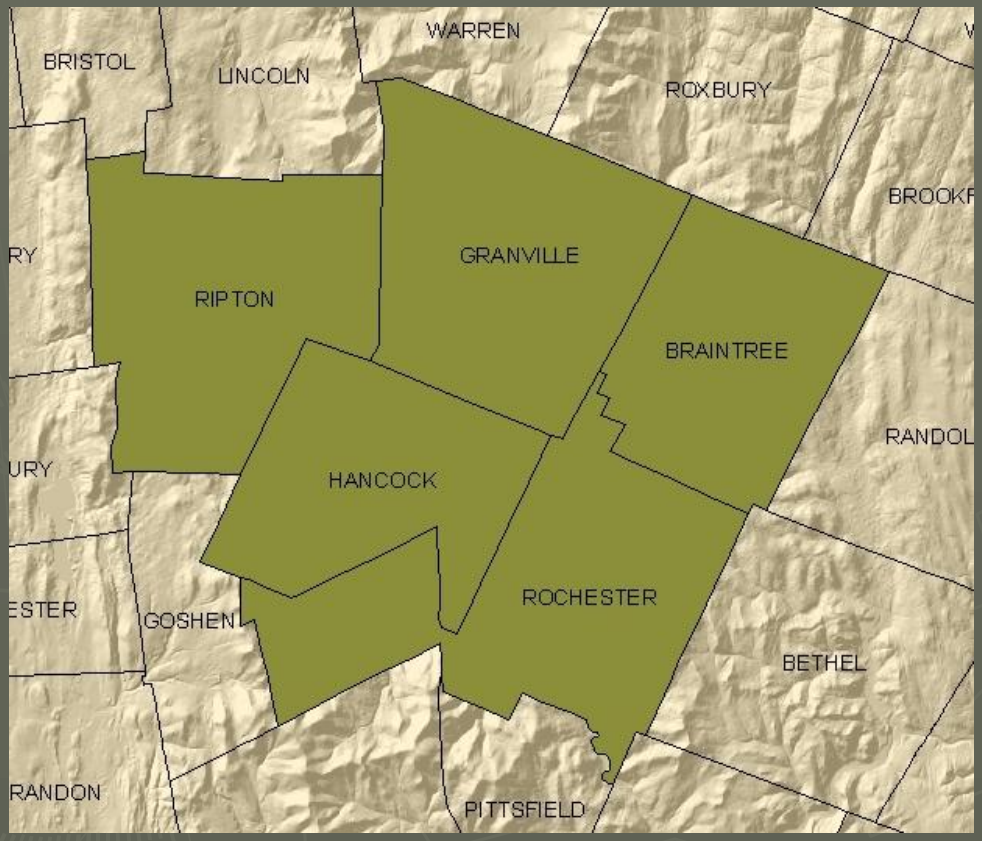
Biological Diversity in Vermont

Scientists estimate that there are between 24,000 and 43,000 species of higher plants, algae, fungi, lichens, invertebrates, and vertebrate animals in Vermont. Nearly half of these are invertebrates such as insects, crayfish, and mussels.



How much space do they need?

Area needed to support 25 breeding females of:



475,000 acres

150,000 acres

125,000 acres

80,000 acres

7,500 acres

25 acres

8 acres

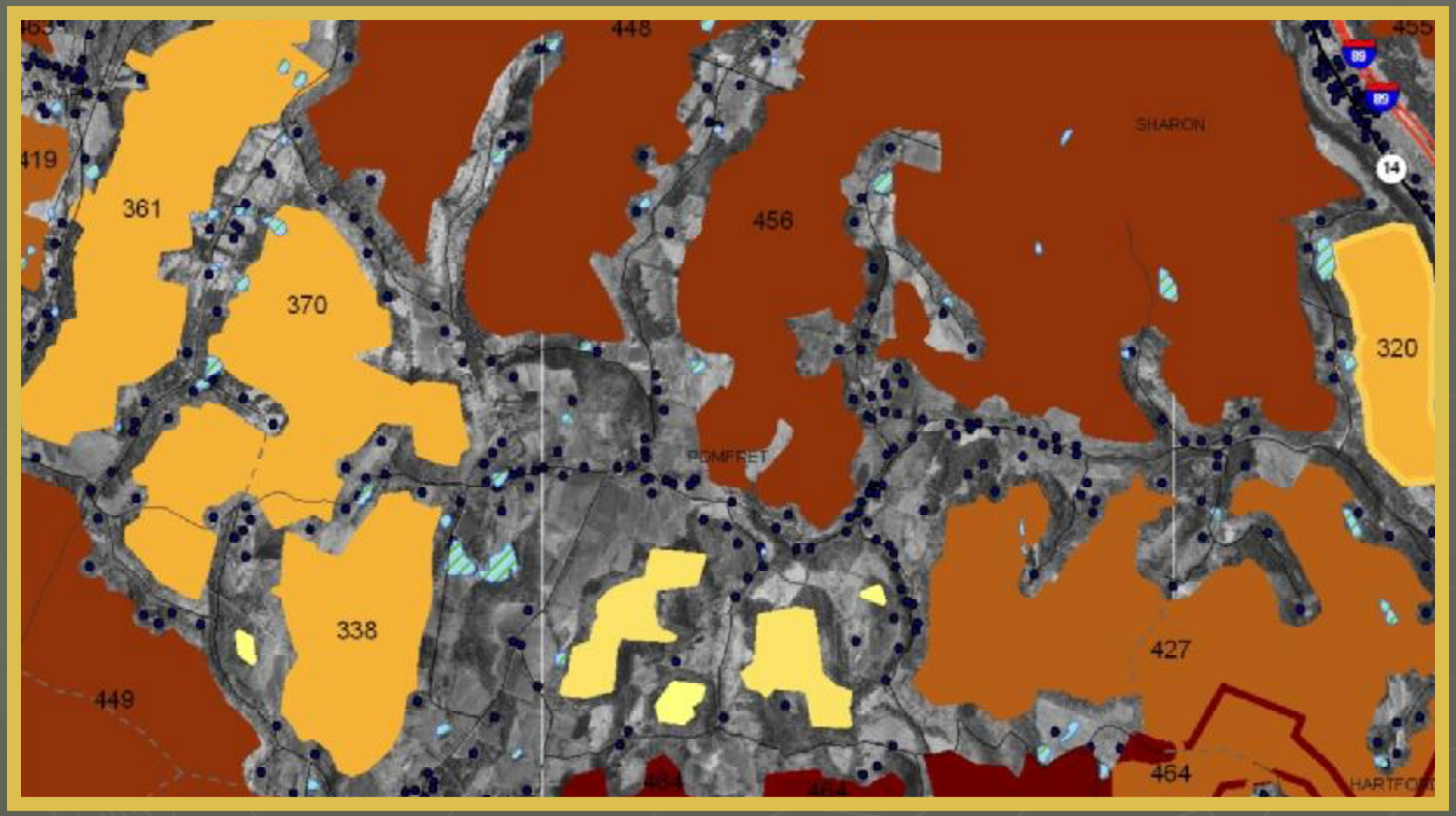
Source: Vermont Biodiversity Project

Wildlife present in different sized Forest Patches

Tier 1 *Undeveloped*	Tier 2 *500-2500 acre blocks*	Tier 3 *100-500 acre blocks*	Tier 4 *20-100 acre blocks*	Tier 5 *1-20 acre blocks*
Raccoon	Raccoon	Raccoon	Raccoon	Raccoon
Hare	Hare	Hare	Hare	
Coyote				
Small rodent	Small rodent	Small rodent	Small rodent	Small rodent
Porcupine	Porcupine	Porcupine	Porcupine	
Bobcat				
Cottontail	Cottontail	Cottontail	Cottontail	Cottontail
Beaver	Beaver	Beaver	Beaver	
Black bear				
Squirrel	Squirrel	Squirrel	Squirrel	Squirrel
Weasel	Weasel	Weasel	Weasel	
Mink	Mink	Mink		
Fisher				
Woodchuck	Woodchuck	Woodchuck	Woodchuck	
Deer	Deer	Deer		
Muskrat	Muskrat	Muskrat	Muskrat	Muskrat
Moose	Moose			
Red fox	Red fox	Red fox	Red fox	Red fox
Songbirds	Songbirds	Songbirds	Songbirds	Songbirds
Sharp-shinned hawk	Sharp-shinned hawk	Sharp-shinned hawk		
Bald eagle	Bald eagle			
Skunk	Skunk	Skunk	Skunk	Skunk
Cooper's hawk	Cooper's hawk	Cooper's hawk		
Harrier	Harrier	Harrier		
Broad-winged hawk	Broad-winged hawk	Broad-winged hawk		
Goshawk	Goshawk			
Kestrel	Kestrel	Kestrel		
Red-tailed hawk	Red-tailed hawk			
Horned owl	Horned owl	Horned owl		
Raven	Raven			
Barred owl	Barred owl	Barred owl		
Osprey	Osprey	Osprey		
Turkey vulture	Turkey vulture	Turkey vulture		
Turkey	Turkey	Turkey		
Reptiles	Reptiles	Reptiles	Most Reptiles	Most Reptiles
Garter snake	Garter snake	Garter snake	Garter snake	
Ring-neck snake	Ring-neck snake	Ring-neck snake	Ring-neck snake	
Amphibians	Amphibians	Most Amphibians	Most Amphibians	Most Amphibians
Wood frog	Wood frog	Wood frog		

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

The Coarse Filter



Habitat Blocks, Pomfret, VT

Connectivity

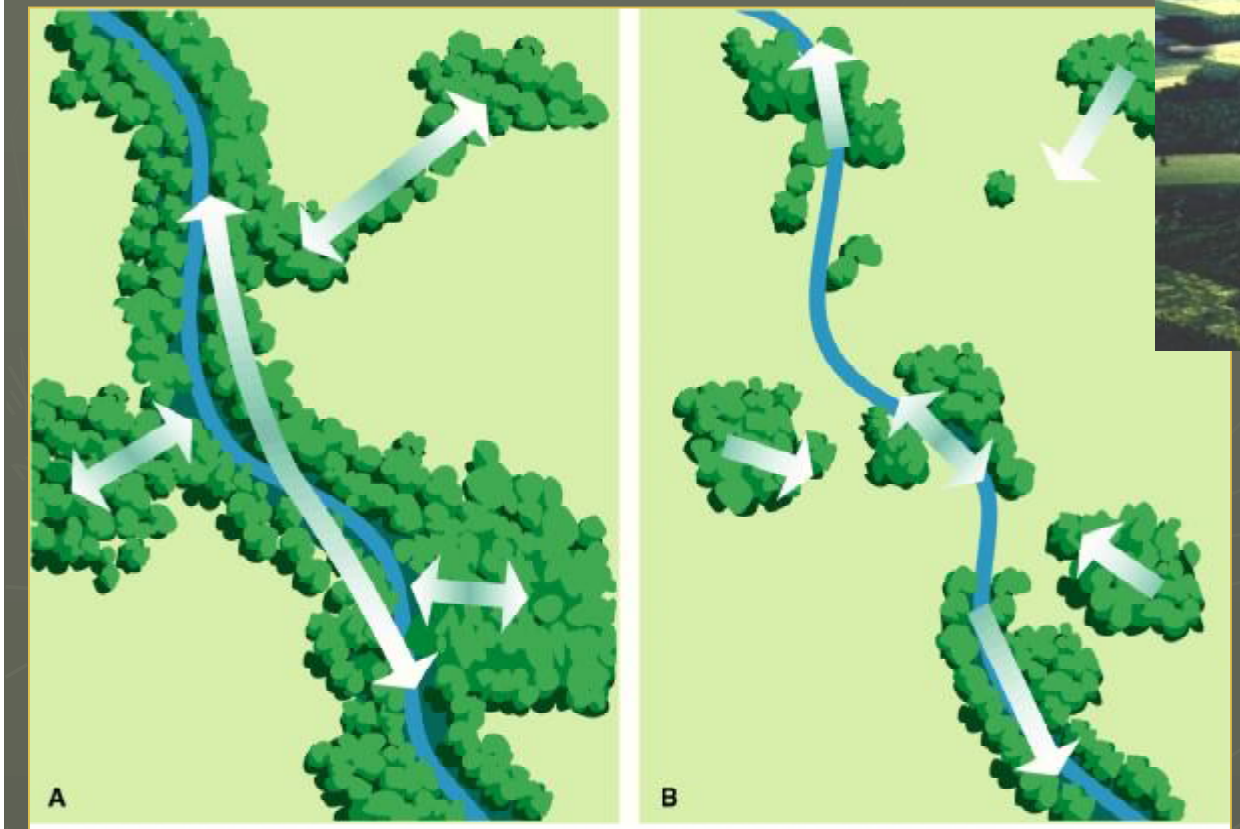
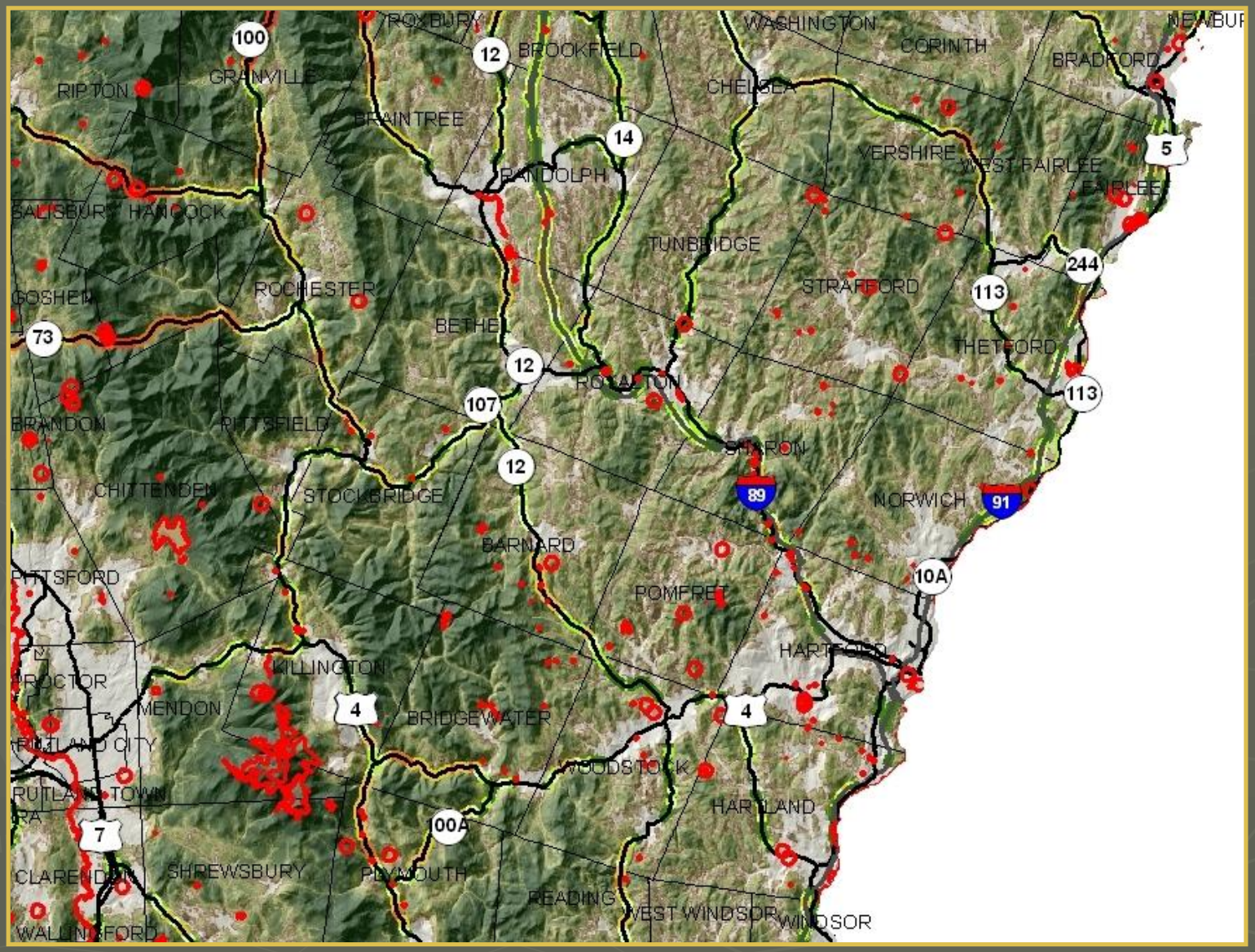


Fig. 2.38 -- Landscapes with (A) high and (B) low degrees of connectivity. A connected landscape structure generally has higher levels of functions than a fragmented landscape.
In Stream Corridor Restoration: Principles, Processes, and Practices (10/98)
by the Federal Interagency Stream Restoration Working Group (FISRWG) (15 Federal agencies of the U.S.)

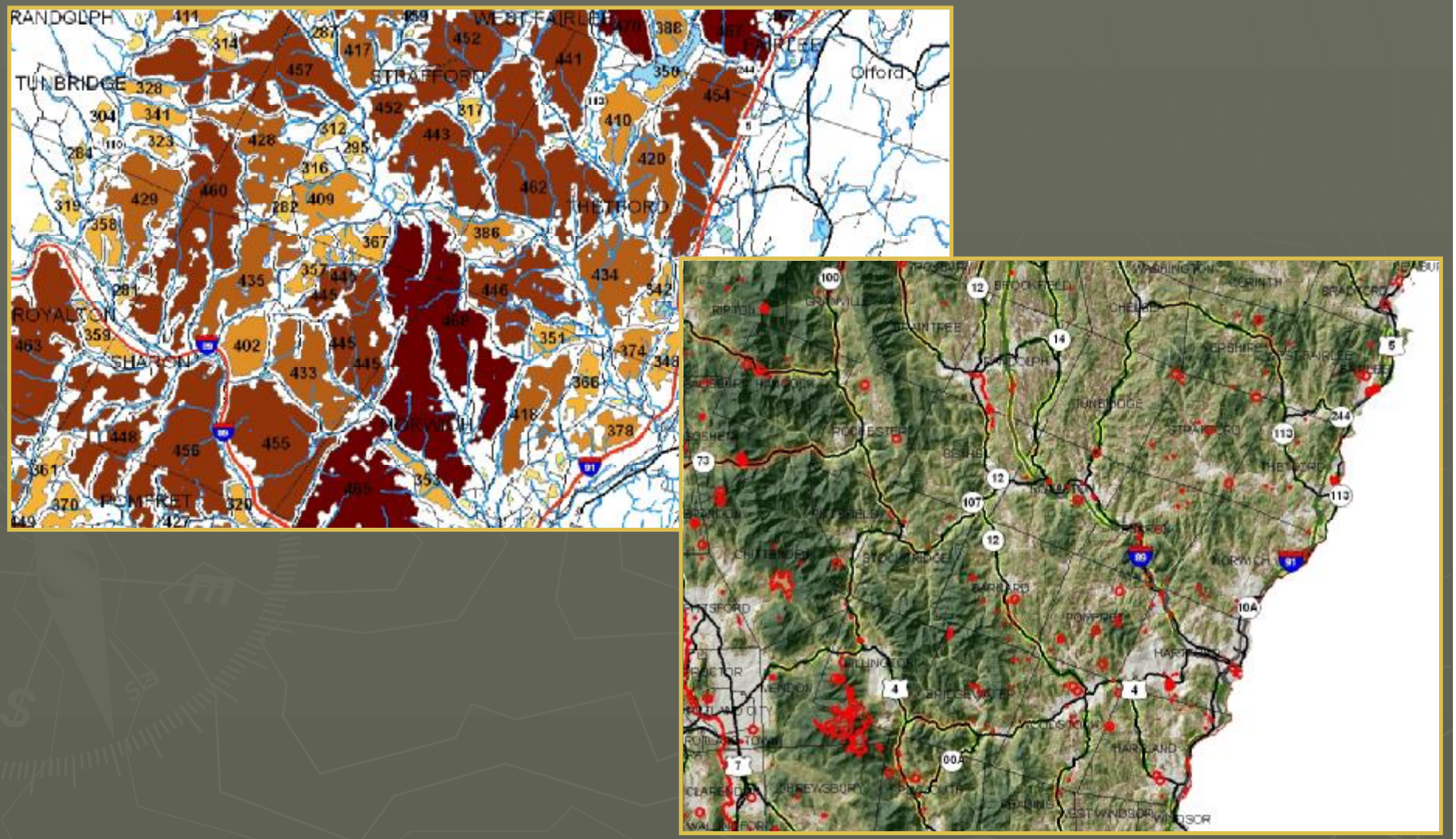
Aquatic Connectivity

- Poorly installed crossing structures fragment aquatic habitat
- Limit recreational opportunity

Rare, Threatened & Endangered Species and Significant Natural Communities



Balancing the Coarse Filter & Single Species Management



Wildlife, a Public Trust

- We all “own” wildlife together. A centuries old, fundamental concept
- State fish & wildlife agencies are the stewards of this trust

Vermont Fish & Wildlife Dept

Mission

"The conservation of fish, wildlife and plants and their habitats for the people of Vermont"

Why Should Trans Planners Care?

Healthy wildlife populations are important to all people (economically, wildlife as indicators of public health, improve our quality of life)

Proactively taking wildlife needs into consideration in transportation planning can

1) Improve public safety,
2) Reduce project development costs,
3) Reduce project maintenance costs,
4) Reduce insurance claims,
5) ensure the wise use of transportation dollars/resources,
6) Speed up the regulatory/permitting process,
7) Demonstrate good stewardship

The Vermont Wildlife Action Plan

- Developed in partnership with 60+ organizations, agencies and the general public
- An all-species conservation plan
- An all-state plan—not just for state agencies

Species of Greatest Conservation Need

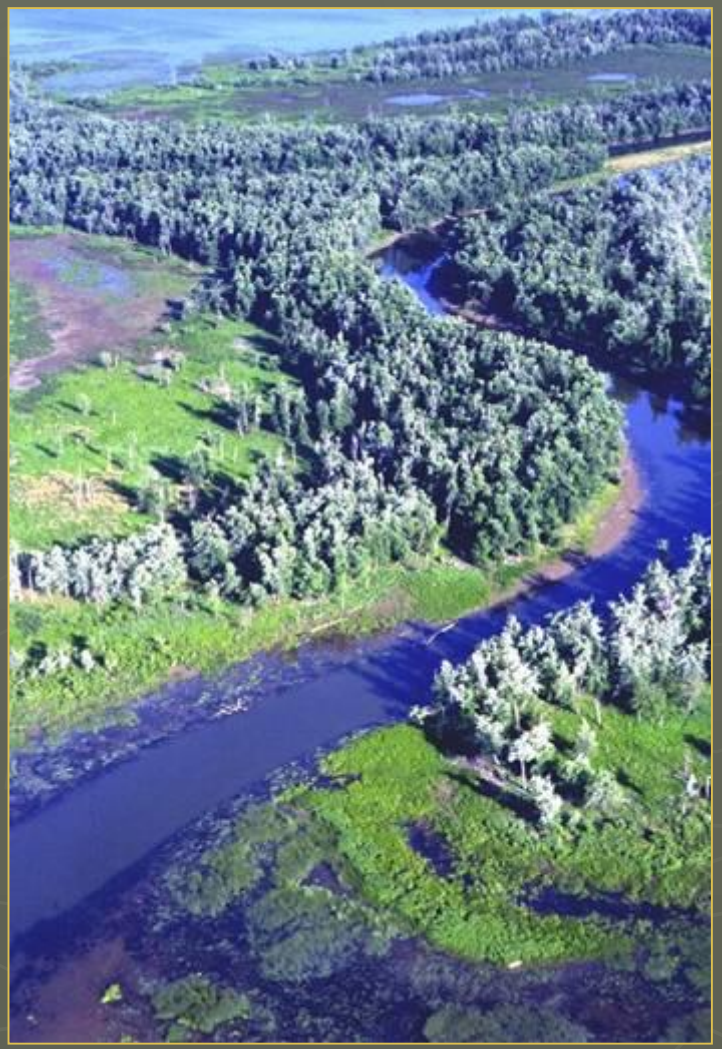
- 143 vertebrates
- 191 invertebrates
- *577 plants*

Action Plan Organized by Habitat Association

Landscapes (6)
e.g. Riparian/Riverine Systems

Habitat & Communities(18)
e.g. floodplain forests

Species of Greatest Conservation Need (323)
e.g. river otter, lake sturgeon



Primary Action Plan Conservation Strategies

- Proactive, voluntary, incentive-based
- Provide needed technical and financial assistance
- Conserve habitat with BMPs, standards, easements, acquisition, education
- Implement through partnerships w/ agencies, towns, businesses, NGOs

Wildlife Action Plan & Transportation Planning

Statewide Theme for Action
Proactively collaborate with transportation planners and engineers regarding the location and design of new and expanded roadways.

Wildlife Action Plan & Transportation Planning

Maintain and restore habitat connectivity and minimize fragmentation of forest blocks

Wildlife Action Plan & Transportation Planning

Work with VTrans, other partners & landowners to

- Identify and maintain wildlife highway/road crossings
- Reduce wildlife mortality and increase the potential for movement

Wildlife Action Plan & Transportation Planning

Provide technical assistance to land management agencies on riparian habitat management

Provide technical assistance to VTrans, towns, and private landowners to identify and maintain (or restore) aquatic habitat connectivity

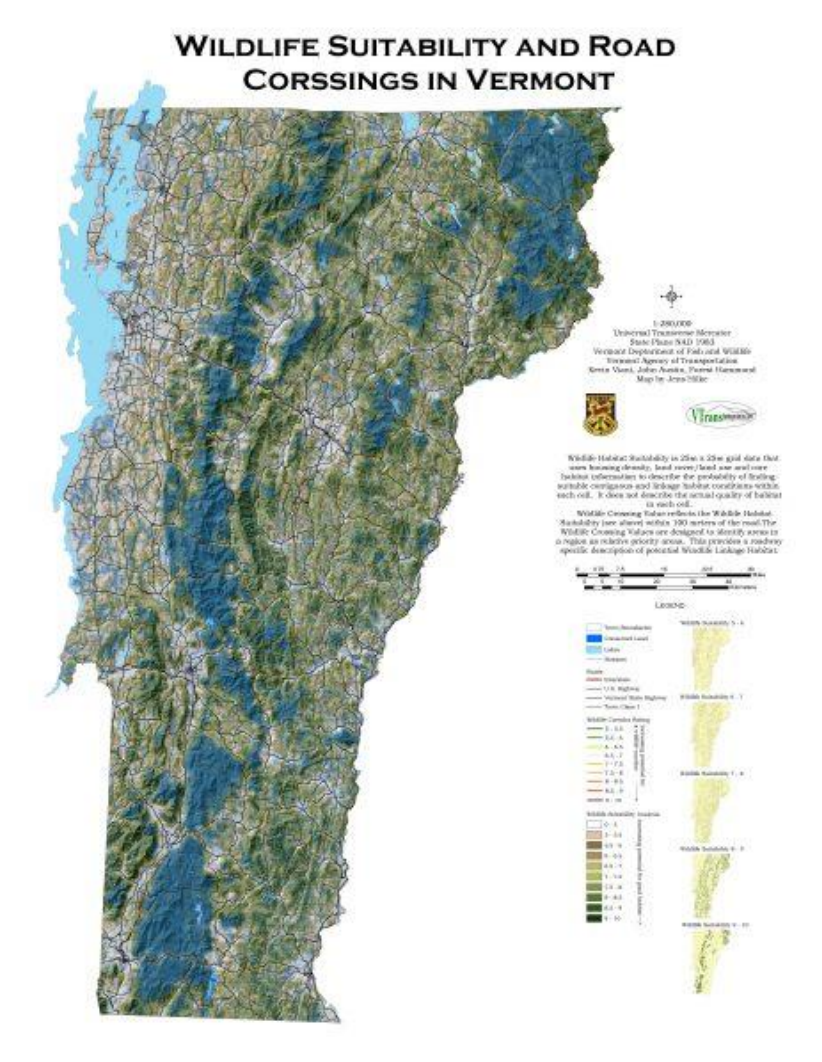
Road Ecology

Accommodating wildlife movement around and through transportation systems while minimizing habitat fragmentation

- Wildlife Linkage Habitat Analysis
- Aquatic Organism Passage

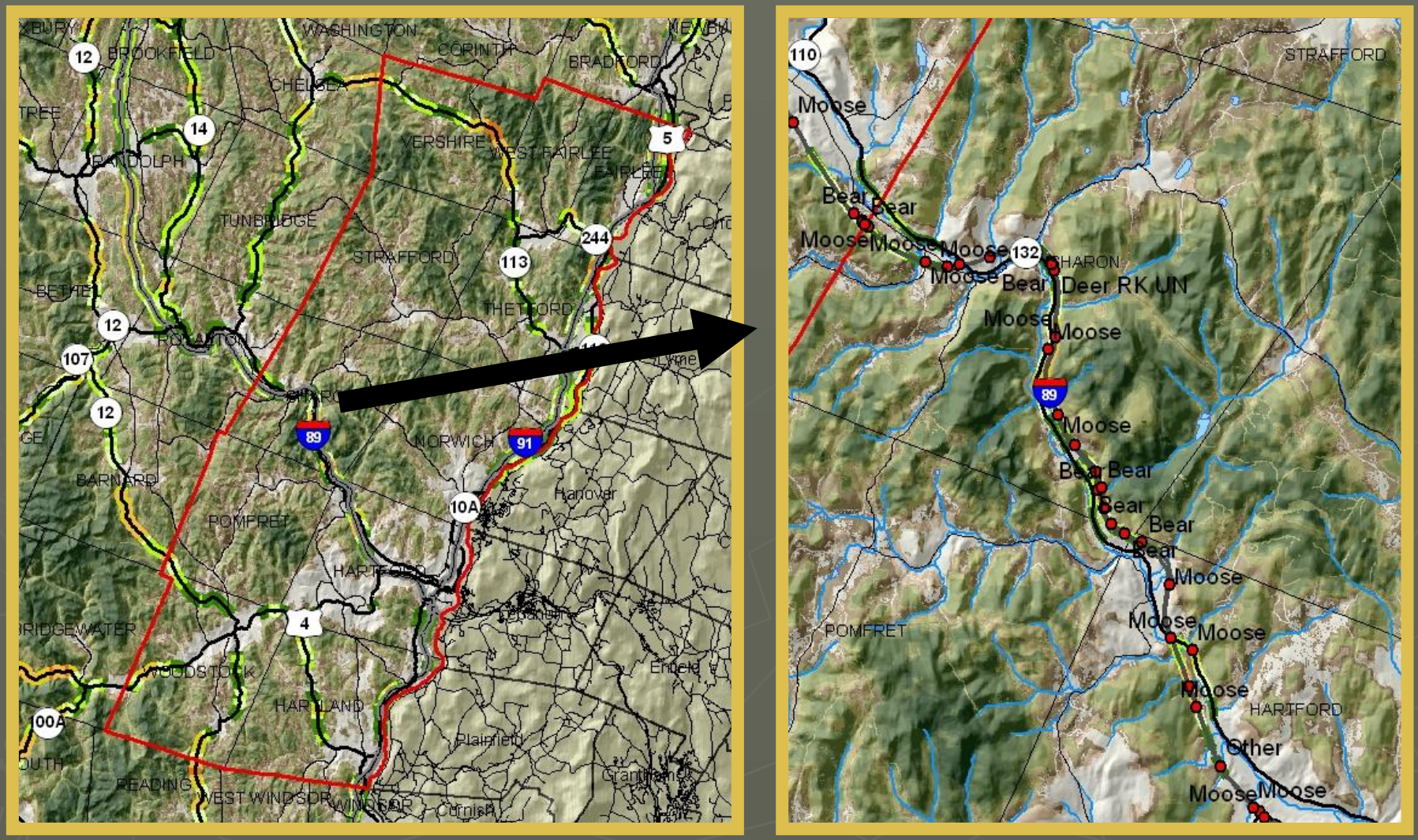
Joint FWD & VT Agency of Transportation projects

Wildlife Linkage Habitat Analysis
Safer Roads for Wildlife & People



A landscape-level identification of potentially significant wildlife linkage habitats associated with state roadways

Road Crossings



Aquatic Organism Passage

- Expert-led trainings in state-of-the-art wildlife friendly road design
- Develop technical criteria and guidelines for installation and management of stream crossing structures


VERMONT
FISH & WILDLIFE
VTrans
U.S. Department of Transportation
Federal Highway Administration

Kestrel Boxes on Highway Signs

What can be done to maximize adoption of the goals of the WAP into the AOT Long Range Plan?

How can we work together in a more meaningful way?