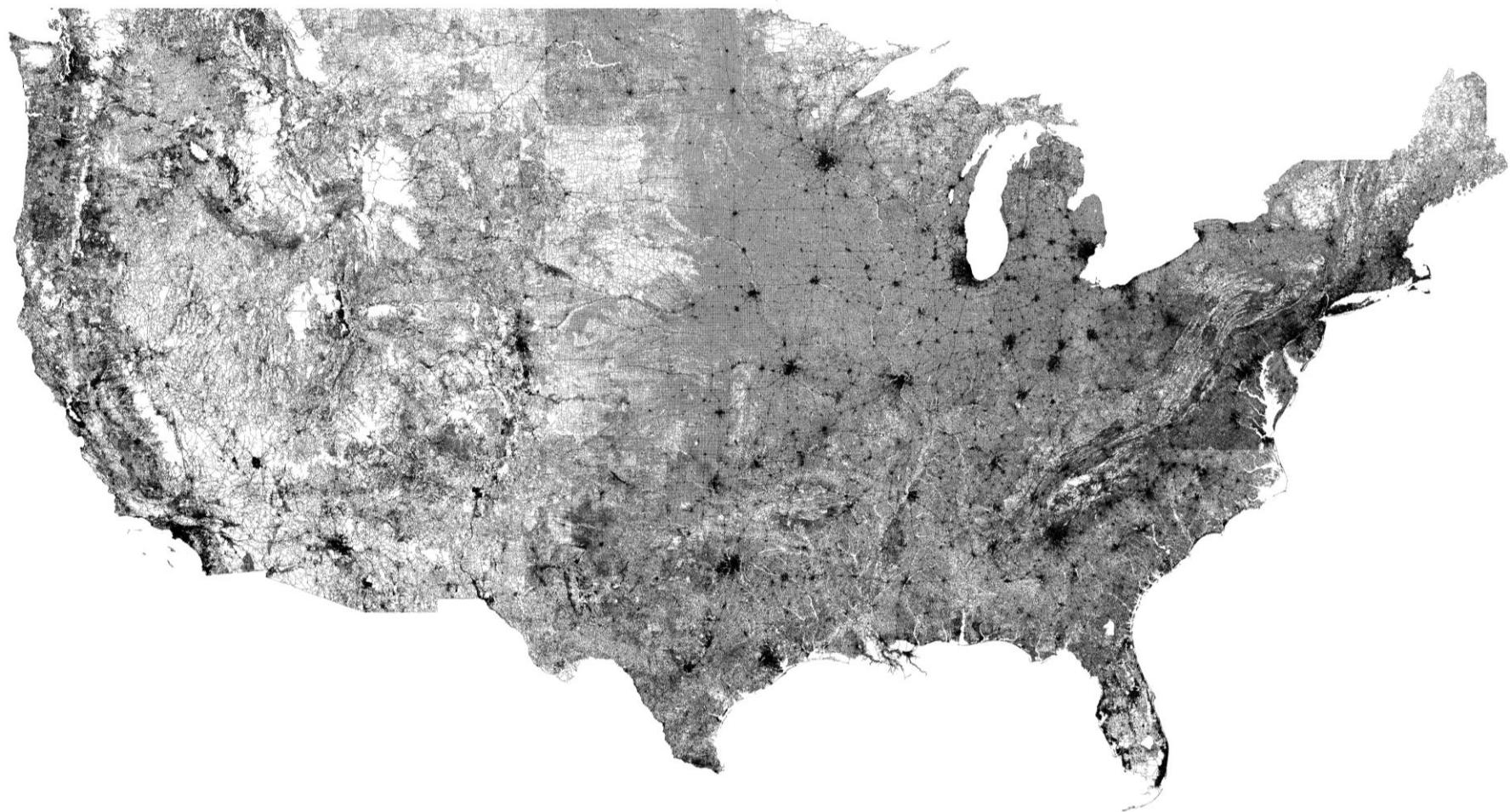


A wide-angle photograph of a natural landscape. In the foreground, a deep blue lake stretches across the bottom. Beyond the lake, a dense forest of trees with autumn foliage in shades of green, yellow, and orange covers a hillside. In the background, a range of mountains is visible under a clear blue sky with a few wispy white clouds.

Public wildlands for all:

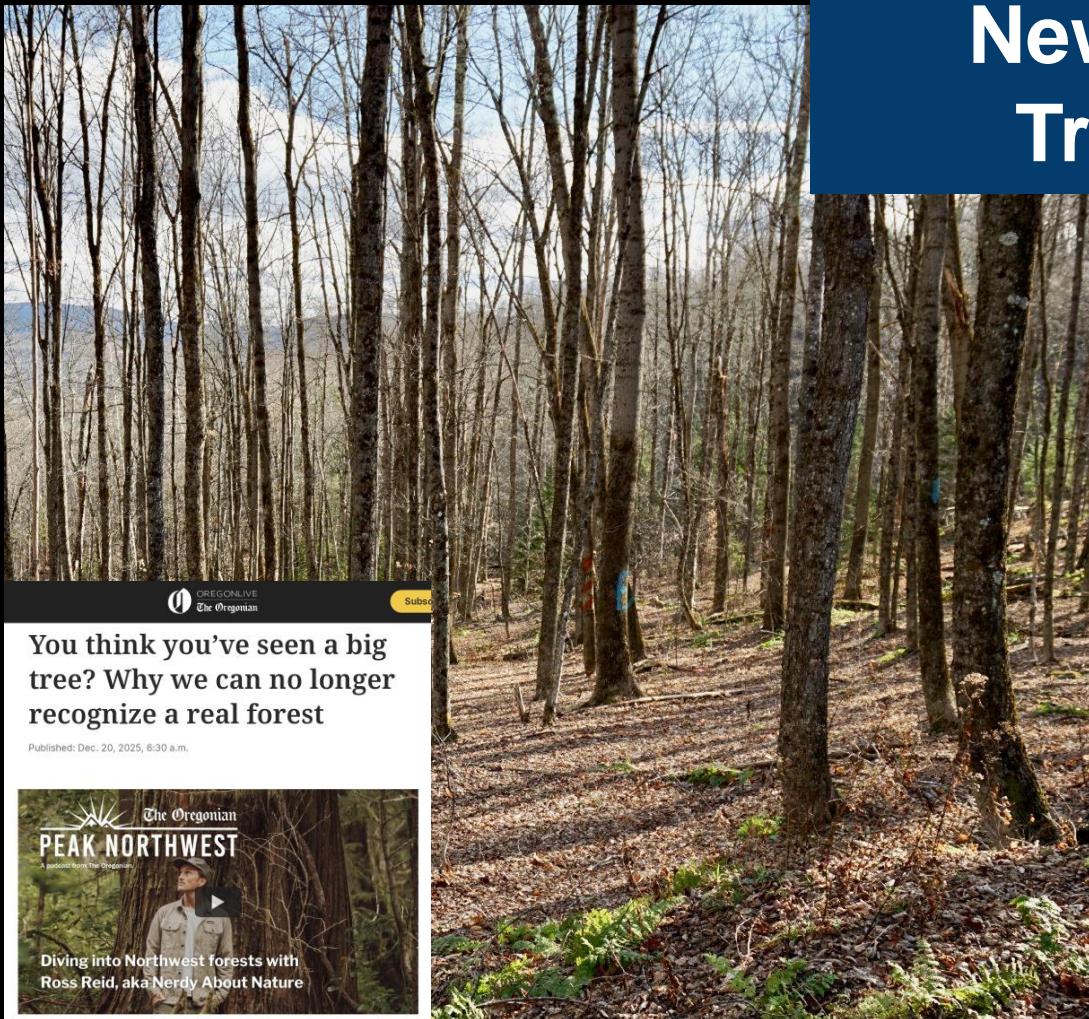
The pursuit of freedom and democracy for Vermont's public forests

Zack Porter, Standing Trees





New England today: Trees or Forests?

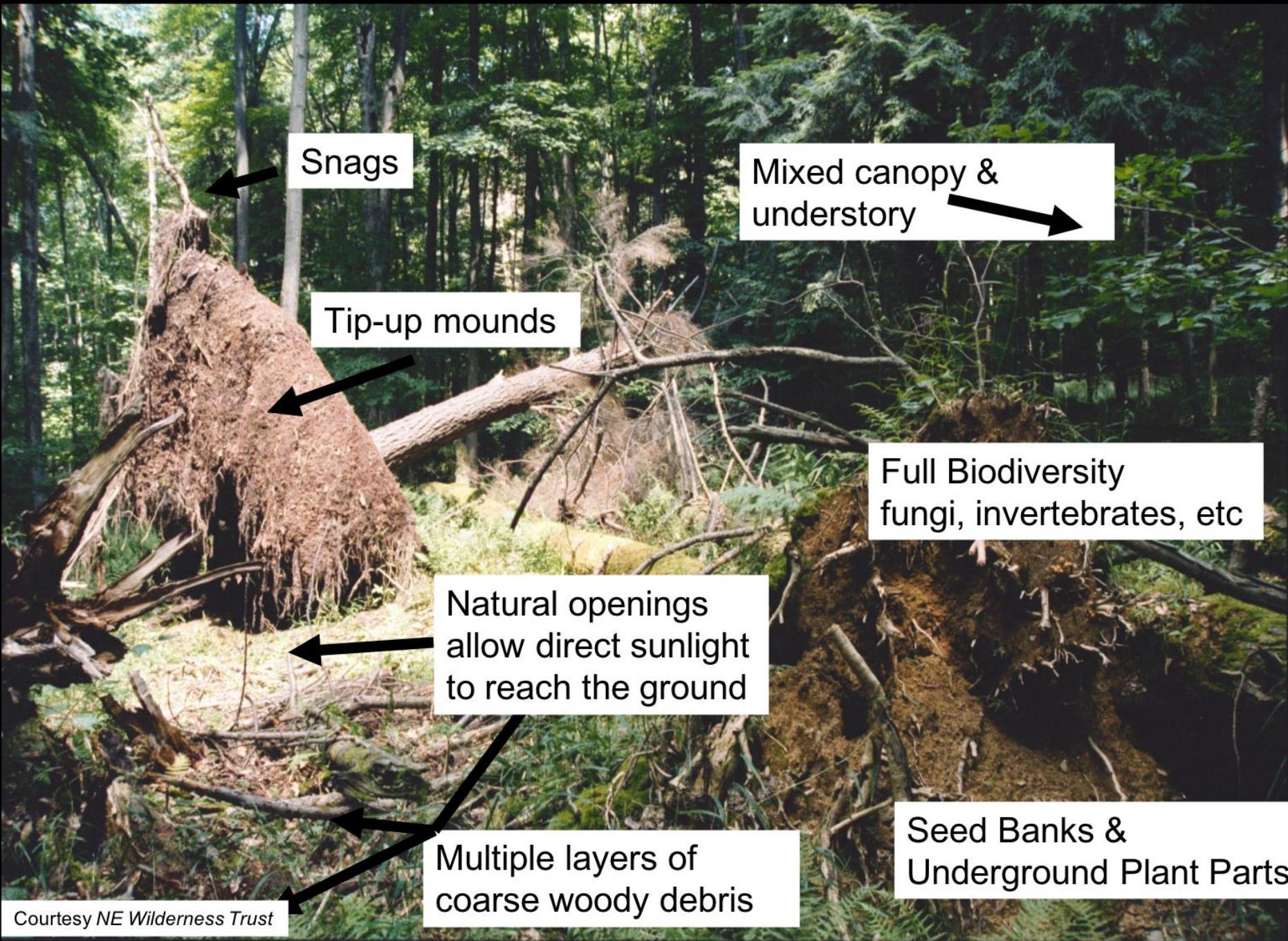


OREGONLIVE
The Oregonian
You think you've seen a big tree? Why we can no longer recognize a real forest

Published: Dec. 20, 2025, 6:30 a.m.

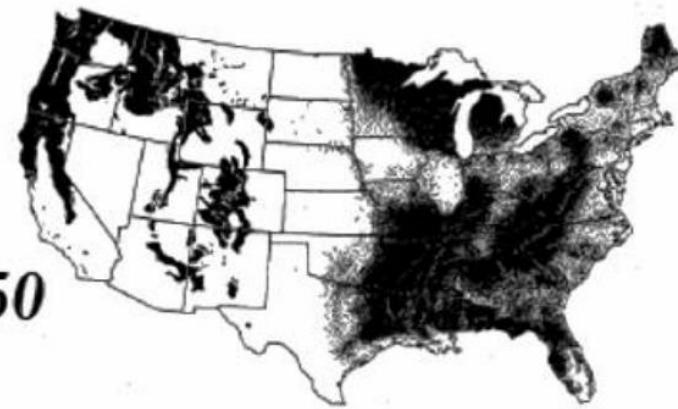


- In 150 years, *tree cover* has returned to much of New England. But we are a long way from *forests*.
- Less than 1/10 of 1% of New England's landscape is old-growth forest
- Just 0.3% of New England forests are over 150 years old





1620



1850



1926

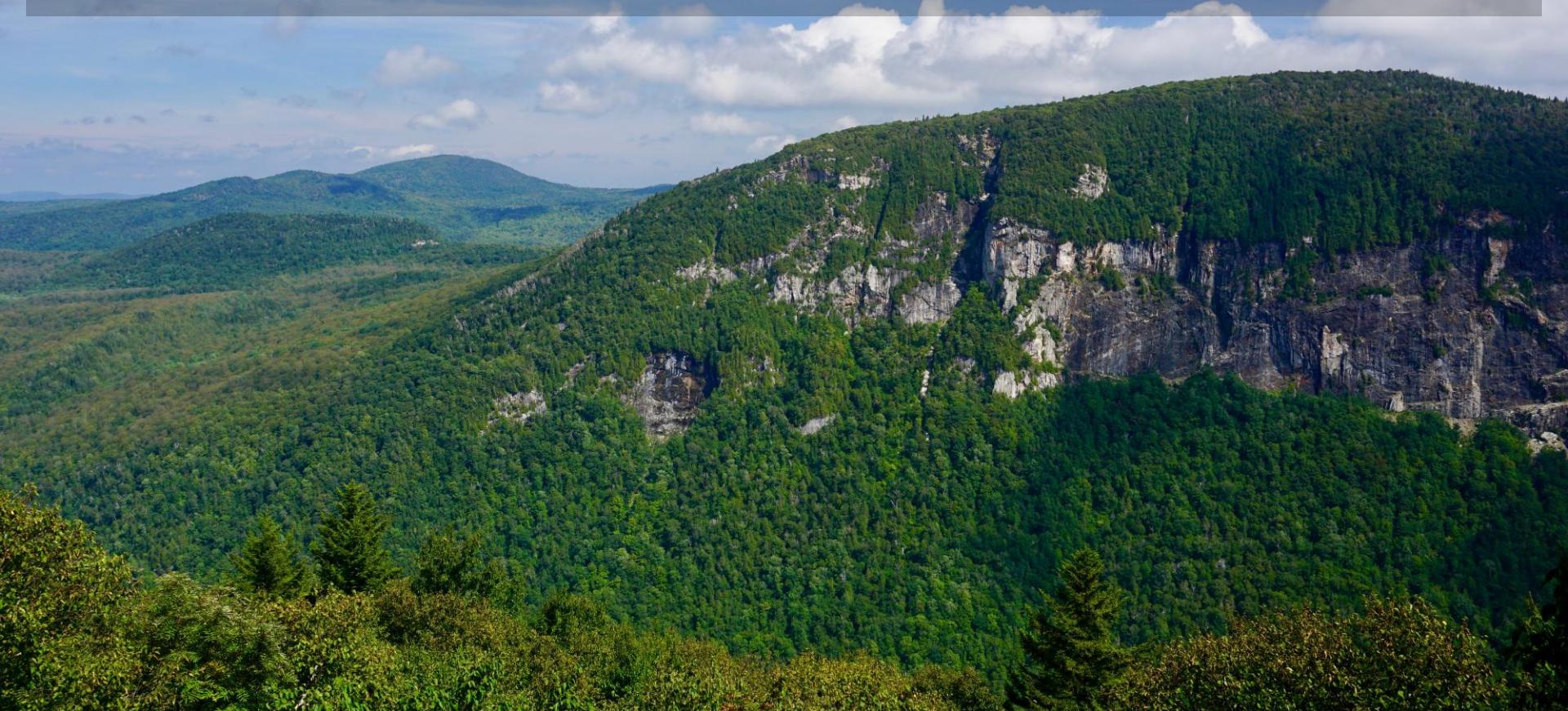


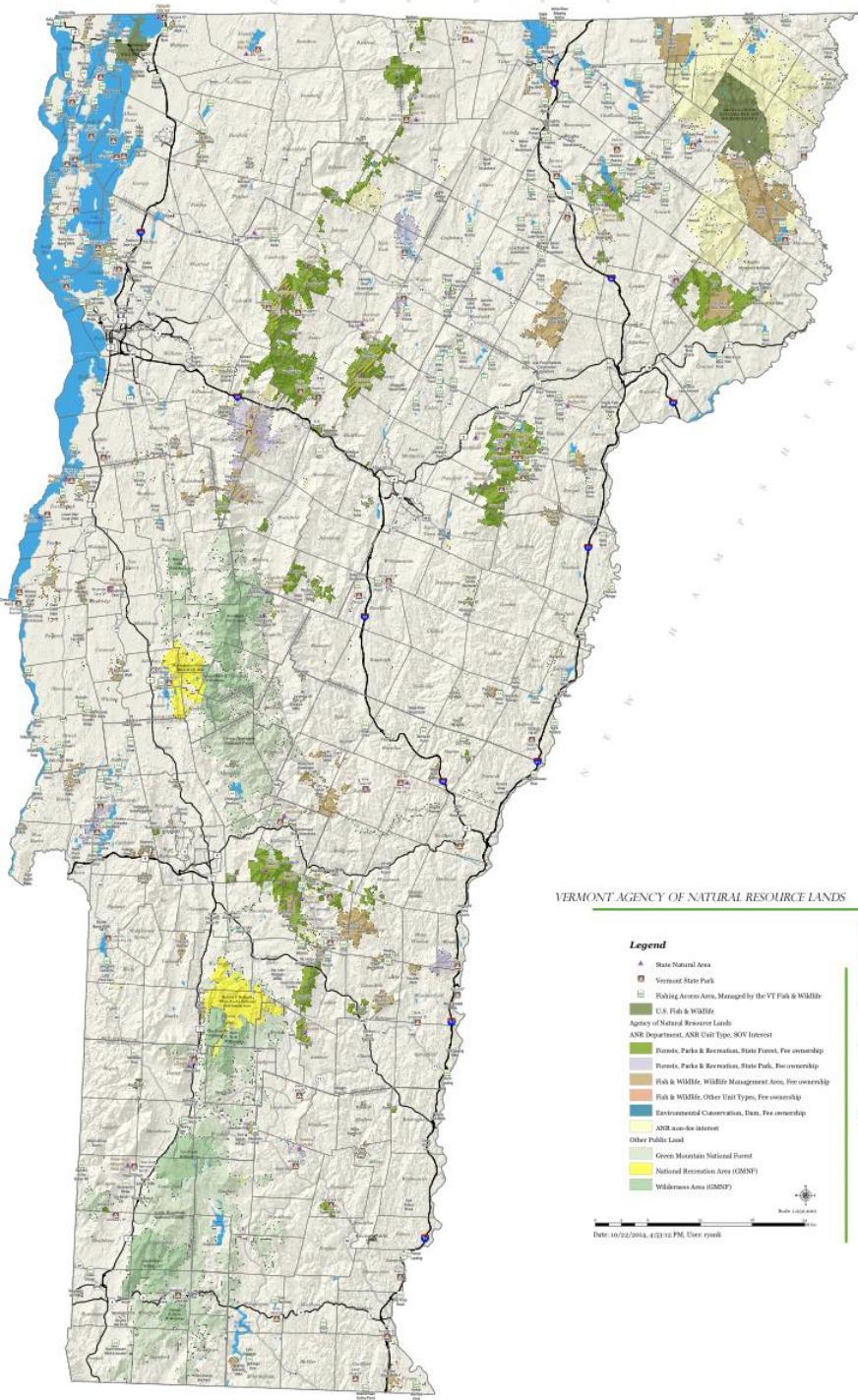
1990

Old growth forests in the U.S. over time. PENN STATE UNIVERSITY

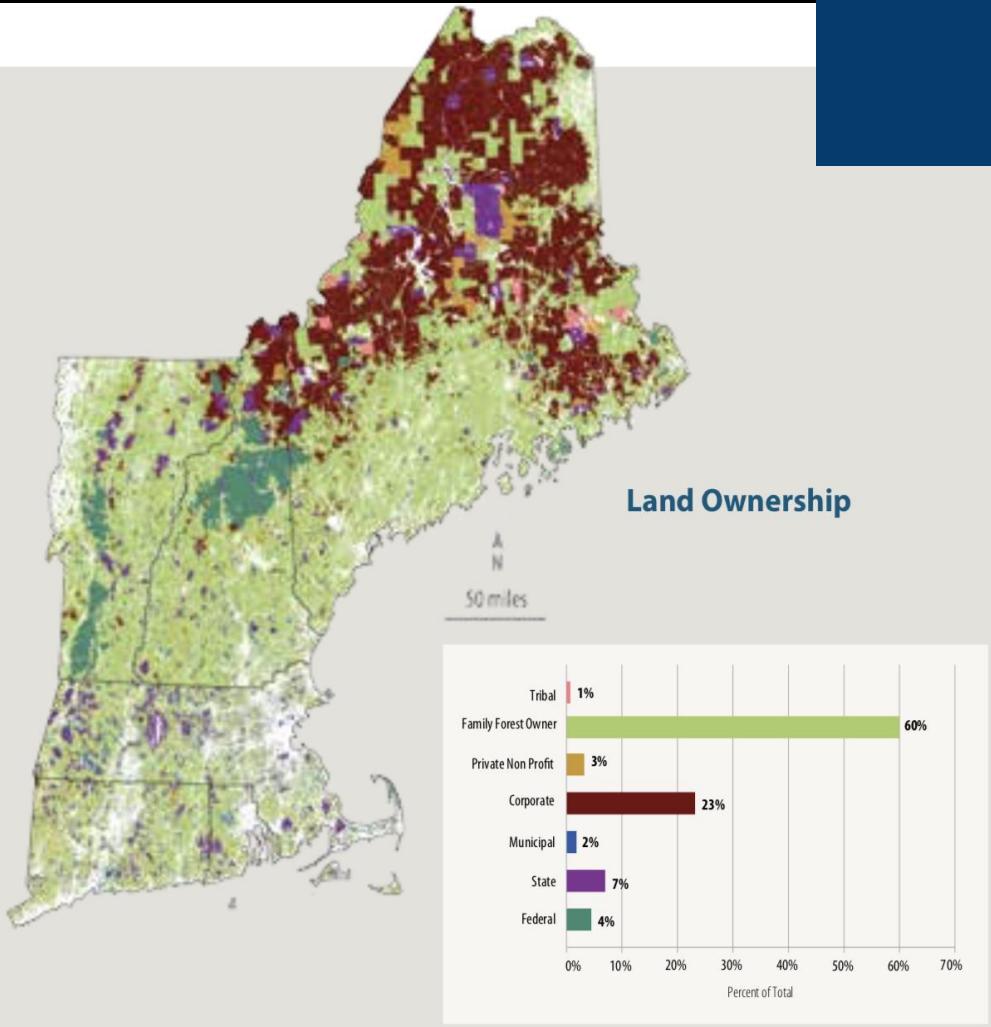
“The ‘greatest good for the greatest number’ applies to the number within the womb of time, compared to which those now alive form but an insignificant fraction. Our duty to the whole, including the unborn generations, bids us restrain an unprincipled present-day minority from wasting the heritage of these unborn generations. The movement for the conservation of wild life and the larger movement for the conservation of all our natural resources are essentially democratic in spirit, purpose, and method.”

- President Theodore Roosevelt





The importance of public lands



- State and federal public lands = **11% of New England**
- Approximate percentages of state and federal public land by state:
 - ME: 6.4%
 - CT: 7.6%
 - RI: 8.9%
 - MA: 12.1%
 - VT: 12.3%
 - NH: 16.2%



Public Lands and Wood Products

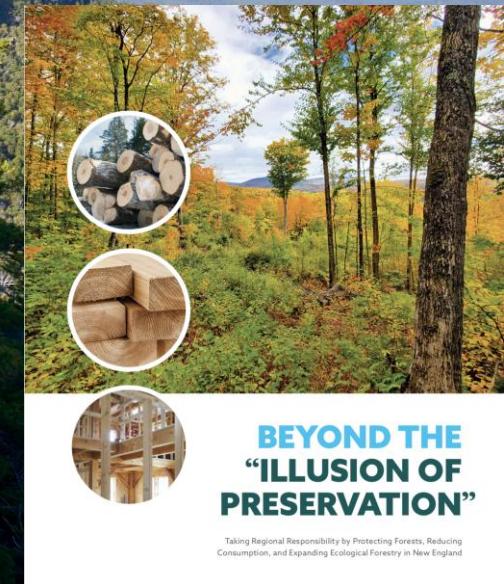
- In New England, 2.3% of the average annual timber harvest comes from state and federal lands
- In Vermont, 2.53% of the average annual timber harvest comes from state and federal lands, including ***just 0.35% from state lands***
- On average, Vermont ***harvests ~50% more wood*** than is consumed within Vermont each year.
(Littlefield et al 2024)

Public lands and wood products



“We must permanently protect New England’s forest in a mosaic of passively managed Wildlands (at least 10% of the entire landscape) surrounded by actively, ecologically managed Woodlands, covering at least 70% of the entire landscape in protected forest... In principle, a full 20% of the region (8 million acres of forest) or more could be dedicated to Wildlands while still achieving the sustainable wood production targets we have outlined.”

- “Beyond the Illusion of Preservation” (Littlefield et al 2024)



Taking Regional Responsibility by Protecting Forests, Reducing Consumption, and Expanding Ecological Forestry in New England

The importance of Wild Public Lands



July 2023 floodwaters came within inches of flowing down Wrightsville Reservoir's spillway into the North Branch of the Winooski (photo: VT Digger).

The Wild Worcester Range saved Montpelier.

Twenty-first century increases in total and extreme precipitation across the Northeastern USA

Christopher J. Picard¹  · Jonathan M. Winter²  · Charlotte Cockburn³  ·
Janel Hanrahan⁴  · Natalie G. Teale²  · Patrick J. Clemins⁵  · Brian Beckage^{5,6} 

Received: 11 April 2022 / Accepted: 1 May 2023

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Abstract

The northeastern USA has experienced a dramatic increase in total precipitation over the past 30 years, yet how precipitation will evolve across the end of the twenty-first century remains uncertain. To examine this



npj climate and atmospheric science

www.nature.com/npjclimatsci



ARTICLE OPEN

Increases in extreme precipitation over the Northeast United States using high-resolution climate model simulations

Bor-Ting Jong¹  · Thomas L. Delworth¹  · William F. Cooke¹  · Kai-Chih Tseng^{1,3} · Hiroyuki Murakami^{1,2} 

Extreme precipitation is among the most destructive natural disasters. Simulating changes in regional extreme precipitation remains challenging, partially limited by climate models' horizontal resolution. Here, we use an ensemble of high-resolution global climate model simulations to study September–November extreme precipitation over the Northeastern United States, where extremes have increased rapidly since the mid-1990s. We show that a model with 25 km horizontal resolution simulates much more realistic extreme precipitation than comparable models with 50 or 100 km resolution, including frequency, amplitude, and temporal variability. The 25 km model simulated trends are quantitatively consistent with observed trends over recent decades. We use the same model for future projections. By the mid-21st century, the model projects unprecedented rainfall events over the region, driven by increasing anthropogenic radiative forcing and distinguishable from natural variability. Very extreme events (>150 mm/day) may be six times more likely by 2100 than in the early 21st century.

npj Climate and Atmospheric Science (2023) 6:18; https://doi.org/10.1038/s41612-023-00347-w

Prepared in cooperation with the Federal Emergency Management Agency

Flood of July 2023 in Vermont



- July 2023 flood: 200-500 year flood event in many locations within the North Branch watershed and along the spine of the Green Mountains
- Highest recorded total was in Calais (9.2 inches in 48 hours, or greater than a 500 year flood)
- For the week starting on July 10, 2023, the Lamoille River delivered more phosphorus to Lake Champlain than in all of 2022 (LCBP)



Enhancing Flood Resiliency of Vermont State Lands

30 June 2015 FINAL DRAFT

Prepared under contract to

Vermont Forests, Parks & Recreation
Montpelier, Vermont

Prepared by:



Kristen L. Underwood, PG, MS Geosciences
South Mountain Research & Consulting
Bristol, Vermont



David Brynn, BS Forestry & MS Natural Resources Planning
Vermont Family Forests
Bristol, Vermont

*"There may be a tendency to assume that lands in forest cover are resilient to the effects of flooding simply by virtue of their forested status. **However, forest cover does not necessarily equate to forest health and forest flood resilience...**"*

"The quality of [today's] forests is not the same as the pre-Settlement old growth forests."



Enhancing Flood Resiliency of Vermont State Lands

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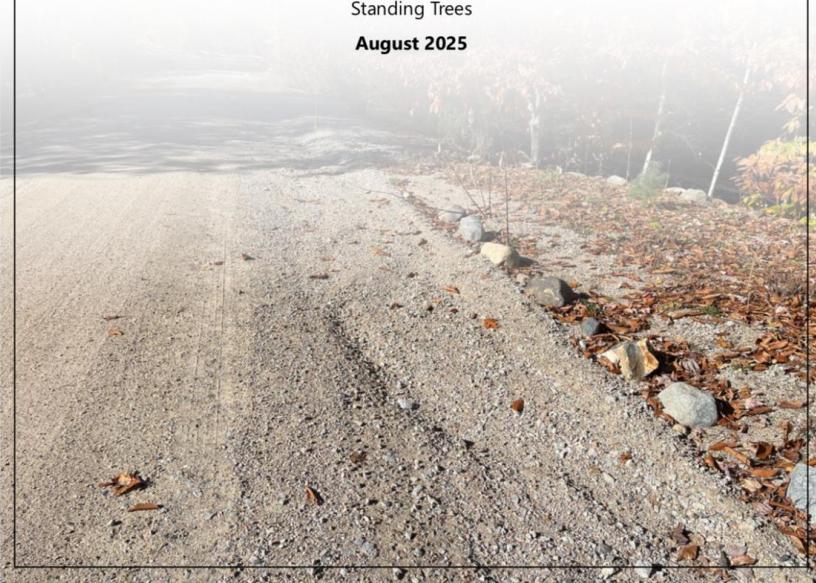
David Brynn, BS Forestry & MS Natural Resources Planning
Vermont Family Forests
Bristol, Vermont

“To date, the primary mechanism for ensuring protection of water resources on State Lands has been the Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (AMPs)... They are not designed to enhance flood resiliency specifically, or to address more extreme storm conditions experienced with greater frequency in recent years and anticipated in coming decades.”

ACCEPTABLE MANAGEMENT PRACTICES

A REVIEW OF VERMONT LOGGING PRACTICES
AND THEIR
EFFECTS ON WATER QUALITY AND FLOODING

Prepared by
FB Environmental Associates
for
Standing Trees
August 2025



“Overall, while the AMPs provide some BMP adjustments relating to slope and hydrologic conditions, ***they do not consider soil erodibility or elevation, they do not address extreme storms, and they do not account for the superior benefits of unharvested and roadless areas compared to harvested areas, regardless of application of BMPs.***”

A Regulatory,
Environmental, and
Economic Analysis of
Water Supply Protection in
Auburn, Maine

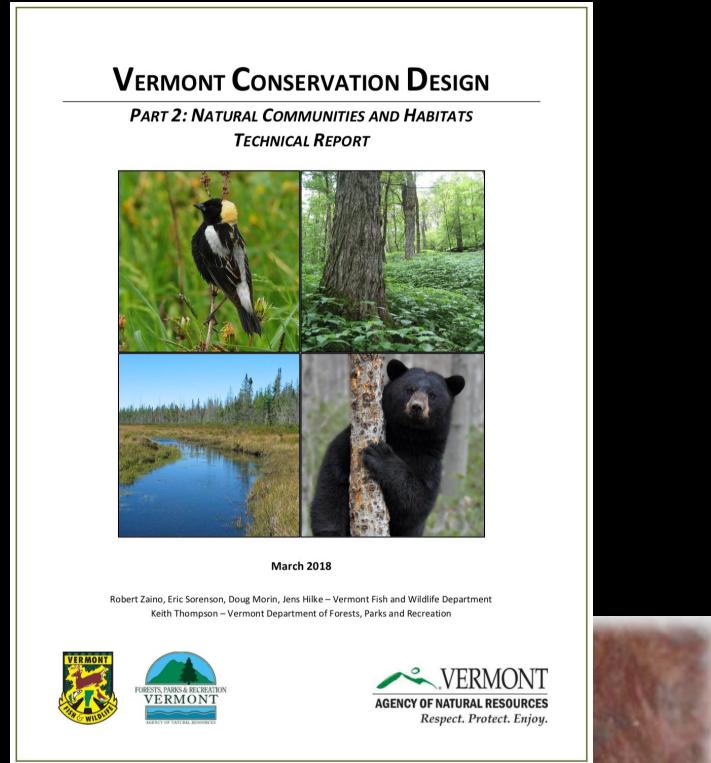
FOR THE CITY OF AUBURN, ME

FB Environmental Associates
Horsley Witten Group
The University of Maine

October 2021

Photo Credit: Sun Aerial

“The potential for sediment delivery to streams is a long-term concern for nearly all harvesting activities and roads or skid trails regardless of their use or age (EPA, 2020)... [T]imber harvesting is not a strategy for water supply protection that reduces contamination risk, but rather constitutes an additional and perhaps unnecessary risk to the water supply.”



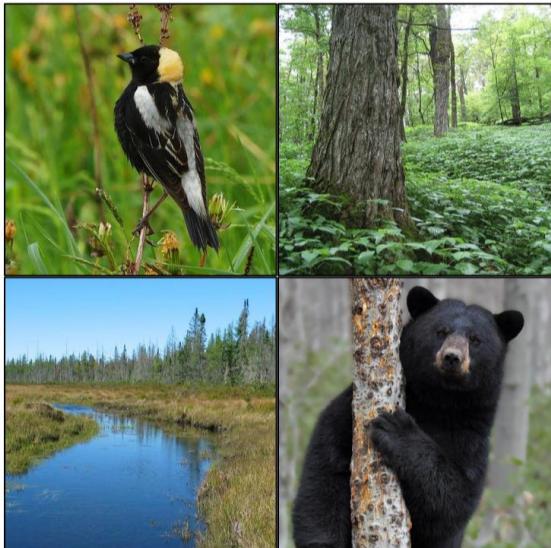
Source: VT Fish and Wildlife

“Historically, the vast majority of Vermont’s landscape was old forest, and it is the original habitat condition for many species. The state’s native flora and fauna that have been here prior to European settlement are adapted to this landscape of old, structurally complex forest punctuated by natural disturbance gaps and occasional natural openings such as wetlands or rock outcrops. The complex physical structure of old forests creates diverse habitats, many of which are absent or much less abundant in younger forests.”

“Although there are small patches of old growth scattered around the state, ***old forest is absent in Vermont as a functional component of the landscape.*** In most forests, passive restoration will result in old forest conditions.”

VERMONT CONSERVATION DESIGN

PART 2: NATURAL COMMUNITIES AND HABITATS TECHNICAL REPORT



March 2018

Robert Zaino, Eric Sorenson, Doug Morin, Jens Hilke – Vermont Fish and Wildlife Department
Keith Thompson – Vermont Department of Forests, Parks and Recreation

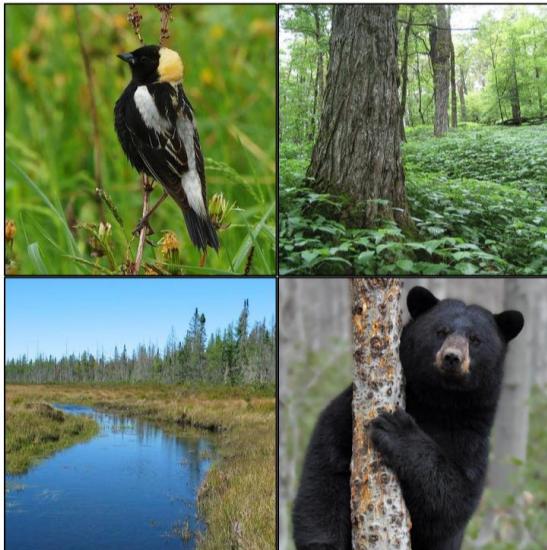


“[O]ld forests also protect water quality, and sequester and store carbon, provide opportunities for adaptation of species and community relationships to climate and other environmental changes, and an ecological benchmark against which to measure active management of Vermont’s forests.”

“Old forests should operate under natural disturbance regimes, and need to be maintained in patches large enough to accommodate natural disturbance regimes without compromising old forest characteristics dominating the patch.”

VERMONT CONSERVATION DESIGN

PART 2: NATURAL COMMUNITIES AND HABITATS TECHNICAL REPORT



March 2018

Robert Zaino, Eric Sorenson, Doug Morin, Jens Hilke – Vermont Fish and Wildlife Department
Keith Thompson – Vermont Department of Forests, Parks and Recreation



"4,000-acre minimum patch sizes [for old forests] are preferred as they are most likely to accommodate large-scale natural disturbance events. Smaller minimum patch sizes are offered for biophysical regions that are more fragmented and where only smaller forest blocks remain."

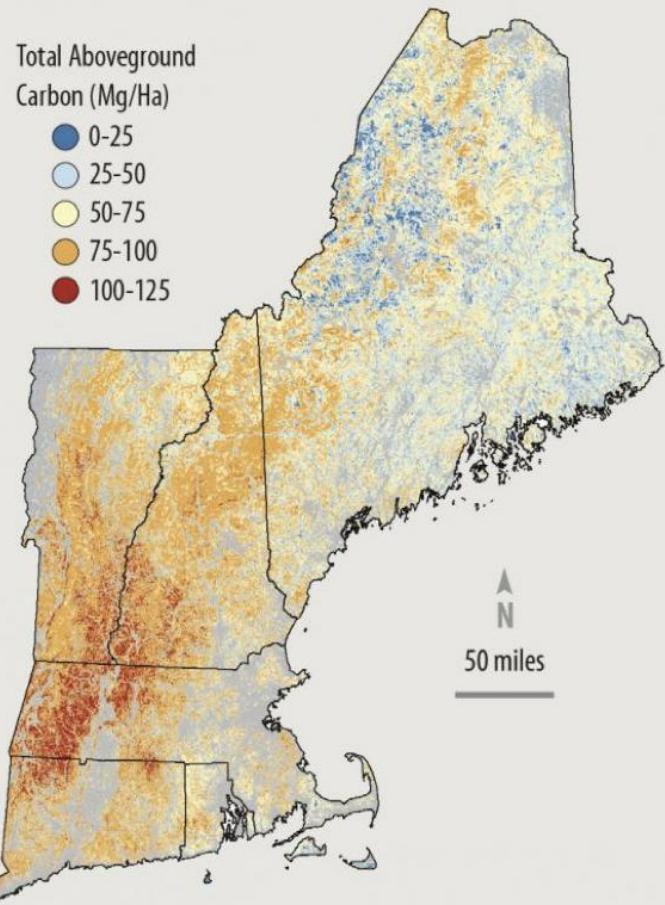
Minimum preferred patch sizes per biophysical region in Vermont, as noted in Vermont Conservation Design, are (in acres):

- i. Champlain Hills - 1,000
- ii. Champlain Valley - 500
- iii. Northeastern Highlands - 4,000
- iv. Northern Green Mountains - 4,000
- v. Northern Vermont Piedmont - 1,000
- vi. Southern Green Mountains - 4,000
- vii. Southern Vermont Piedmont - 1,000

Where do we have tracts this large to protect as Wildlands? On public lands.



Forests Store Carbon



New England's forests provide a vast store-house of carbon that helps mitigate global climate change. Variation in the amounts of carbon, wood, and the size of trees across the region is largely due to the history of timber harvesting. Data are not represented for gray areas that are predominantly agricultural or densely populated.

Source: *Wildlands and Woodlands 2017*

- **86% of all carbon lost from forests per year in the Northeast US is from timber harvest.**
- **Just 3% of annual forest carbon losses are from development and land conversion**

Forest Ecology and Management 548 (2023) 121373

Contents lists available at [ScienceDirect](#)

 Forest Ecology and Management

[journal homepage: www.elsevier.com/locate/foreco](#)



Middle-aged forests in the Eastern U.S. have significant climate mitigation potential

Richard Birdsey ^a, Andrea Castanho, Richard Houghton, Kathleen Savage
Woodwell Climate Research Center, 1000 Hole Road, Falmouth, MA 02540, USA

Go to page 1

- **Unharvested middle-aged stands in New England will double their stored carbon by 2100**

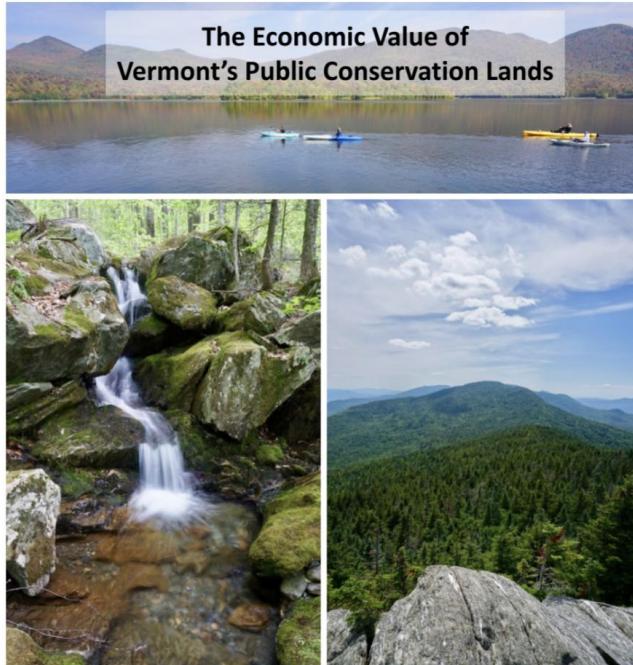
Public lands and forest carbon

Public lands in New England store, on average, **30% more aboveground biomass** than private lands

From “Relationships Between Major Ownerships, Forest Aboveground Biomass, Distributions, and Landscape Dynamics in the New England Region of USA” (Zheng et al 2009)



Public Lands and Ecosystem Service Value



The Economic Value of
Vermont's Public Conservation Lands

August 2025

Prepared for Standing Trees

Spencer Phillips, Ph.D.

KEY-LOG ECONOMICS
Research and strategy for the land community
keylogeconomics.com

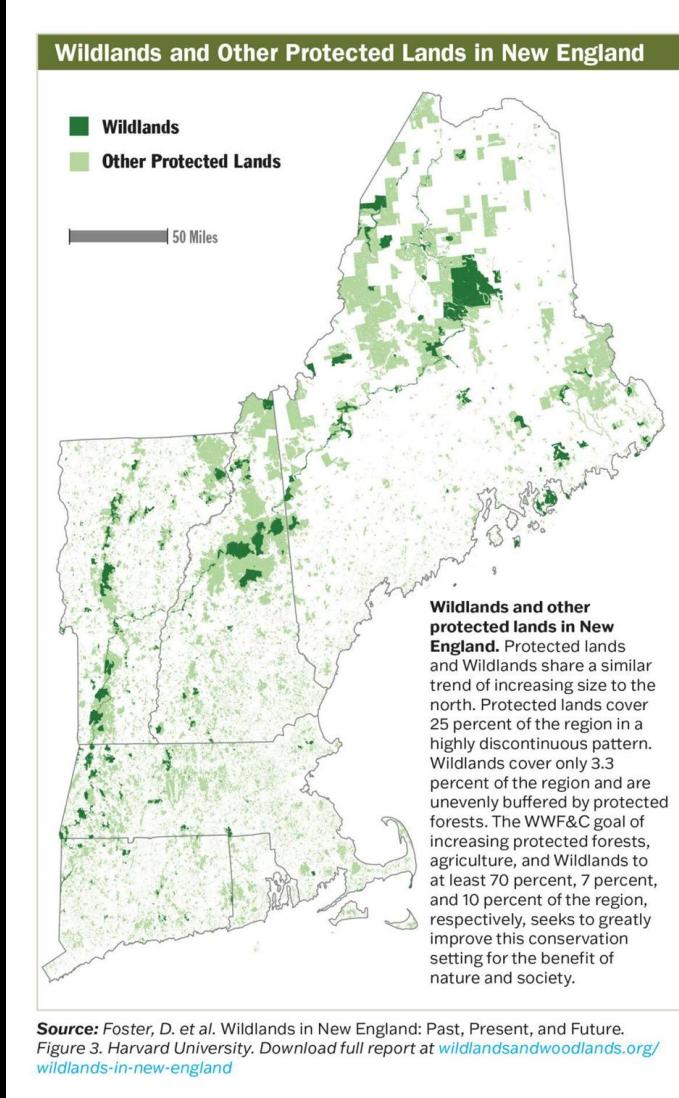
"We estimate that Vermont's Public Conservation Lands supply \$2.25 billion in ecosystem services each year. The most valuable services are, in order, Recreational Opportunities, Air Quality Regulation, Climate Regulation, Existence & Bequest Value, and Moderation of Extreme Events, together accounting for over 88% of the total estimated ESV [(Ecosystem Service Value)]. In contrast, the value of timber from these public lands represents only about 0.13% of the other ESV. Managing these lands for their ecological integrity ensures the continued flow of substantial public values with minimal opportunity cost in terms of statewide timber production."

How *public* are Vermont's public lands?

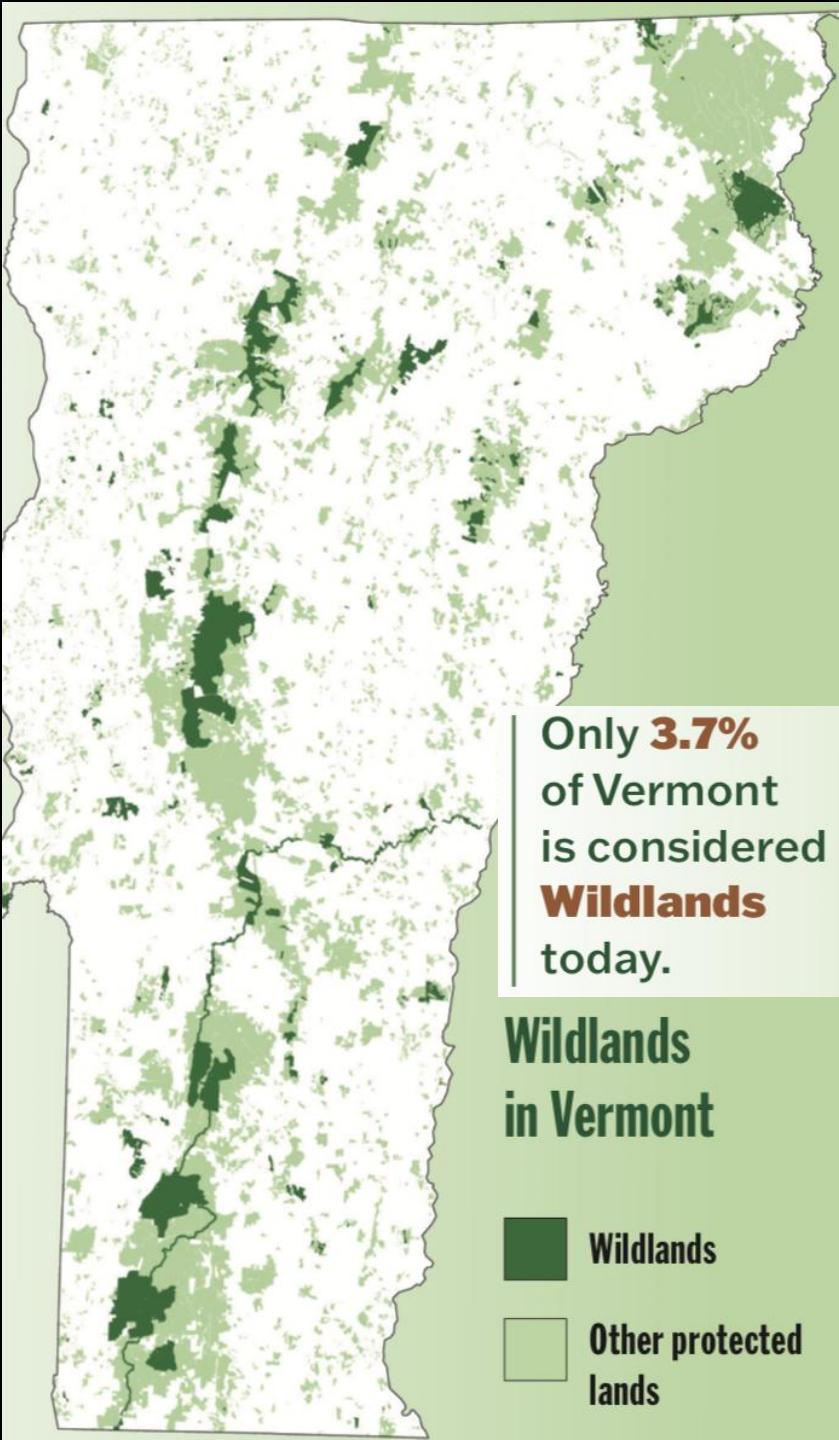
- ANR does not perform an alternatives analysis, flood analysis, environmental impacts analysis, or any economic cost/benefit analysis for Long Range Management Plans or project-level decisions on state lands (logging, road building, etc.)
- ANR states that Long Range Management Plans are not binding
- There is no public notification or comment period for project-level decisions on state lands
- Some state lands have no management plan at all
- Some private companies retain exclusive (i.e. non-competitive) rights to log state lands



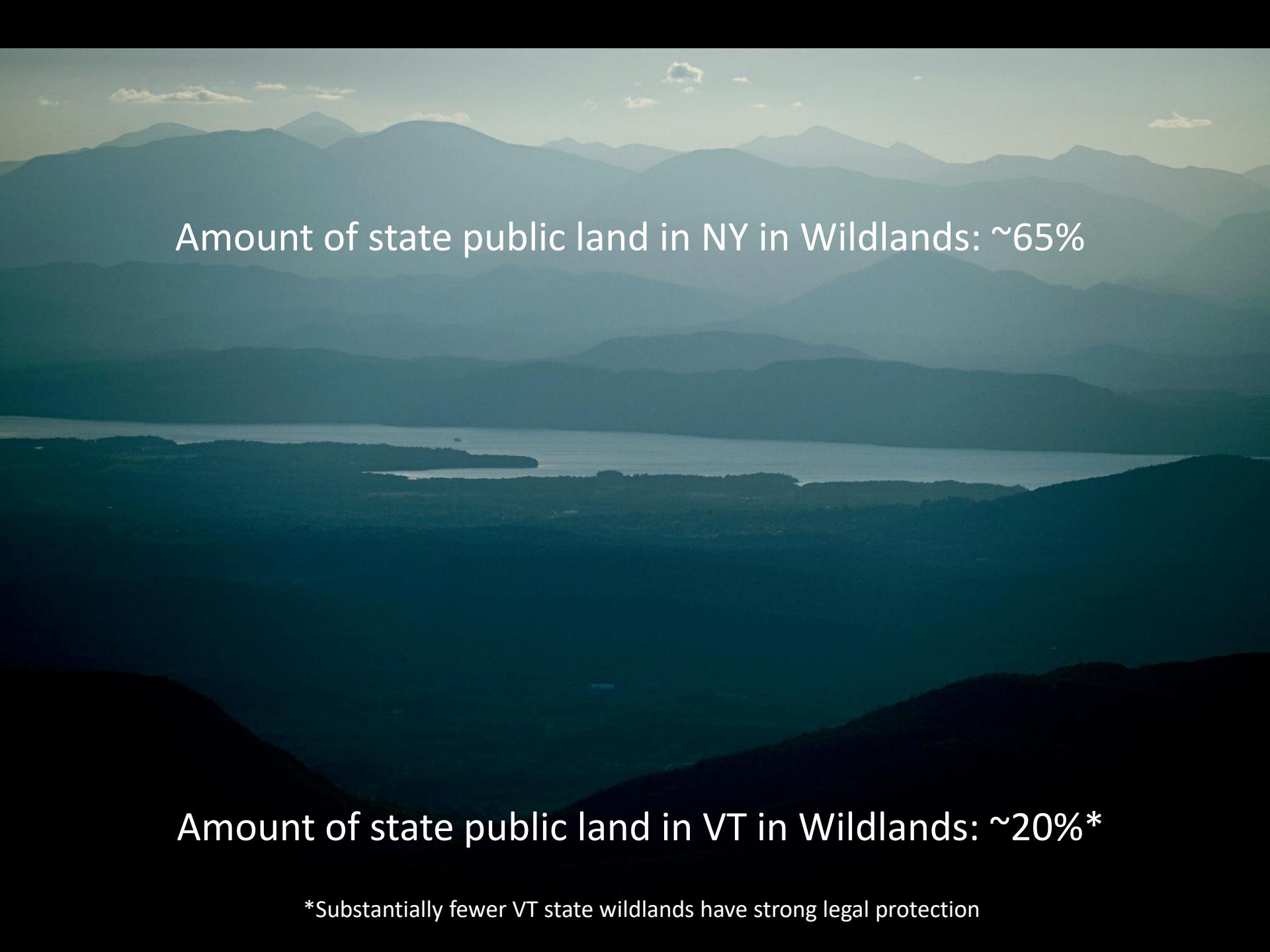
New England Wildlands



- Only ~3% of New England is managed as wildlands today, including:
 - RI: 0% (21-acres)
 - CT: 0.9% (28,614-acres)
 - **MA: 2.3% (116,274-acres)**
 - **VT: 3.7% (221,307-acres)**
 - **ME: 3.7% (722,496-acres)**
 - **NH: 4.1% (233,166-acres)**
- Many in the scientific, conservation, and wood products communities argue that putting 10% of New England's land area in wildlands management should be the minimum goal to maintain or restore ecological function



3.7% is a significant overestimate – few state lands have legal protection



Amount of state public land in NY in Wildlands: ~65%

Amount of state public land in VT in Wildlands: ~20%*

*Substantially fewer VT state wildlands have strong legal protection

Act 59

Vermont Sets Ambitious Goal to Save Half of the State for Nature

New biodiversity measure aims to conserve 50 percent by 2050



Act 59 is Vermont's Biodiversity and Resilience Roadmap to an “Ecologically Functional Landscape”

Act 59 sets quantitative goals to:

- Permanently conserve 30% of VT by 2030
- Permanently conserve 50% of VT by 2050

The Act also sets qualitative goals to:

- Rebalance conservation between each of the following categories, guided by VT Conservation Design:

- 1) Ecological Reserves (Wildlands)
- 2) Biodiversity Conservation Areas
- 3) Natural Resource Management Areas

Act 59

Vermont Sets Ambitious Goal to Save Half of the State for Nature

New biodiversity measure aims to conserve 50 percent by 2050



Act 59 is Vermont's Biodiversity and Resilience Roadmap to an "Ecologically Functional Landscape"

The Act 59 Inventory identified:

- Ecological Reserve Areas:
236,739 acres, or 4% of land area.
- Biodiversity Conservation Areas:
239,545 acres, or 4% of land area.
- Natural Resource Management Areas:
1,106,473 acres, or 19% of land area.
- Total land across all three categories:
1,582,757 acres, or 27% of land area.



“Ecological reserve area’ means an area having permanent protection from conversion and that is managed to maintain a natural state within which natural ecological processes and disturbance events are allowed to proceed with minimal interference.” (Act 59)

Vermont Natural Areas Statute (10 V.S.A. § 2607):

“Natural areas’ means limited areas of land that have retained their wilderness character... Areas so designated may be removed from such designation only by approval of the Governor following public notice and hearing.”

Vermont Natural Areas:

- Not durable**
- Not designed for ecological restoration**



ACT 59 STATE LANDS WORKING GROUP REPORT

Introduction

10 VSA Chapter 89 Section 2803 charges the Agency of Natural Resources (ANR) and the Vermont Housing and Conservation Board (VHCB) with “an assessment of how State lands will be used to increase conserved ecological reserve areas,” as defined in Section 2801 of Act 59.

Our recommendations focus on identifying and filling gaps in the suite of options that exist to support designation of Category 1 lands through our existing processes. We have strived to establish options to capture the range of permanency that is acceptable to meet the goals of Act 59. Our recommendations are summarized as follows:

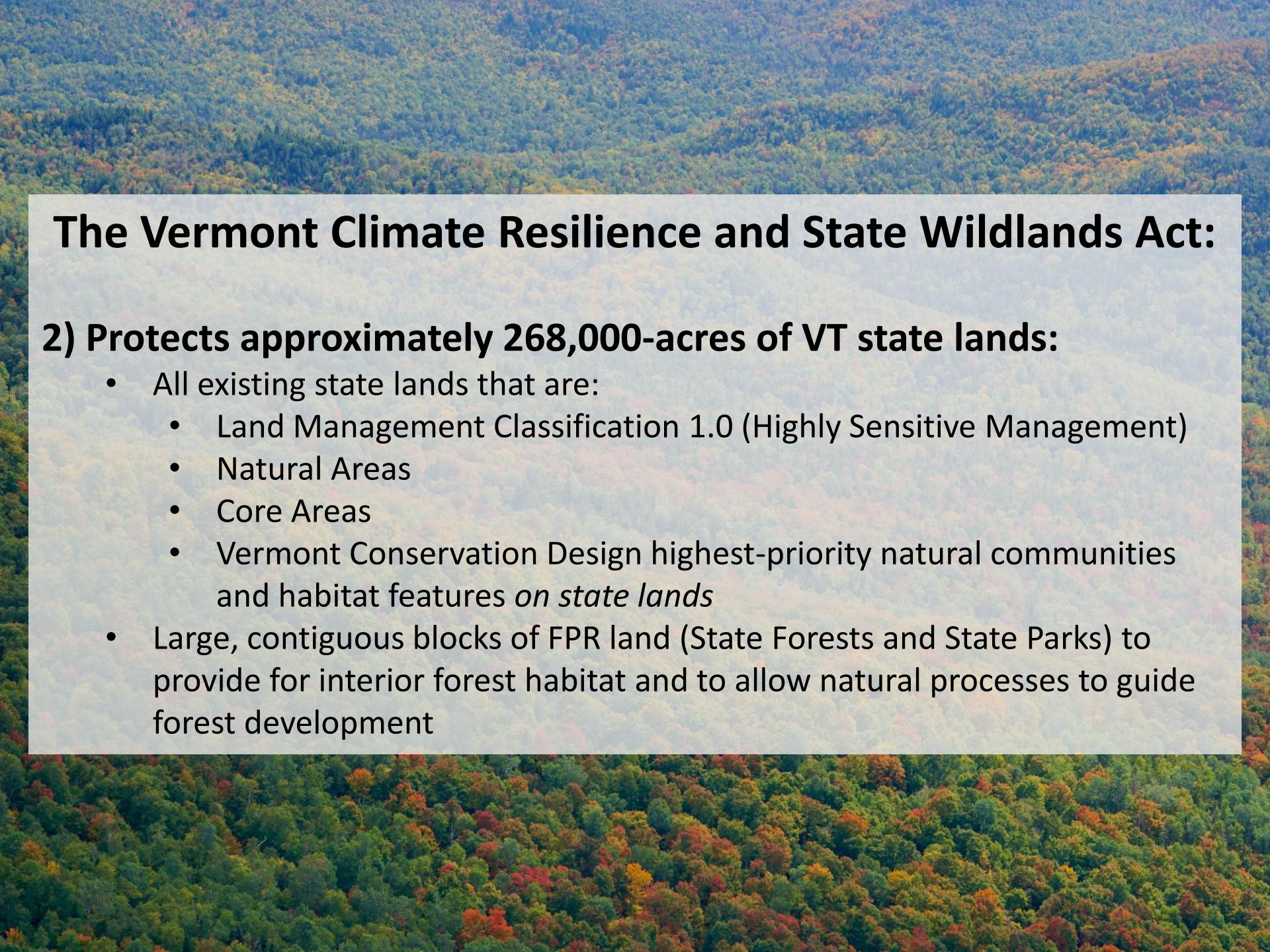
1. Establish New Statutory Designation: Ecological Reserve



The Vermont Climate Resilience and State Wildlands Act:

1) Adds an essential tool to Vermont's conservation toolbox:

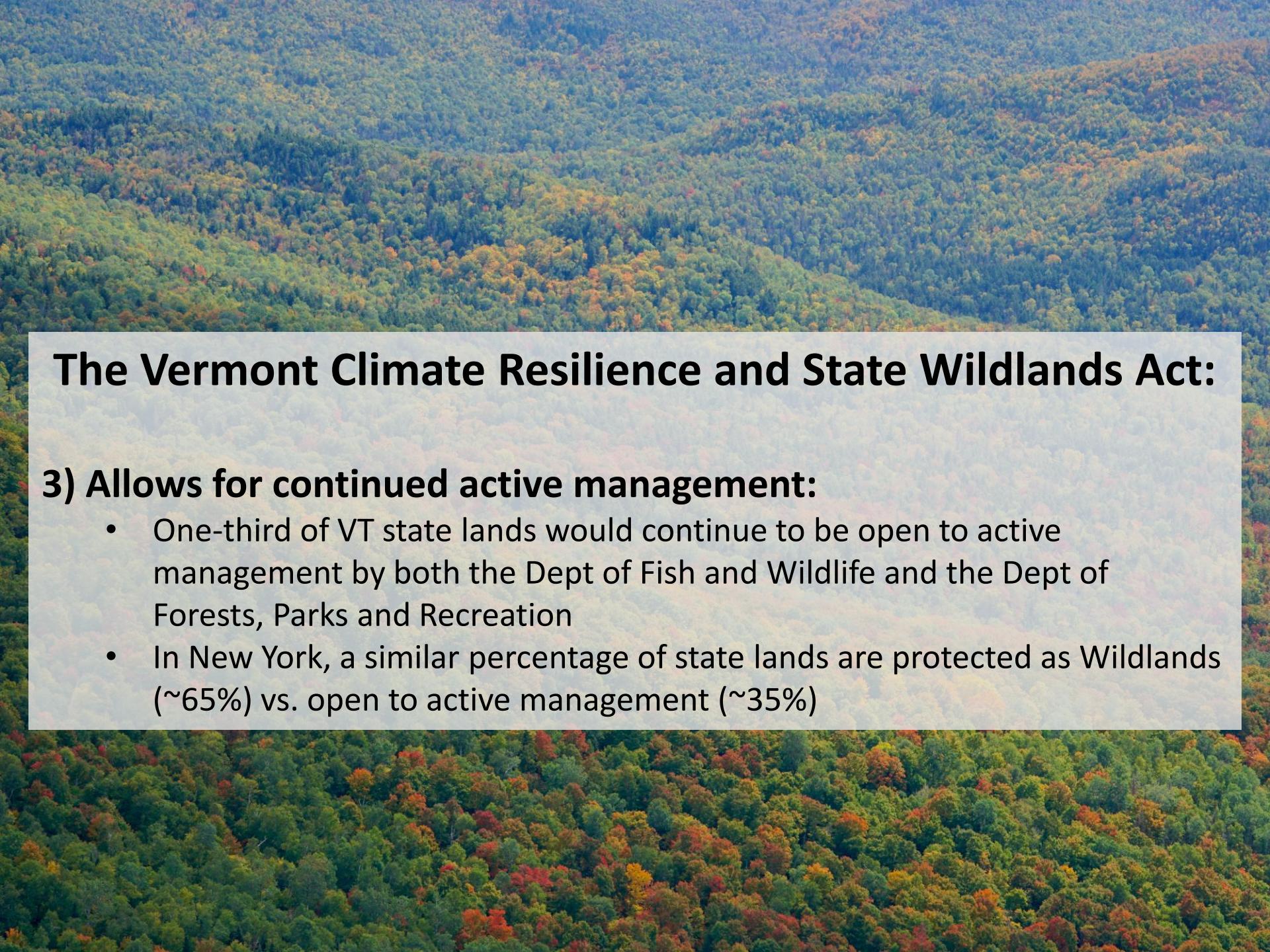
- Creates a durable and permanent designation for ecological reserves on state lands, regardless of the condition of those lands at the time of designation



The Vermont Climate Resilience and State Wildlands Act:

2) Protects approximately 268,000-acres of VT state lands:

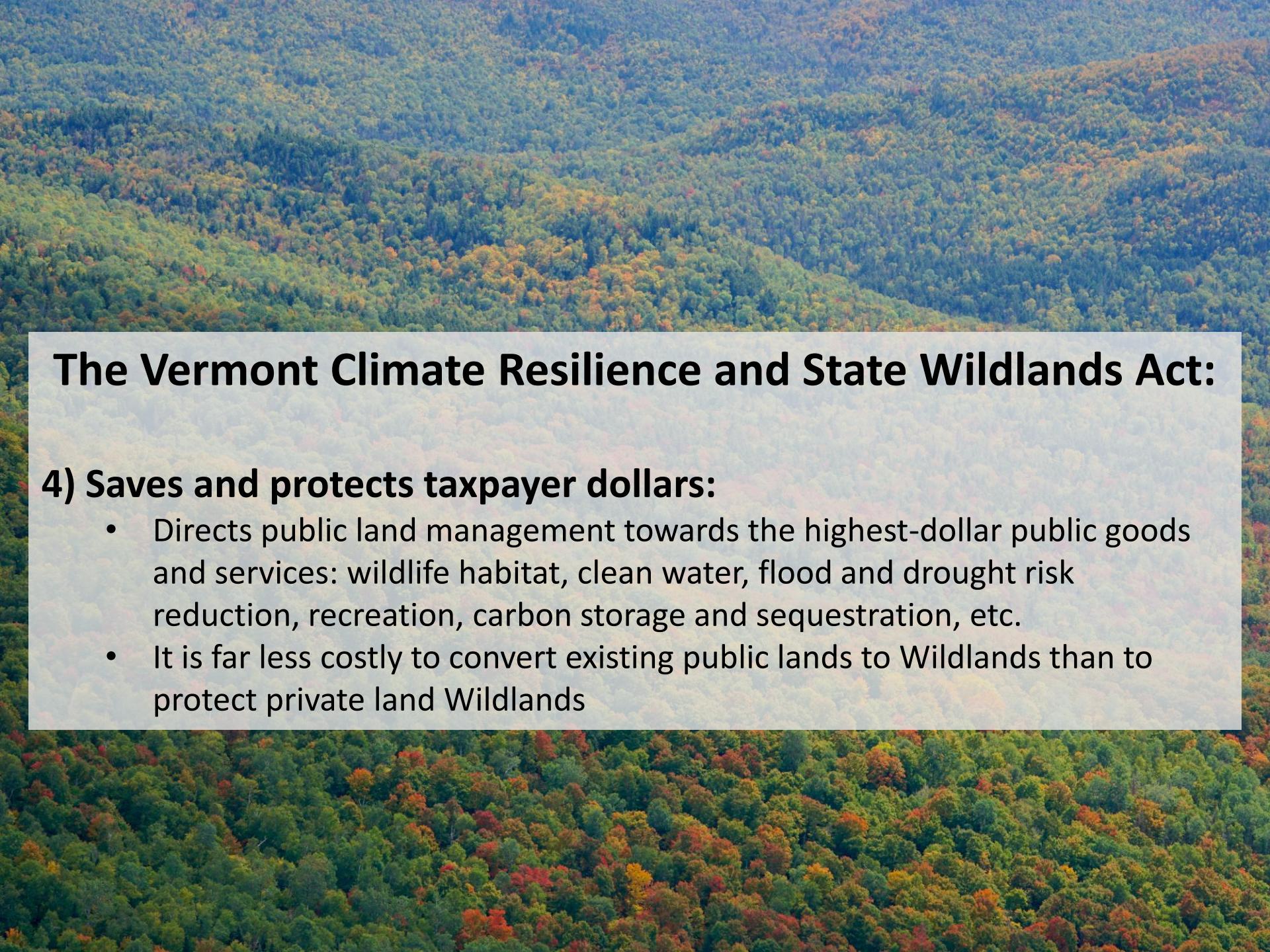
- All existing state lands that are:
 - Land Management Classification 1.0 (Highly Sensitive Management)
 - Natural Areas
 - Core Areas
 - Vermont Conservation Design highest-priority natural communities and habitat features *on state lands*
- Large, contiguous blocks of FPR land (State Forests and State Parks) to provide for interior forest habitat and to allow natural processes to guide forest development



The Vermont Climate Resilience and State Wildlands Act:

3) Allows for continued active management:

- One-third of VT state lands would continue to be open to active management by both the Dept of Fish and Wildlife and the Dept of Forests, Parks and Recreation
- In New York, a similar percentage of state lands are protected as Wildlands (~65%) vs. open to active management (~35%)



The Vermont Climate Resilience and State Wildlands Act:

4) Saves and protects taxpayer dollars:

- Directs public land management towards the highest-dollar public goods and services: wildlife habitat, clean water, flood and drought risk reduction, recreation, carbon storage and sequestration, etc.
- It is far less costly to convert existing public lands to Wildlands than to protect private land Wildlands

The bill does not impact:

- Motorized or non-motorized recreational trails, existing or future
- Public access roads and trailheads
- Campgrounds, cabins, and other developed recreation, communications, or administrative sites
- Leased ski areas and designated backcountry ski zones
- Hunting, fishing, foraging, gathering medicines, practicing ceremony



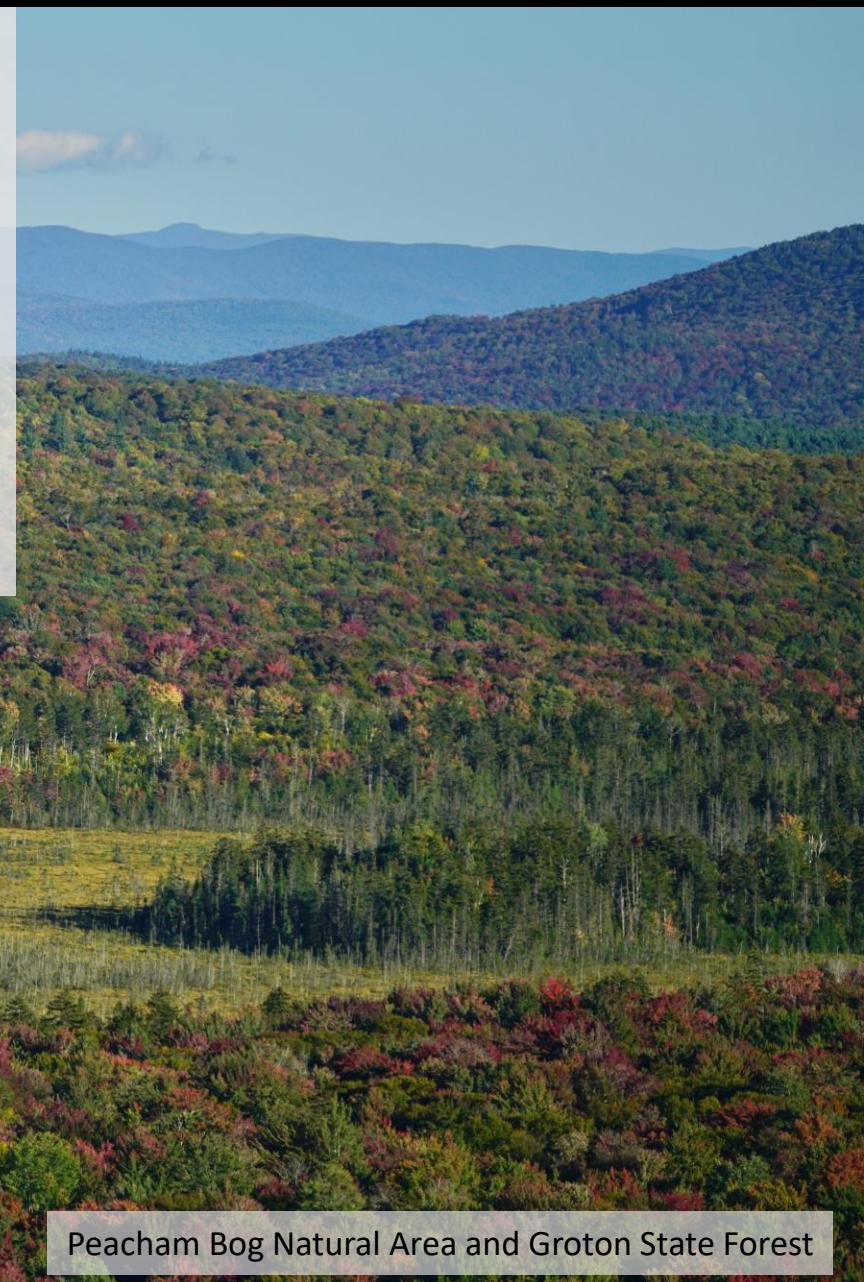
Groton State Forest

Vermont today:

- ~4% of VT is in Wildlands management (or Ecological Reserves) according to the Act 59 Inventory

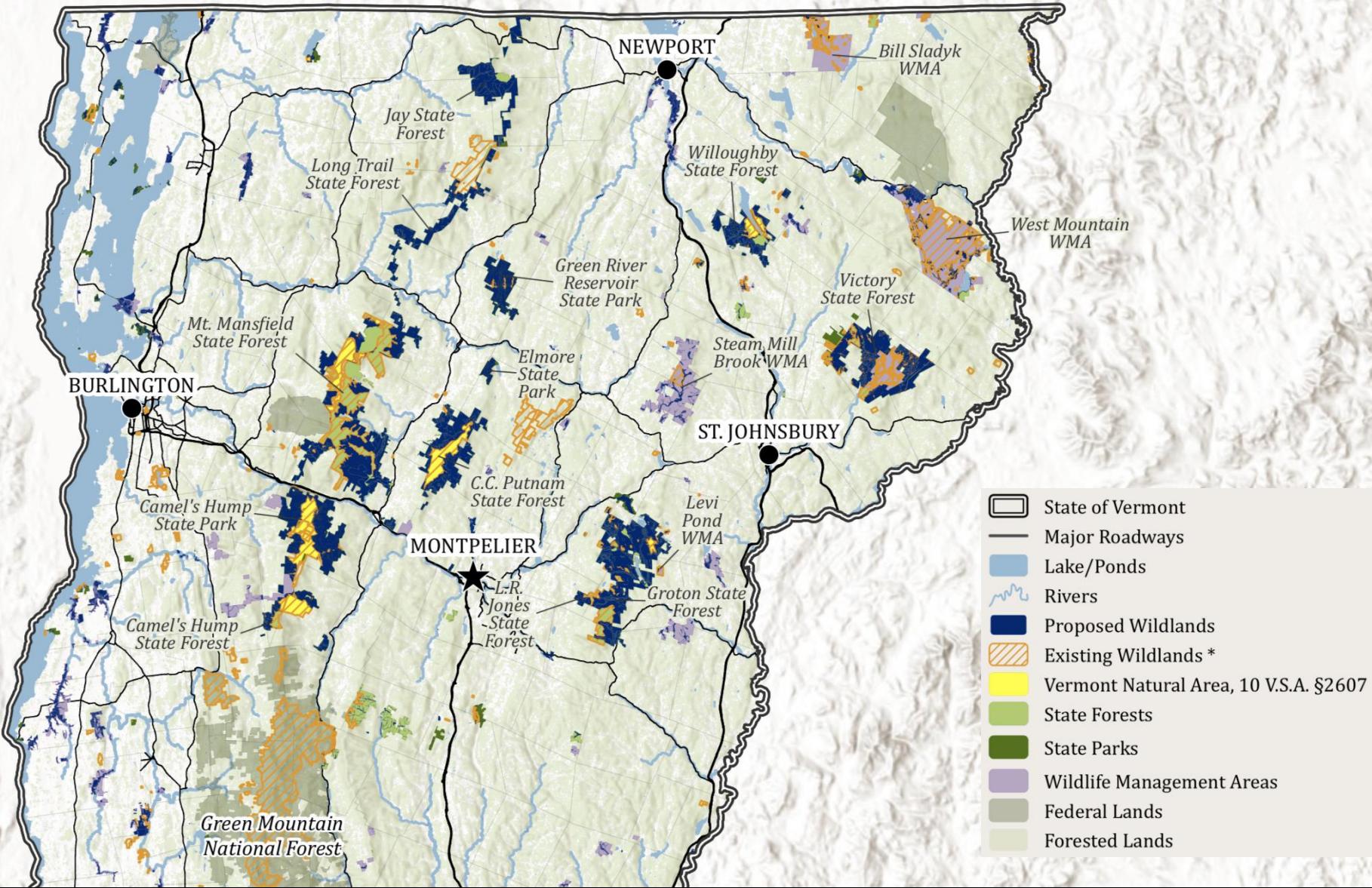
With passage of H.276:

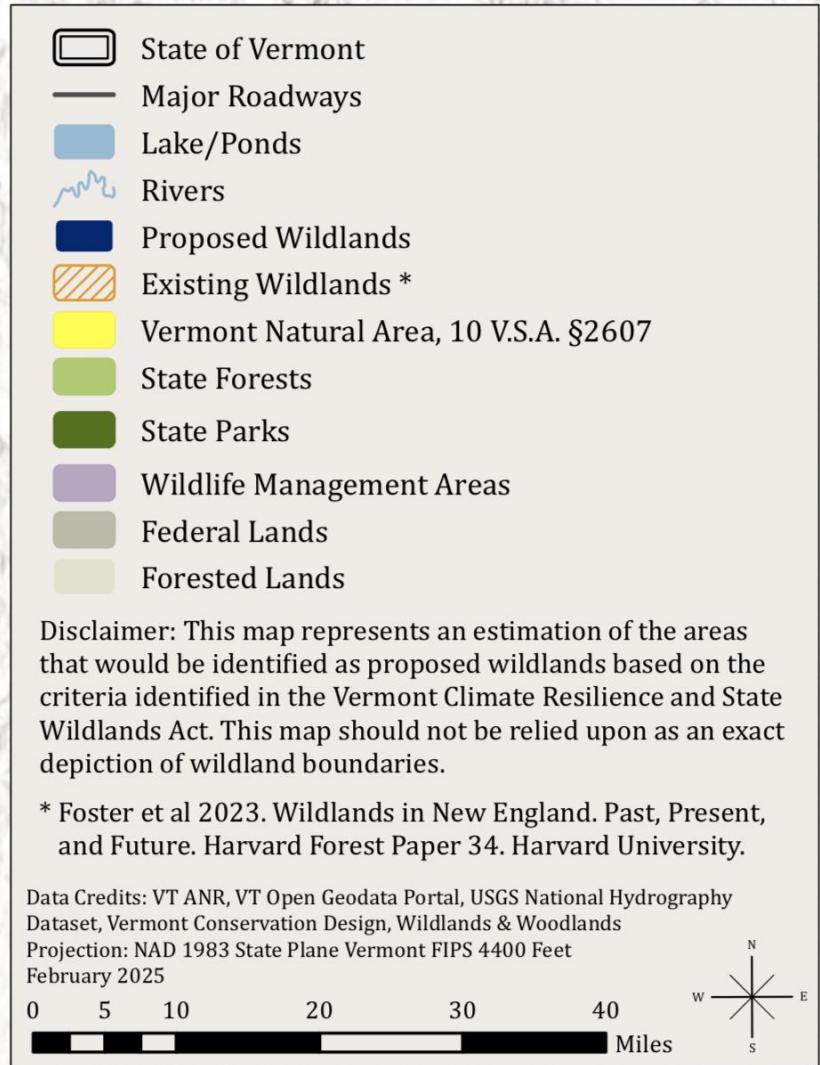
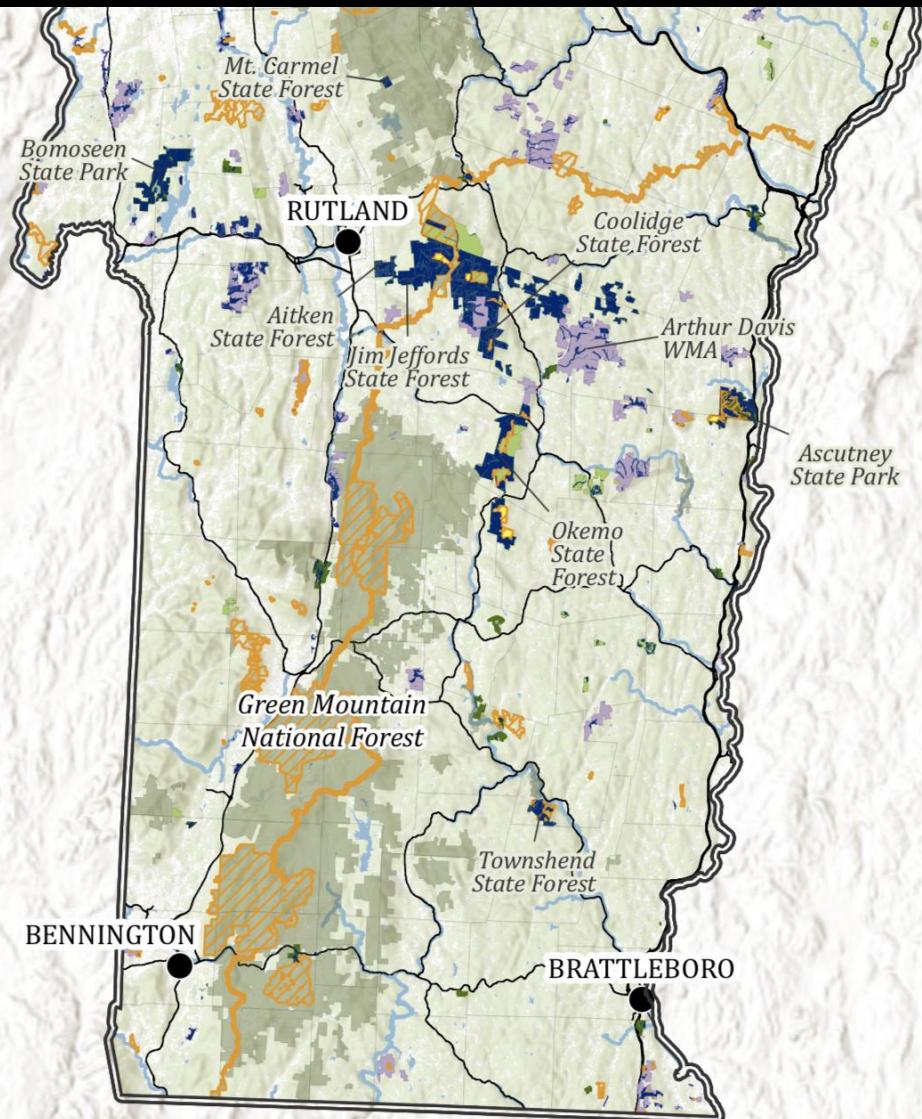
- ~7% of VT would be in Wildlands/Ecological Reserves



Peacham Bog Natural Area and Groton State Forest

Proposed State Wildlands

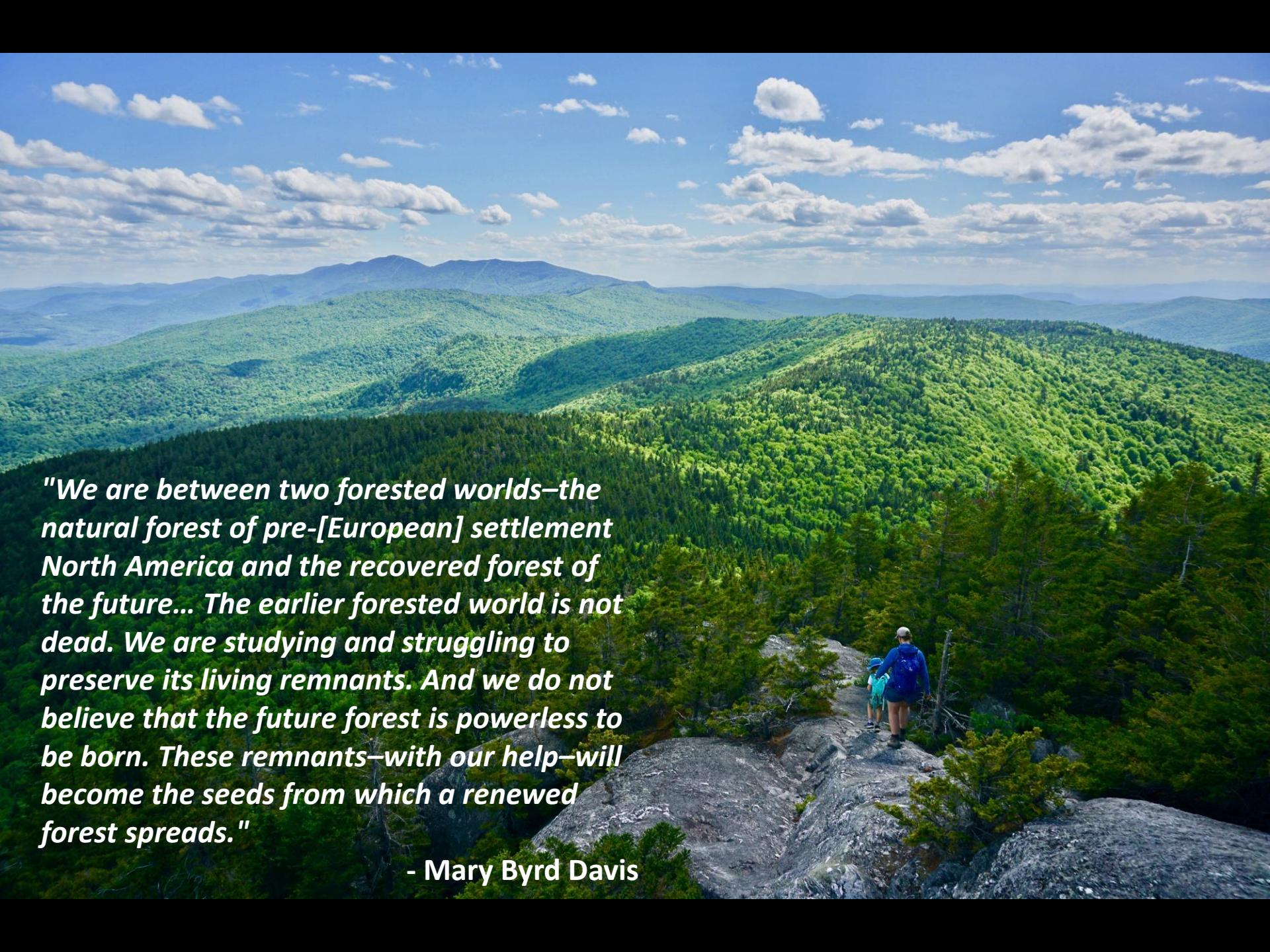






The Wilderness Act is signed into law by President Johnson at the White House, Sept 3, 1964. The Act passed 373-1 in the US House of Representatives and 73-12 in the Senate. There are few issue areas that enjoy more bipartisan support than America's public lands. (*Photo: Associated Press*)





"We are between two forested worlds—the natural forest of pre-[European] settlement North America and the recovered forest of the future... The earlier forested world is not dead. We are studying and struggling to preserve its living remnants. And we do not believe that the future forest is powerless to be born. These remnants—with our help—will become the seeds from which a renewed forest spreads."

- Mary Byrd Davis



Thanks
Zack Porter
Standing Trees
zporter@standingtrees.org
802.552.0160