Planning for our resilient future

Testimony on H606

Zack Porter
Director, Standing Trees

COMMENTARY

Zack Porter: Let's make a plan for our resilient future

By Commentary
Feb 1 2022

This commentary is by Zack Porter, director of Standing Trees, a nonprofit organization based in Montpelier and dedicated to protecting and restoring forests on New England's public lands.

The struggle to preserve and restore wild nature is a long-distance relay race. Our efforts build upon those of dedicated activists over the last century, and — here in what we now call Vermont — on the care of the Abenaki people since time immemorial.

VTDIGGER
News in pursuit of truth

RUTLAND HERALD ONLINE

THE BARRE MONTPELIER TIMES ARGUS ONLINE

STANDING TREES

Home Forests for the Future Threats to Public Forests Get Involved Blog About Donate


“The forest is us. We have to treat it that way. It’s Family.”
- Rich Holschuh, Elnu Abenaki, Director of the Atowi Project

Subscribe | Latest Issues | SCIENTIFIC AMERICAN. | Cart 0 | Sign In | Newsletters

SHARE

PLANTS

Thousands of Tree Species Remain Unknown to Science

New research suggests there are 14 percent more tree species out there than previously believed

By Stephanie Pappas on January 31, 2022

The New York Times

Opinion

OPINION

The 8 Million Species We Don't Know

By Edward O. Wilson

March 3, 2018

Jillian Tamaki

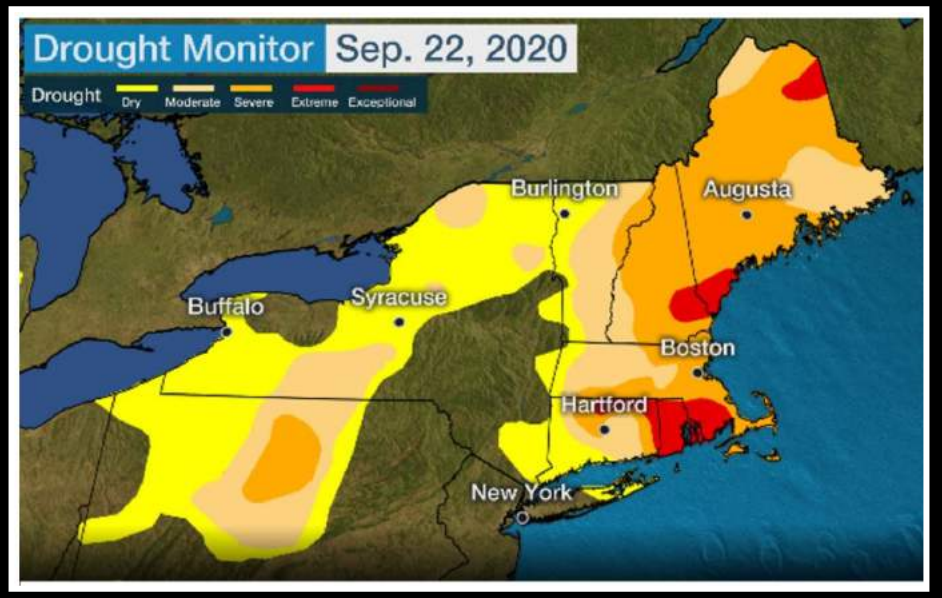
The history of conservation is a story of many victories in a losing war. Having served on the boards of global conservation organizations for more than 30 years, I know very well the sweat, tears and even blood shed by those who dedicate their lives to saving species. Their efforts have led to major achievements, but they have been only partly successful.

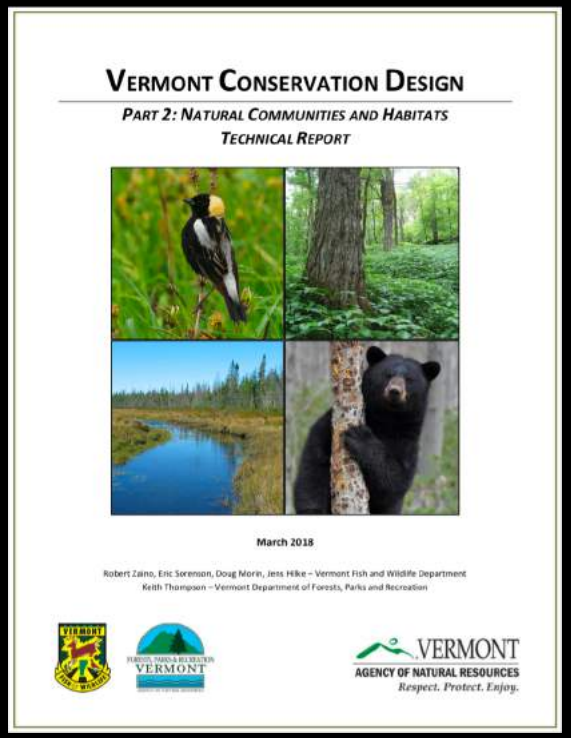
Biodiversity ignorance and ecological amnesia:

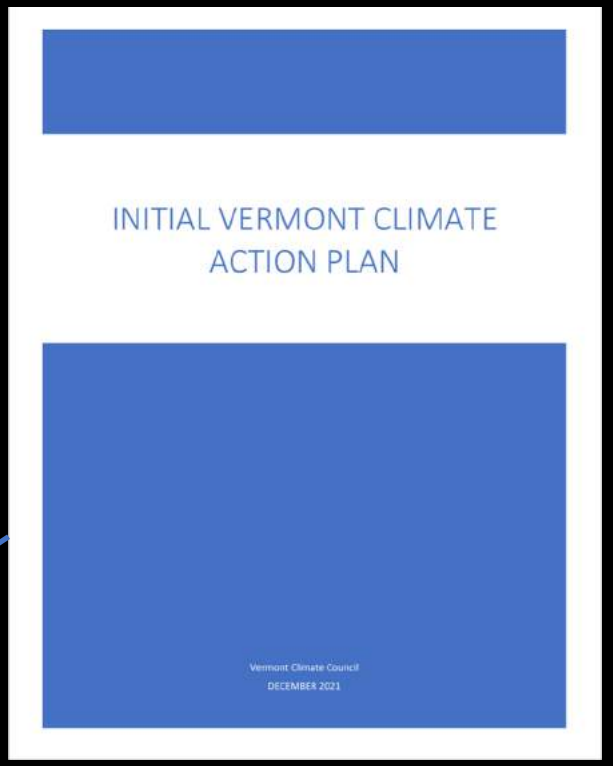
A perilous combination

We are living through three great crises in VT:

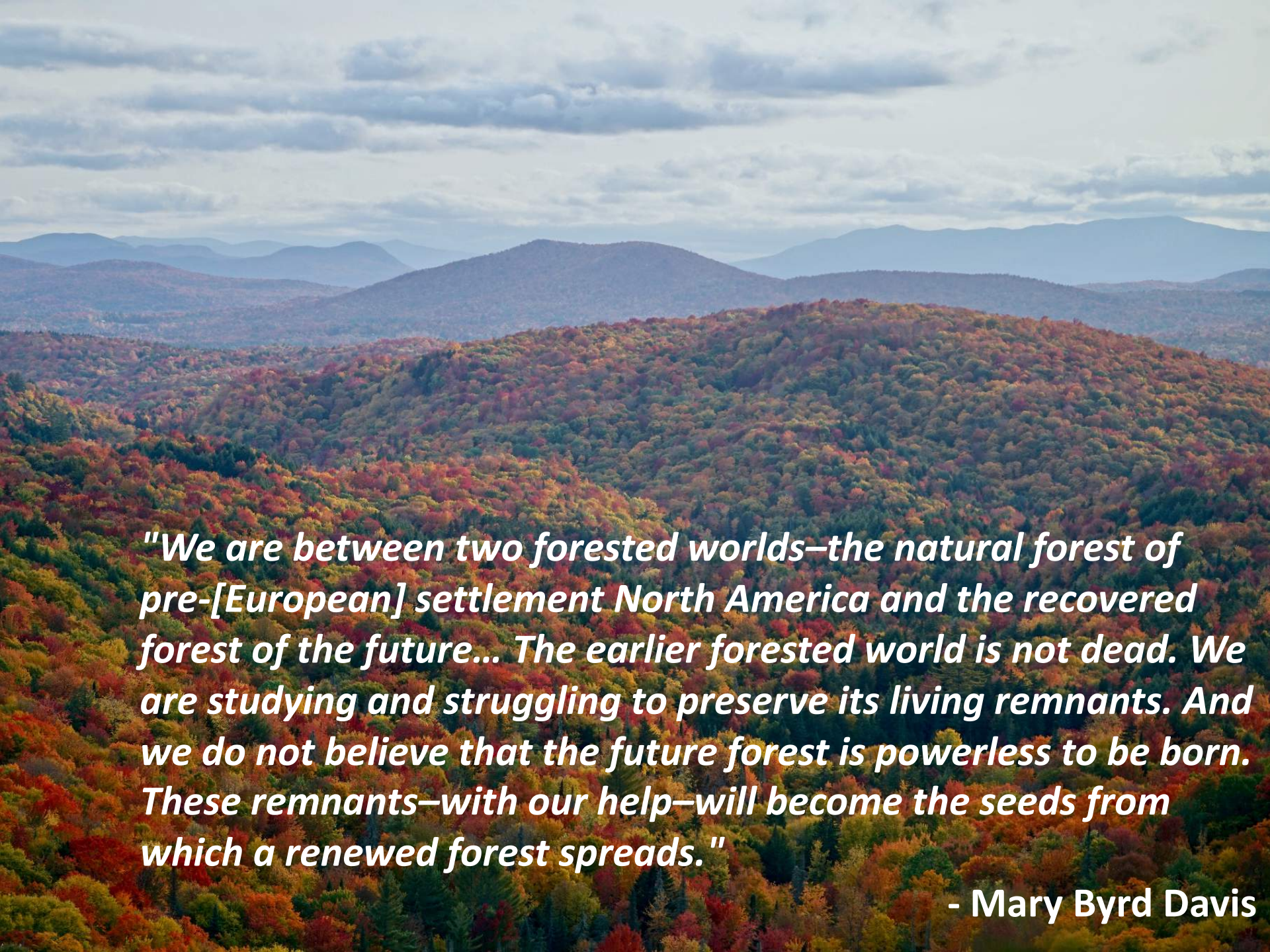
- Extinction
- Water Quality
- Climate



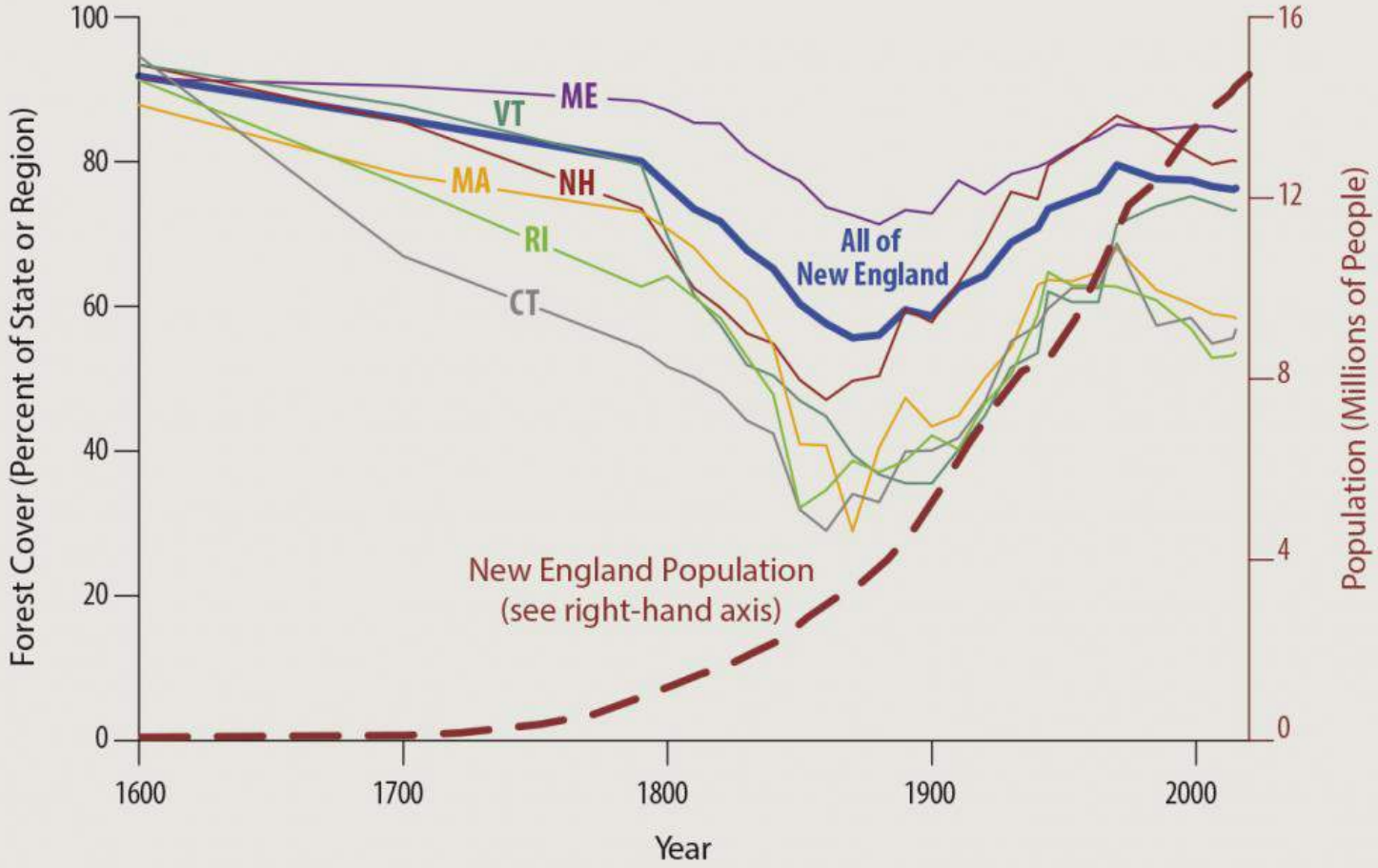




Natural Solutions

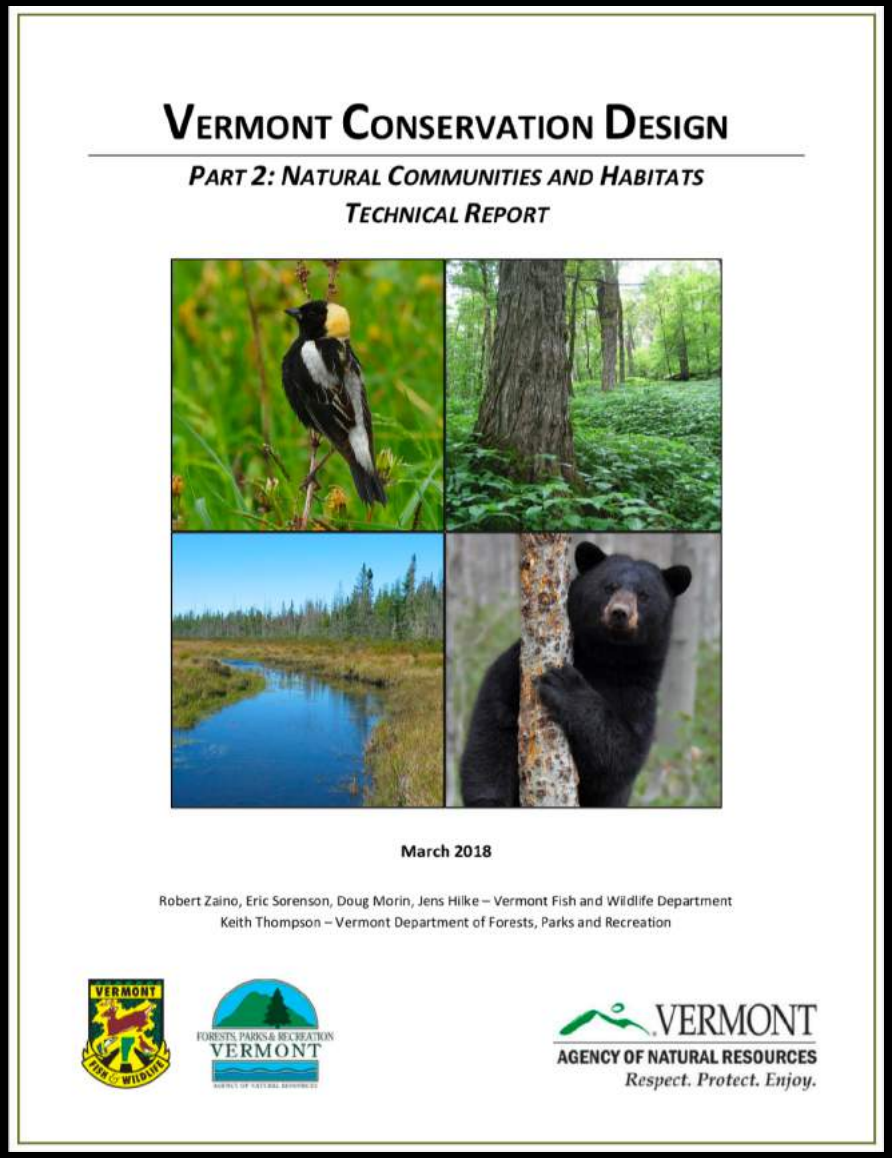

"We are between two forested worlds–the natural forest of pre-[European] settlement North America and the recovered forest of the future… The earlier forested world is not dead. We are studying and struggling to preserve its living remnants. And we do not believe that the future forest is powerless to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

New England Forest Cover and Human Population



The second wave of forest loss now under way in New England jeopardizes the region's environmental success story, which has been characterized by the return of forests following the decline in agriculture in the East.

Source: "Wildlands and Woodlands"



*"***The native species of Vermont evolved in a landscape dominated by old forest***...the closer the target is to the historic old forest condition, the greater the likelihood that the landscape will support all of Vermont's native forest species and fully provide the forest's ecological services."*

"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."**

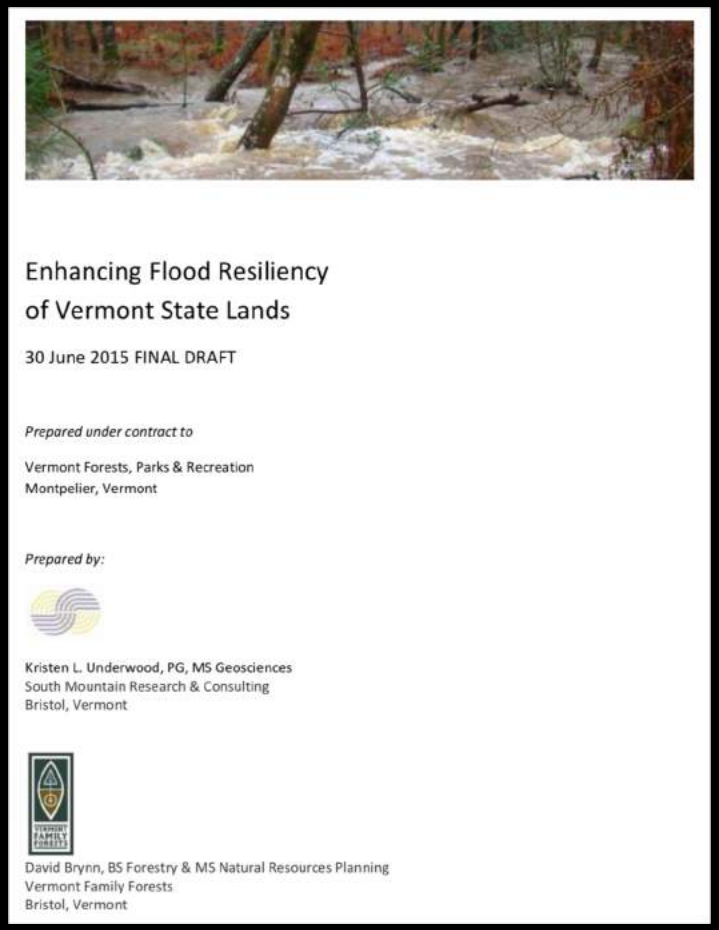
PRIMARY RESEARCH ARTICLE

WILEY Global Change Biology

The climate sensitivity of carbon, timber, and species richness covaries with forest age in boreal–temperate North America

Dominik Thom[1,2] | Marina Golivets[1] | Laura Edling[1] | Garrett W. Meigs[3] | Jesse D. Gourevitch[1,2] | Laura J. Sonter[4] | Gillian L. Galford[1,2] | William S. Keeton[1,2]

"[Older forests] simultaneously support high levels of carbon storage, timber growth, and species richness. Older forests also exhibit low climate sensitivity…compared to younger forests… Strategies aimed at enhancing the representation of older forest conditions at landscape scales will help sustain [ecosystem services and biodiversity] in a changing world."



Enhancing Flood Resiliency
of Vermont State Lands

30 June 2015 FINAL DRAFT

Prepared under contract to

Vermont Forests, Parks & Recreation
Montpelier, Vermont

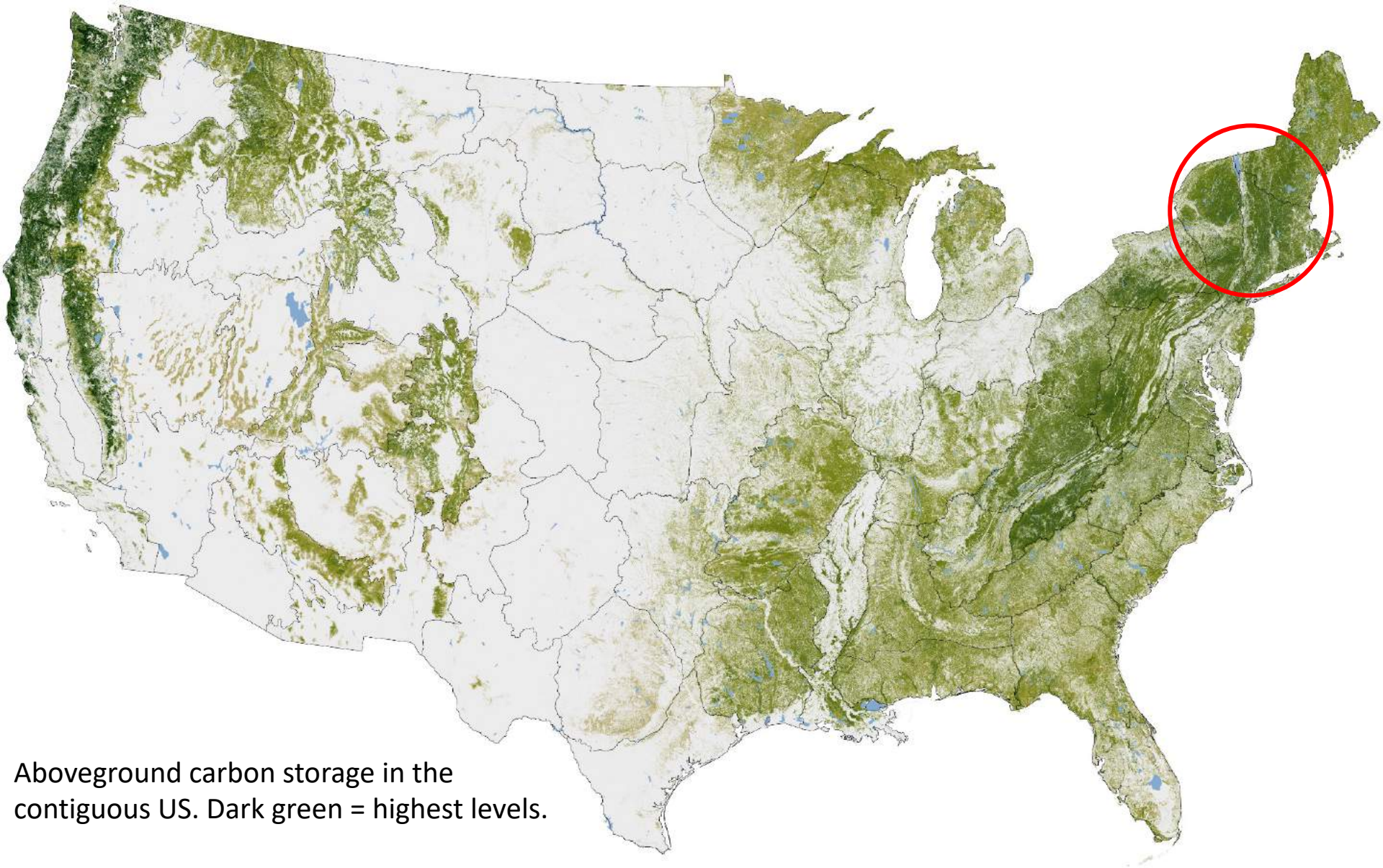
Prepared by:

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

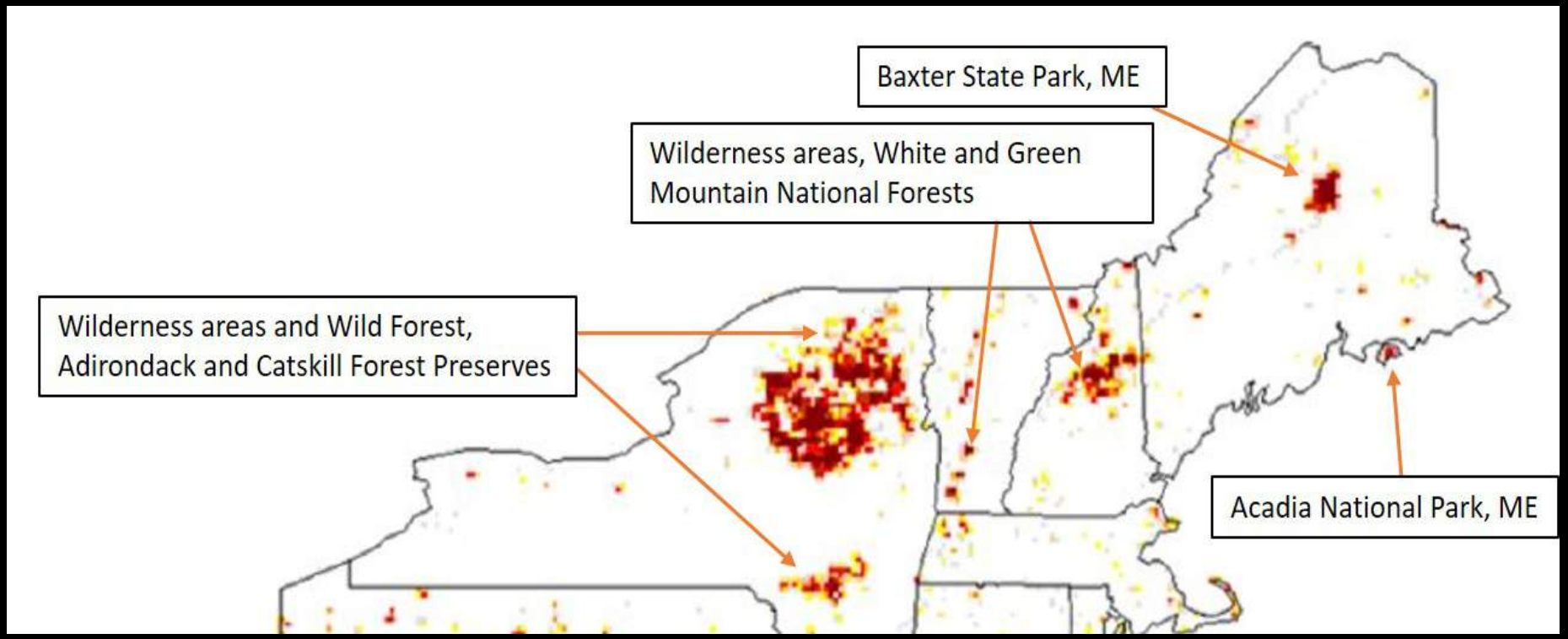
"There may be a tendency to assume that lands in forest cover are resilient to the effects of flooding simply by virtue of their forested status. **However, forest cover does not necessarily equate to forest health and forest flood resilience**. *Headwater forests of Vermont include a legacy of human modifications that have left certain land areas with a heightened propensity to generate runoff, accelerate soil erosion, and sediment streams. These legacy impacts affect forest lands across the state [emphasis added]...*

"The quality of [today's] forests is not the same as the pre-Settlement old growth forests. *The legacy of early landscape development and a history of channel and floodplain modifications continue to impact water and sediment routing from the land [emphasis added]."*



Aboveground carbon storage in the contiguous US. Dark green = highest levels.

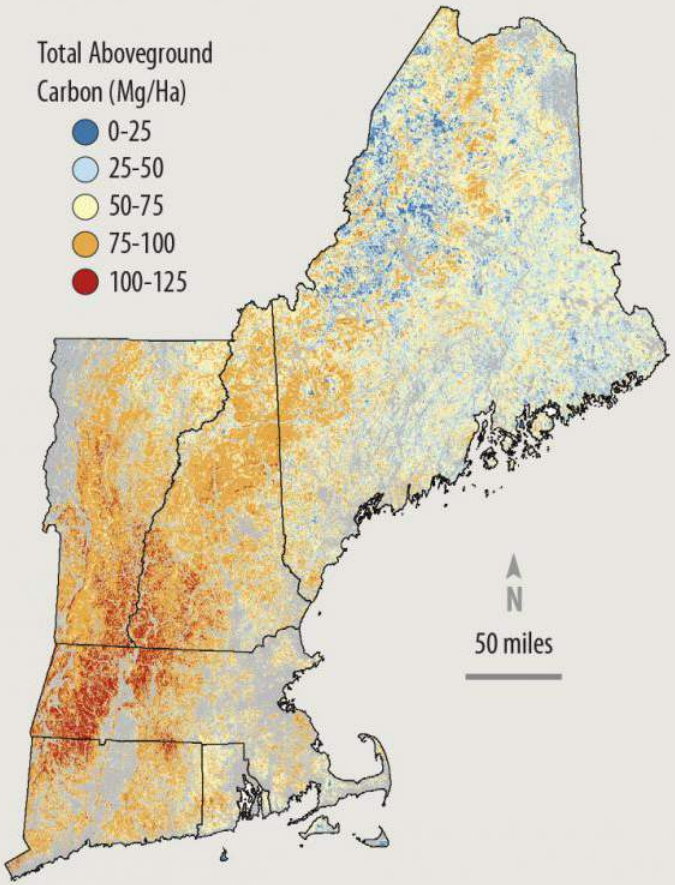
Source: Woods Hole Research Center



30% of *all* aboveground carbon in the Northeastern US
is stored in protected areas that cover just **5%** of the land area

From "A Contemporary Carbon Balance for the Northeastern Region of the United States."
(Lu et al 2013)

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*

VT Forest Carbon Facts:

- Vermont forests sequester an amount of carbon each year equal to approximately half of the state's annual emissions

- Studies by UVM researchers show that New England's forests could store ***2-4 times more*** carbon than present levels if allowed to grow old.

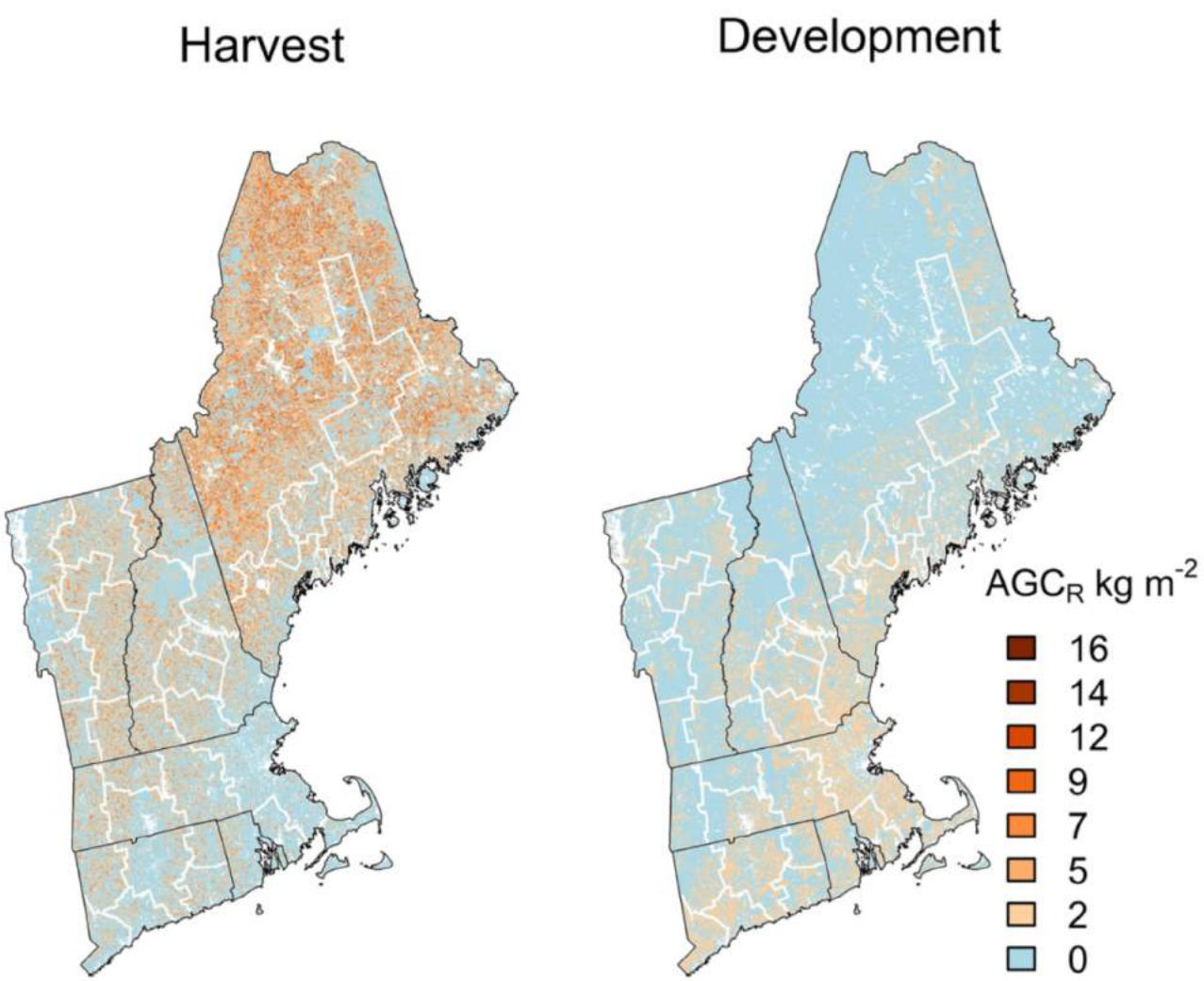


Fig. 6. Map of land-use intensity from harvesting and development. Land-use intensity represents cumulative removals from 2010 to 2060 under the climate change scenario. Sites that were not affected by each respective land use are represented in blue. White and black lines delineate sub-region and state boundaries, respectively. AGC_R = Aboveground Carbon Removed (kg m^{-2}).

"Among land uses, timber harvesting [had] a larger effect on [aboveground carbon] storage and changes in tree composition than did forest conversion to non-forest uses… Our results demonstrate a large difference between the landscape's potential to store carbon and the landscape's current trajectory."

Duveneck and Thompson 2019

esa

ECOSPHERE

SPECIAL FEATURE: SCIENCE FOR OUR NATIONAL PARKS' SECOND CENTURY

National parks in the eastern United States harbor important older forest structure compared with matrix forests

Kathryn M. Miller,[1,2,†] Fred W. Dieffenbach,[3] J. Patrick Campbell,[4] Wendy B. Cass,[5] James A. Comiskey,[6] Elizabeth R. Matthews,[4] Brian J. McGill,[2] Brian R. Mitchell,[7] Stephanie J. Perles,[8] Suzanne Sanders,[9] John Paul Schmit,[4] Stephen Smith,[10] and Aaron S. Weed[11]

Contents lists available at ScienceDirect

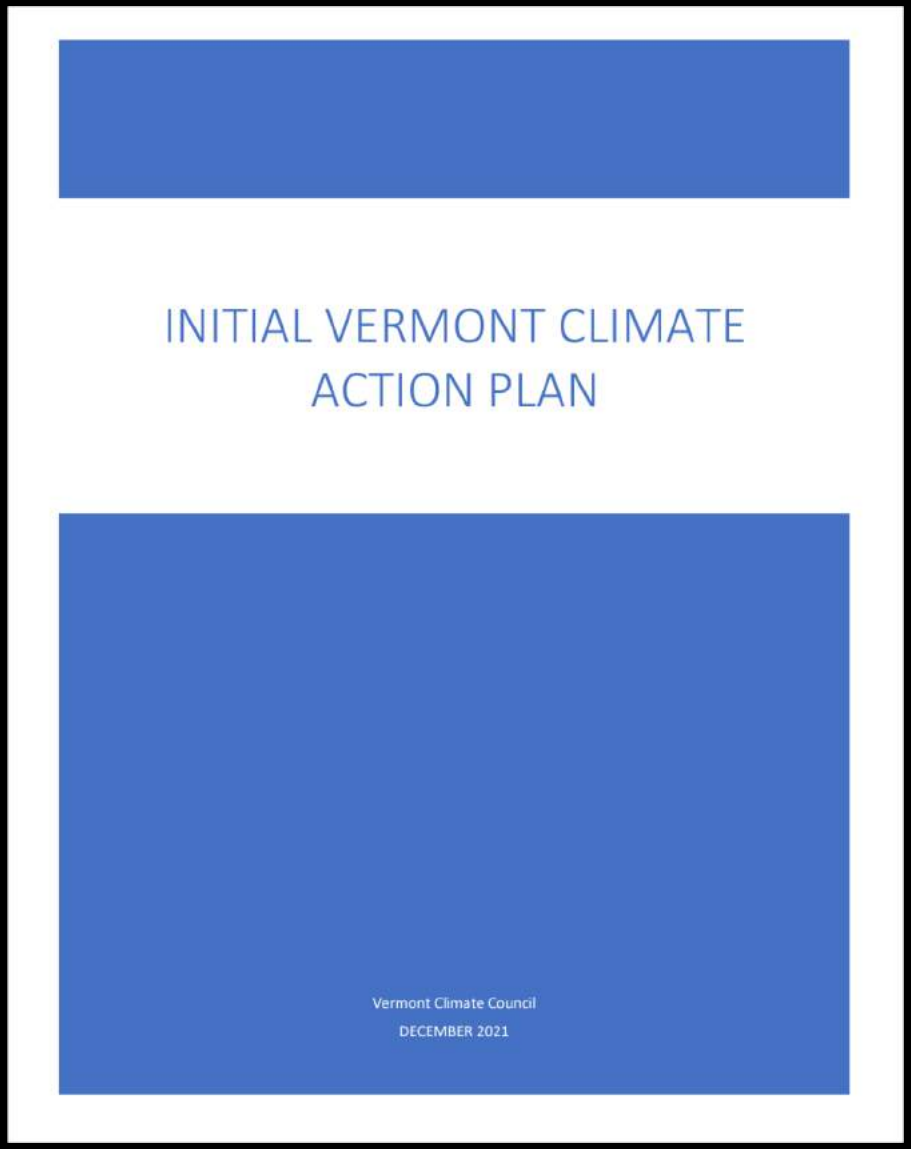
Forest Ecology and Management

journal homepage: www.elsevier.com/locate/foreco

Eastern national parks protect greater tree species diversity than unprotected matrix forests

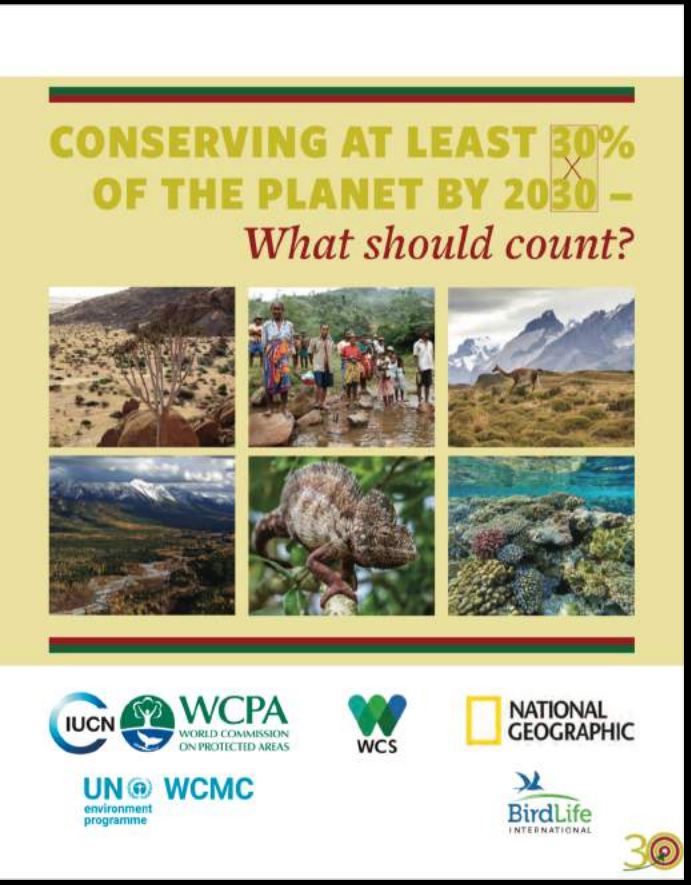
Kathryn M. Miller[a,b,*], Brian J. McGill[b], Brian R. Mitchell[c], Jim Comiskey[d], Fred W. Dieffenbach[e], Elizabeth R. Matthews[f], Stephanie J. Perles[g], John Paul Schmit[f], Aaron S. Weed[e]

"Results of this study indicate that park forests, where logging is largely prohibited, preserve areas of regionally significant older forest habitat. Park forests consistently had greater proportions of late-successional forest, greater live tree basal area, greater densities of live and dead large trees, and considerably larger volume of coarse woody debris." – Miller et al 2016



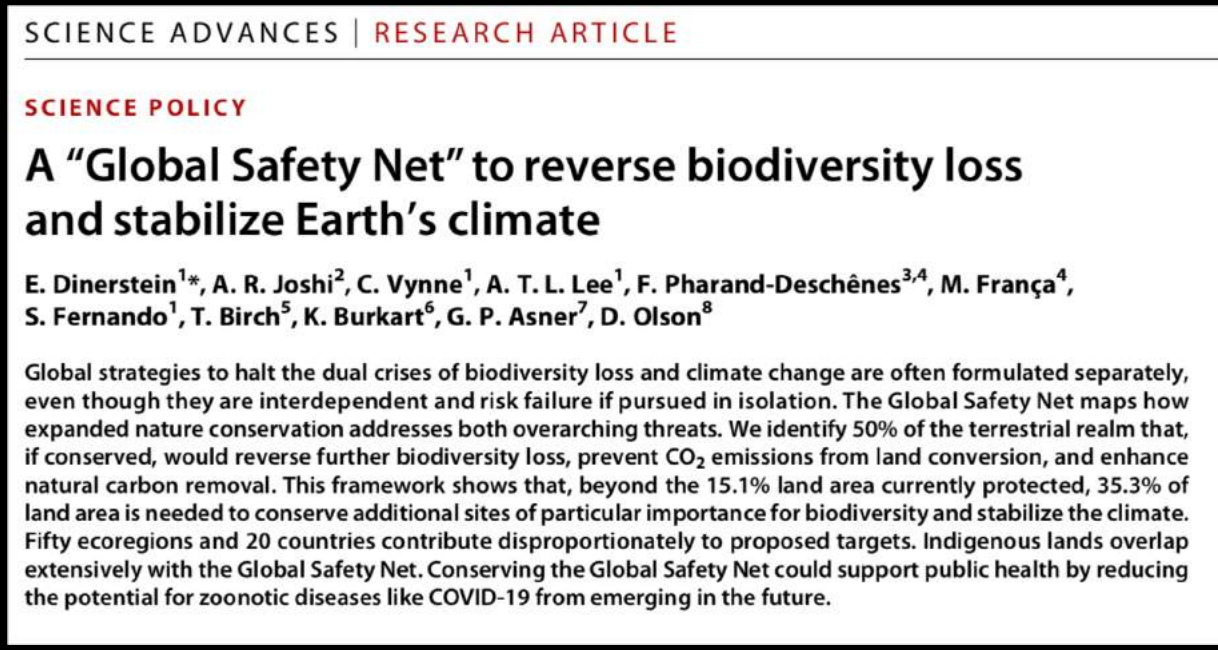
"Invest in strategic conservation in order to **increase the pace of permanent conservation towards 30x30 targets** *(described in federal report "Conserving and Restoring America the Beautiful") ,* **with Vermont Conservation Design acting as the guiding plan for prioritization of efforts.***"*

"Through permanent conservation coupled with both active and passive restoration efforts on both public and private lands, **allow approximately 9% of Vermont's forest to become (or be maintained as) old forest, specifically targeting 15% of the matrix forest** *within the highest priority forest blocks identified in Vermont Conservation Design to achieve this condition."*



30x30 Endorsers include:

- Biden Admin
- Increasing number of US States
- Tribal nations across US
- 79 nations around the globe



SCIENCE ADVANCES | RESEARCH ARTICLE

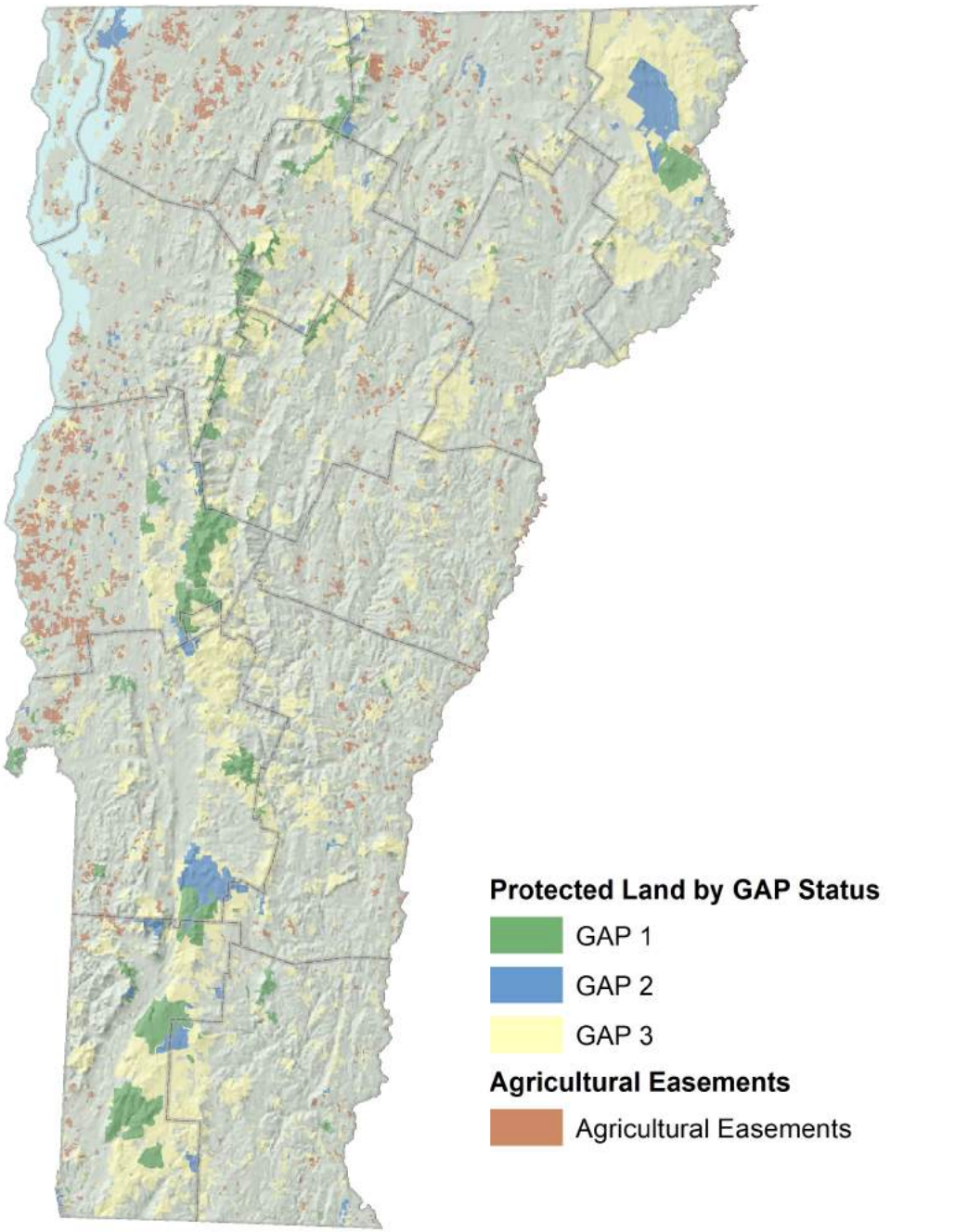
SCIENCE POLICY

A "Global Safety Net" to reverse biodiversity loss and stabilize Earth's climate

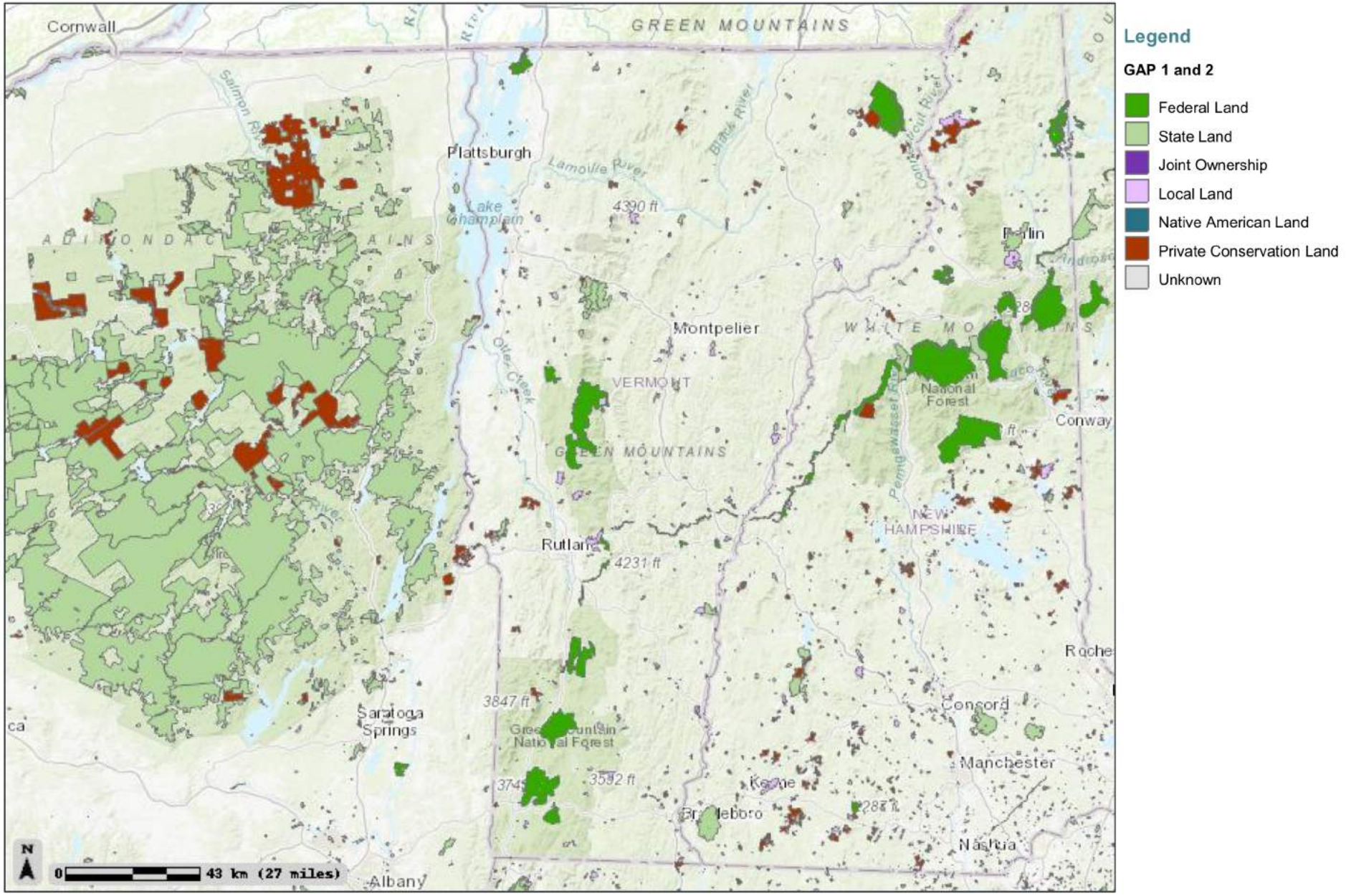
E. Dinerstein[1]*, A. R. Joshi[2], C. Vynne[1], A. T. L. Lee[1], F. Pharand-Deschênes[3,4], M. França[4], S. Fernando[1], T. Birch[5], K. Burkart[6], G. P. Asner[7], D. Olson[8]

Global strategies to halt the dual crises of biodiversity loss and climate change are often formulated separately, even though they are interdependent and risk failure if pursued in isolation. The Global Safety Net maps how expanded nature conservation addresses both overarching threats. We identify 50% of the terrestrial realm that, if conserved, would reverse further biodiversity loss, prevent CO_2 emissions from land conversion, and enhance natural carbon removal. This framework shows that, beyond the 15.1% land area currently protected, 35.3% of land area is needed to conserve additional sites of particular importance for biodiversity and stabilize the climate. Fifty ecoregions and 20 countries contribute disproportionately to proposed targets. Indigenous lands overlap extensively with the Global Safety Net. Conserving the Global Safety Net could support public health by reducing the potential for zoonotic diseases like COVID-19 from emerging in the future.

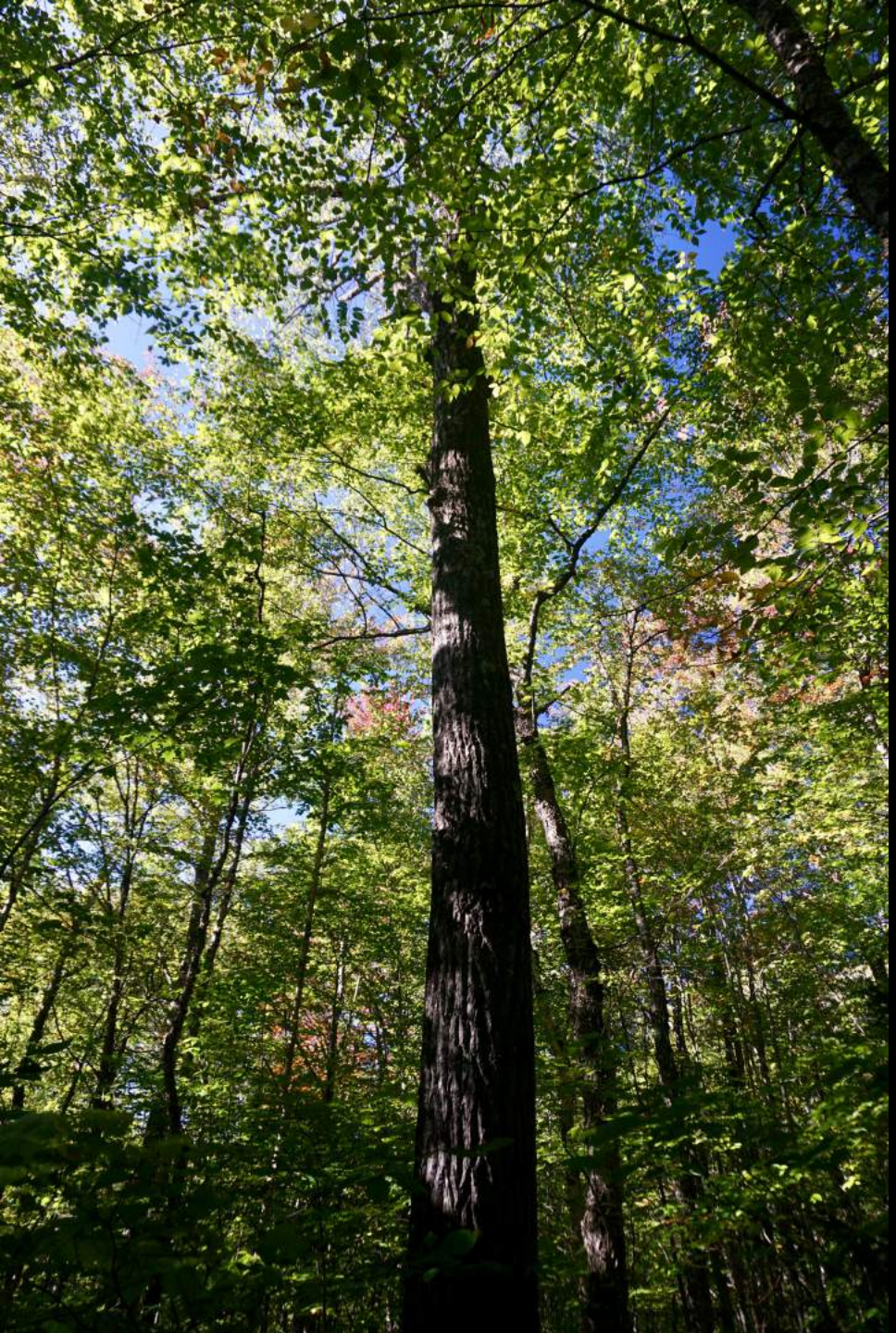
- Trees grow easily in Vermont. Growing forests is something entirely different.
- A forest does not produce high levels of ecosystem services until it begins to acquire the characteristics of an older forest, on average ***after*** 100-125 years of age.



- Only 3% of Vermont land is managed to restore Vermont's natural forests.
- 10% of New York is managed to restore its natural forests.
- Climate and biodiversity scientists suggest that a **minimum of 30%** should be managed in this way



Gap 1 and 2 lands by ownership type in Vermont, New Hampshire, and New York



- Keep the focus on permanently-protected areas as directed by scientists
- H606 should include mention of GAP status categories next to definitions (GAP 1, 2, 3)
- Inventories of protected areas already exist. Compiling an inventory is not a major lift.
- This bill should set a floor for targets (such as for old forests), but this bill does not need to do everything. The goal with H606 should be to set planning in motion.

“We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely.”

- E.O. Wilson

Thanks

Zack Porter
Director, Standing Trees
zporter@standingtrees.org
802.552.0160