October 30, 2019

Forest Ecosystem Monitoring Cooperative - sharing resources and data

Alexandra (Ali) Kosiba

Research Projects Coordinator

FEMC

Forest Ecosystem Monitoring Cooperative

THE UNIVERSITY OF VERMONT
RUBENSTEIN
SCHOOL OF ENVIRONMENT
AND NATURAL RESOURCES

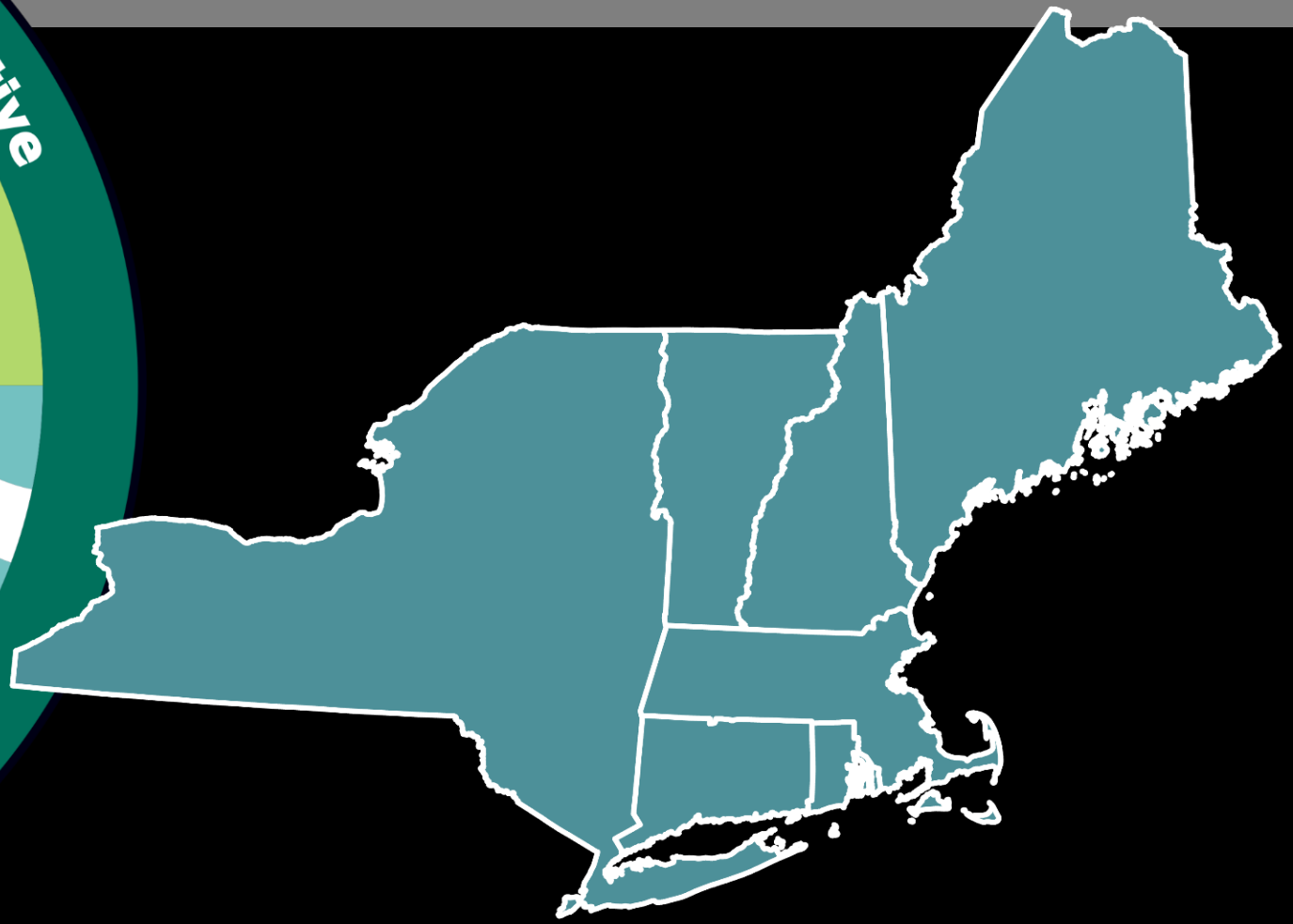
About me

- Forest Ecologist, Tree Physiologist
- Tree and forest health due to environmental change
- Data sharing and cooperation among the many stakeholders
- Convey information in an easy to digest and understand format for informed decision making

Forest Ecosystem Monitoring Cooperative

www.uvm.edu/femc

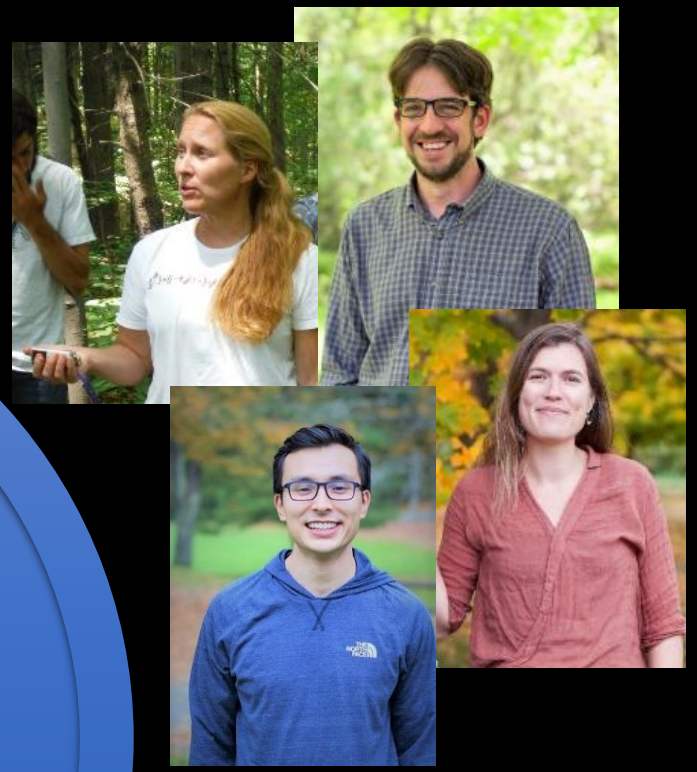
The FEMC is a regional cooperative that aims to provide better organization and data access related to forest ecosystems.



Steering Committee

FEMC Staff

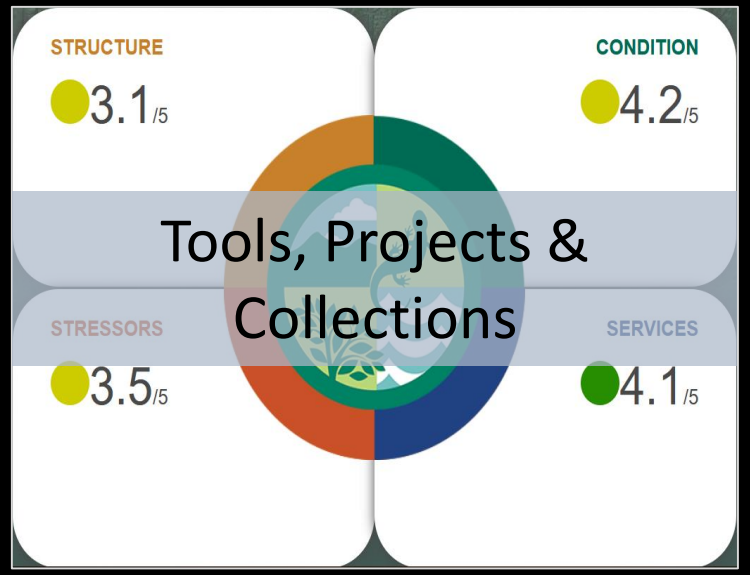
State Partnership Committees



Plus many students, technicians, and interns


Data Archive, Access & Integration

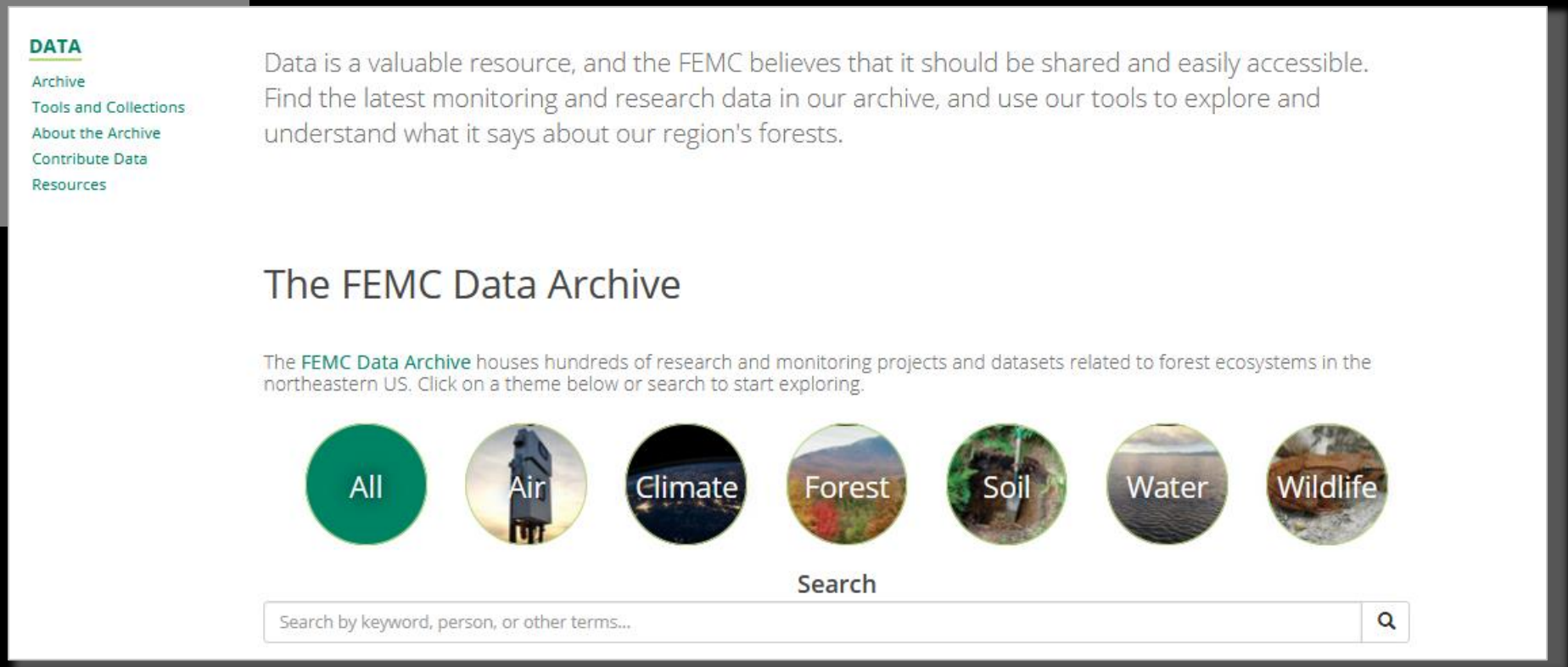

Ecosystem Monitoring


STRUCTURE
3.1/5
CONDITION
4.2/5
Tools, Projects & Collections
STRESSORS
3.5/5
SERVICES
4.1/5

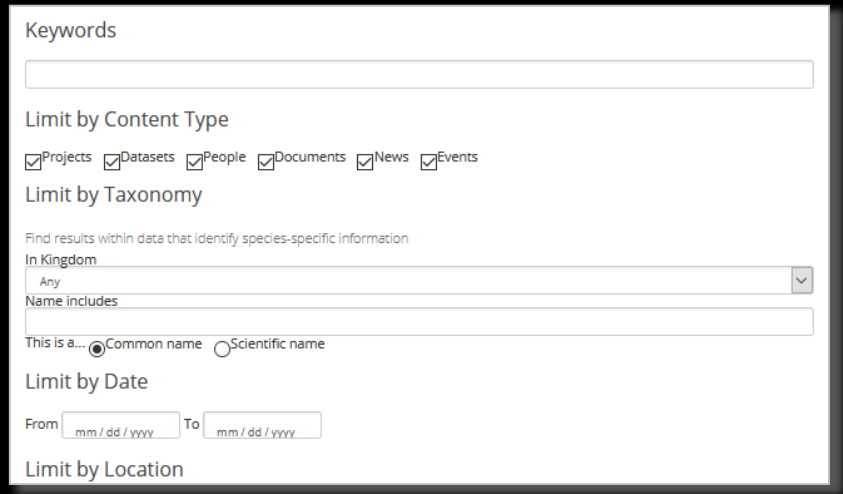

Collaborator Network

Data Archive

www.uvm.edu/femc/data



- *Secure data storage in perpetuity*
- *Machine readable metadata*
- *Searchable and discoverable via the web*
- *Free, open to public*
- *Levels of sharing available*



www.uvm.edu/femc/data

PROJECT

Projected hemlock woolly adelgid-induced losses (2013-2027) in riparian corridors in New York State

OVERVIEW DATASETS CONTRIBUTORS DOCUMENTS/IMAGES MANAGE

Type
Research project

Principal Investigator
James Duncan +
Alexandra Kosiba +

Contributing Organizations
Forest Ecosystem Monitoring Cooperative (FEMC) +

See all contributors

Project Citation
Kosiba, AM and Duncan JA. (2018) Hemlock woolly adelgid-induced losses in riparian corridors in New York State. FEMC. Available online at: https://www.uvm.edu/femc/data/archive/project/hemlock-woolly-adelgid-riparian-losses-new-york

Links
Web Map: Hemlock woolly adelgid-

PROJECT OVERVIEW

The Forest Ecosystem Monitoring Cooperative collaborated with the New York Invasive Species Research Institute to identify and rank riparian corridors at potential risk of future hemlock losses due to hemlock woolly adelgid (HWA) in New York State (projected 2013-2027; USFS 2012). We combined preexisting spatial data projecting losses of hemlock due to HWA developed by the USDA Forest Service Forest Health Protection program (USFS 2012) with stream corridor and catchment data to quantify potential losses at 50', 100' and 200' buffers of stream reaches and summarized the results to HUC12 sub-catchments.

Objectives

Quantify the risks to stream corridors of hemlock loss due to hemlock woolly adelgid in New York and make this information easily accessible to the research and monitoring community.

Dataset Availability

DATASETS

Data Availability	Name	Description	Objective	Dates
Downloadable	100-foot riparian buffers with projected BA losses	Polygon delineations of 100-foot riparian buffers and metrics of projected HWA impacts (2013-2027).	The purpose of this dataset was to compute projected losses of eastern hemlock due to HWA (2013-2027; USFS 2012) in 100-foot riparian buffers to identify 'at risk' locations for monitoring, research, or management.	2018-06-01 to 2018-11-01
Downloadable	200-foot riparian buffers with projected BA losses	Polygon delineations of 200-foot riparian buffers and metrics of projected HWA impacts (2013-2027).	The purpose of this dataset was to compute projected losses of eastern hemlock due to HWA (2013-2027; USFS 2012) in 200-foot riparian buffers to identify 'at risk' locations for monitoring, research, or management.	2018-06-01 to 2018-11-01
Downloadable	50-foot riparian buffers with projected BA losses	Polygon delineations of 50-foot riparian buffers and metrics of projected HWA impacts (2013-2027).	The purpose of this dataset was to compute projected losses of eastern hemlock due to HWA (2013-2027; USFS 2012) in 50-foot riparian buffers to identify 'at risk' locations for monitoring, research, or management.	2018-06-01 to 2018-11-01
Downloadable	ArcGIS python script model	A python script model to be used with ArcGIS (10.5.1) to produce statistics based on stream riparian buffers and projected hemlock losses (USFS 2018).	The purpose of this model is to generate statistics for riparian buffers and sub-catchment watersheds (HUC12) using USFS projected basal area losses due to HWA.	2018-06-01 to 2018-11-01
Downloadable	Sub-catchment watersheds with associated	Polygon delineations of sub-catchment watersheds (HUC12) with associated statistics (mean, sd, and max) for BA	The purpose of this dataset was to summarize projected losses of eastern hemlock due to HWA (2013-2027,	2018-06-01 to 2018-11-01

PROJECT: PROJECTED HEMLOCK WOOLLY ADELGID-INDUCED LOSSES (2013-2027) IN RIPARIAN CORRIDORS IN NEW YORK STATE

Dataset: 100-foot riparian buffers with projected BA losses

OVERVIEW METADATA DATA DOCUMENTS/IMAGES

Dataset Overview

Polygon delineations of 100-foot riparian buffers and metrics of projected HWA impacts (2013-2027).

See Full Dataset Documentation

Parent Project
Projected hemlock woolly adelgid-induced losses (2013-2027) in riparian corridors in New York State

Tags
Hemlock Woolly Adelgid | New York | Riparian Corridor | Stream Buffer | Tsuga Canadensis

Status
Completed

Data Availability
Available for download
Download Data

Data License
PUBLICDOMAIN

Purpose	The purpose of this dataset was to compute projected losses of eastern hemlock due to HWA (2013-2027; USFS 2012) in 100-foot riparian buffers to identify 'at risk' locations for monitoring, research, or management.
Data Collection Status	Data collection for this dataset has been completed
Start date	2018-06-01
End date	2018-11-01
Data Availability	Available for download Download Data
Data License	PUBLICDOMAIN
Preferred Citation	Kosiba, AM and Duncan, JA (2018) 100-foot riparian buffers with projected BA losses. FEMC. Available online at: https://www.uvm.edu/femc/data/archive/project/hemlock-woolly-adelgid-riparian-losses-new-york/dataset/100-foot-riparian-cooridors-with-projected
Update Frequency	Not planned
Maintenance Plan	Not provided
Links	No links available for this dataset
Related Datasets	View related datasets

DOCUMENTS AND FILES

Reports

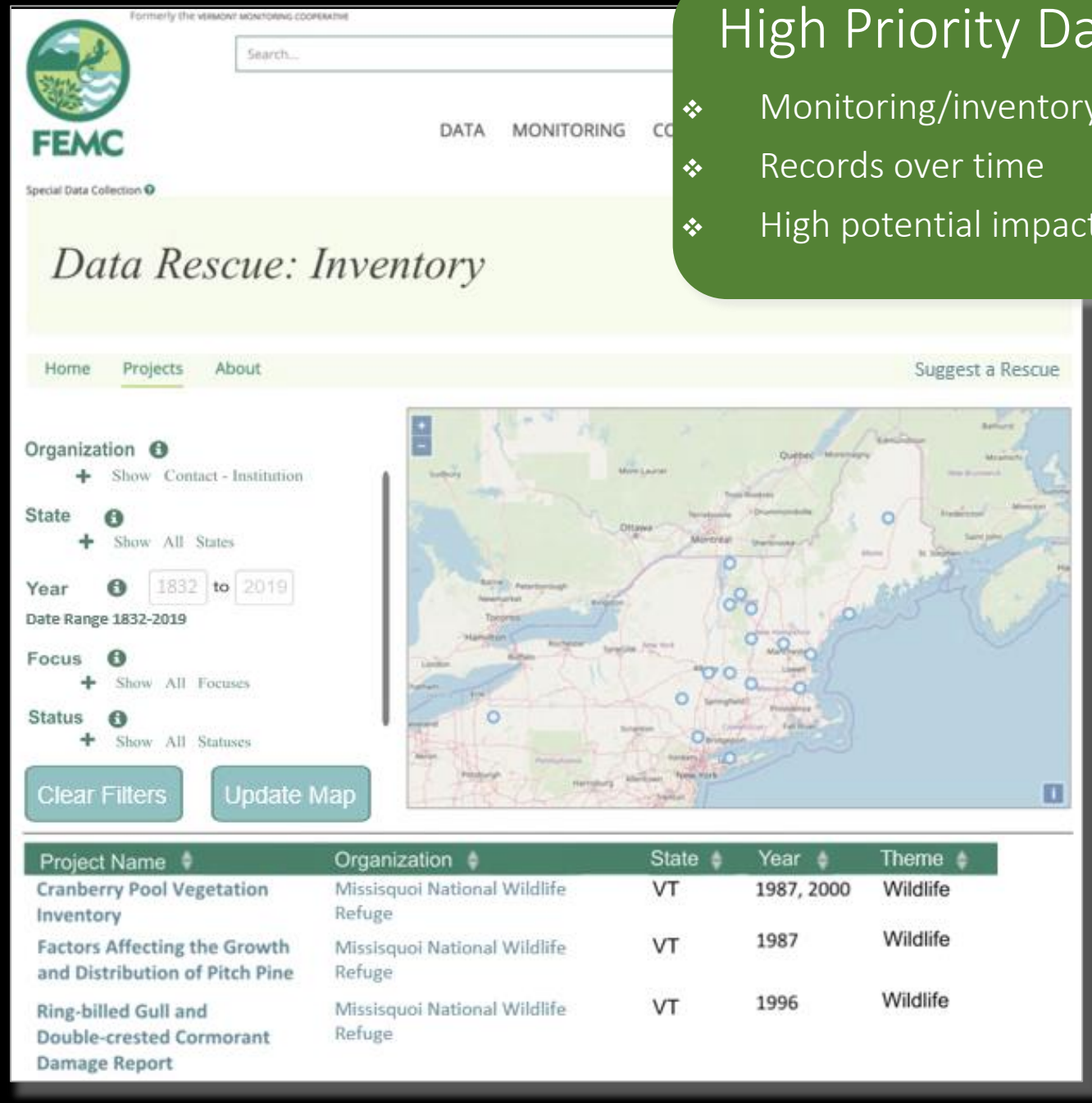
Name	Date
Hemlock woolly adelgid-induced losses in riparian corridors in New York State	2018

Data Rescue

Inventorying and preserving data at risk of being lost

Examples:

- *Scanning historical reports*
- *Reformatting spreadsheets*
- *Archiving hand-drawn maps*

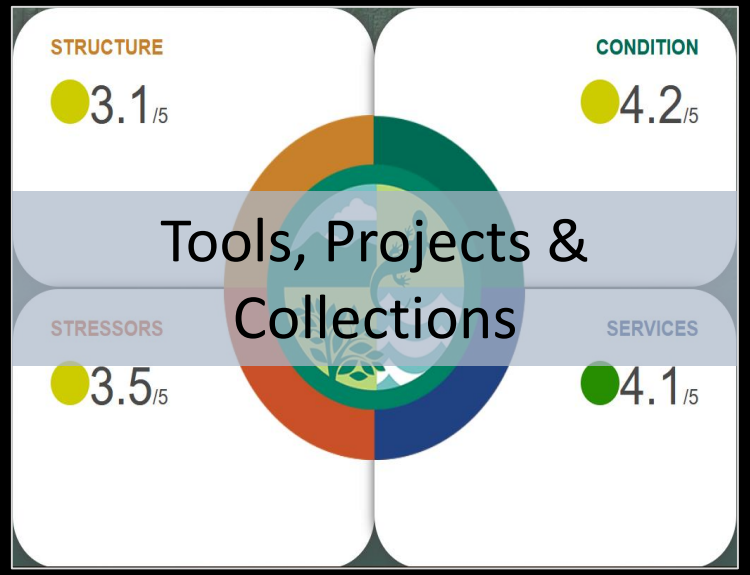


High Priority Data:

- Monitoring/inventory data
- Records over time
- High potential impact


Data Archive, Access & Integration


Ecosystem Monitoring


STRUCTURE
3.1/5
CONDITION
4.2/5
Tools, Projects & Collections
STRESSORS
3.5/5
SERVICES
4.1/5


Collaborator Network

Ecosystem Monitoring

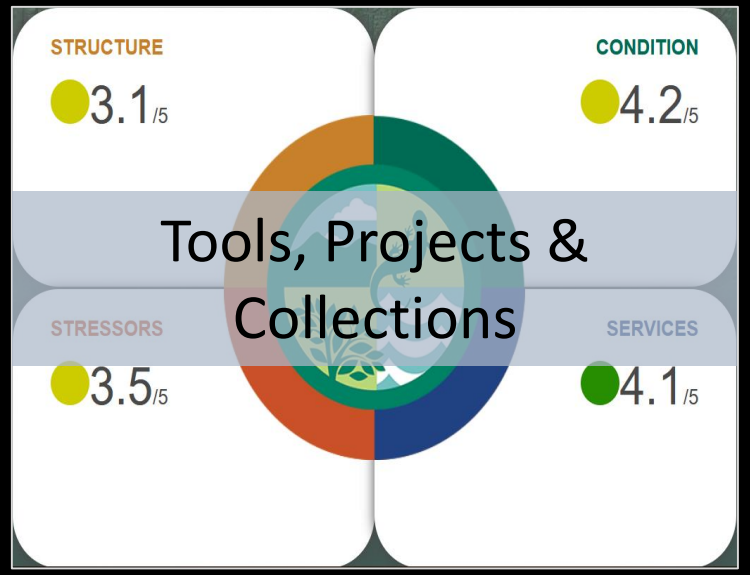
- *Data publically available*
- *Forest Health Monitoring include annual assessments on 49 plots in VT, 20 in MA*
  - *Expanding program to other states in 2020*

Forest Health

Air Quality


Data Archive, Access & Integration


Ecosystem Monitoring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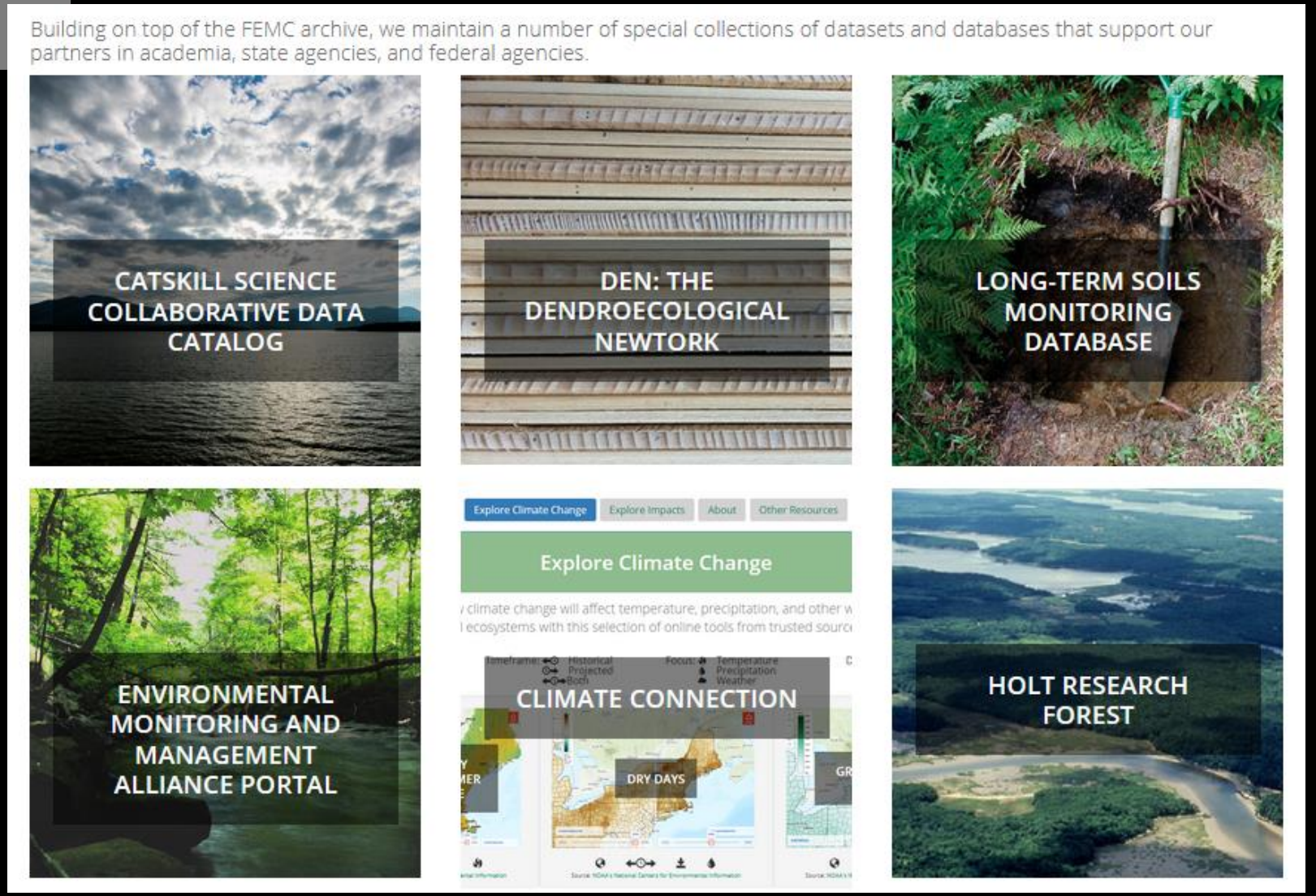
Collaborator Network

Tools, maps, collections

www.uvm.edu/femc/products/collections

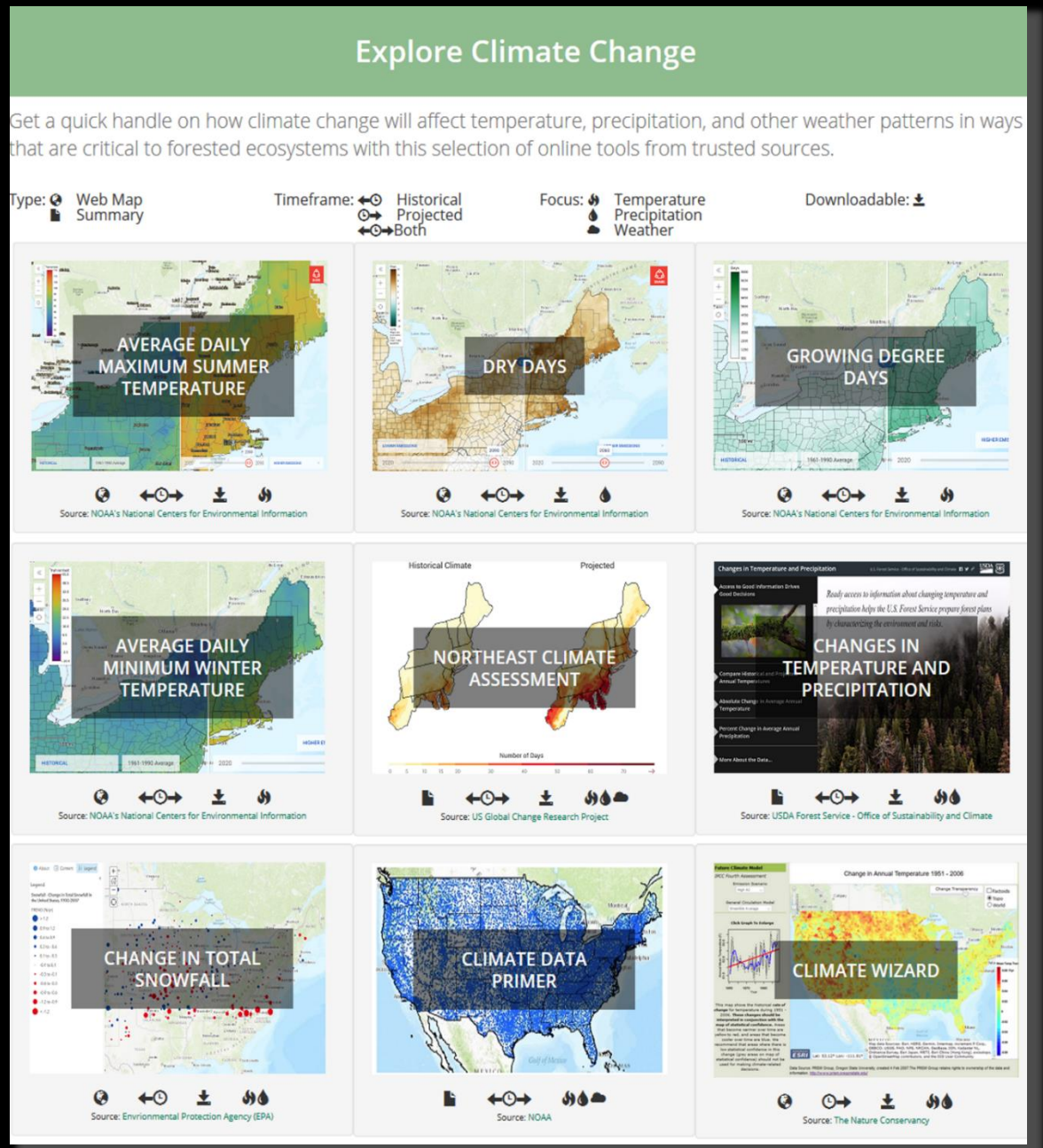
Collections aim to organize data and increase ease of access



Climate Connection

www.uvm.edu/femc/climate-connection

Tools for understanding climate change and how it impacts forest ecosystems in the Northeast



Explore Impacts of Climate Change

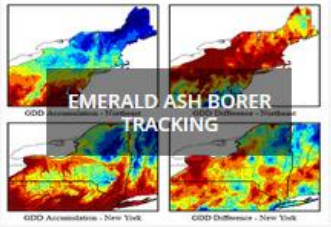
How will forested ecosystems respond to climate change? What impacts are we seeing already? We have assembled a range of tools you can use to explore the observed and predicted impacts of climate change on forests and the water, wildlife and people that depend on them.

Type: Web Map, Summary
Timeframe: Historical, Projected, Both
Focus: Forests, Water, Wildlife, People
Downloadable:

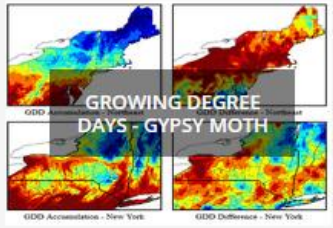
Click a topic to filter the list of tools

Show All | Water | Wildlife | People | Forests

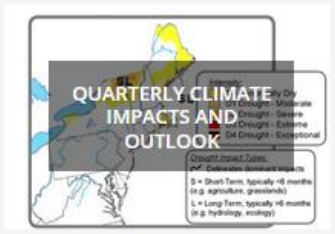
Source: USDA Forest Service Office of Sustainability and Climate (OSC), Northern Institute of Applied Climate Science (NIACS)



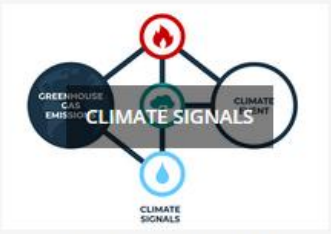
Source: Northeast Regional Climate Center



Source: Northeast Regional Climate Center



Source: National Integrated Drought Information System (NIDIS)

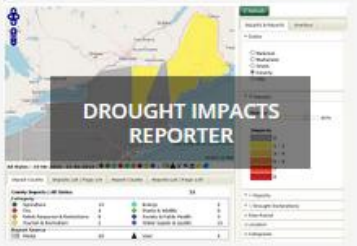


Source: Climate Nexus

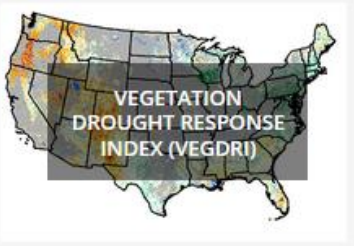
Source: Environmental Protection Agency (EPA)

www.uvm.edu/femc/climate-connection

Source: Environmental Protection Agency (EPA)



Source: National Drought Mitigation Center



Source: National Drought Mitigation Center

Source: USDA Forest Service Northern Institute of Applied Climate Science (NIACS)

Source: Environmental Protection Agency

Source: Partnership for Resilience and Preparedness, NASA

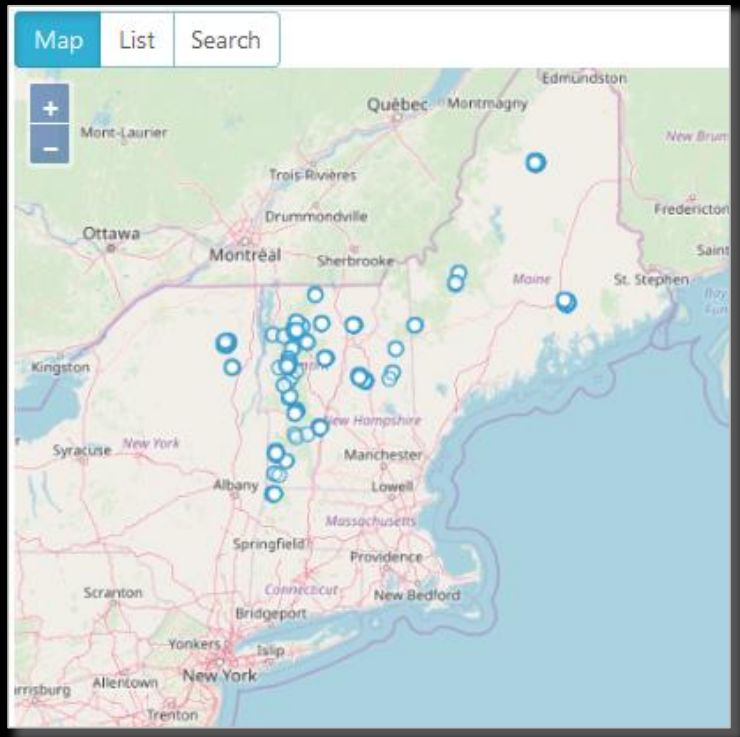
Source: Environment America

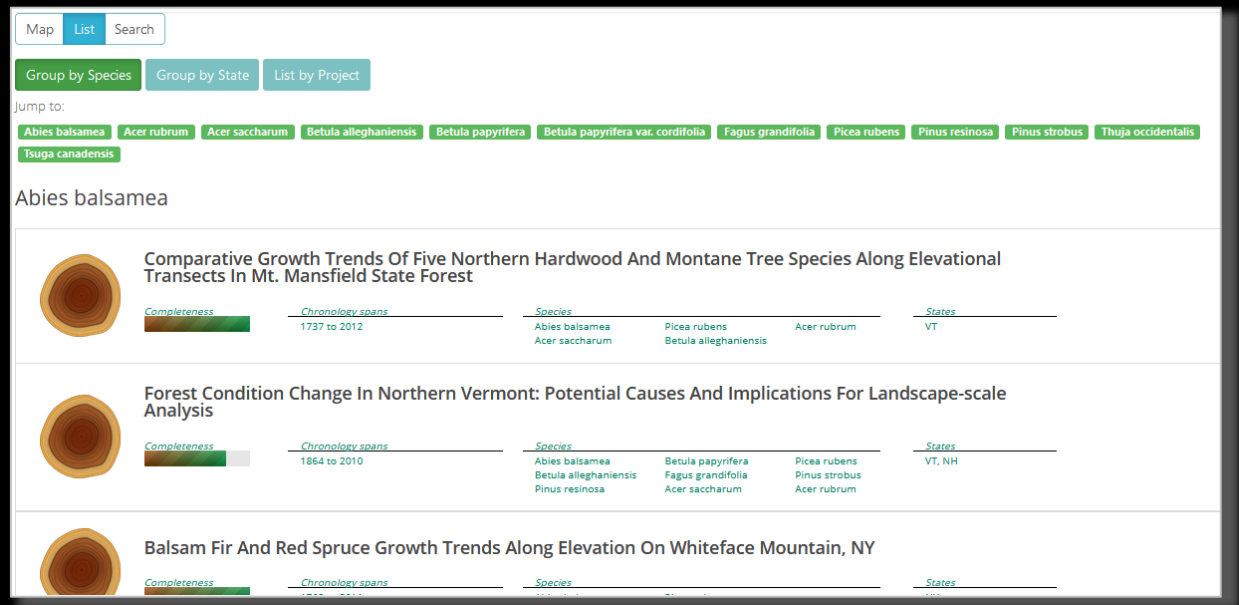
Source: Partnership for Resilience and Preparedness, World Resources Institute

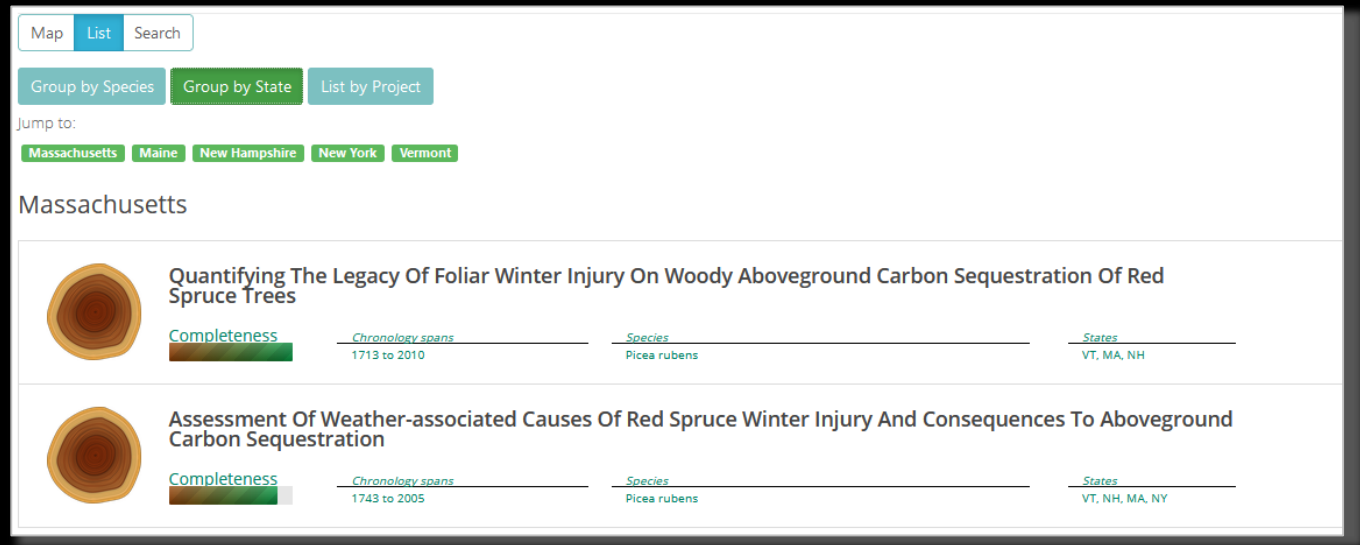
Source: i-Tree

The DEN: DendroEcological Database

https://www.uvm.edu/femc/dendro





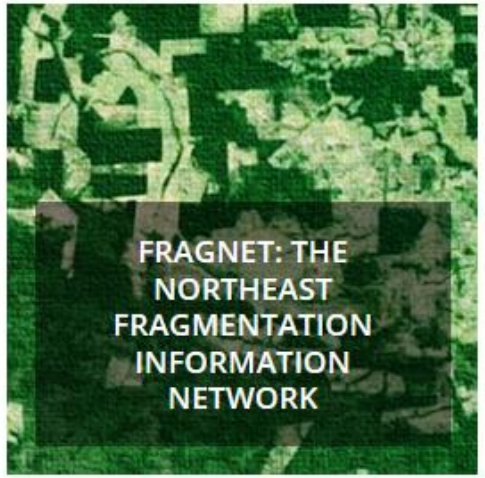


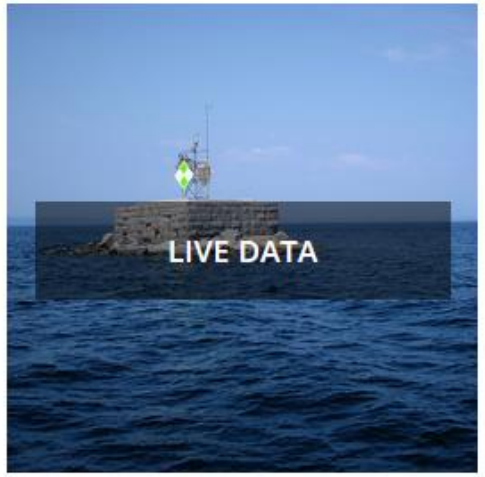
Tools, maps, collections

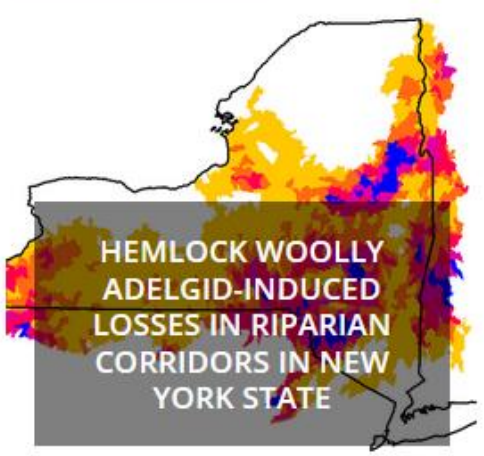
www.uvm.edu/femc/products/tools

Tools provide a novel way to view or interpret data

On top of the database work of the FEMC, our collaborations and partnerships have lead to the development of environmental monitoring and data access tools that allow the everyday user to interact with and acquire data in new and customized ways.

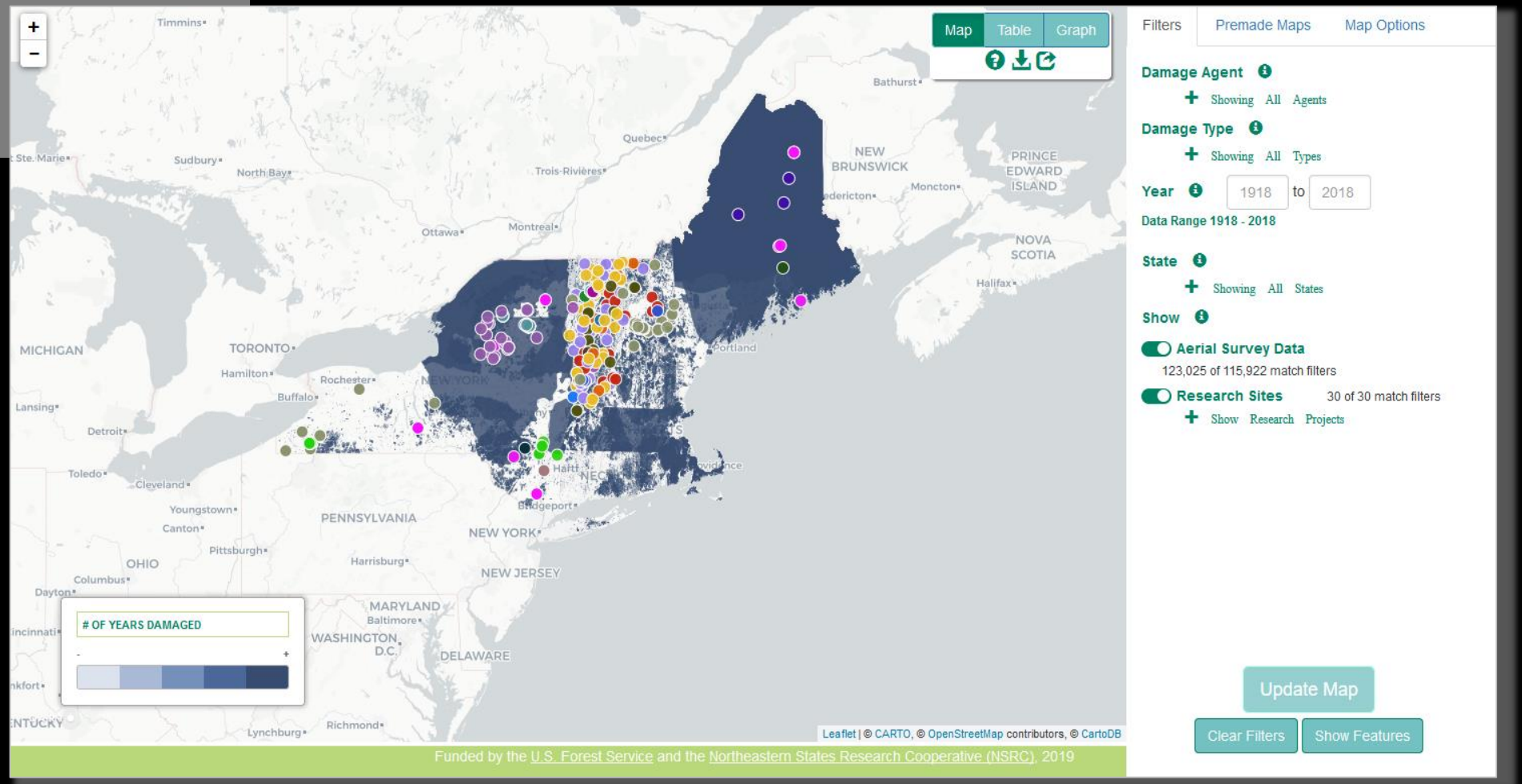




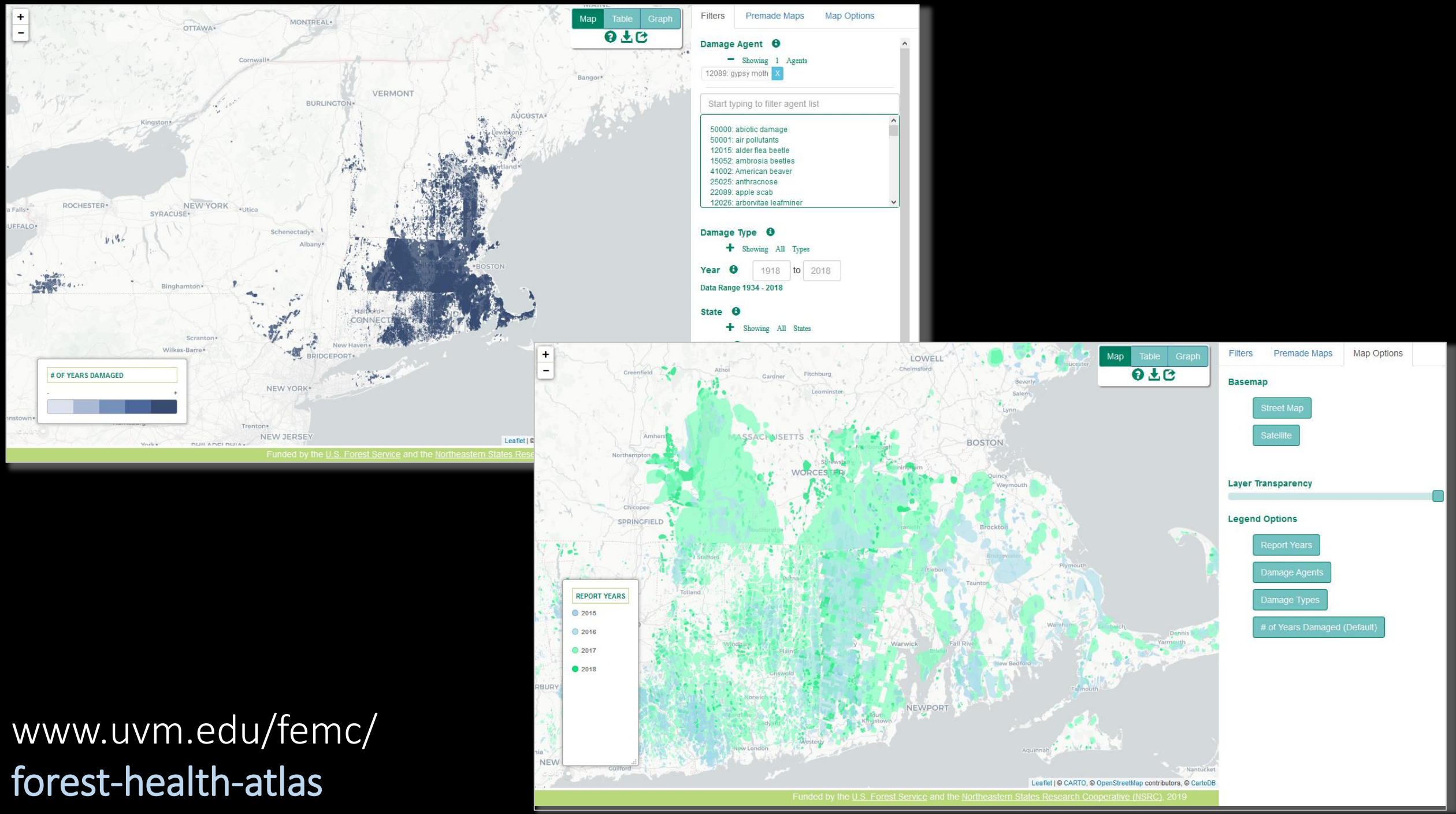


Northeastern Forest Health Atlas

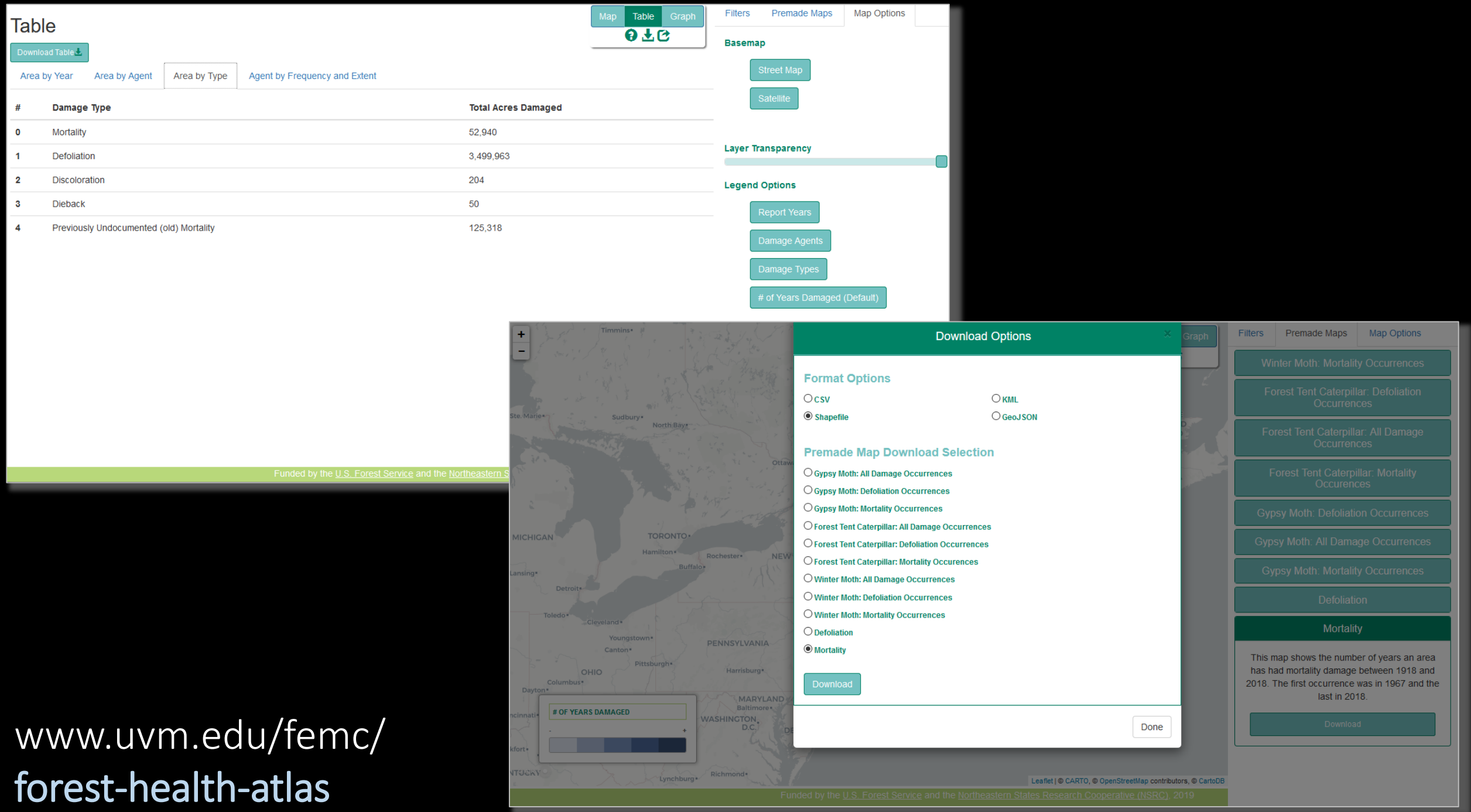
www.uvm.edu/femc/forest-health-atlas



- *Aerial detection surveys of tree damage*
- *Contains 100 years of data*
- *Filter by agent, location, damage type*
- *Produce premade maps, download data*



www.uvm.edu/femc/
forest-health-atlas



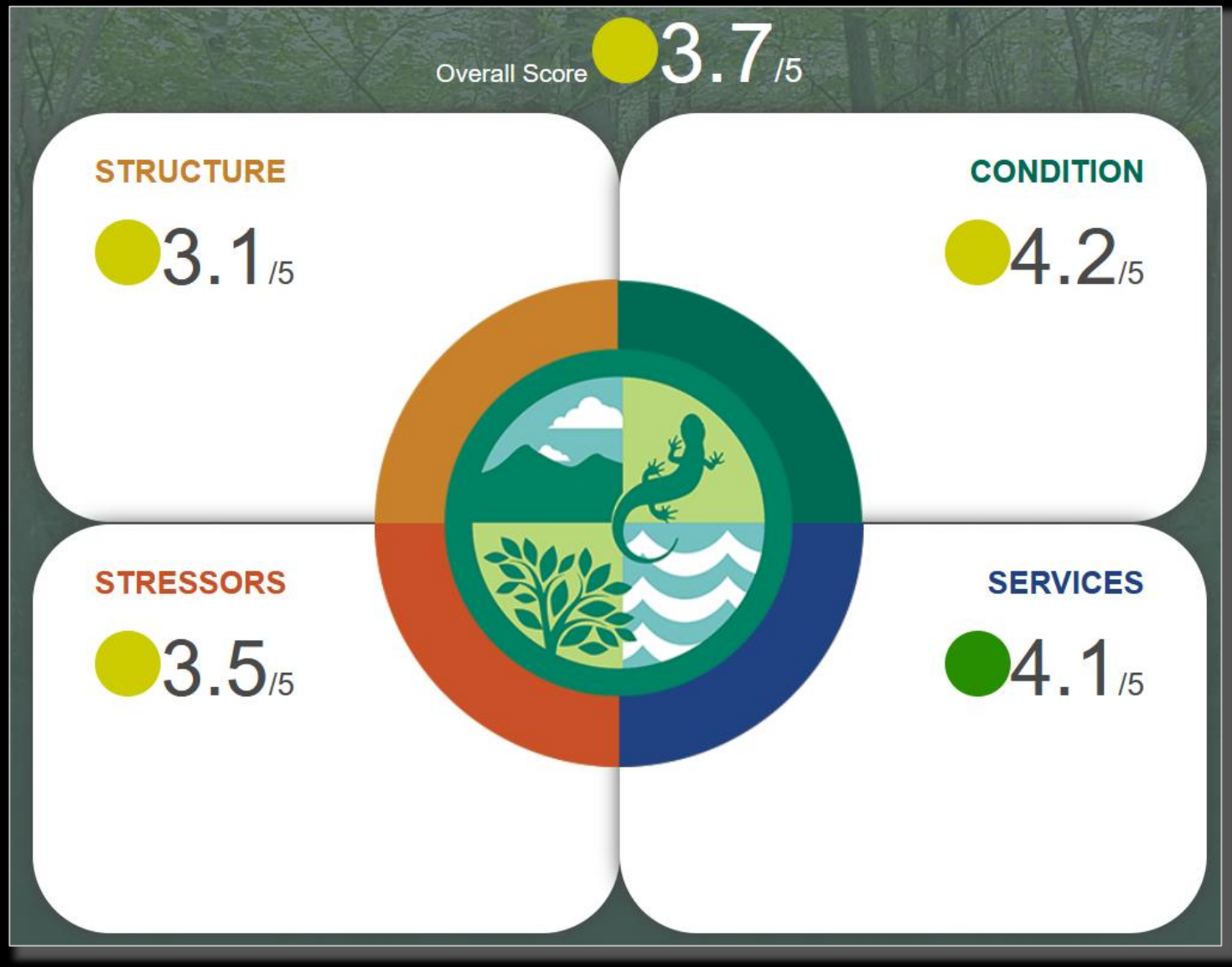
www.uvm.edu/femc/
forest-health-atlas

Forest Indicators Dashboard

www.uvm.edu/femc/indicators/vt

Combining dozens of key datasets into a snapshot of the overall status of Vermont's forests

- *Includes >30 long-term datasets*
- *Annual score and a long-term trend in relation to the target or status quo*



Tree Growth

Condition Score: 4.2/5

Condition Indicators:

- 15% Crown Dieback
- 15% Forest Damage
- 20% Tree Growth
- 10% Canopy Density
- 20% Forest Mortality
- 10% Damage and Decay
- 10% Tree Mortality

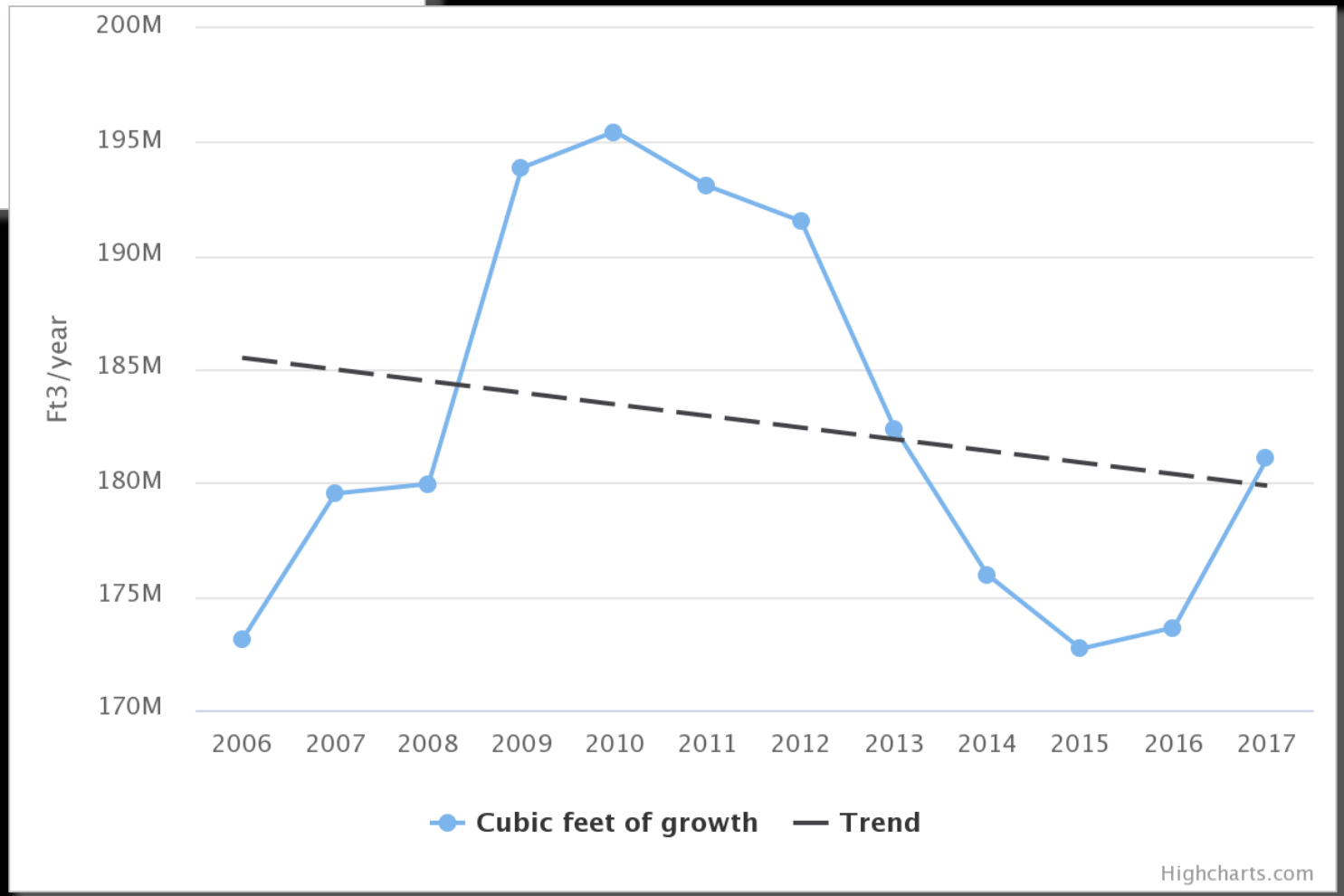
Score for 2017:

4.5/5

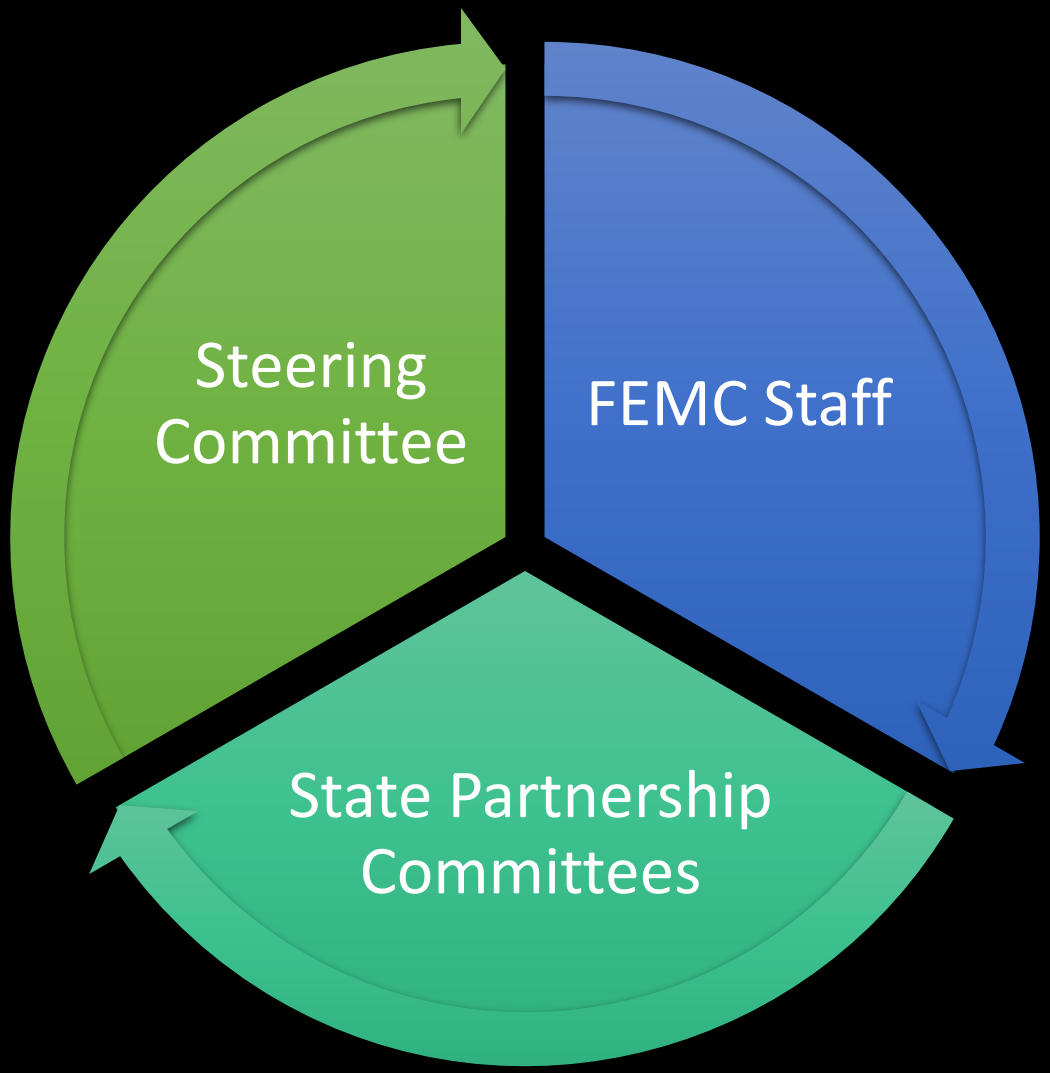
Long-Term Trend:

Scores are not changing over time

Forest growth provides information on how much biomass Vermont's trees add annually.

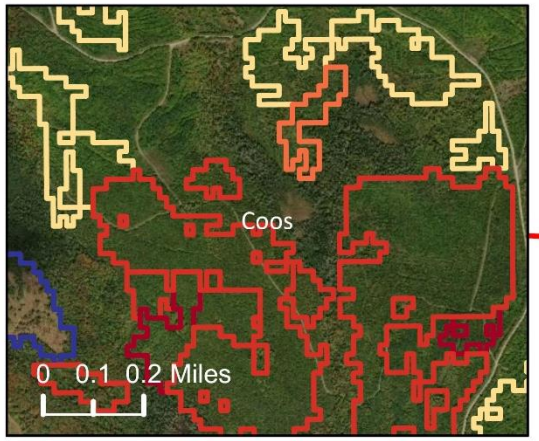


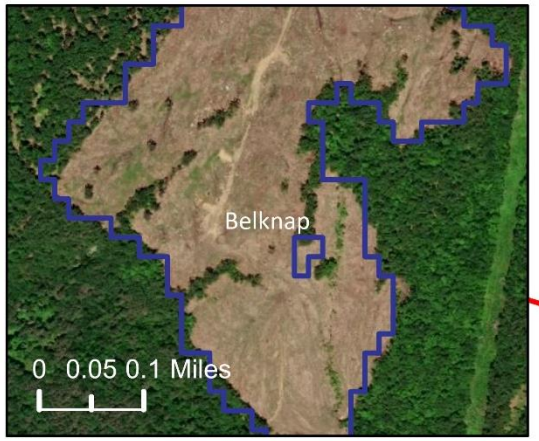
- *Includes datasets for*
  - *Forest Structure*
  - *Forest Condition*
  - *Ecosystem Services*
  - *Stressors to Forests*

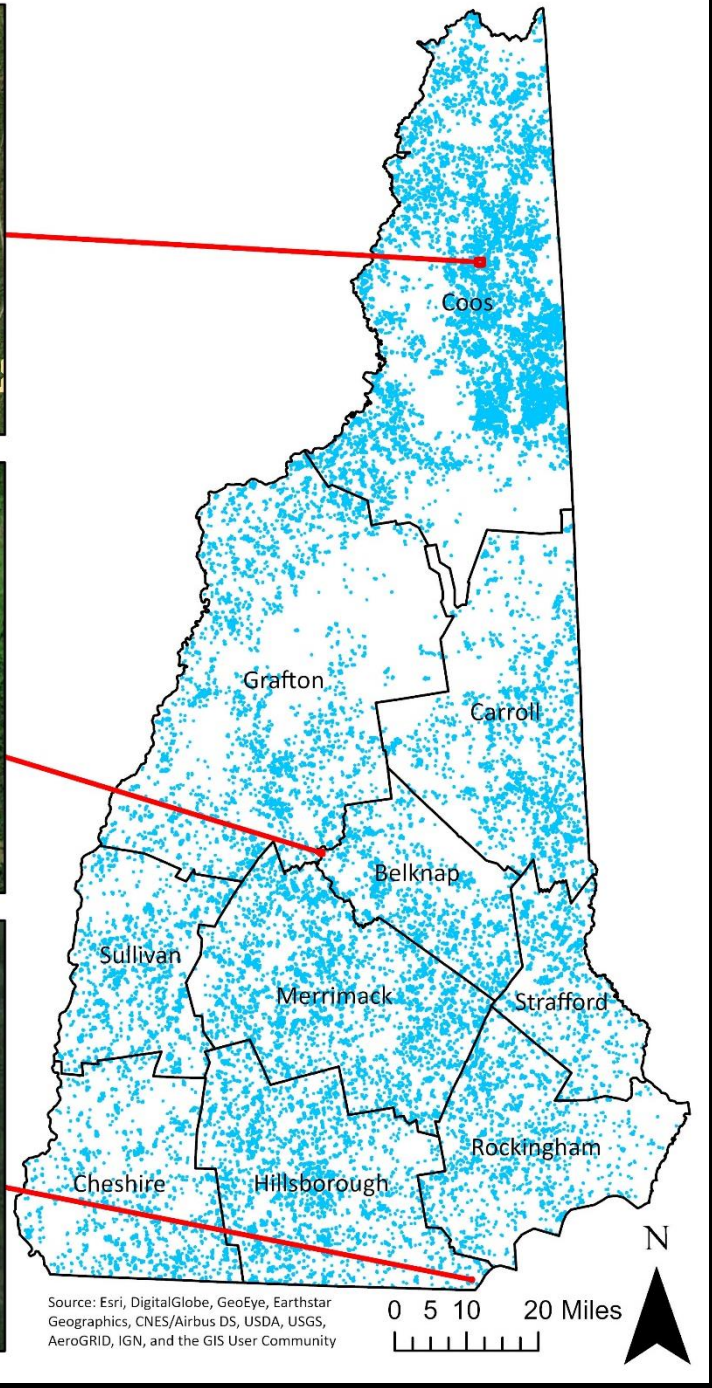

Steering Committee
FEMC Staff
State Partnership Committees

Inventory of intensive forest clearing in NH

- *Quantified amount of forest clearing by location and year*
- *Examined trends in clearing*
- *Compared post-harvest outcome*
- *Validated with known harvests and historical imagery*

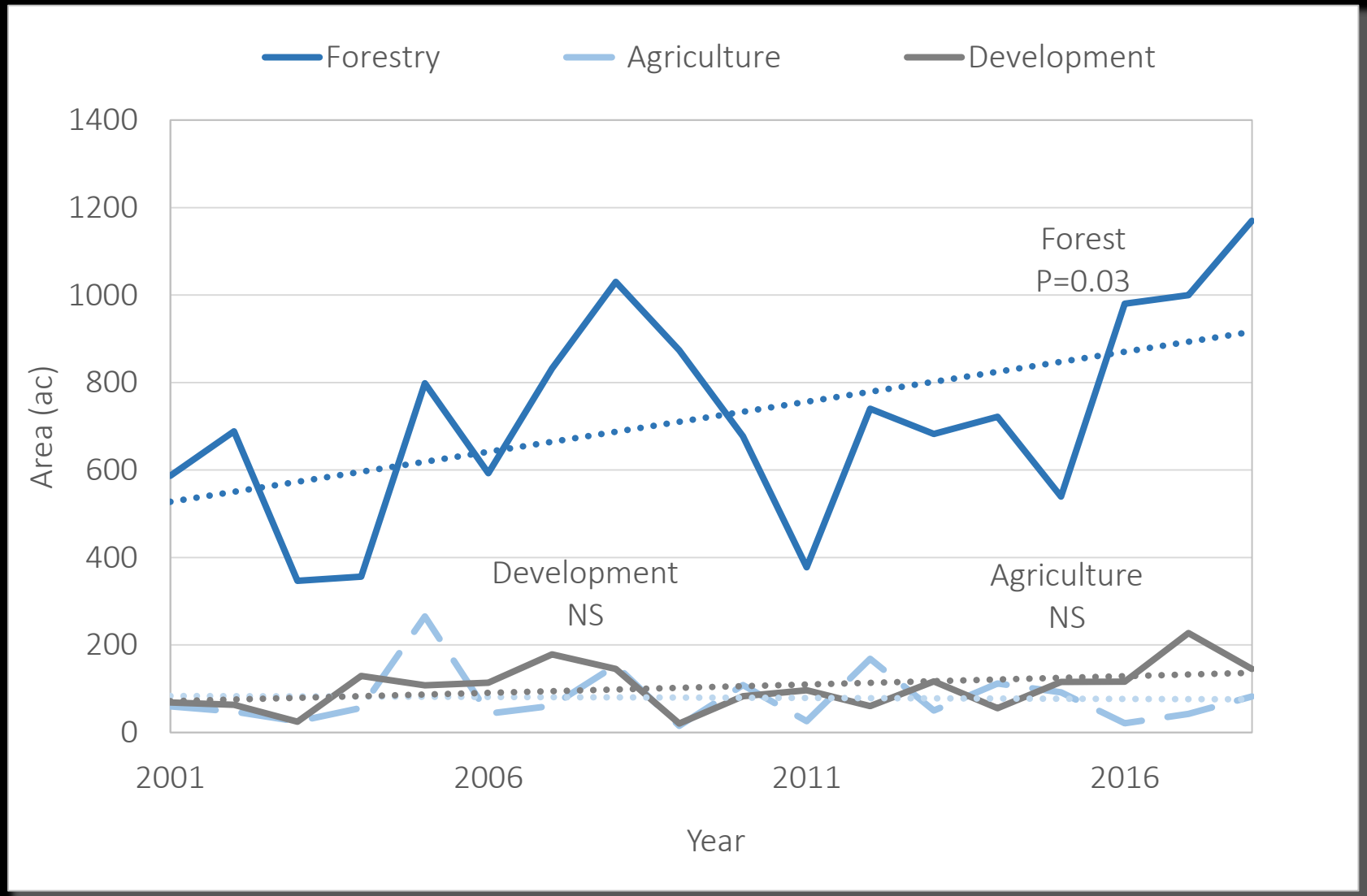






Kosiba and Duncan (in prep)

Post-harvest outcomes



6,197 acres cut per year classified as intensive cuts

X

80% cuts for silviculture

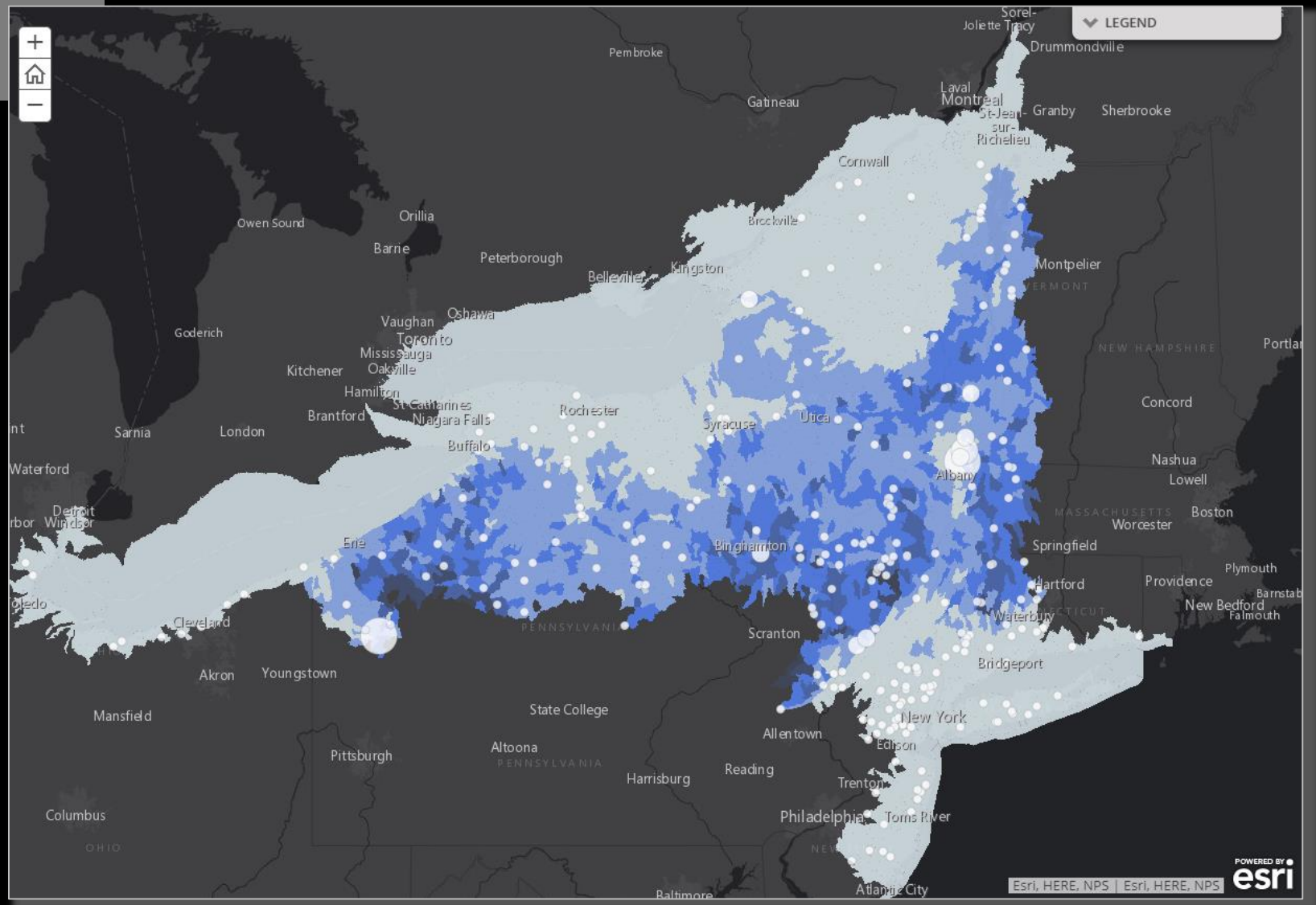
=

4,958 acres per year for early successional forests
Or
0.08% of NH's forestland

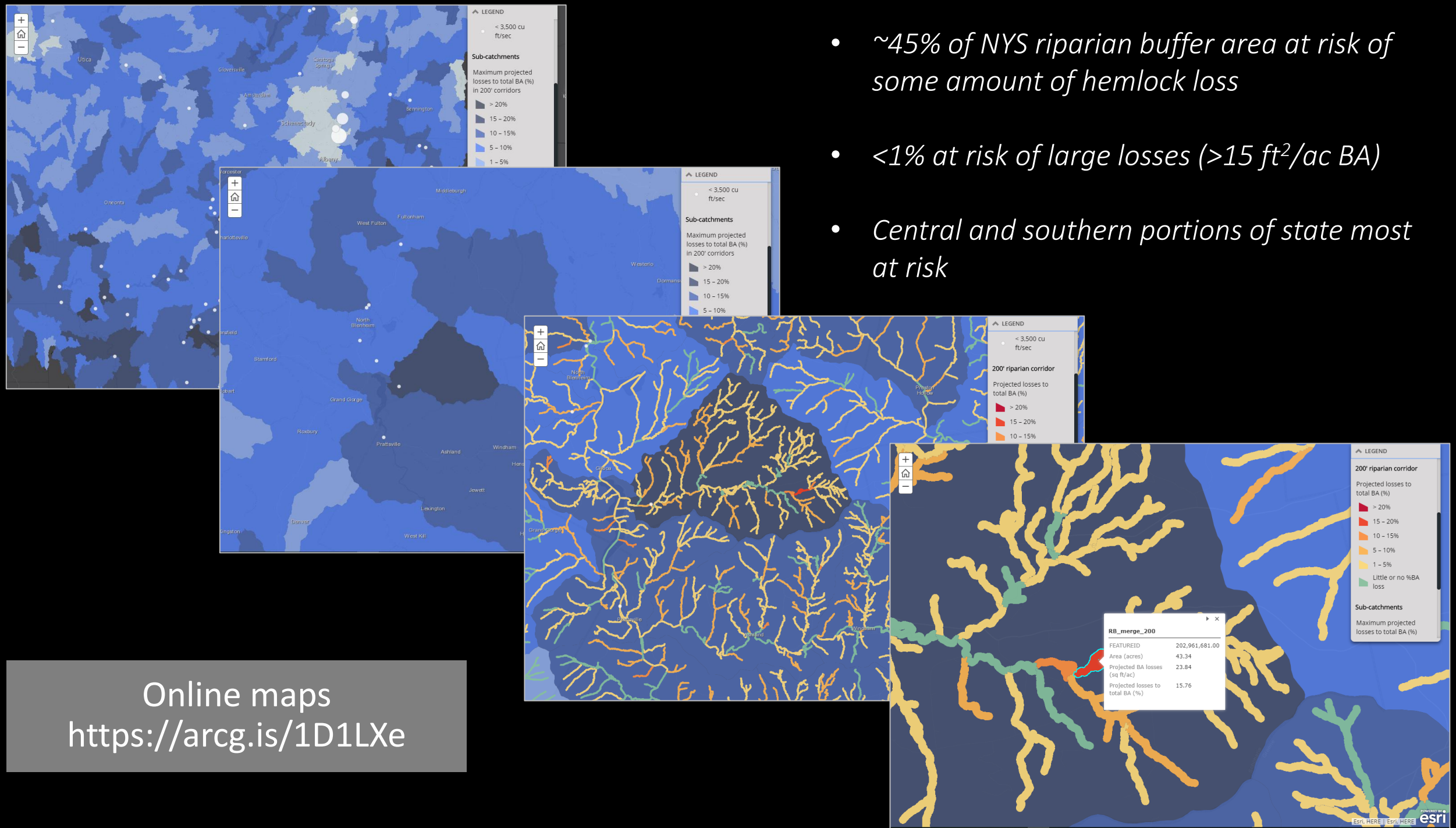
Note: subset of 10% of total cuts areas were assessed for post-harvest outcome

Kosiba and Duncan (in prep)

HWA-induced losses in riparian corridors in NY



Online maps
https://arcg.is/1D1LXe



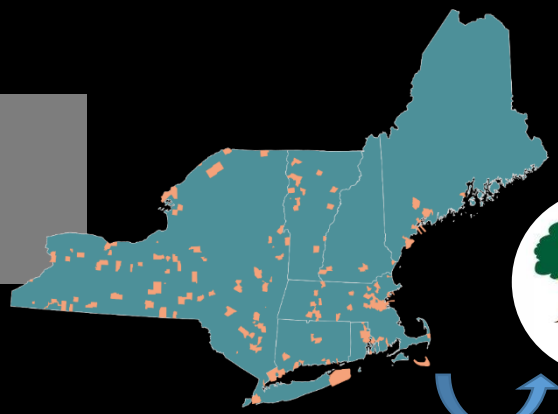
- *~45% of NYS riparian buffer area at risk of some amount of hemlock loss*
- *<1% at risk of large losses (>15 ft²/ac BA)*
- *Central and southern portions of state most at risk*

Online maps
https://arcg.is/1D1LXe

Current projects

Regional Projects

Quantifying economic impacts of urban pests



Looking for regen and CFI data

REGEN: Northeast Forest Regeneration Data Portal

Continuous Forest Inventory Methods Comparison

State Projects

New York Forest Indicators Dashboard

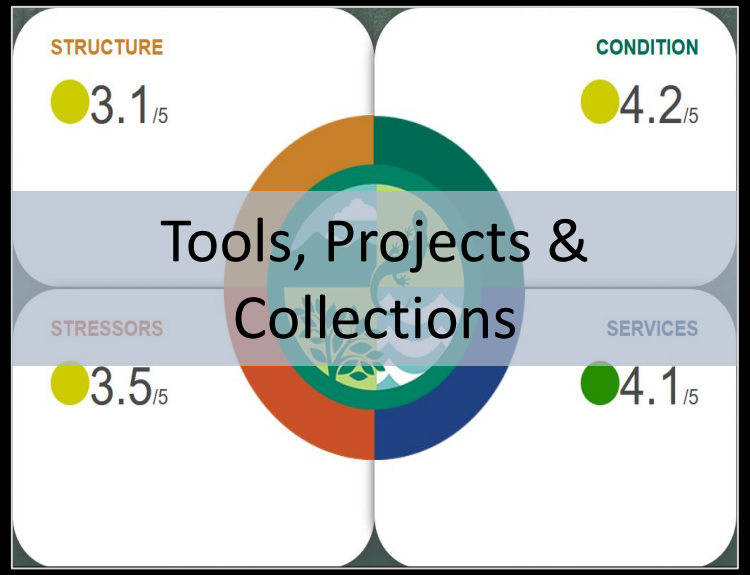
New Hampshire Forest Indicators Dashboard

Carbon Inventory for Pisgah State Park

Risk of invasive species spread to Adirondack Park


Data Archive, Access & Integration


Ecosystem Monitoring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Collaborator Network

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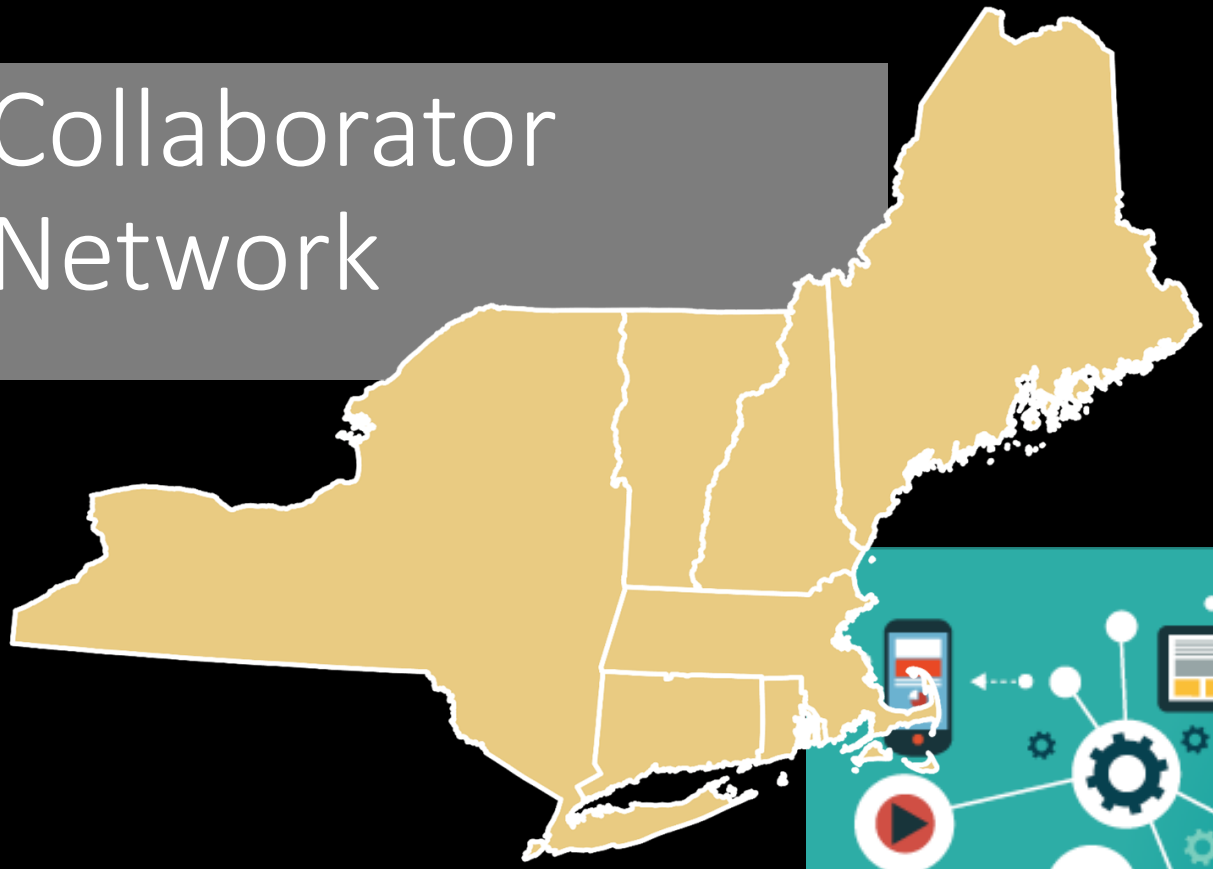


- FREE access to data and tools
- FREE data archiving
- Fee for service for help managing data/databases, for custom web design, field work, etc.
  - Free if qualifies for data rescue

How to get involved with the FEMC

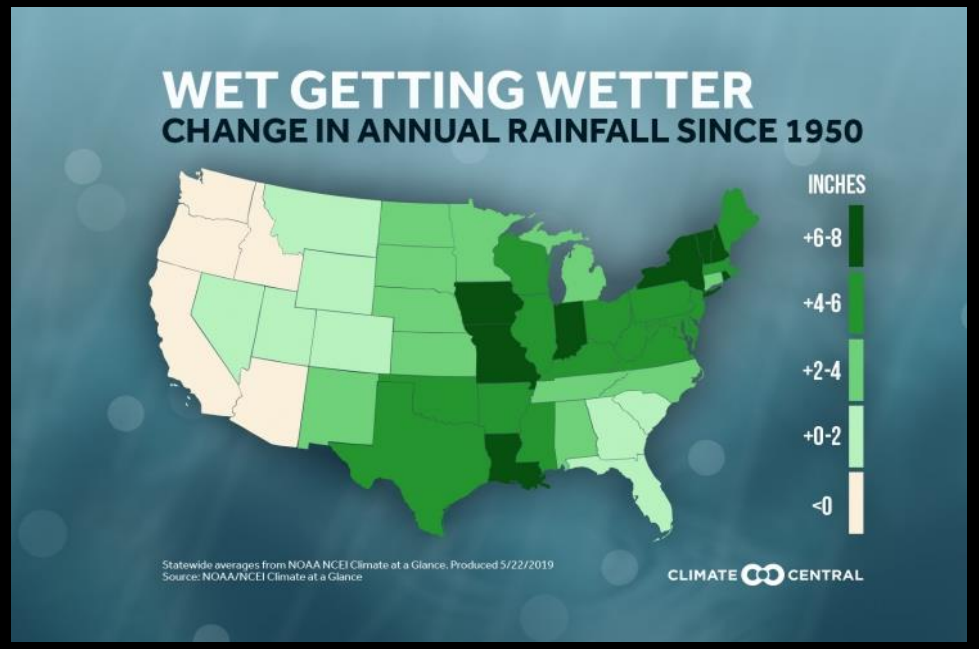
- Feedback!
- Join our listserve
- Contribute data to a project
- Archive data on the FEMC Data Archive
- Request training or presentations on tools
- Come to our Annual Conference
- Other ideas for how FEMC can assist with monitoring and assessment in your field? Get in touch!

2019 FEMC Annual Conference

Monitoring for Impacts of Climate Change: Tracking and measuring outcomes in northeastern forests

December 13
University of Vermont
Burlington, VT

Only $26 to register!



https://www.uvm.edu/femc/cooperative/conference/2019

FEMC: www.uvm.edu/femc

Listserve: www.uvm.edu/femc/about/joinlist

Collections: www.uvm.edu/femc/products/collections

Tools: www.uvm.edu/femc/products/tools

Services: www.uvm.edu/femc/services

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FEMC
Forest Ecosystem Monitoring Cooperative

THE UNIVERSITY OF VERMONT
RUBENSTEIN
SCHOOL OF ENVIRONMENT
AND NATURAL RESOURCES

FORESTS, PARKS & RECREATION
VERMONT
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