



Forest Protection for Carbon Mitigation: Data and Approaches to Maximize Impact

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Open Space Institute

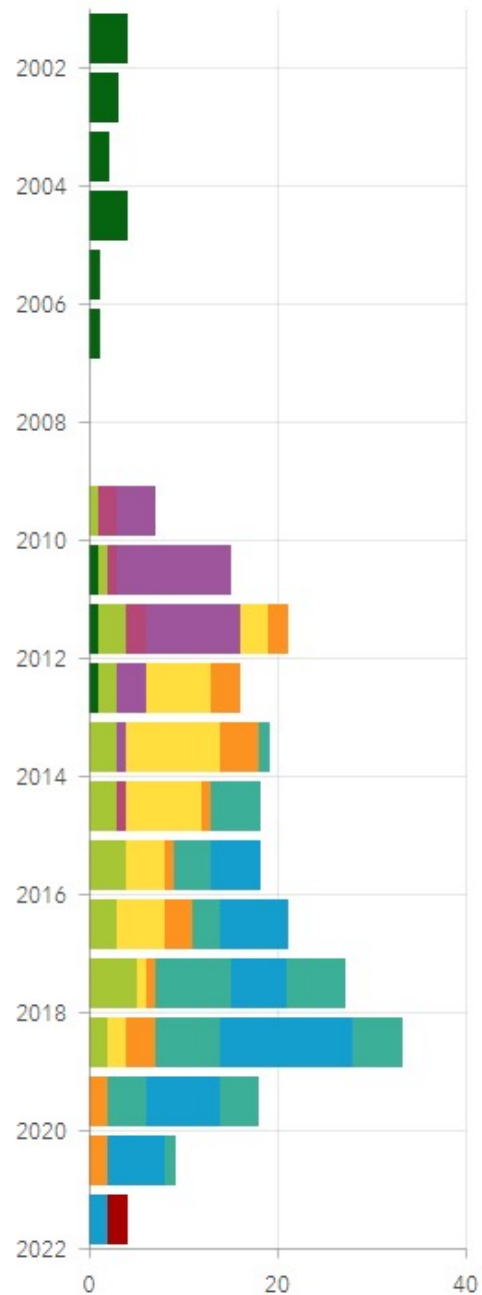
January 5, 2022



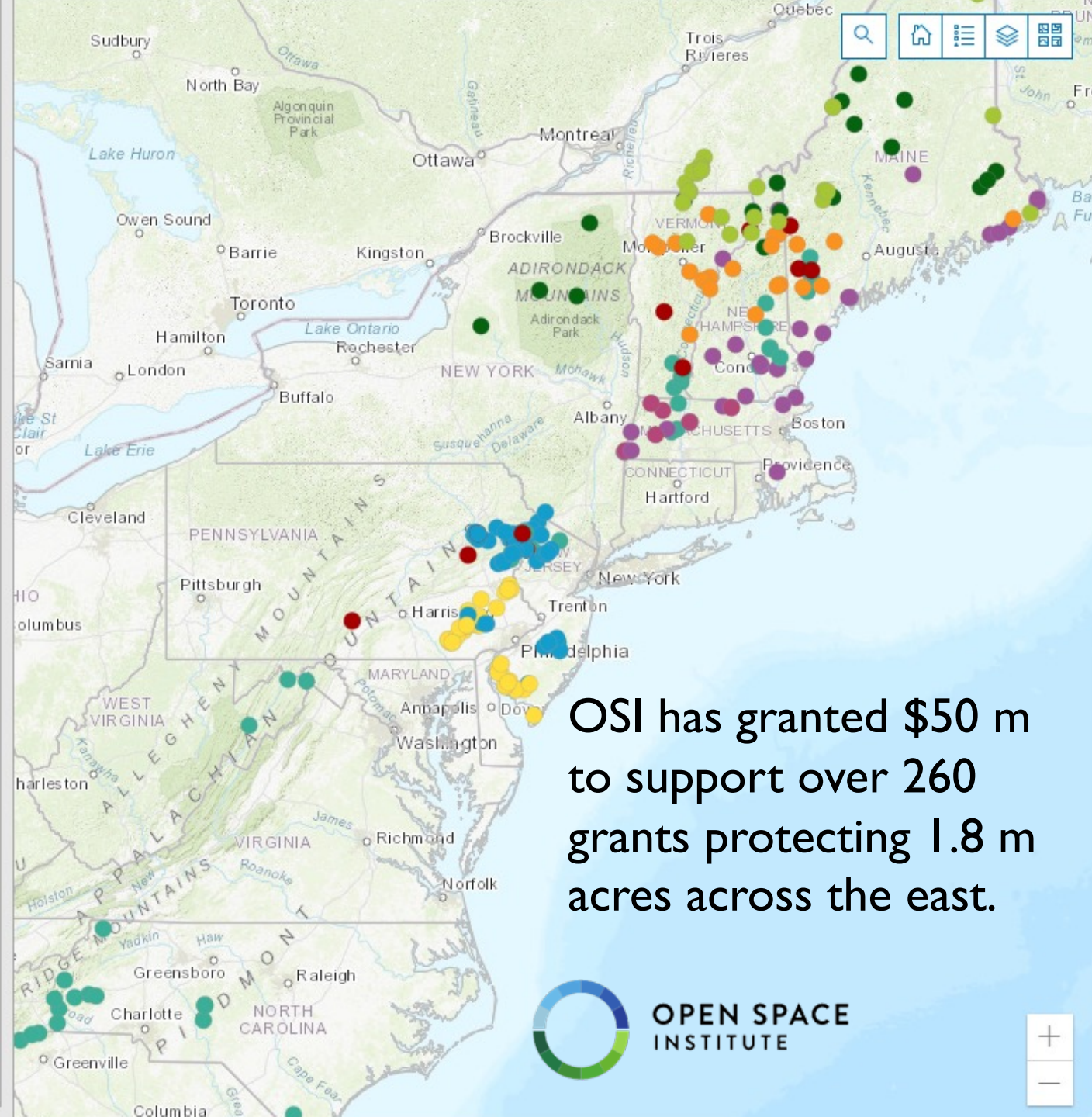
**OPEN SPACE
INSTITUTE**

Open Space Institute protects scenic, natural, and historic landscapes to provide public enjoyment, conserve habitat and working lands, and sustain communities.

Grants Closed, by Year



- Northern Forest Protection Fund
- Transborder Land Protection Fund
- Western Massachusetts Land Protection Fund
- Saving New England's Wildlife
- Bayshore Highlands Land Protection Fund
- Community Forest Fund
- Northeast Resilient Landscape Protection Fund
- Delaware River Watershed Protection Fund
- Southeast Resilient Landscape Protection Fund
- Appalachian Landscapes Protection Fund



OSI has granted \$50 m to support over 260 grants protecting 1.8 m acres across the east.



DO YOU ACCEPT THE #NWLCHALLENGE?

WASHINGTON STATE Recreation and Conservation Office

Grants What We Do Get Involved About Us Contact Us

WWRP-FORESTLAND

Forestland Preservation-Washington Wildlife and Recreation Program

FUNDING	GRANT LIMIT	MATCH REQUIREMENT
\$814,980	\$500,000	50%
Details	Details	Details

DCNR

Recreation Conservation **Communities** Business Educat

[DCNR](#) > [Communities](#) > [Grants](#) > Land Acquisition Grants

Land Conservation, Acquisition, and Stewardship

DCNR helps communities and nonprofit organizations across Pennsylvania acquire land for public parks and open space to be enjoyed by all for generations to come.

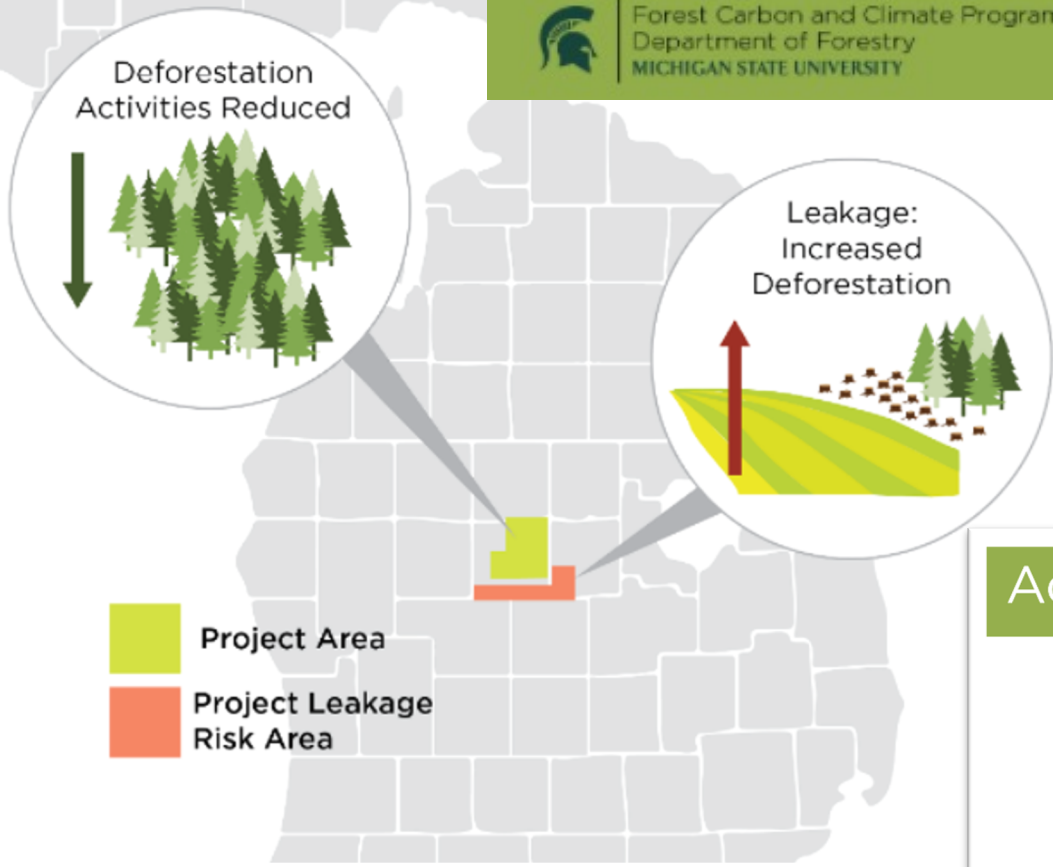
DCNR supports land conservation and acquisition through several methods,

Apply for a Grant

You can [apply for a DCNR grant opportunity](#) through the electronic grants system.

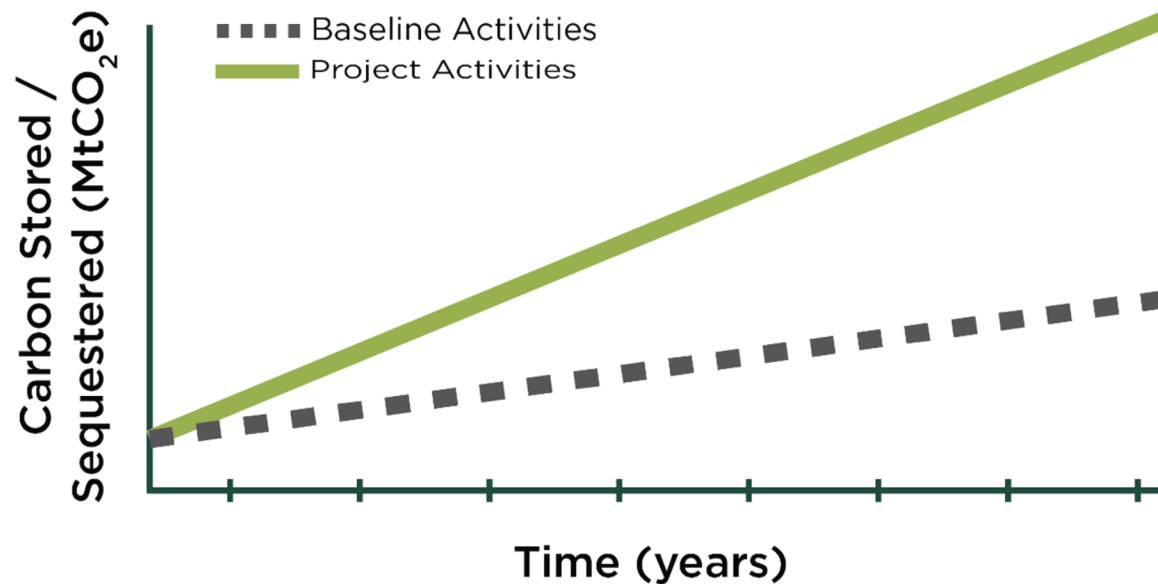
Policies and Forms

[Acquisition Grant Manual Documents](#)



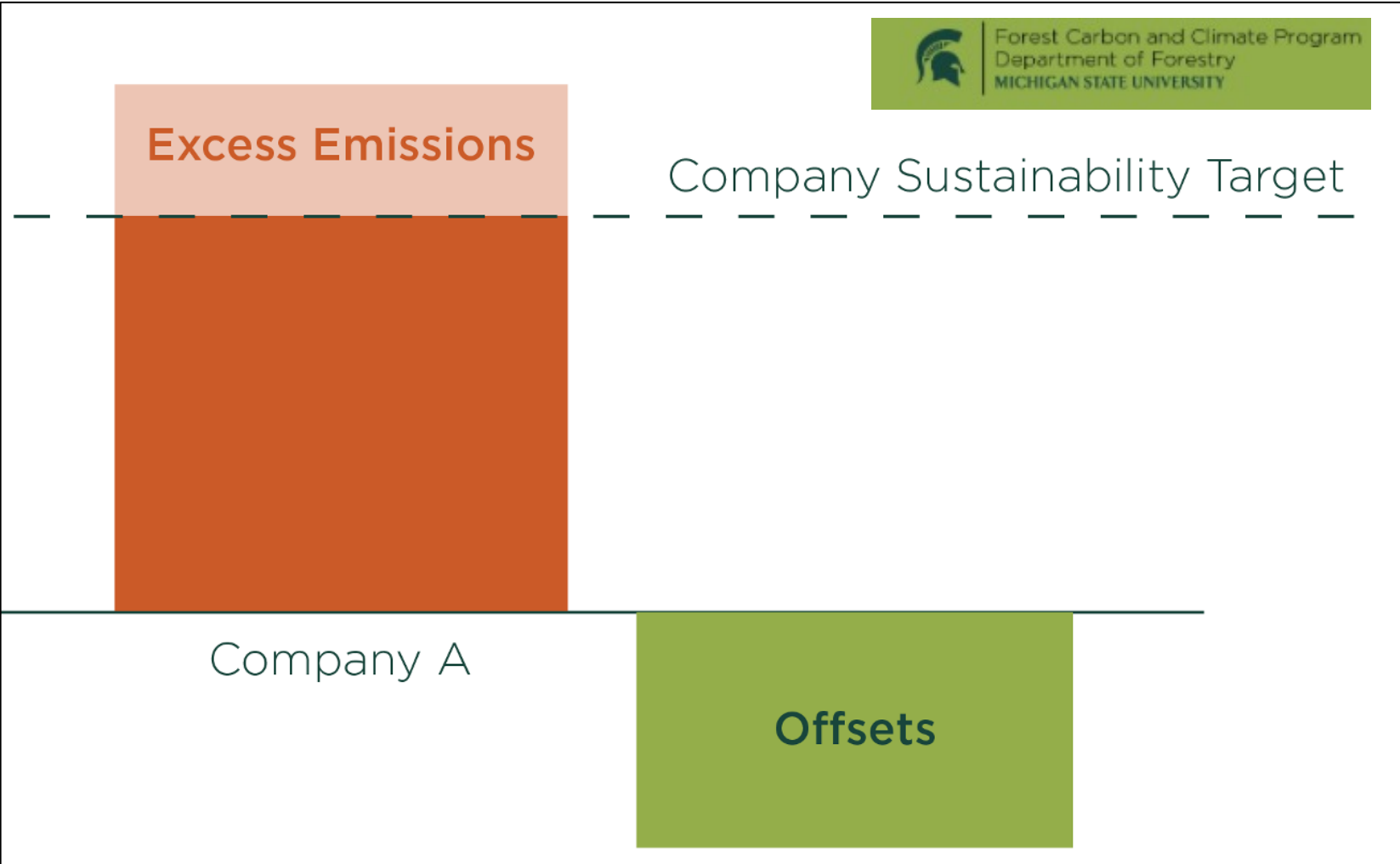
Land protection does not formally account for additionality or leakage, leading to it being set on the sidelines of carbon strategies.

Additionality



While forest offsets balance excess emissions, additional carbon stored or sequestered due to traditional forest protection not offset by additional emissions.

What is the role for our forests in a low carbon future?



Land protection as a Carbon mitigation Strategy

Pros

- Protects our base of forest carbon
- Often shifts ownership into conservation-minded management
- Offers well-established tool with upfront payment
- Protects associated co-benefits
- Provides options to explicitly protect the carbon value

Cons

- No guaranteed additionality
- No accounting for leakage
- No methodology for incorporation into program goals
- Does not explicitly monetize the carbon value

*There's another way to protect the environment that may be less apt to inspire headlines but is nevertheless vital. The Land Trust for Tennessee, **like other land trusts around the country, offers one of the simplest, least contentious and most effective ways to preserve the privately held fields and forests that serve as wildlife ecosystems and carbon sinks: Convince landowners to save them.***

- Margaret Renkl published an opinion piece in The New York Times titled "**The Climate Crisis Is Raging, but We Are Not Powerless**" on December 13, 2021

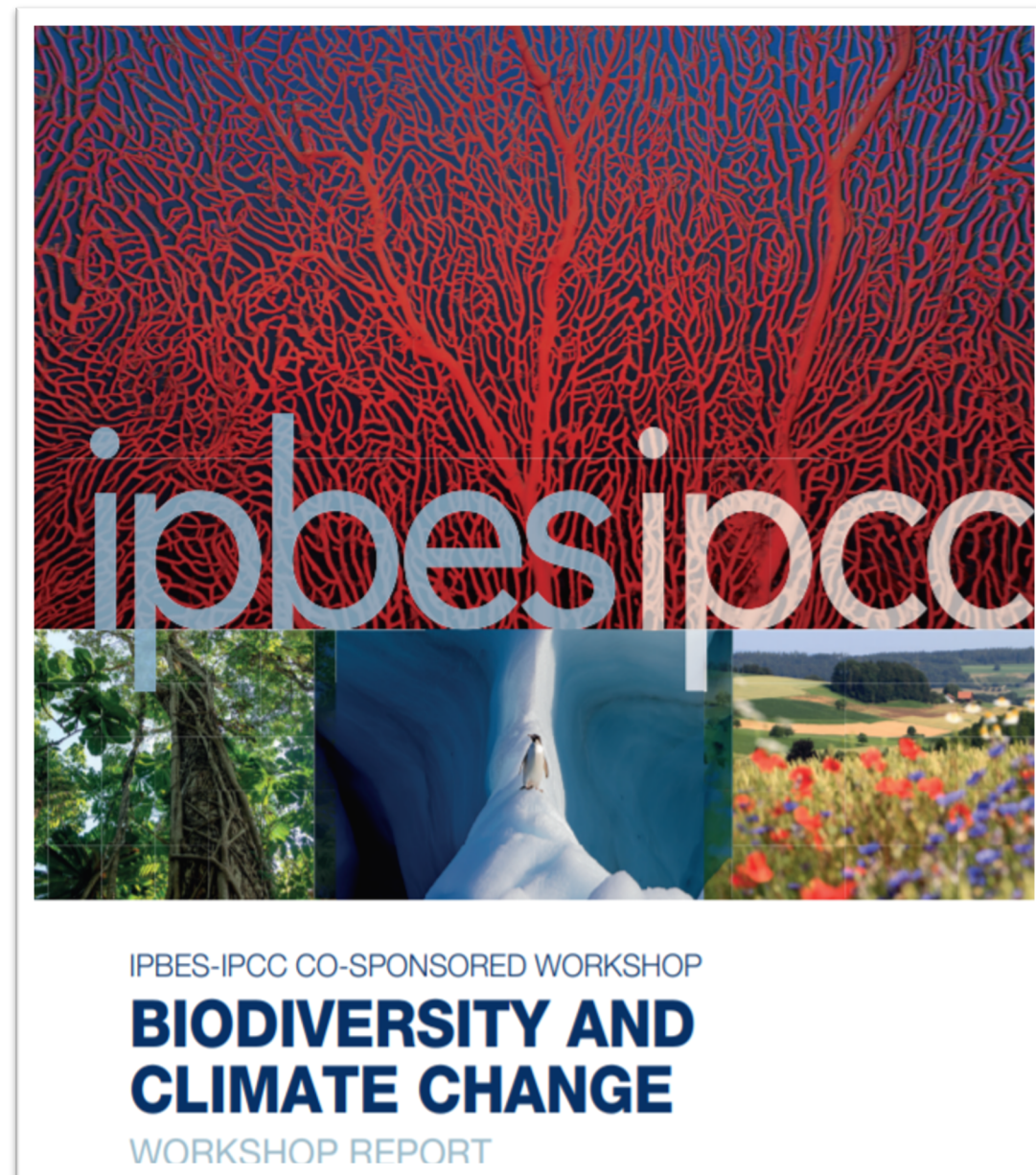


Plants are currently the only surefire way to pull carbon out of our air. That means putting aside land and managing it well. Land trusts try to do just that and often need help with projects or funds to buy more land.

- Erik Vance. Jul. 23, 2021, in NYTimes
"What to Do About Climate Despair,"

Climate and biodiversity crises have the same origins, yet policies have largely tackled the problems independently

To be effective, we need to address these issues in concert and better target and plan for protected areas that meet multiple objectives





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≡ MENU

🔍 SEARCH

FUNDING

Appalachian Landscapes Protection Fund

RELATED STATES AND COUNTRIES

[Alabama](#)

[Georgia](#)

[New Hampshire](#)

[New Jersey](#)

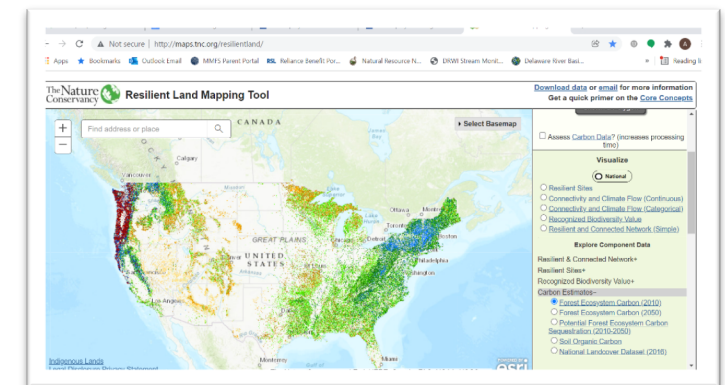
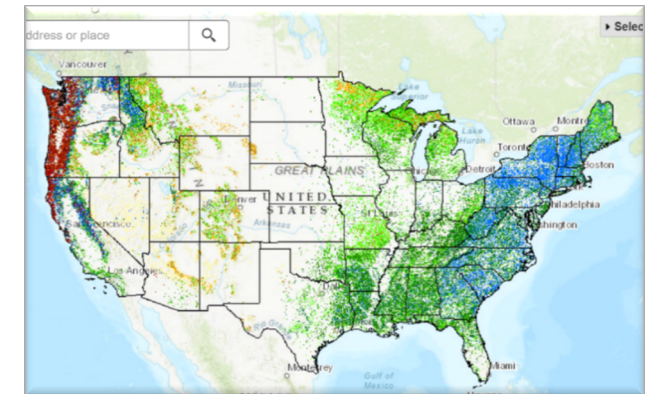
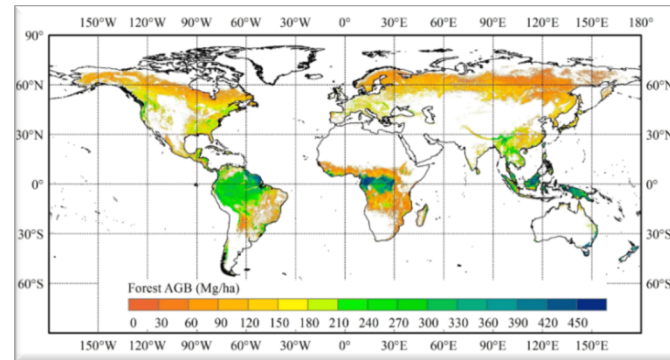
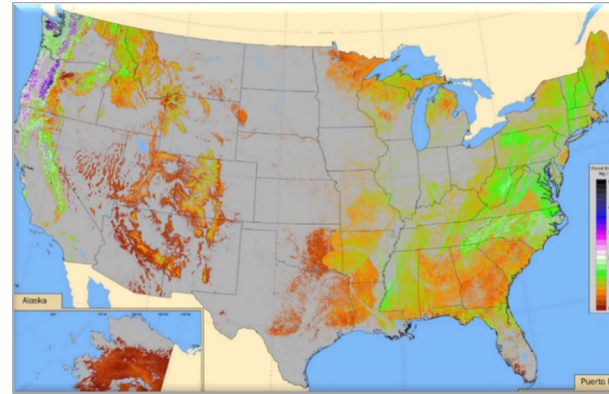
[New York](#)

Why the Appalachian Landscapes Protection Fund?

Accelerating and unprecedented climate change is the greatest challenge of our time, posing equal threats to nature and people.

Forest Carbon Datasets

- Time stamp
- Extent and resolution
- Forest carbon pools
- Storage vs sequestration
- Availability (these are LARGE datasets!)



Forest Ecosystem Carbon 2010

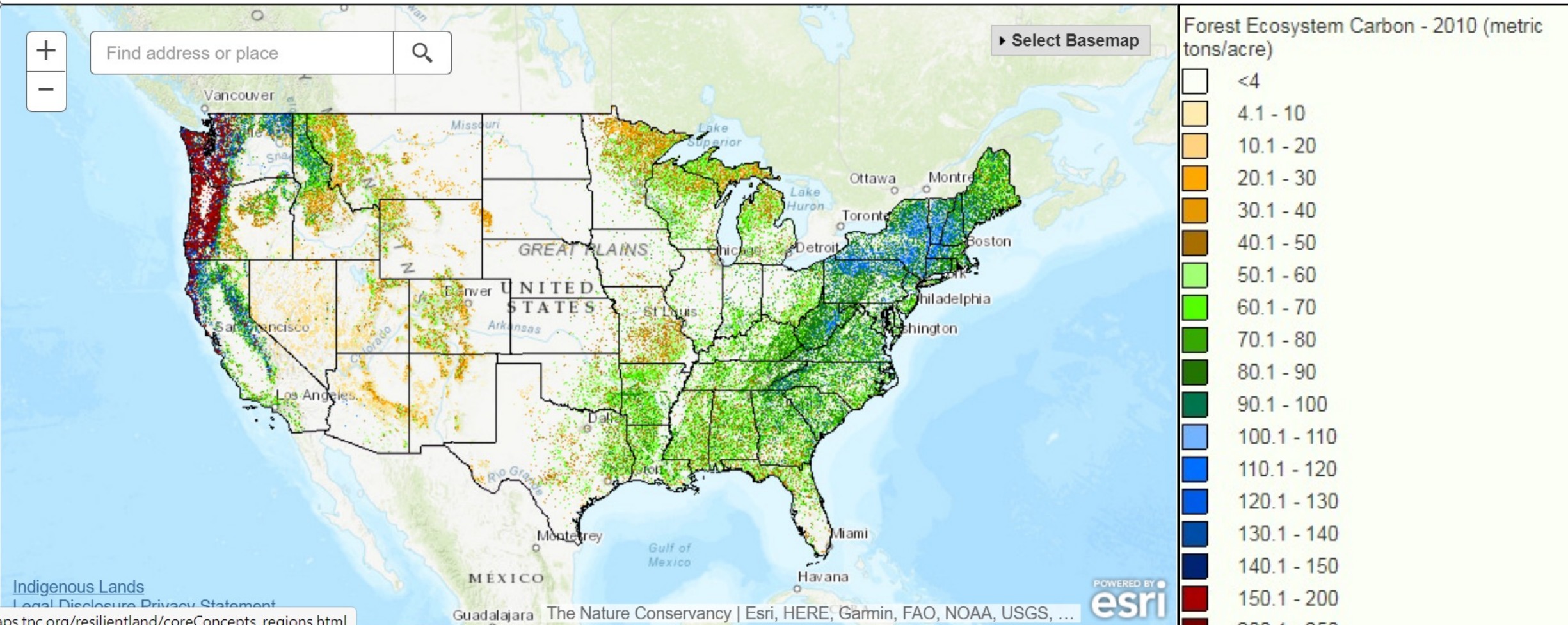
Metric Tons of Carbon per Acre



Resilient Land Mapping Tool

[Download data](#) or [email](#) for more information

Get a quick primer on the [Core Concepts](#)



Forest Ecosystem Carbon 2050

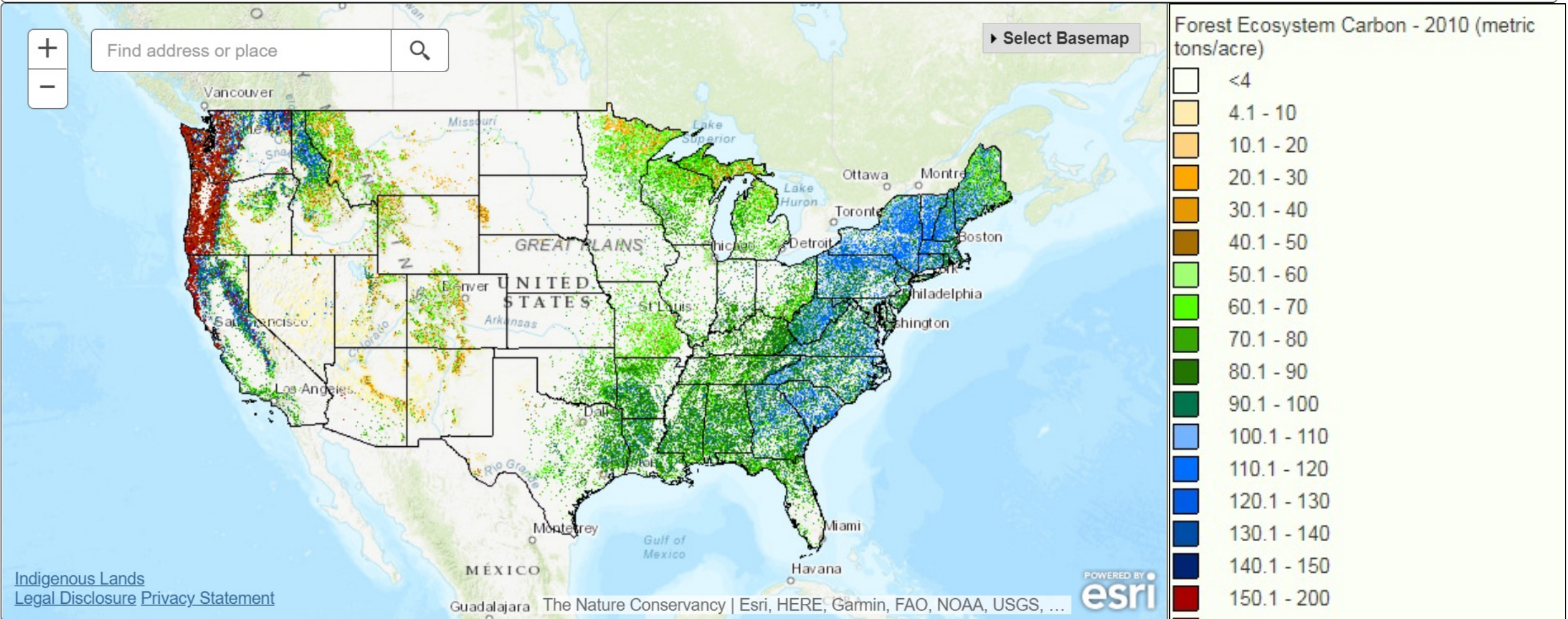
Metric tons of carbon per acre



Resilient Land Mapping Tool

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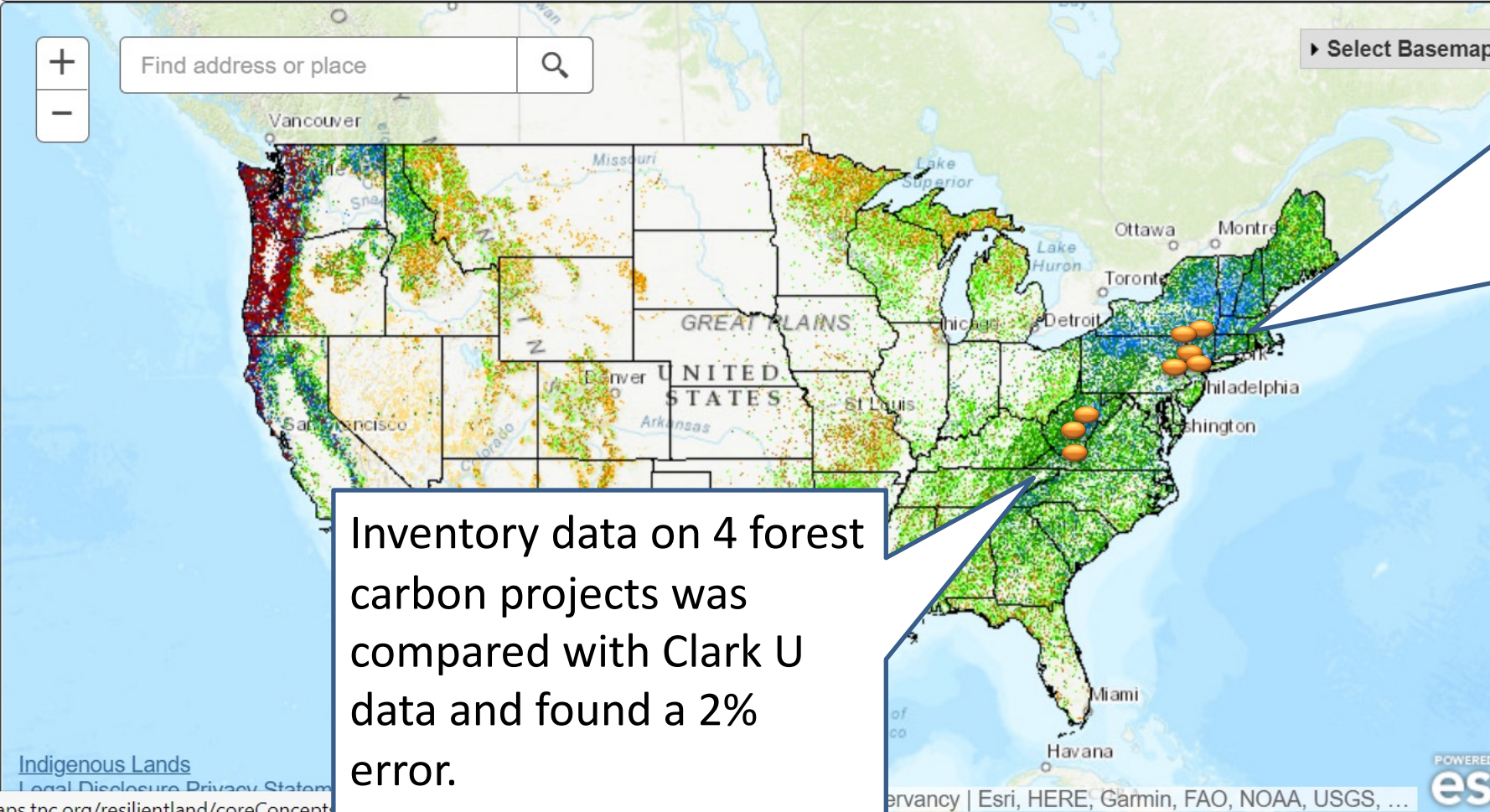
Forest Carbon Data

- Provides estimate for “forest ecosystem carbon”
- Below ground, above ground, coarse woody debris (dead and decaying wood).
- Builds off 2010 Forest Inventory Analysis data
- Incorporates forest cover change up to 2010 ONLY
- Models estimate future carbon, for example 2050

Application of Clark University Data

Forest Ecosystem Carbon **2010**
Metric tons of carbon per acre

The Nature Conservancy  Resilient Land Mapping Tool



Inventory data on 12 forest carbon projects was compared with Clark U data and found a 6% error, compared with a 10% error with SilviaTerra data

Source: Kevin Yoder, TNC

Inventory data on 4 forest carbon projects was compared with Clark U data and found a 2% error.

Source: Aaron Holly, TNC

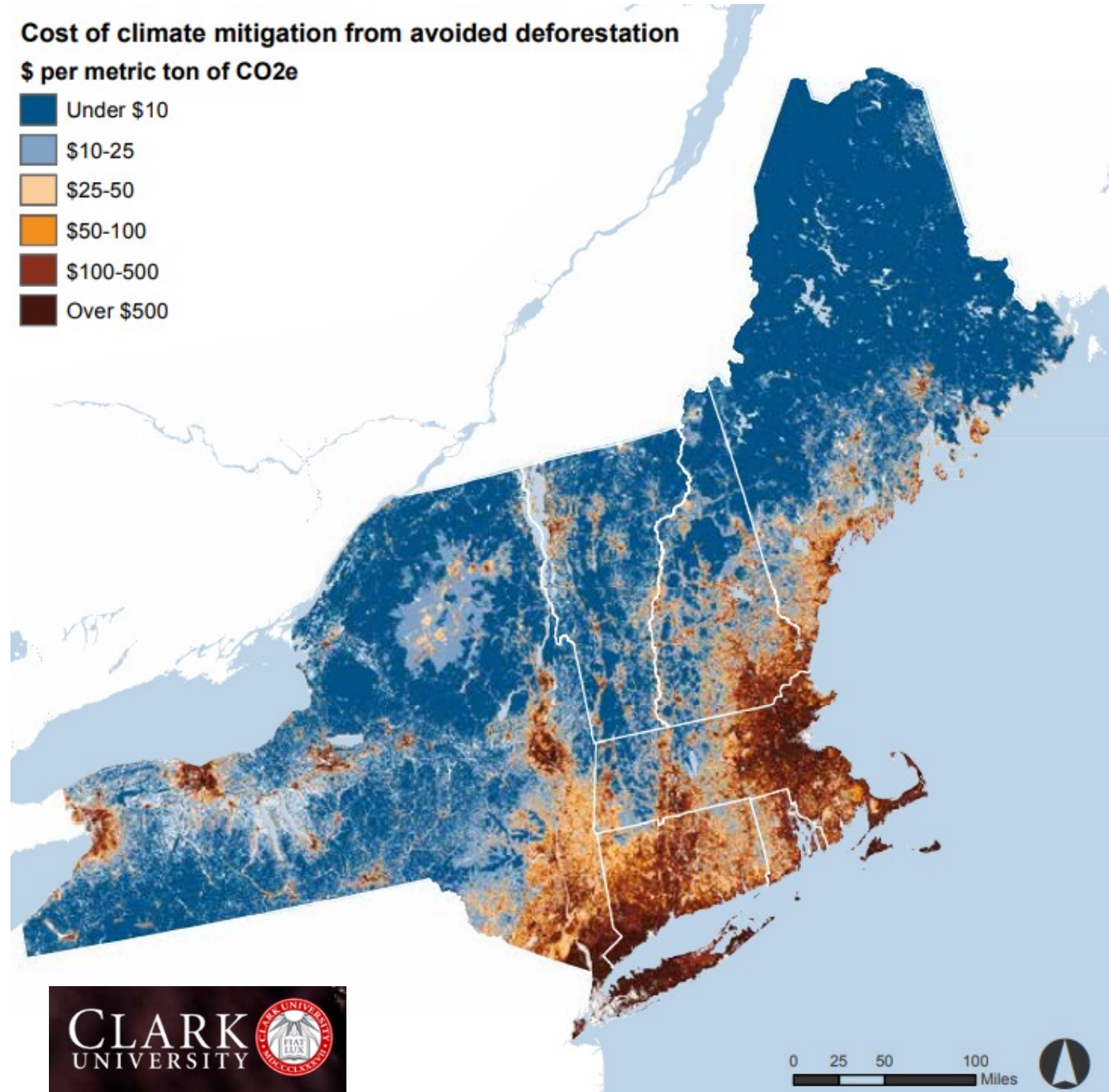


Applications

- Quantify storage and sequestration on state lands
- Prioritize direct acquisition
- Evaluate state grants

Cost of climate mitigation from avoided deforestation

\$ per metric ton of CO₂e





Integrating Forest Carbon Protection and Land Conservation

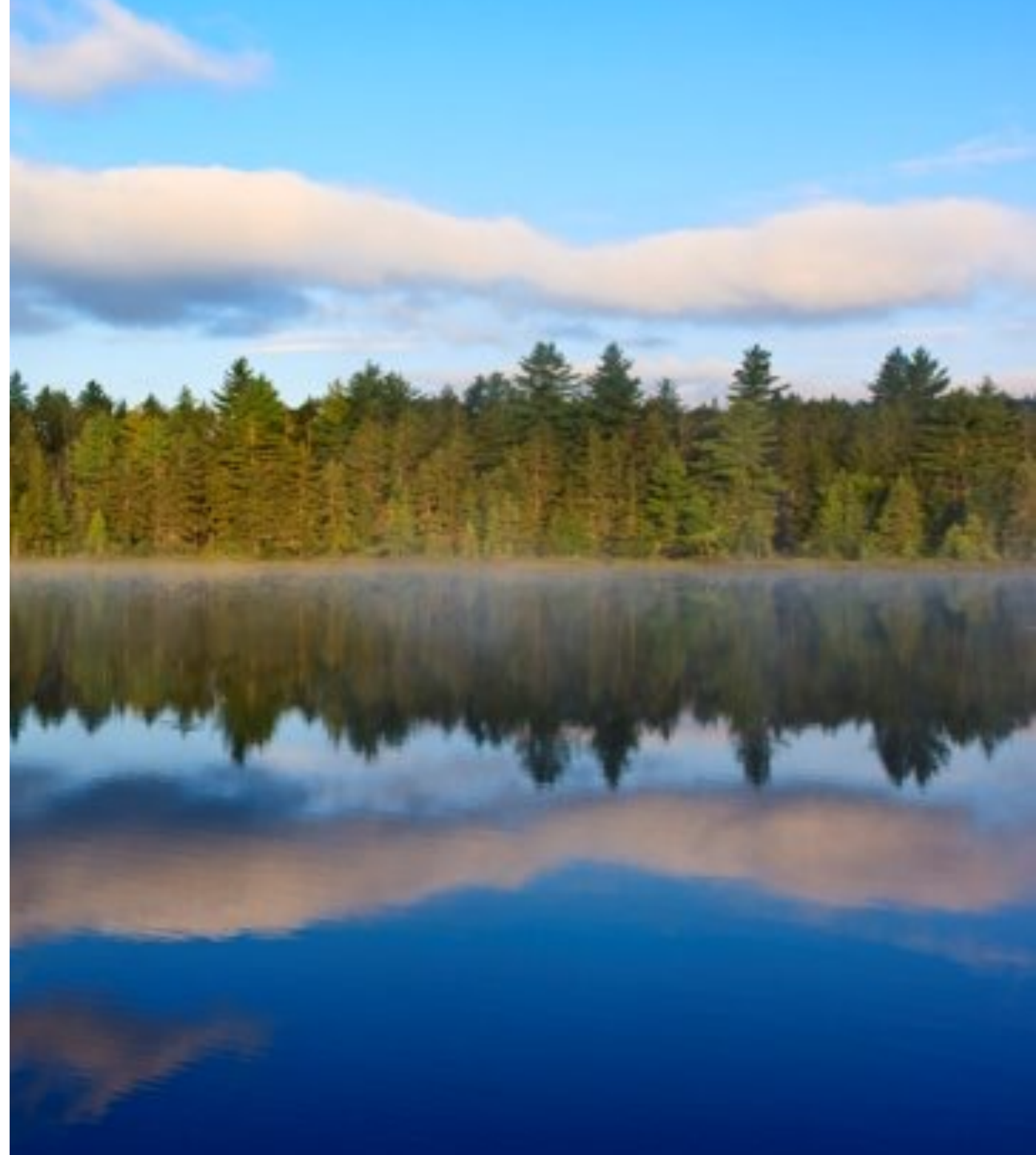
OSI Climate Goals

- Reduce Impacts of Climate Change - *Mitigation*
- Ensure Resilience of Plants, Animals and People - *Adaptation*



OSI Approach

- Capital Grants - *Land Purchase & Conservation Easements*
- Catalyst Grants – *Carbon & Resilience Planning*
- Technical Assistance
- Reports, Workshops, Presentations



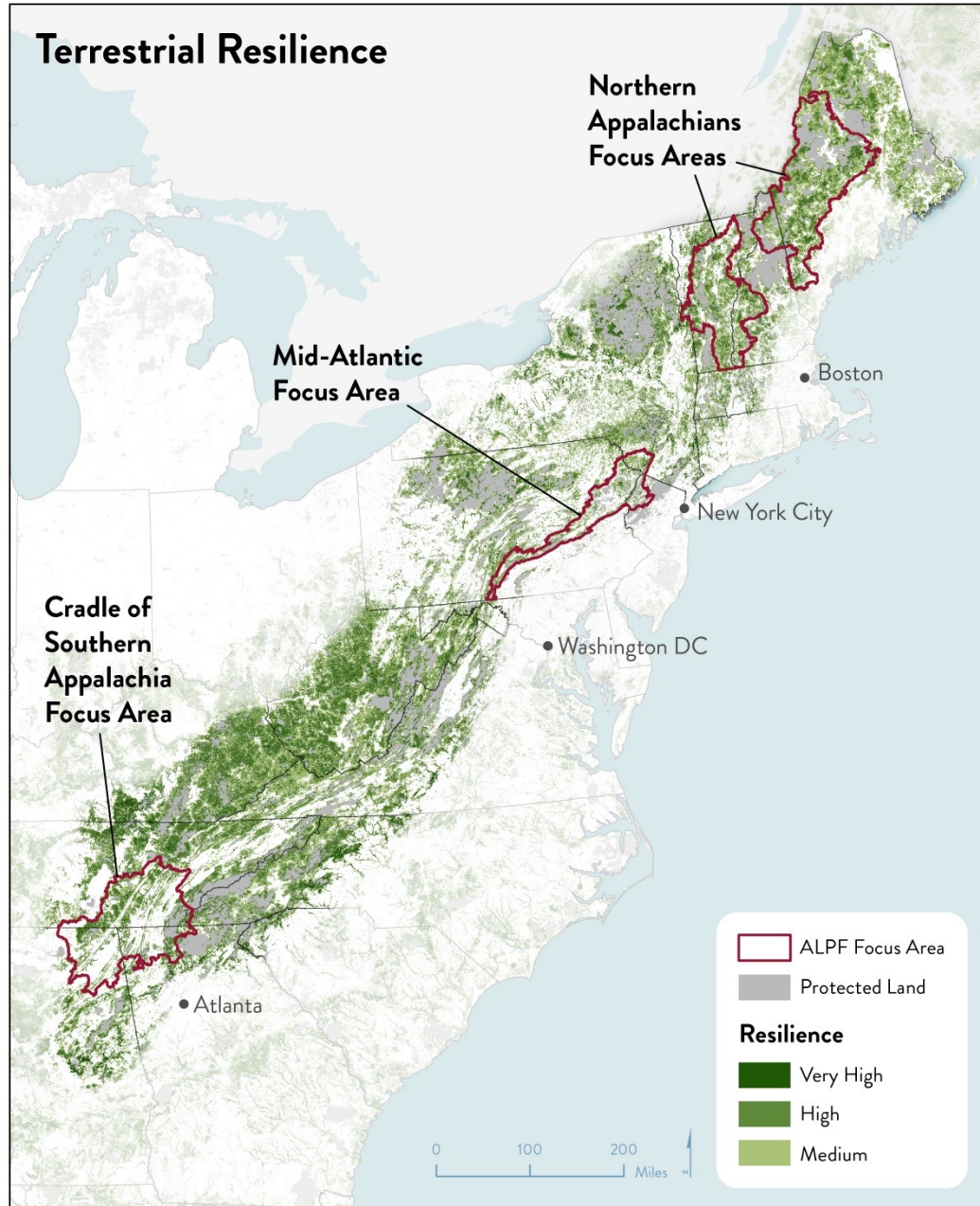
OSI Resilient Landscape Initiative

Protect places most likely to support plants and animals as the climate changes



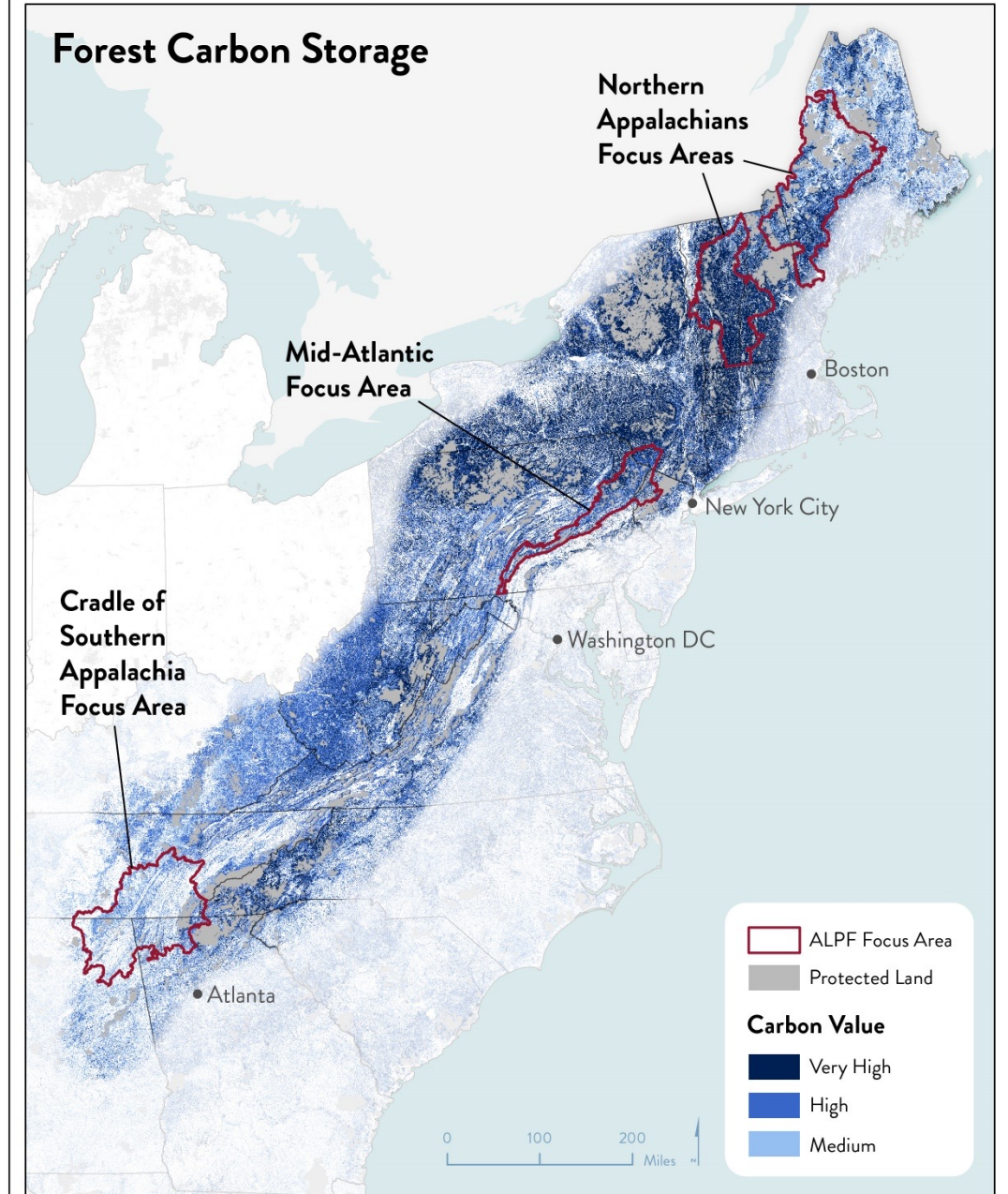
APPALACHIAN LANDSCAPES PROTECTION FUND

Terrestrial Resilience



APPALACHIAN LANDSCAPES PROTECTION FUND

Forest Carbon Storage



Fund Goals

- Protect Climate Resilient & Biodiverse places
- Maintain & Enhance Forest Carbon
- Support Protection of 50,000+ acres
- Embed Equity into Grant Making and Outcomes
- Increase Awareness



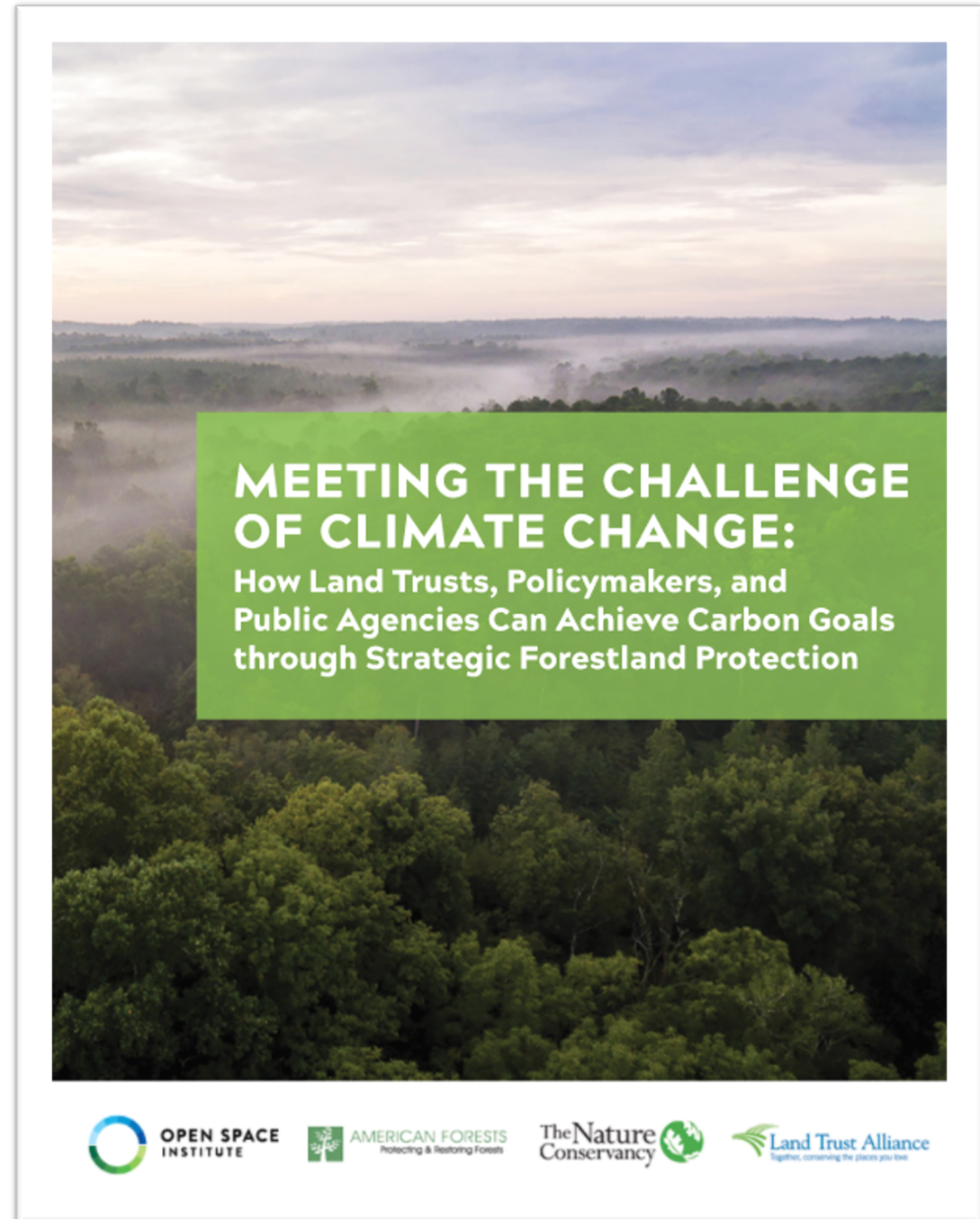
Fund Nut & Bolts

- Capital Grants
- Focus areas including 9 states
- \$18 m Fund goal
- First round: 13 projects & 20,000 acres
- RFP open through 2/10/22
- Webinar: January 10

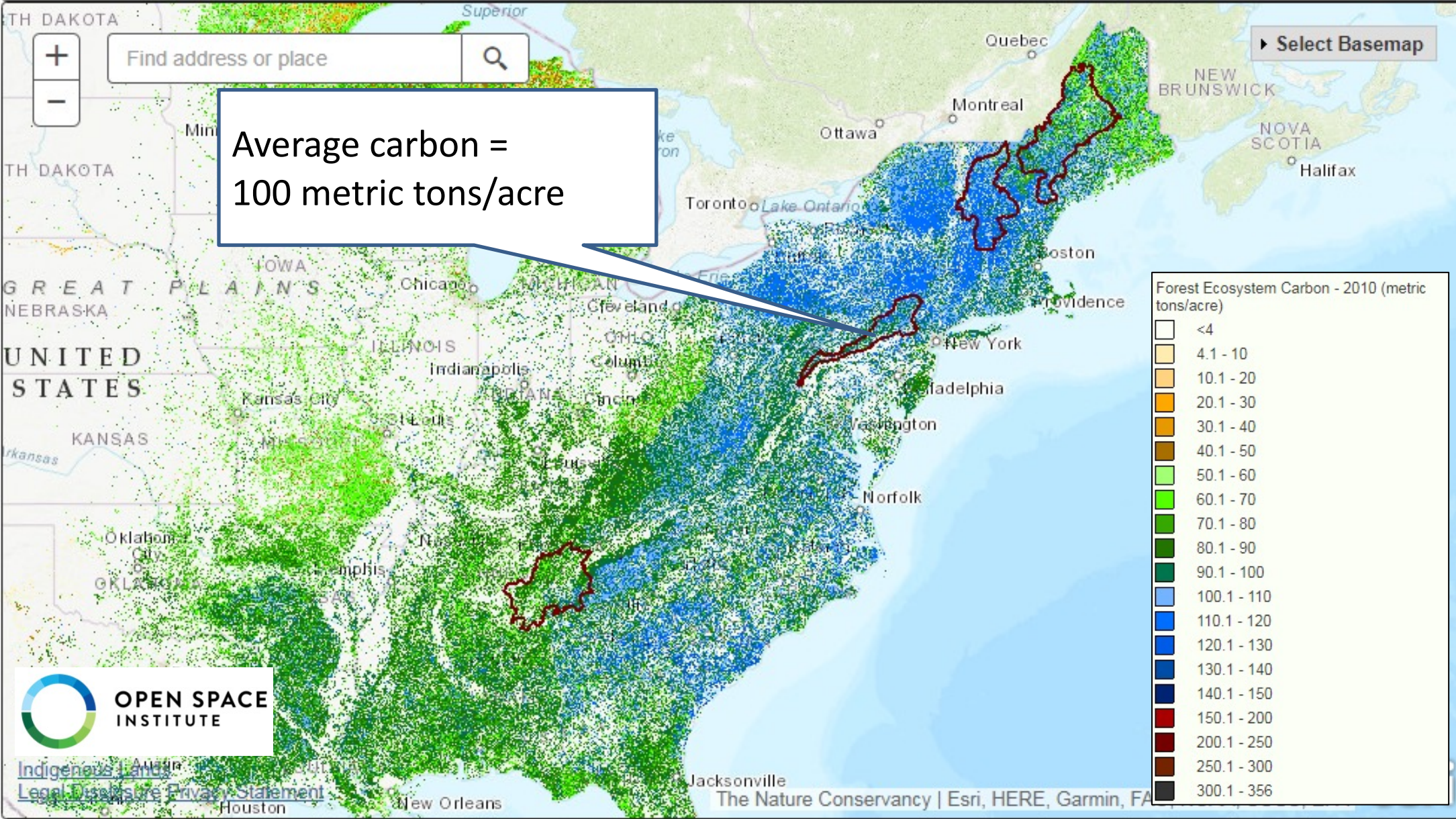


Fund Approach

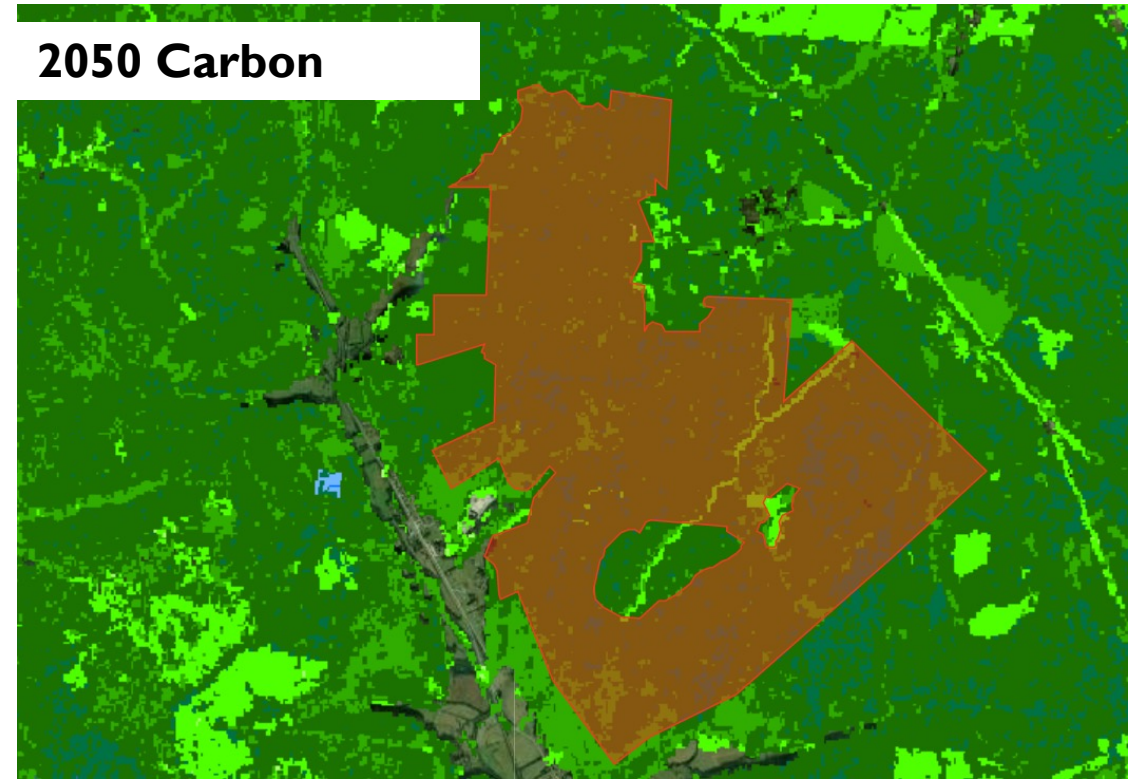
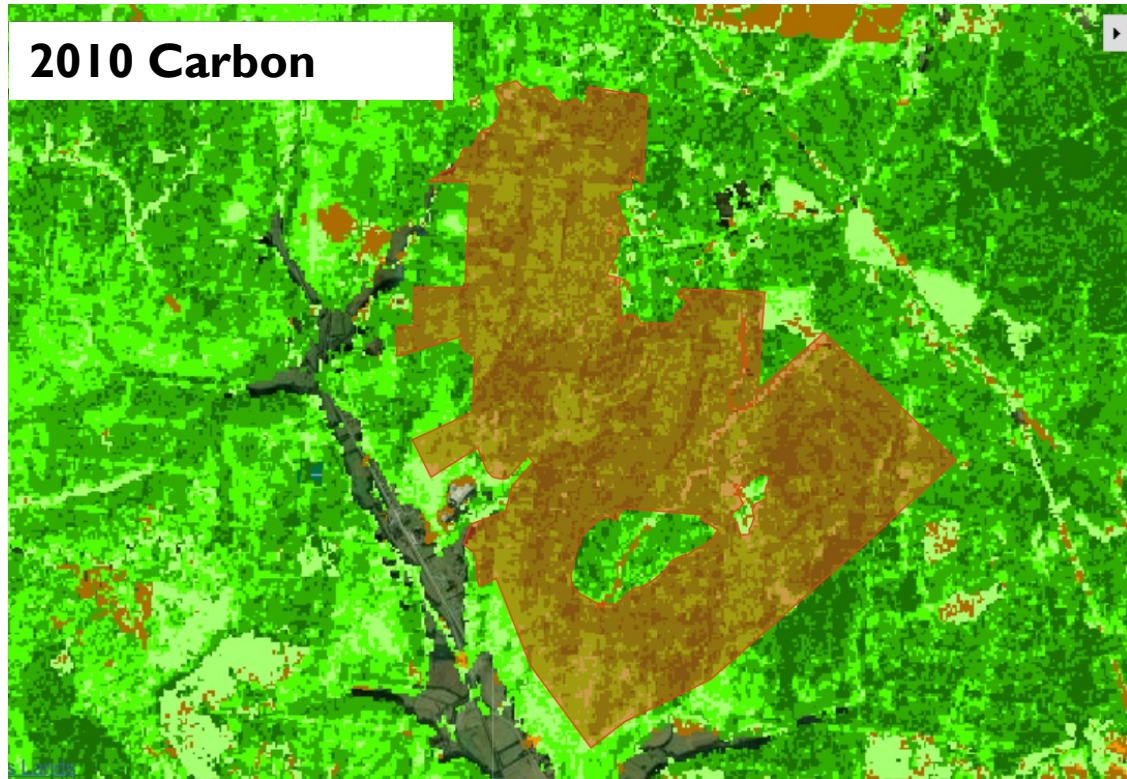
- Identify high carbon forests in service area
- Protect forests that will store the most carbon by 2050
- Manage to maximize forest carbon



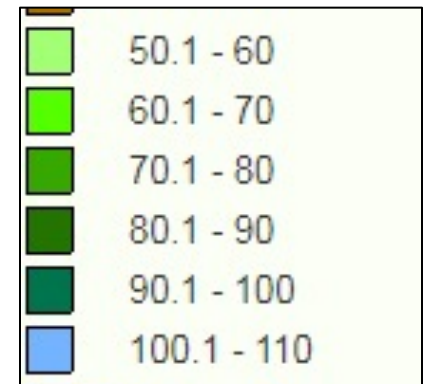
Focus Area Forest Carbon Evaluation



Forest Carbon Analysis



- Forest Carbon 2010, adjust for harvest/loss
- Potential 2050 Carbon relative to the focus area



Six Simple Steps

Evaluate the Contribution of your
Land Protection Project to a Low Carbon Future

To do what we can to stabilize the climate, we need to ensure as much carbon as possible is stored in our forests by 2050. By protecting forestland you are keeping carbon in out of the atmosphere.

New additions to the Nature Conservancy's [Resilient Land Mapping Tool](#) allow us to estimate the carbon stored in forest ecosystems for the dates 2010 and 2050¹. This six-step quick guide lays out how to ensure you are protecting the forests in your service area that will store as much carbon by 2050 as possible. To learn more about how to maximize forest carbon storage through land protection you can read this [Guide](#).

STEPS

- 1 Go to the Resilient Lands Mapping Tool. Click the "Assess Carbon Data" box under the Analyze heading.



- 2 Upload a zipped shapefile of your service area² by clicking "Upload Zipped SHP." The analysis of the area will automatically start.



- 3 Once the results pop up, go to the "Carbon Results" tab and print or copy down the results for 2050 "Avg. Forest Ecosystem Carbon" for your service area.

Forest Ecosystem Carbon is an estimate of the carbon stored in the soil, roots, trunk, branches and coarse woody debris of forest land. The data includes forest carbon that was present in 2010³ and then simulates tree growth into the future to estimate forest carbon storage by 2050. This model assumes all the trees grow without any management intervention.



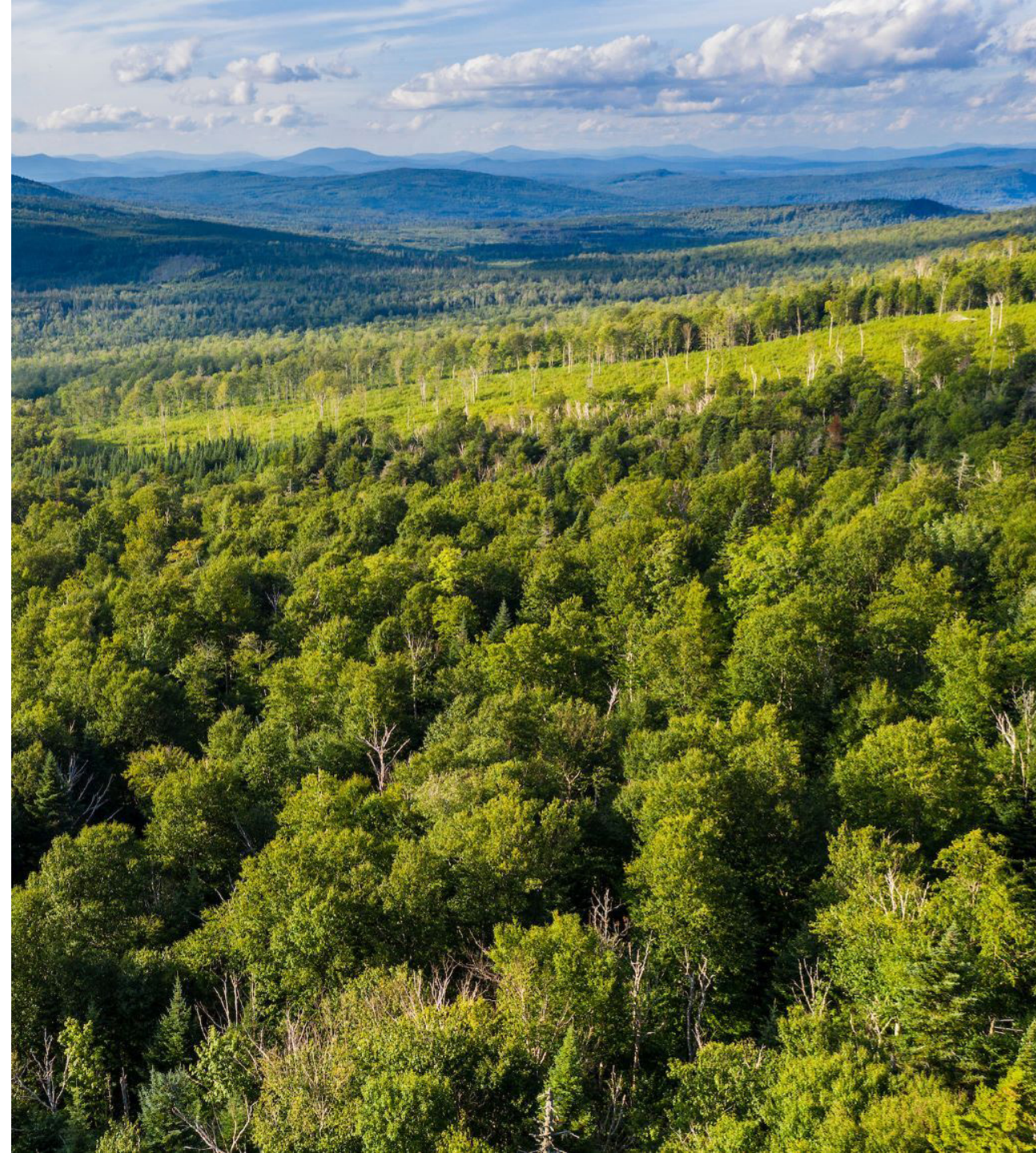
¹ The data comes from the Clark University and is developed from models based on the US Forest Service Forest Inventory Analysis [link]. This data is not suitable for estimating carbon for credit sales.

² If your service area is larger than 1,000 square miles you will need to break it into components or request the data for use in GIS [link].

³ The forest ecosystem carbon data only includes forested lands. If there was no forest in 2010, these acres are excluded from the results. If you have an area of the project that has been cleared since 2010 you need to adjust the results downward. If you have an area of the project that has been reforested since 2010 you need to adjust the results upward. You can consider making adjustments based on the percent of the project area impacted.

Ensuring Forest Carbon Protection

- Landowner and Steward Goals
- Level of Protection - Purchase, CE and/or Carbon Market
- Conservation Easement Goals & Provisions
- Stewardship Plan Goals & Provisions



Forest Carbon Protection Strategies

- Protect high carbon forests
- Foster native, older forests, mother trees
- Avoid carbon release from invasive insects, disease or fire
- Protect riparian areas, steep slopes and high elevation areas
- Extend rotations
- Increase structural complexity
- Consult communities with land connection



Conservation Easement Considerations

- Including Carbon Protection as a Purpose
- State the Property's Carbon Values
- Include Forest Carbon attributes in Baseline
- Standards for Protection of Forest Carbon
- Understand Interaction with Future Carbon Sale



Catalyst Grant Program

Increase the number of land trusts, tribes, and other conservation groups with strategic conservation plans that promote:

- Climate mitigation through land protection, restoration, or stewardship;
- Climate resilience for biodiversity and human communities;
- Adaptation to climate impacts such as floods, drought, fire, or extreme heat.

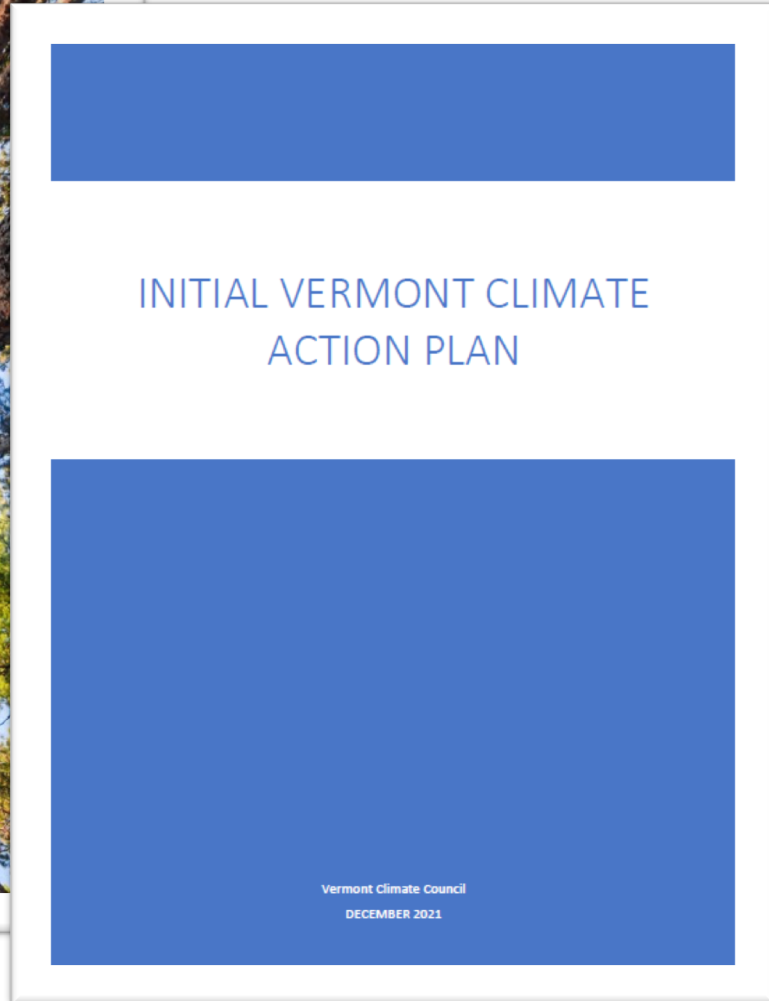
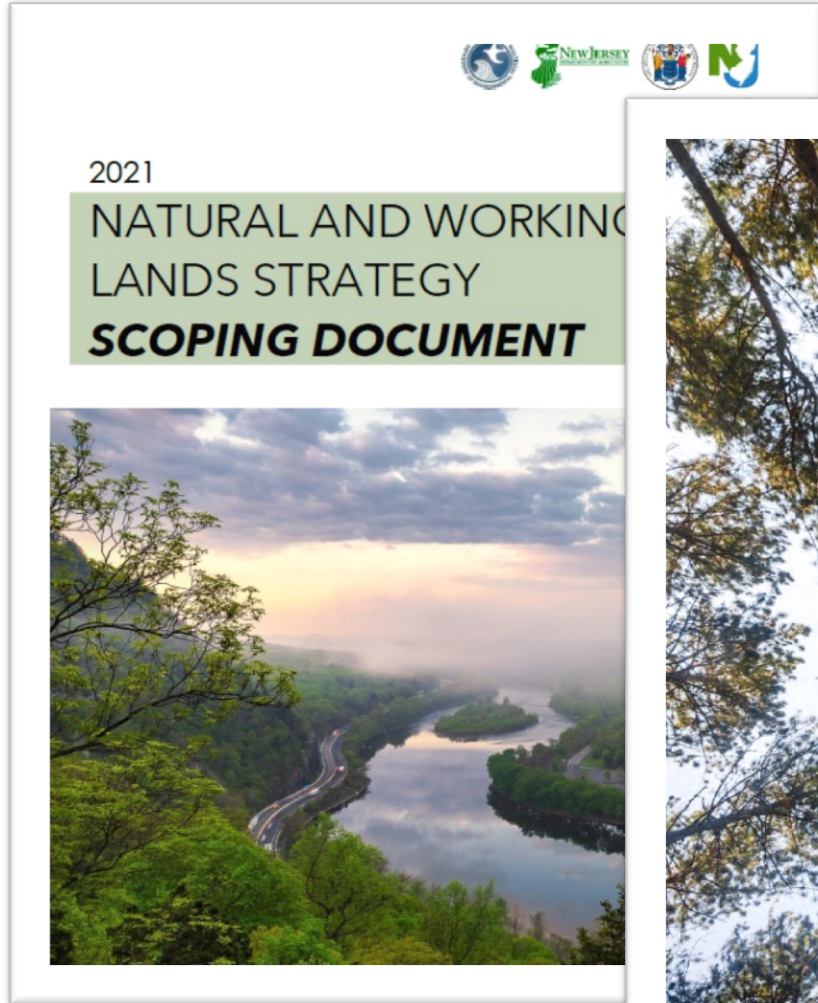


Technical Assistance

- Joint program with Land Trust Alliance
- One-on-one technical support
- Integrate climate into conservation plans using latest data
- Land Trusts from Maine to Florida
- Last grant round: Florida (2), Massachusetts (2), Maine (1) & Tennessee (1)



States Taking Action





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