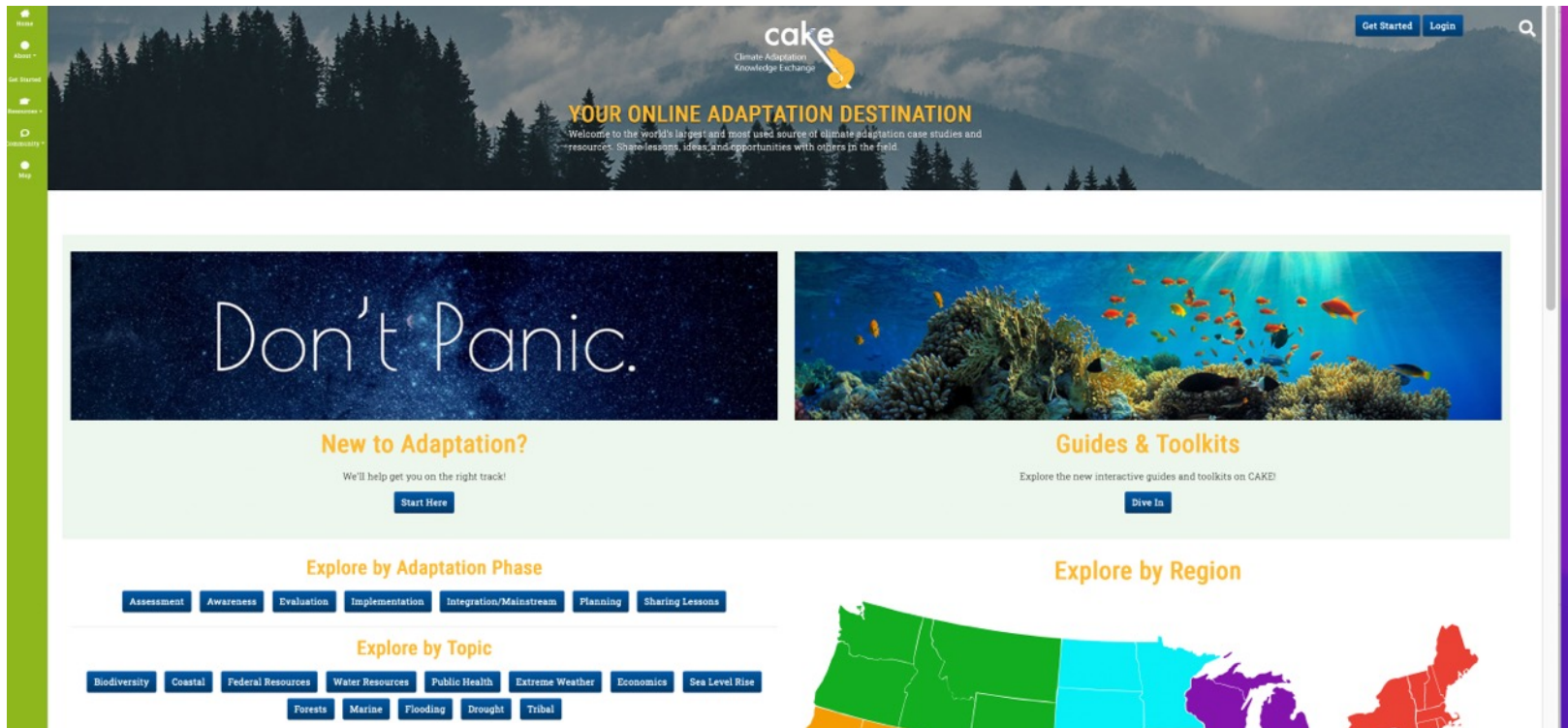


# Tools and Resources



[www.cakex.org/](http://www.cakex.org/)

- Database of adaptation-related tools, documents, and case studies
- Searchable by keyword, adaptation phase/type, and geographic region



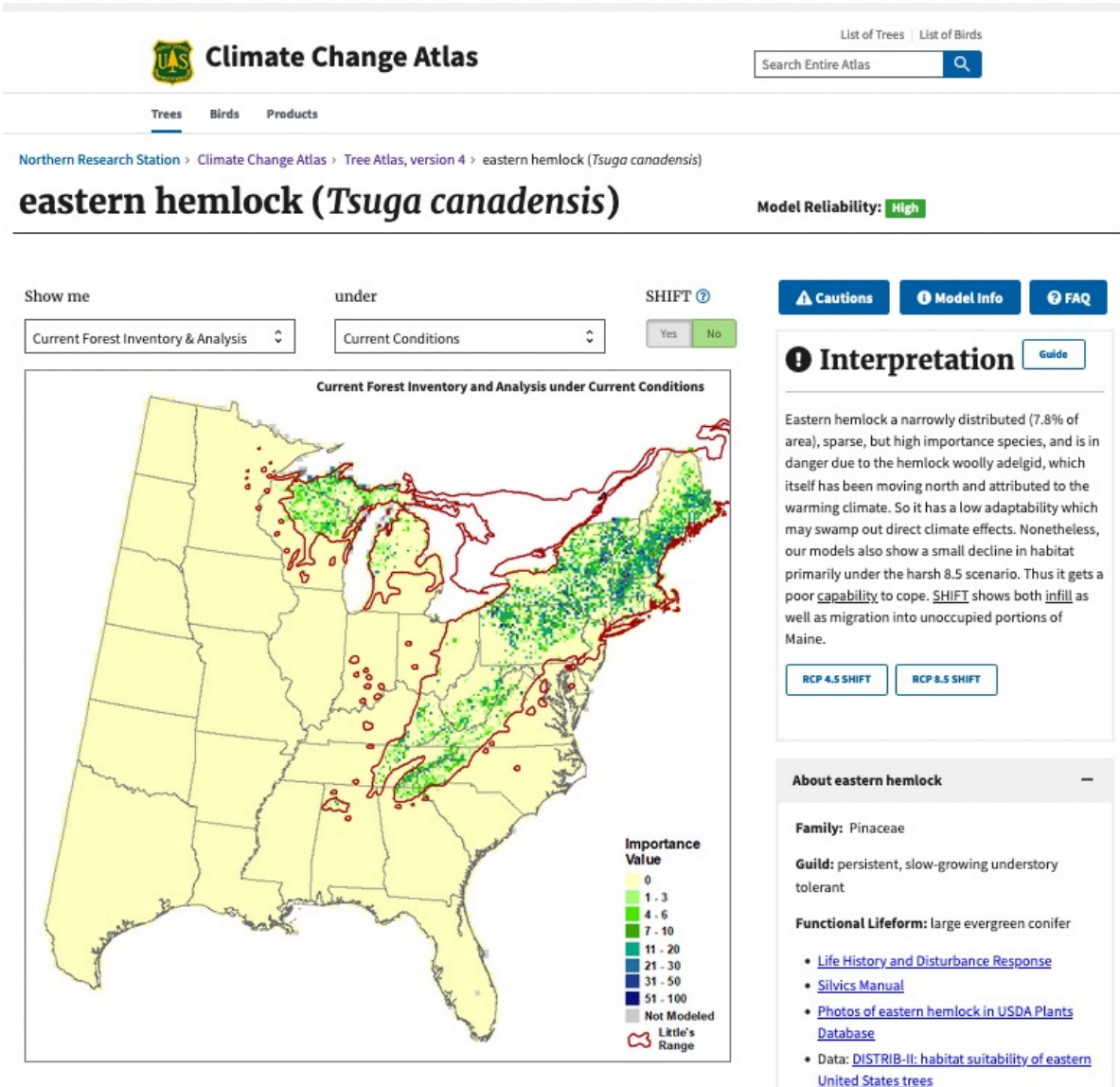


## Adaptation Checklist for Climate Smart Projects

- Checklist designed to help natural resource managers evaluate potential climate vulnerabilities of a project or management action before implementation
- Guides users in thinking through design and siting to help projects deliver benefits under future climate conditions
- Webinar also available [here](https://sites.google.com/ecoadapt.org/adaptation-checklists/home)

<https://sites.google.com/ecoadapt.org/adaptation-checklists/home>

# Tools and Resources



## Climate Change Tree Atlas

- Modeled future suitable habitat for 125 tree species in the eastern U.S.
- Includes narrative summary and list of traits that positively or negatively impact species' ability to adapt (e.g., shade tolerance, vulnerability to pests, etc.)
- Website includes guide to interpretation and regional summaries

<https://www.fs.usda.gov/nrs/atlas/tree/>



# Tools and Resources

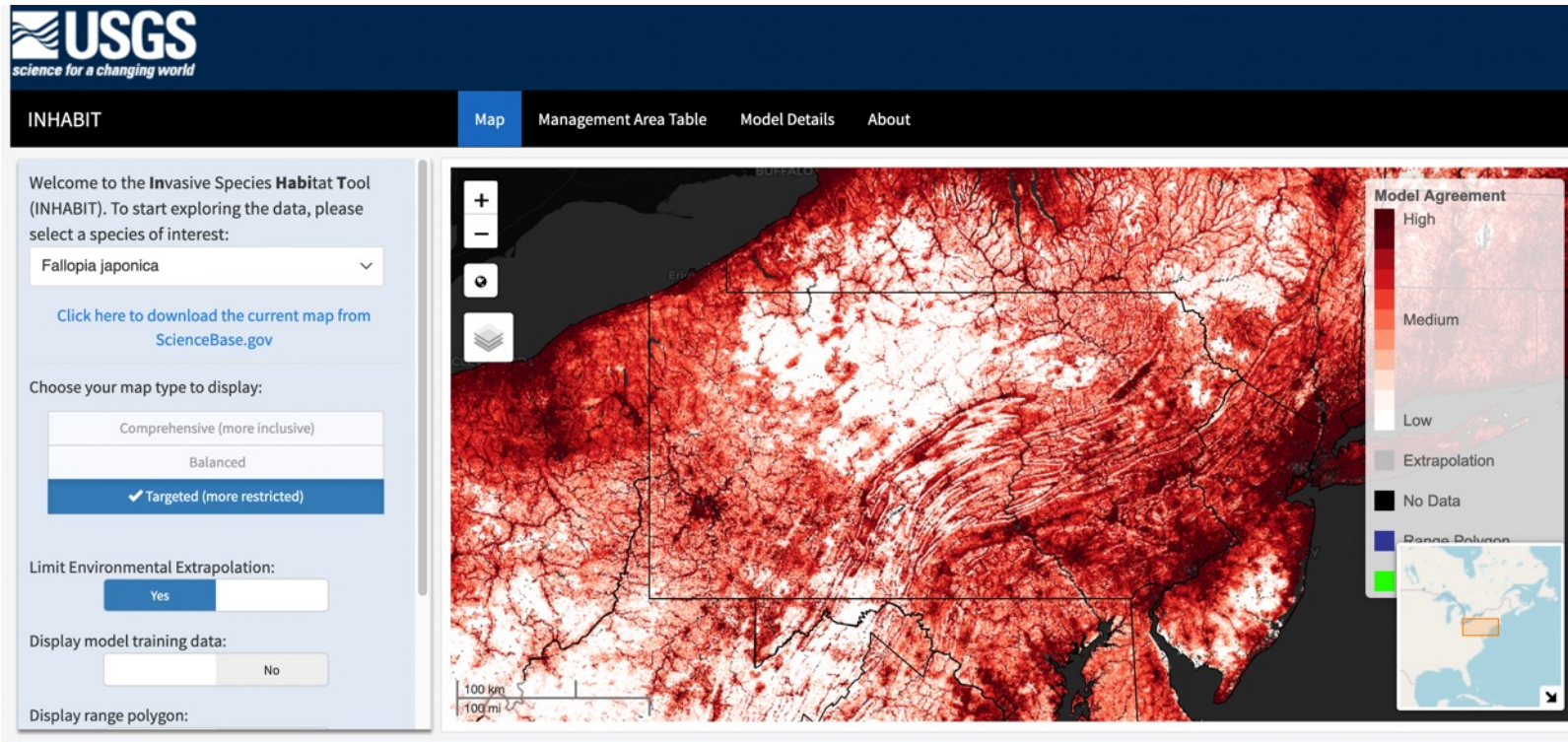


## Seedlot Selection Tool

<https://seedlotselectiontool.org/sst/>

- Designed to help forest managers match seedlots with planting sites based on climatic information
- Can choose based on current or projected future climate conditions
- Highly customizable (with learning curve!)

# Tools and Resources



- Uses species distribution models (SDMs) to predict suitable habitat for invasive species already present in the U.S.
- Does not specifically incorporate future climate conditions
- Webinar available [here](#)

## Invasive Species Habitat Tool (INHABIT)

<https://gis.usgs.gov/inhabit/>

# Tools and Resources



HOME REPORT SIGHTINGS DISTRIBUTION MAPS SPECIES INFORMATION TOOLS & TRAINING MY EDDMAPS ABOUT

## Invasive Range Expanders Listing Tool

Terrestrial invasive plants are expected to shift their ranges in response to changing climate. This tool provides lists of terrestrial invasive plants expected to expand their ranges into the chosen county or state with climate change by 2040-2060. Climate change expansions are based on 13 future climate models and users must select the level of consensus (1-13 models) required to add a species to the state or county list. In addition, users can filter the list to species currently observed within a chosen geographic proximity to the focal county or state. Lists for range expansion with climate change include species that have not been observed within the focal state or county, do not have current suitable climate there, but are predicted to have suitable climate by 2040-2060 according to the selected number of climate models. The lists generated are for informational purposes and contain only species that are already present in the contiguous United States.

Select State

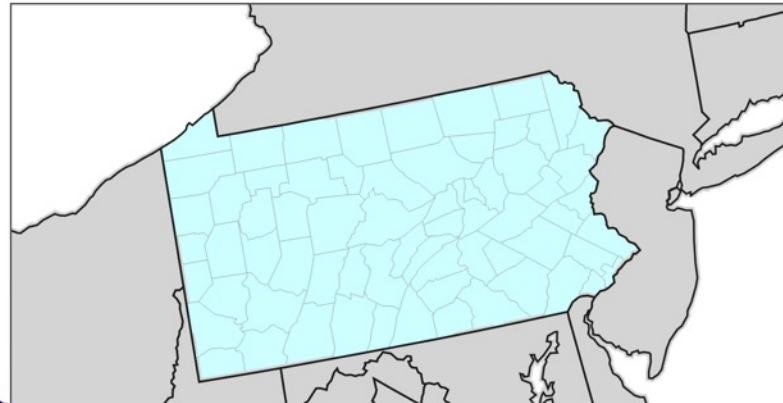
Select County

Choose Number of Models

Refine List by

Range Expansion Definition

### REGIONS WHERE THE SPECIES HAS BEEN FOUND



### LIST OF SPECIES WITHIN CURRENT CLIMATE

Download

Search:

Scientific Name	Common Name	Map
<i>Acer palmatum</i>	Japanese maple	
<i>Achyranthes japonica</i>	Japanese chaff flower	
<i>Aegilops cylindrica</i>	jointed goatgrass	
<i>Aegilops geniculata</i>	ovate goatgrass	
<i>Aesculus hippocastanum</i>	common horse chestnut	
<i>Agrostemma githago</i>	corn cockle	
<i>Agrostis capillaris</i>	colonial bentgrass	
<i>Aira caryophyllaea</i>	silver hairgrass	

- Provides lists of invasive plants that may be expected to expand their range into a chosen state or county
- Explicitly considers future climate conditions (within the 2040–2060 timeframe)
- Webinar available [here](https://www.eddmaps.org/rangeshiftlisting/)

## EDDMapS

<https://www.eddmaps.org/rangeshiftlisting/>



# Tools and Resources



[HOME](#) [RESOURCES](#) [EVENTS](#) [ABOUT US](#) [OTHER RISCCS](#)



**Northeast RISCC Network**

Upcoming webinar! Dr. Patterson's research uses the most current genomics

## NEWS

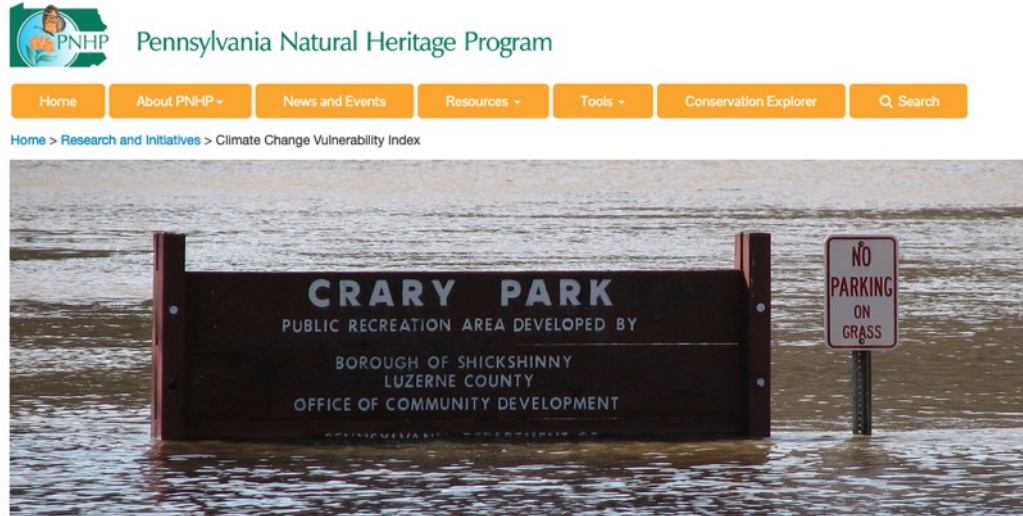
- **Stay tuned for upcoming RISCC events-** if you haven't already, subscribe to our listserv for updates on news and events!
- **Zoom Networking Event: Climate-smart Restoration - May 15, 12:00pm - 1:15pm** We are excited to

- Network of land managers, conservation practitioners, climate scientists, and others
- Briefs related to management challenges, research summaries, tool summaries, listserv, webinars, and more

## Northeast RISCC Management Network

<https://www.risccnetwork.org/northeast>

# Tools and Resources



## Climate Change Vulnerability Index

PNHP has completed Climate change vulnerability assessments for 85 species in Pennsylvania using the Climate Change Vulnerability Index (CCVI v2.0) developed by NatureServe. The CCVI allows the user to examine the exposure and sensitivity of a species to a series of risk factors associated with climate change. Presented below are the results of the vulnerability assessments along with the S and G-ranks for each species. The S and G-ranks provide demographic information not contained in the CCVI that should be used in concert with the CCVI scores when interpreting overall results. Definitions for the CCVI scores are provided at the end of the table and each species is linked to a summary sheet that describes the factors contributing most to their climate change vulnerability. Definitions of the state and global rank codes can be found [here](#).

Search:

Group	Species	Common Name	CCVI Score	S-rank	G-rank
Amphibian	<i>Cryptobranchus alleganiensis</i>	<a href="#">Eastern hellbender</a>	Extremely vulnerable	S2S3	G3T2
Amphibian	<i>Scaphiopus holbrookii</i>	<a href="#">Spadefoot toad</a>	Extremely vulnerable	S2S3	G5
Amphibian	<i>Ambystoma jeffersonianum</i>	<a href="#">Jefferson salamander</a>	Highly vulnerable	S3	G4
Amphibian	<i>Pseudacris brachyphona</i>	<a href="#">Mountain chorus frog</a>	Highly vulnerable	S2	G5
Bird	<i>Dendroica cerulea</i>	<a href="#">Cerulean warbler</a>	Presumed stable	S4	G4
Bird	<i>Helmitheros vermivorus</i>	<a href="#">Worm-eating warbler</a>	Presumed stable	S4	G5
Bird	<i>Vermivora chrysopetra</i>	<a href="#">Golden-winged warbler</a>	Increase likely	S2B,S3M	G4
Bird	<i>Ammodramus henslowii</i>	<a href="#">Henslow's sparrow</a>	Increase likely	S3B,S2M	G4
Bird	<i>Cygnus columbianus</i>	<a href="#">Tundra swan</a>	Increase likely	S4N,S3M	G5

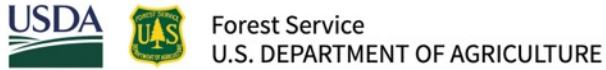
## Pennsylvania Natural Heritage Program Climate Change Vulnerability Index (CCVI)

- Brief vulnerability assessments conducted for 85 species, including many plants
- Downloadable summaries for each species includes vulnerability ranking and main factors contributing to that ranking

<https://www.naturalheritage.state.pa.us/climate.aspx>



# Tools and Resources



Northern Research Station | NRS-INF-40-22 | September 2022

## A Quick Guide to Adaptation Planning for Land Trusts

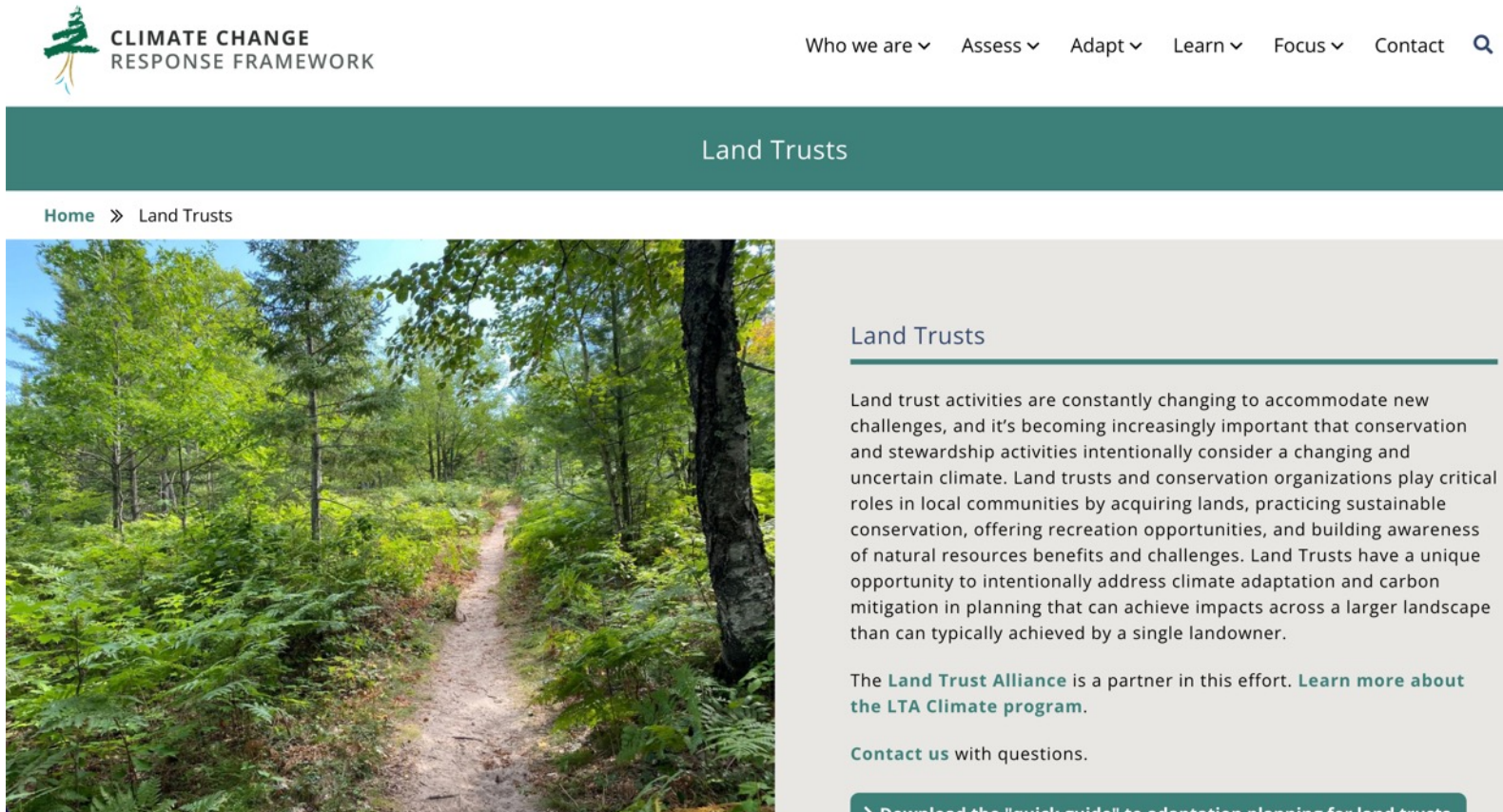


## A Quick Guide to Adaptation Planning for Land Trusts

- Collaboration between NIACS and the Land Trust Alliance
- Developed specifically to support land trusts and provide guidance for adaptation planning
- Includes a “Short Version” of the Adaptation Workbook

<https://doi.org/10.2737/NRS-INF-40-22>

# Tools and Resources



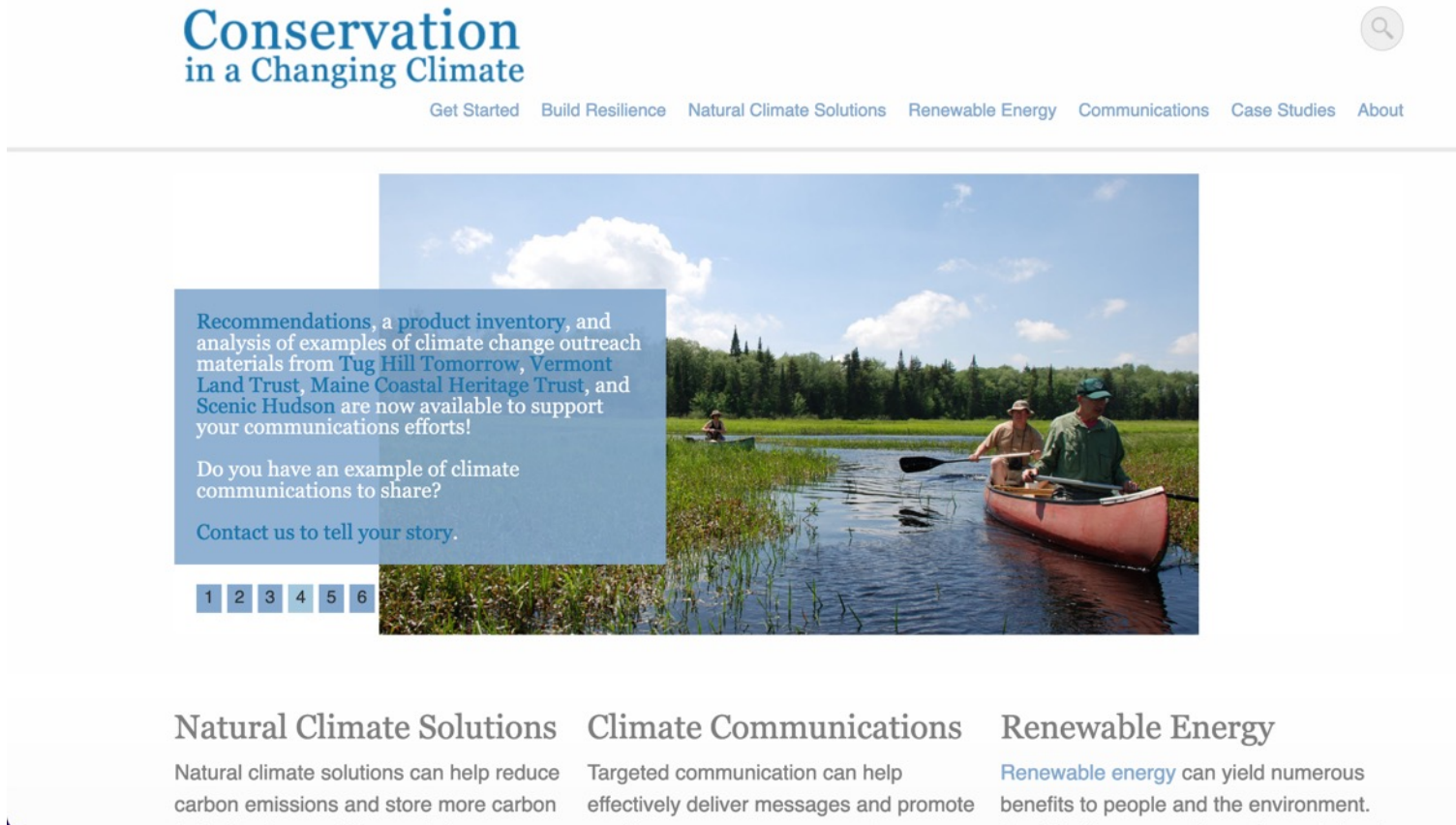
## NIACS Land Trusts page

<https://forestadaptation.org/land-trusts>

- Links to the Quick Guide to Adaptation Planning for Land Trusts
- Regional vulnerability assessments
- Menus of adaptation strategies
- Case study “stories” from land trusts



# Tools and Resources



- Technical resource for land trusts, created and maintained by the Land Trust Alliance
- Offers basic to intermediate-level guidance on climate change impacts and response
- Includes case studies and guidance on communication/outreach

## Conservation in a Changing Climate

<https://climatechange.lta.org/>



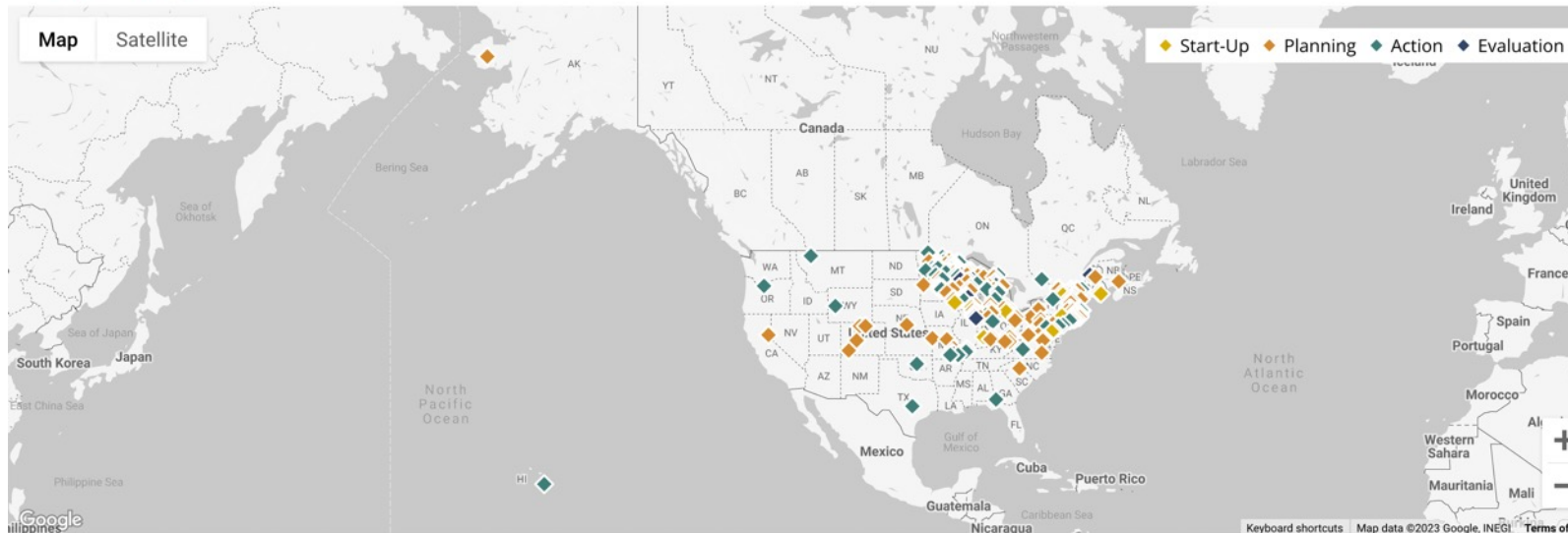
# Tools and Resources



Who we are ▾ Assess ▾ Adapt ▾ Learn ▾ Focus ▾ Contact 🔍

## Demonstrations

Home » Adapt » Demonstrations

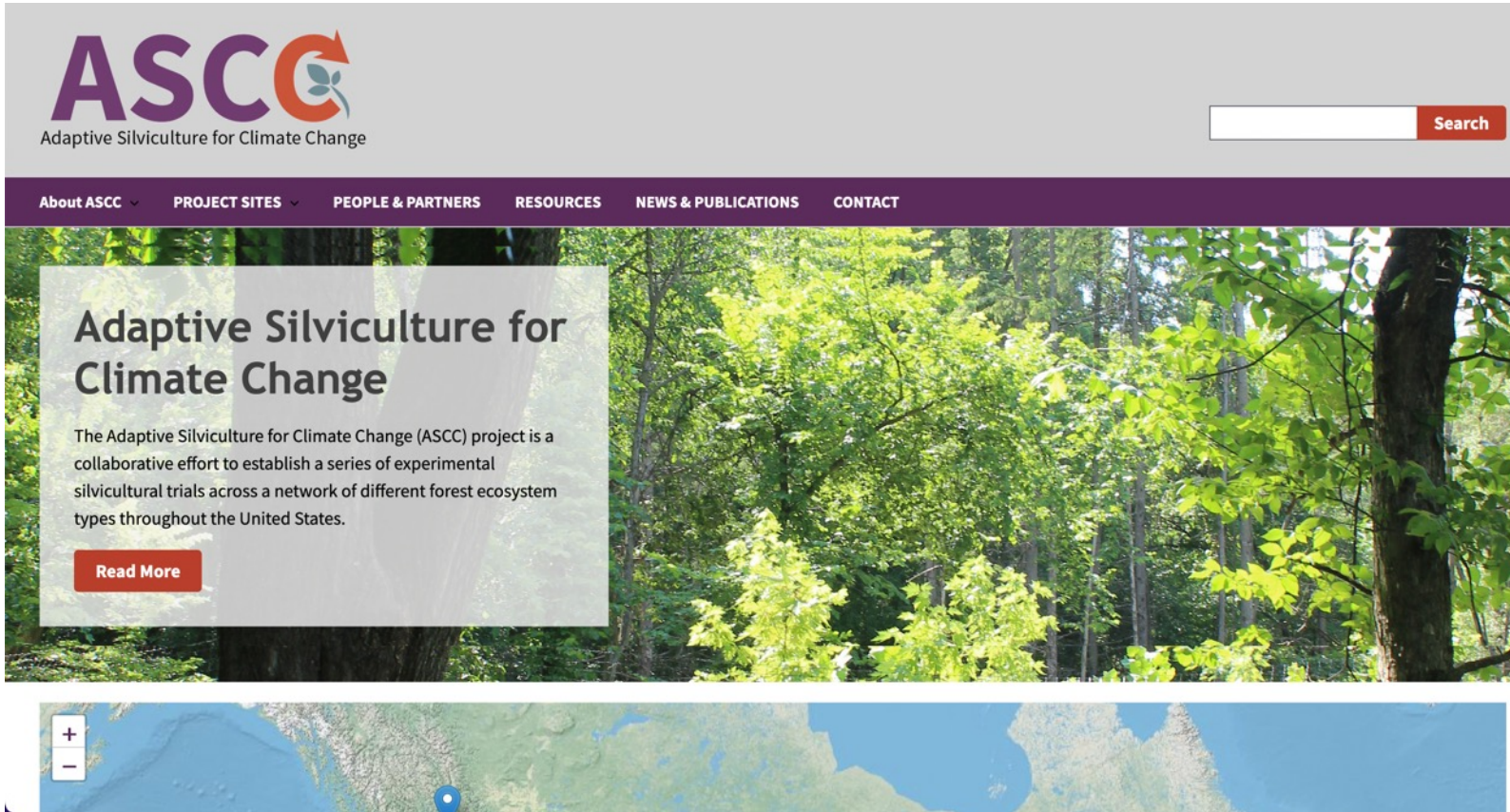


## NIACS Climate Change Response Framework Demonstration Projects

<https://forestadaptation.org/adapt/demonstration-projects>

- Case studies (mostly/exclusively those that have used the NIACS Adaptation Workbook)
- Can filter by state, landowner type, project status, and ecosystem
- Includes [Buffam Brook Community Forest case study](#)

# Tools and Resources



- Case studies
- Collaborative effort to establish experimental silvicultural trials across different forest types in the U.S.

## Adaptive Silviculture for Climate Change

<https://www.adaptivesilviculture.org/>



# Tools and Resources



If trees had feet . . .

With such an overwhelming and far-reaching topic like climate change, it can be hard to know what to do to help, or where to start. The same goes for land stewardship. How do we help the natural areas we care so much about given the impacts of climate change, current and future?

We decided a good place to start would be to focus on a universally valued and easy to see part of the natural landscape: **trees.**



<https://swmlc.org/what-were-doing/>

- **Case study**
- Collaborative effort among five land trusts to increase climate resilience on Lake Michigan shoreline
- Assisted tree migration utilizing the Climate Change Tree Atlas



# Workshop Summary




- Reviewed climate projections and vulnerability assessment results
- Generated an initial list of adaptation strategies, some with specific action steps
- Developed adaptation implementation plans for four restoration projects
- Learned the process of incorporating climate change information and priority adaptation strategies into preserve planning and management

# Products



team programs workshops resources events engage contact about



## Building Capacity for Adaptation on Pennsylvania Protected Lands

Adaptation Support

### Overview

In 2022, EcoAdapt partnered with Natural Lands, a Pennsylvania conservation organization focused on protecting open space. With support from the Open Space Institute, this project will strengthen existing efforts to incorporate climate change adaptation into land management planning and preserve stewardship, with a focus on ChesLen and Bear Creek Preserves.




Photo by Tim O'Connell/Natural Lands

### Project Activities

Project activities will include assessing the vulnerability of 5 priority ecosystems within each of the two preserves, followed by an adaptation workshop designed to identify priority adaptation strategies and create concrete, actionable plans for implementing those strategies through on-the-ground management and restoration. The assessment process and adaptation workshop will also increase the capacity of Natural Lands staff for climate-informed planning and management across all Natural Lands properties.

Project timeline: Summer 2022-Summer 2023

### Workshops & Events

Natural Lands Climate Adaptation Workshop

### Products

Overview of Climate Trends and Projections for Natural Lands Preserves

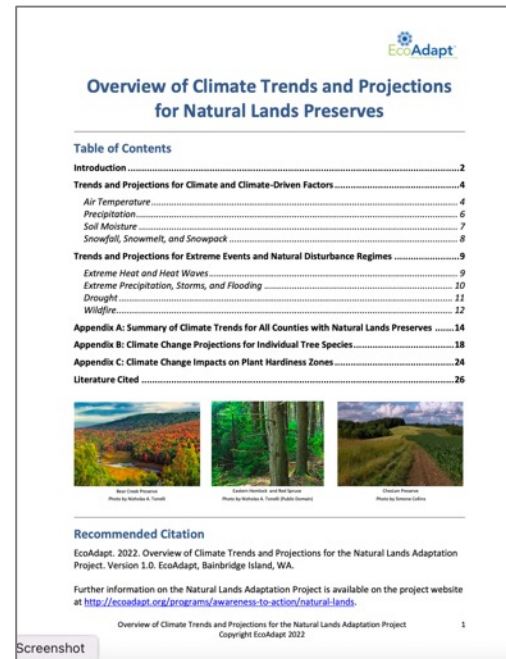
Vulnerability Assessments

#### ChesLen Preserve

- Afforestation areas
- Unionville barrens
- Water resources
- Agriculture (brief summary)

## Summary of climate trends and projections

## Vulnerability assessments



Project webpage:  
<https://ecoadapt.org/goto/Natural-Lands>





# THANK YOU!

Please complete a quick survey at  
<https://tinyurl.com/NLWorkshopSurvey>



Photo © Laura Hilberg



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