



Mapping Resilient Lands And Waters

Prairie State Conservation Coalition
5 March 2021

Garden of the Gods
Daniel Schwen/Wikipedia

Jeff Walk
Director of Conservation for Illinois

***“Scientists Warn a Million Species
at Risk of Extinction”***

***“Billions of North American Birds
Have Vanished”***

***“1 in 3 freshwater species is now under
threat of extinction”***

Abundance crisis



Native Species

Biomass down 20%/1900



Amphibians

30% now T&E



Butterflies

Abundance down 35%/40yr



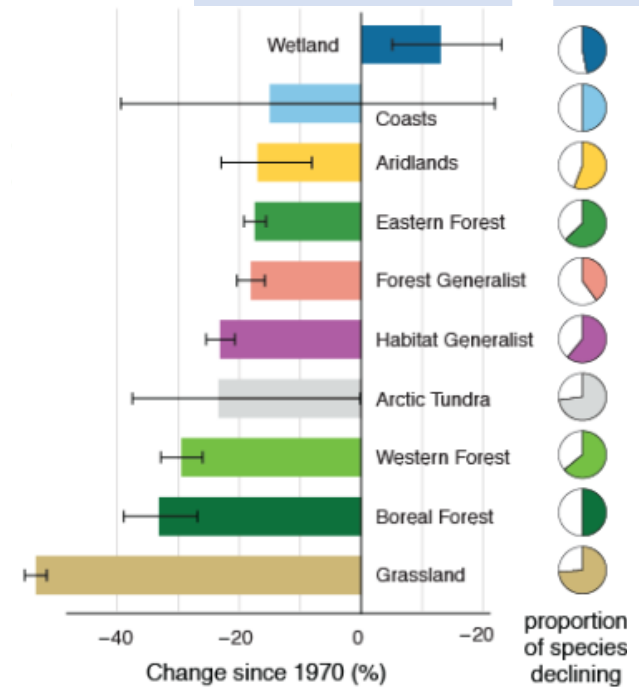
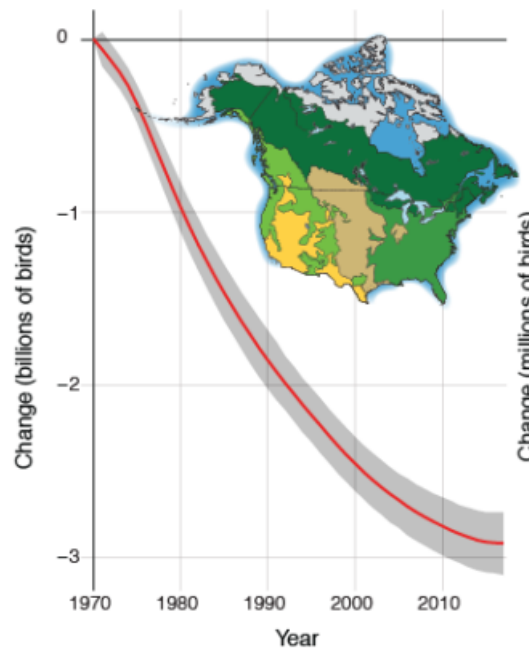
NA Birds

Abundance down 29%
or 3 Billion birds since 1970

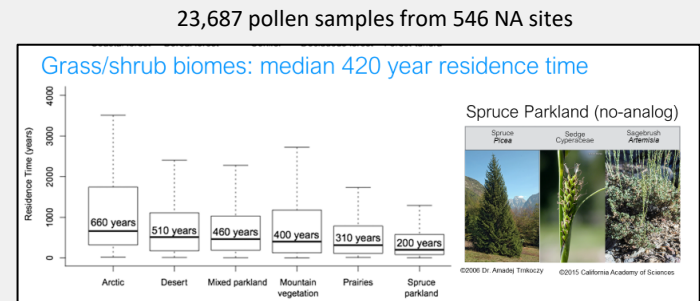
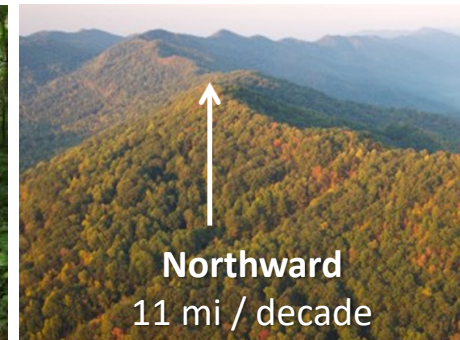
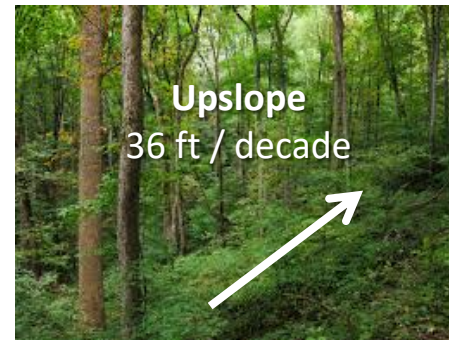
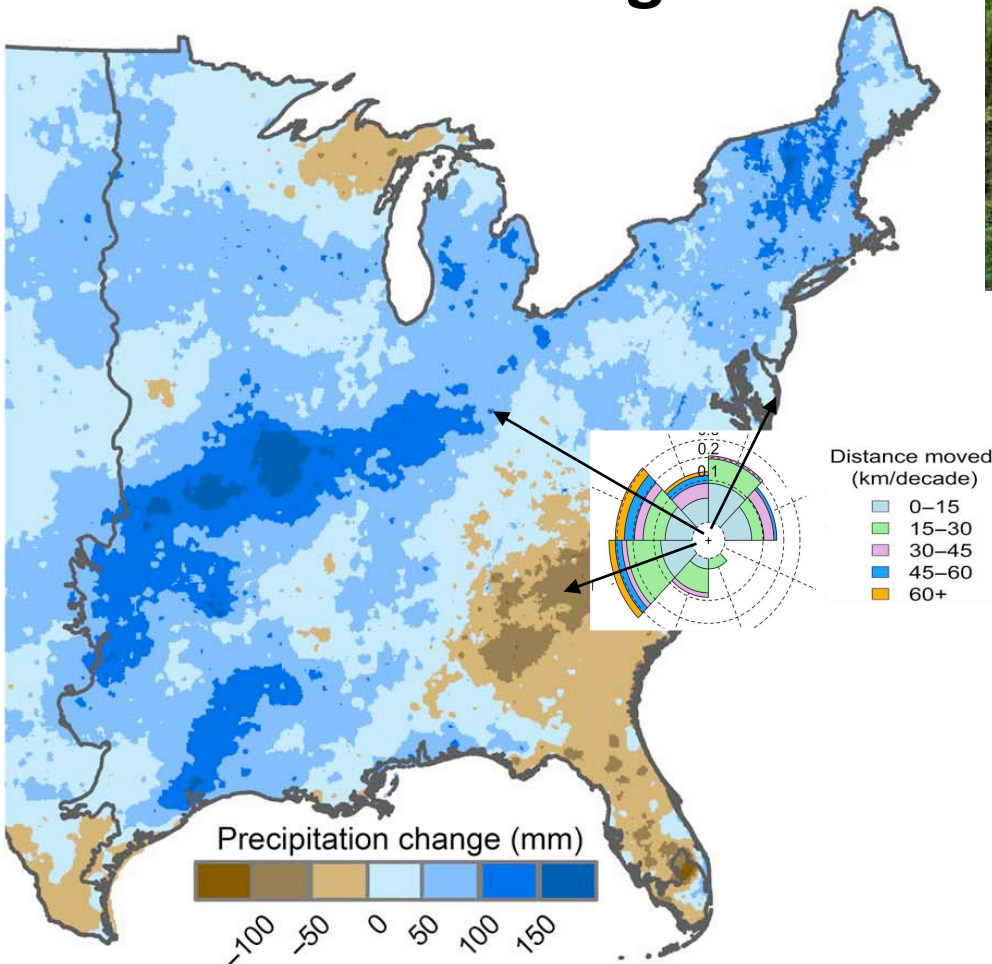


Wetland Birds Up

Thanks to Adaptive Harvest
Management and
billions \$ on wetland
protection and restoration



Nature is moving



Median residence times range from **200-700** years (overall **500** years) and are shorter during times of warming.

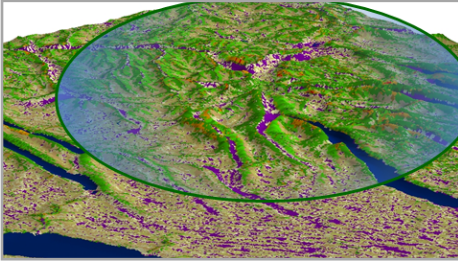
--McGuire *et al.* in prep

A wide-angle photograph of a field filled with numerous purple coneflowers (Echinacea) in bloom. The flowers are in the foreground and middle ground, creating a textured, colorful field. In the background, there is a line of dark green trees under a heavy, overcast sky. The overall tone is somber due to the grey sky, but the vibrant purple of the flowers provides a focal point.

OUR CHALLENGE

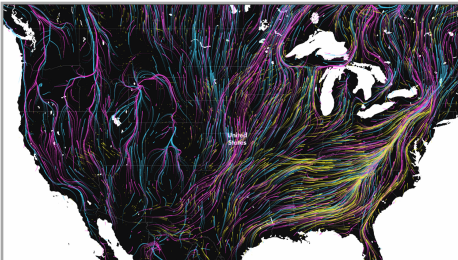
Accelerate the pace and scale of conservation and conserve a representative network of resilient, connected lands and waters that will allow nature to adapt to climate change.

Three Ingredients



Resilient Land

Land with many *connected* microclimates representing all physical environment



Connected Landscapes

A *permeable* landscape that allows movement and facilitates range shifts



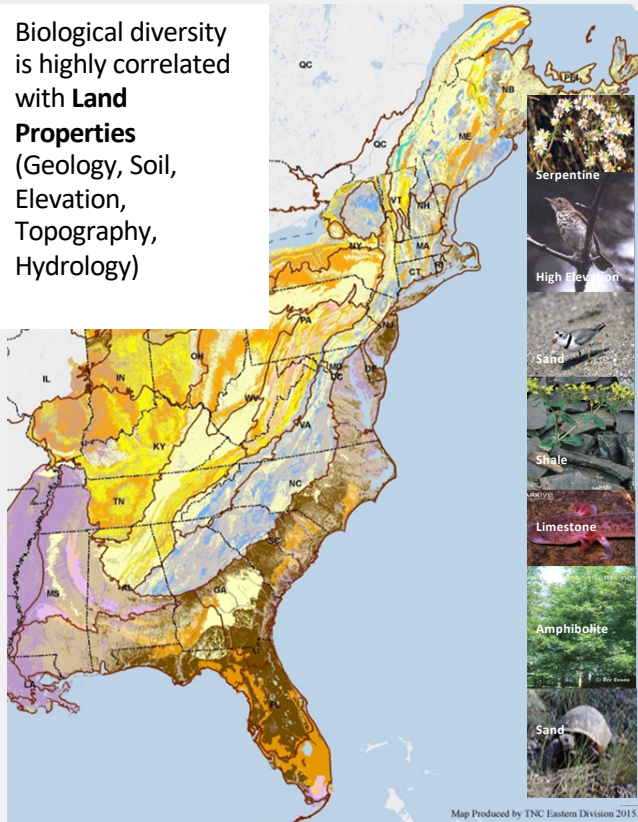
Resilient Systems

Intact habitats, unique communities and rare species populations

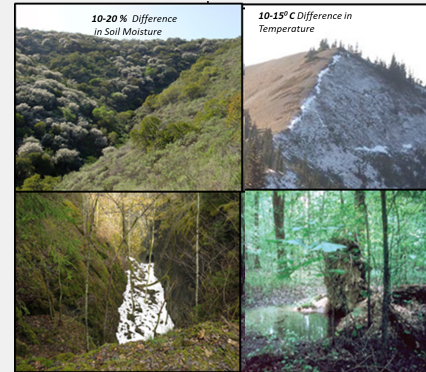
Conserving Nature's Stage

REPRESENTATION

Biological diversity is highly correlated with **Land Properties** (Geology, Soil, Elevation, Topography, Hydrology)

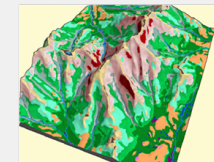


RESILIENCE



Many Microclimates

Create climate options



Category	Weight
Developed	
-Low intensity	8
-Mid intensity	9
-High intensity	20
-Mine	9
Roads/Linear	
-Major	20
-Minor	10
-Unpaved	+1
-Transmission	9
-Pipelines	9
-Railroads	9
Agriculture	
-Corn/Soy	9
-Other Ag	7
-Hay Pasture	3
-Forestry (indust.)	4
Energy	
-Oil & Gas	7+
-Wind	+1
-Solar	

Locally Connected

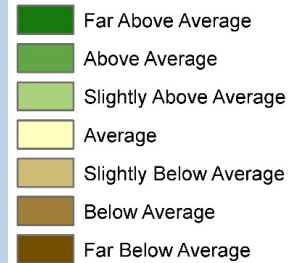
Allows species to move



Resilient Sites = sites that continue to support biological diversity, productivity and ecological function even as they change in response to climate change.

Thank you to over
150 scientists!

Resilience Score



Representation & Resilience

About 33% of each Geophysical Environment in each Ecoregion

Granite



Sand



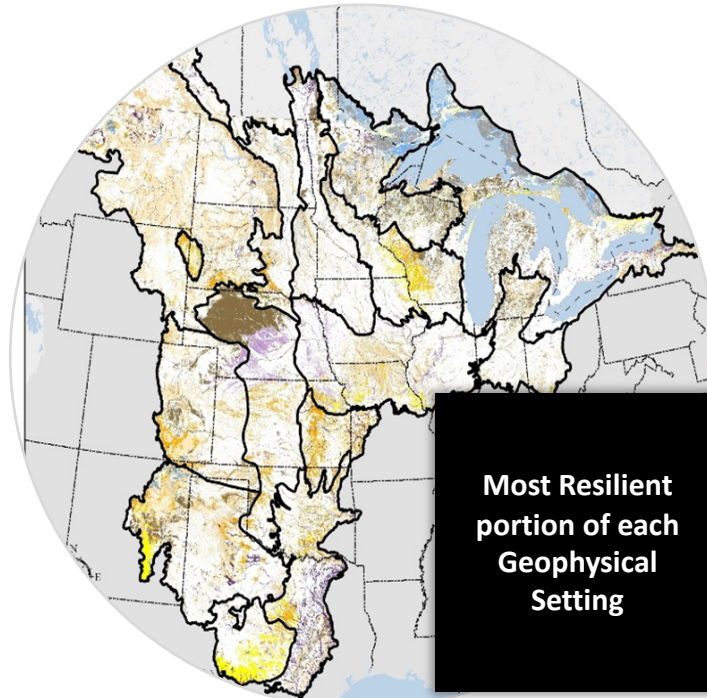
Limestone



Sedimentary



**Moderate
Calcareous**



**Most Resilient
portion of each
Geophysical
Setting**

Sedimentary



Loess



Fine Silt

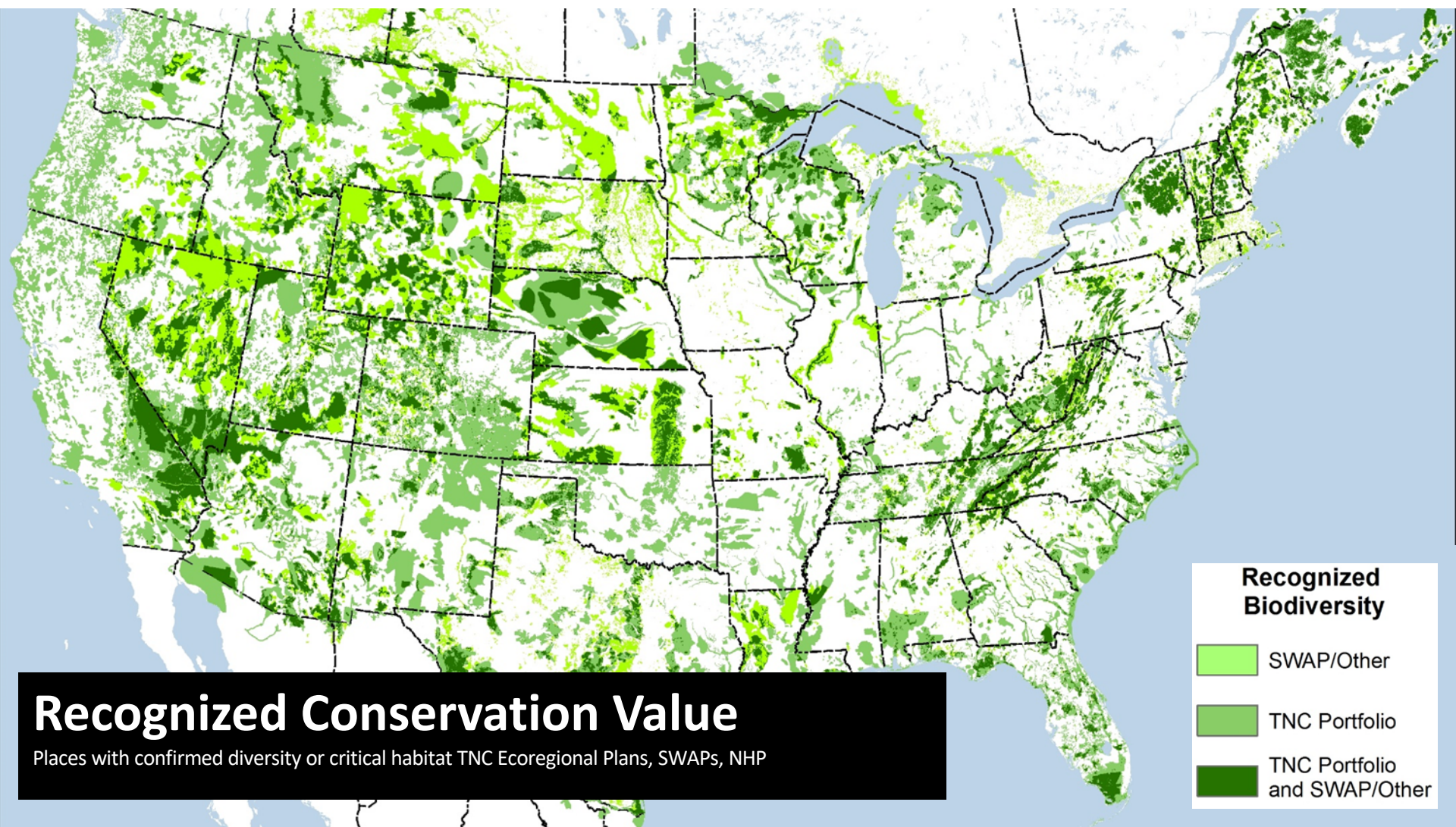


Loam

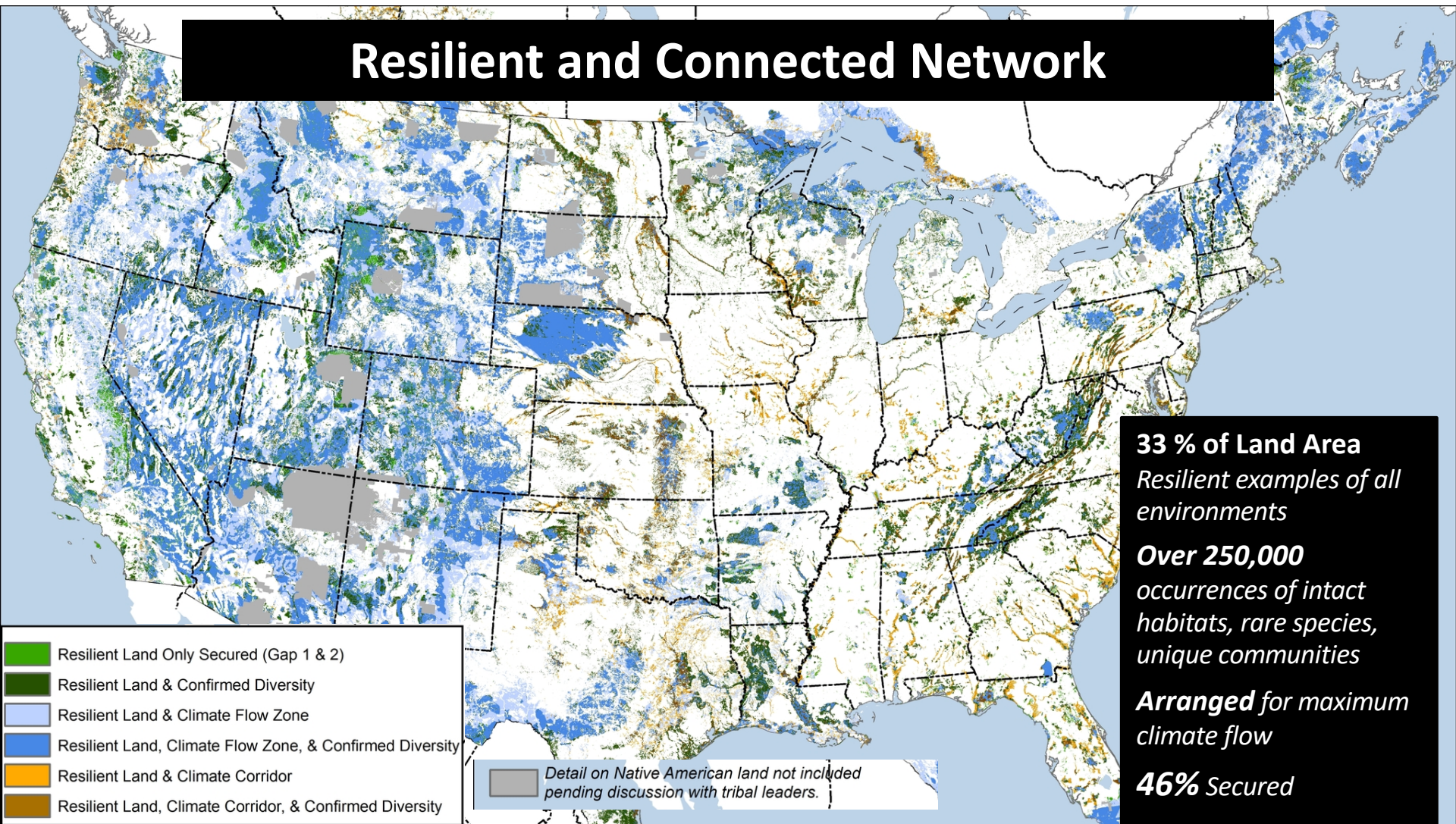


Sedimentary

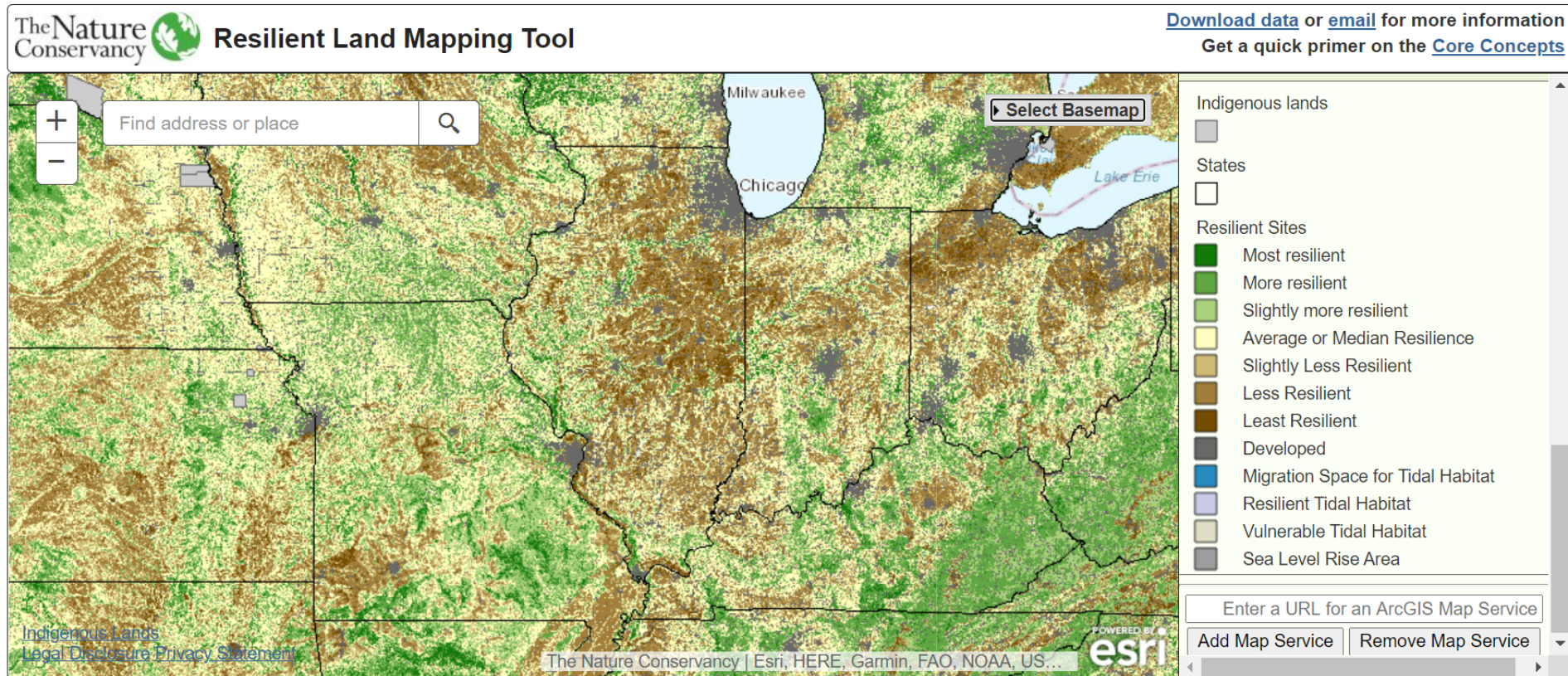




Resilient and Connected Network



maps.tnc.org/resilientland



Quirks of the Tool & Analysis:

Doesn't play nice with Internet Explorer
Site Resilience is stratified across ecoregions;
working to resolve border issues

My Site Isn't Resilient – Now What???

- Resilience can be enhanced with restoration and reconnection
- Resilient Sites and *Resilient Condition* both matter
- Not Resilient might equal Vulnerable – conservation strategies and goals should match site conditions



Freshwater Resilience

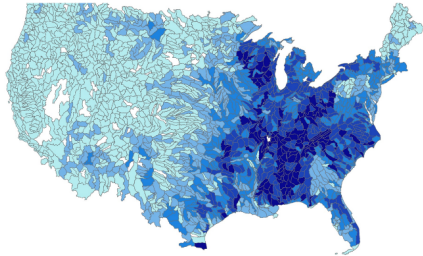
The ability of a stream network or other aquatic setting to maintain diversity and ecologic function even as the systems change in composition and structure in response to changes in climate.

Freshwater Ingredients



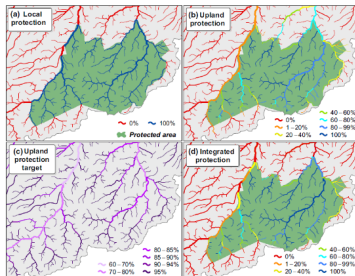
Resilient and Representative Freshwater Networks

Highly connected, relatively complex freshwater systems representing all physical environments



Recognized Biodiversity Value

Freshwater habitats currently supporting diversity of species and unique communities



Conservation Status

Assessing the gap in conservation of resilience based on protected areas, designations and other governance

An aerial photograph of a dense forest with a winding river or stream. The forest is composed of various types of trees, some of which are showing autumn colors like yellow and orange, while others are still green. The river flows through the forest, creating a series of meanders and small islands. A semi-transparent dark blue rectangular box is overlaid on the left side of the image, containing the text "Questions and Discussion" in white.

Questions and Discussion