Introduction to NatureServe Methods and Data
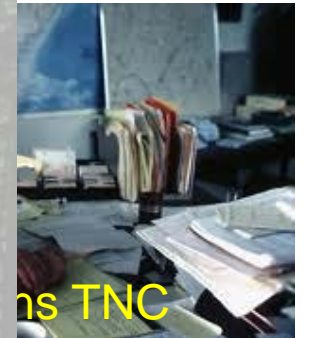

Pat Comer, Chief Ecologist
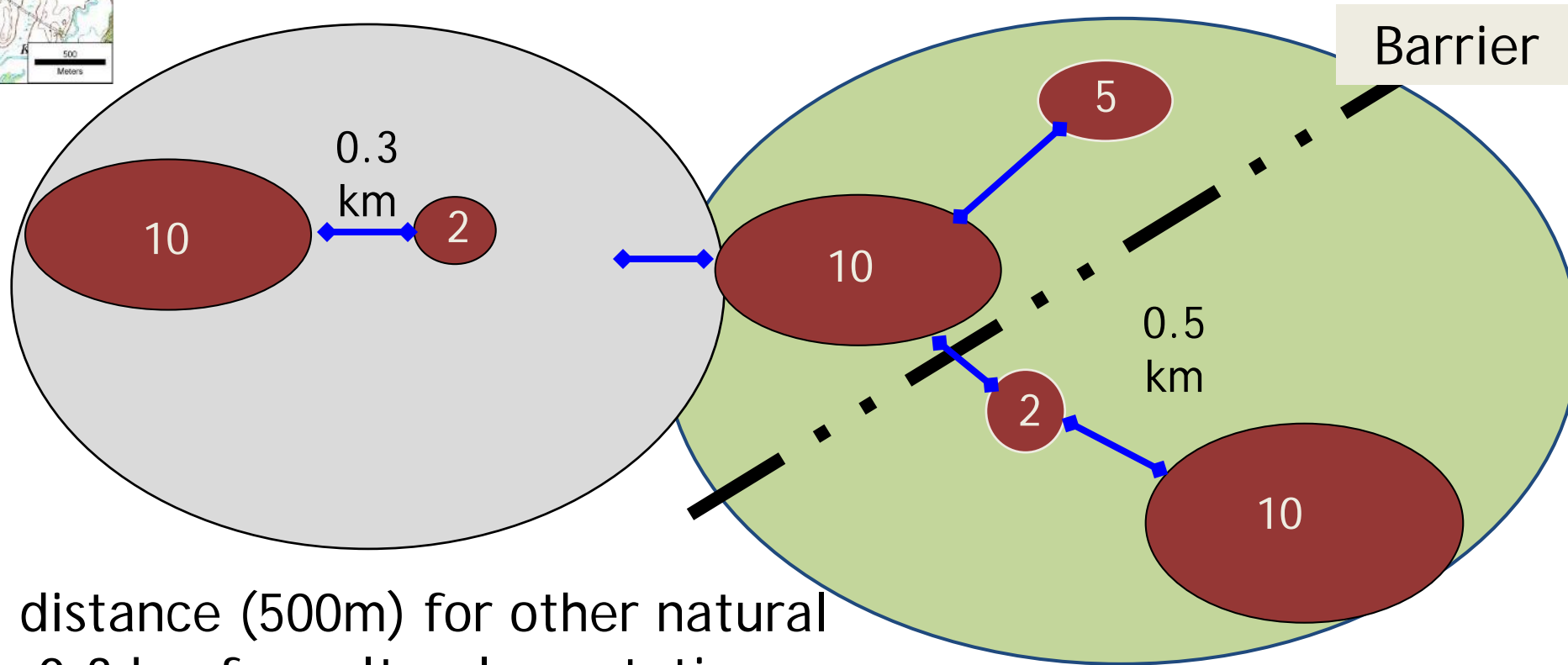
NatureServe

Biodiversity Inventories *since 1974*

NatureServe

- *Purpo... acqui...*

➢ Built o... herba...

➢ Estab... field i... (most...

PNHP
Natural Heritage Program

...ns TNC

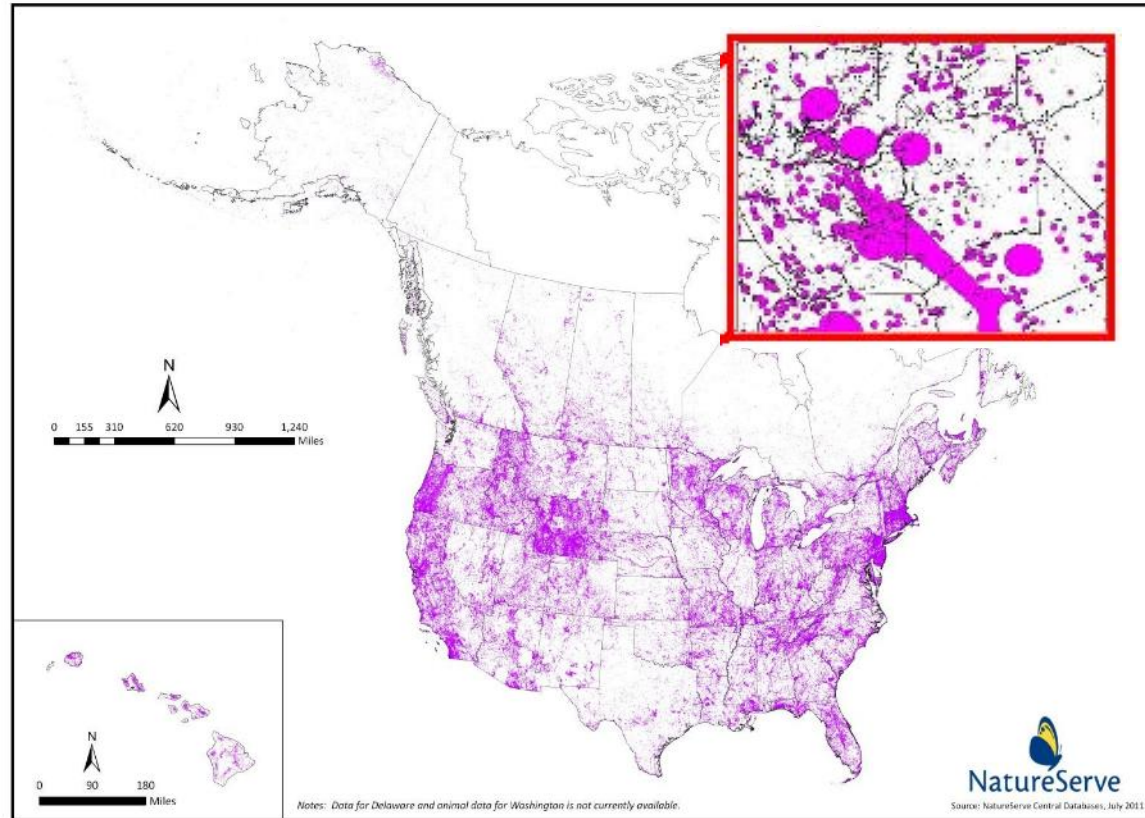...ervancy

"Occurrence Specifications"

Barrier

5

0.3 km
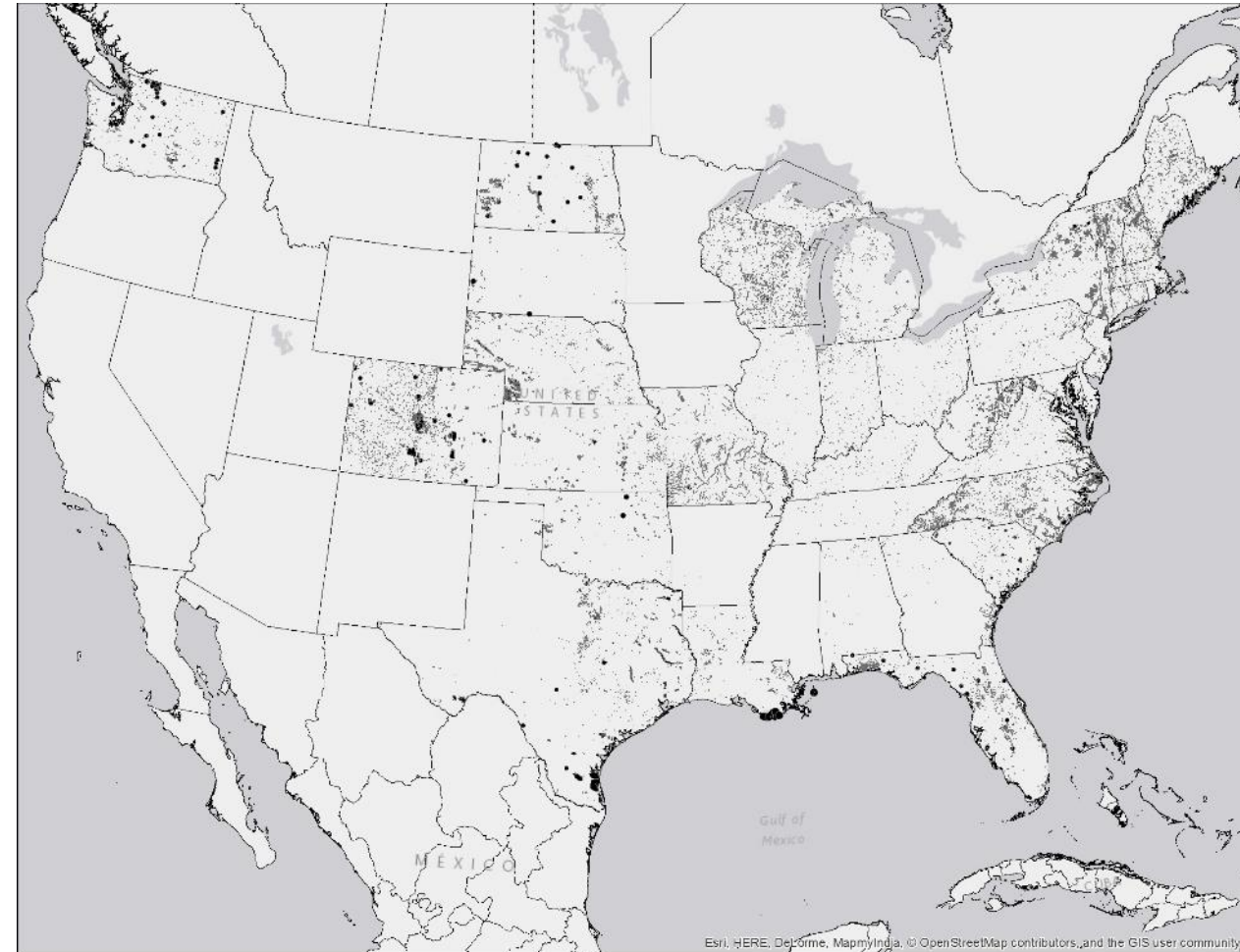
10

2

10

0.5 km

2

10

separation distance (500m) for other natural land cover; 0.3 km for cultural vegetation;

...and then there are distinct barriers

Cumulative Element Occurrences (EOs)

Element Occurrence Point Data For All Tracked Species

>1,000,000 Element Occurrences for Species of Conservation Concern

~67,000 Element Occurrences for Natural Communities

Location Quality and Condition

*Ecological Integrity = The ability of an ecological system to support and maintain a community of organisms that has the biotic **composition, diversity, and functional organization** comparable to those of natural habitats within a region[1]*

Increasing ecological integrity

A

B

C

D

Increasing disturbance by stressors
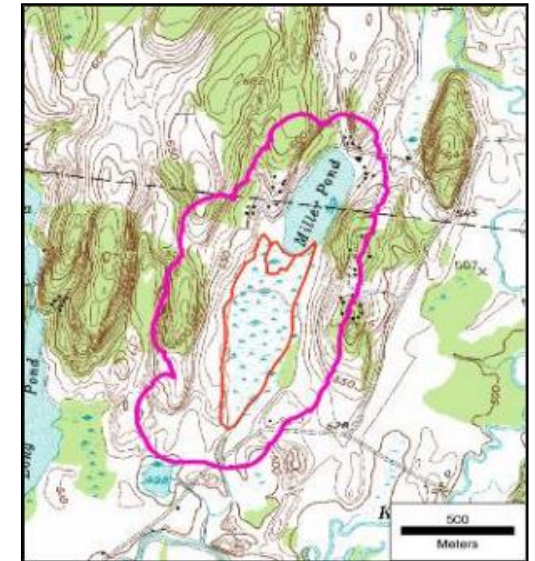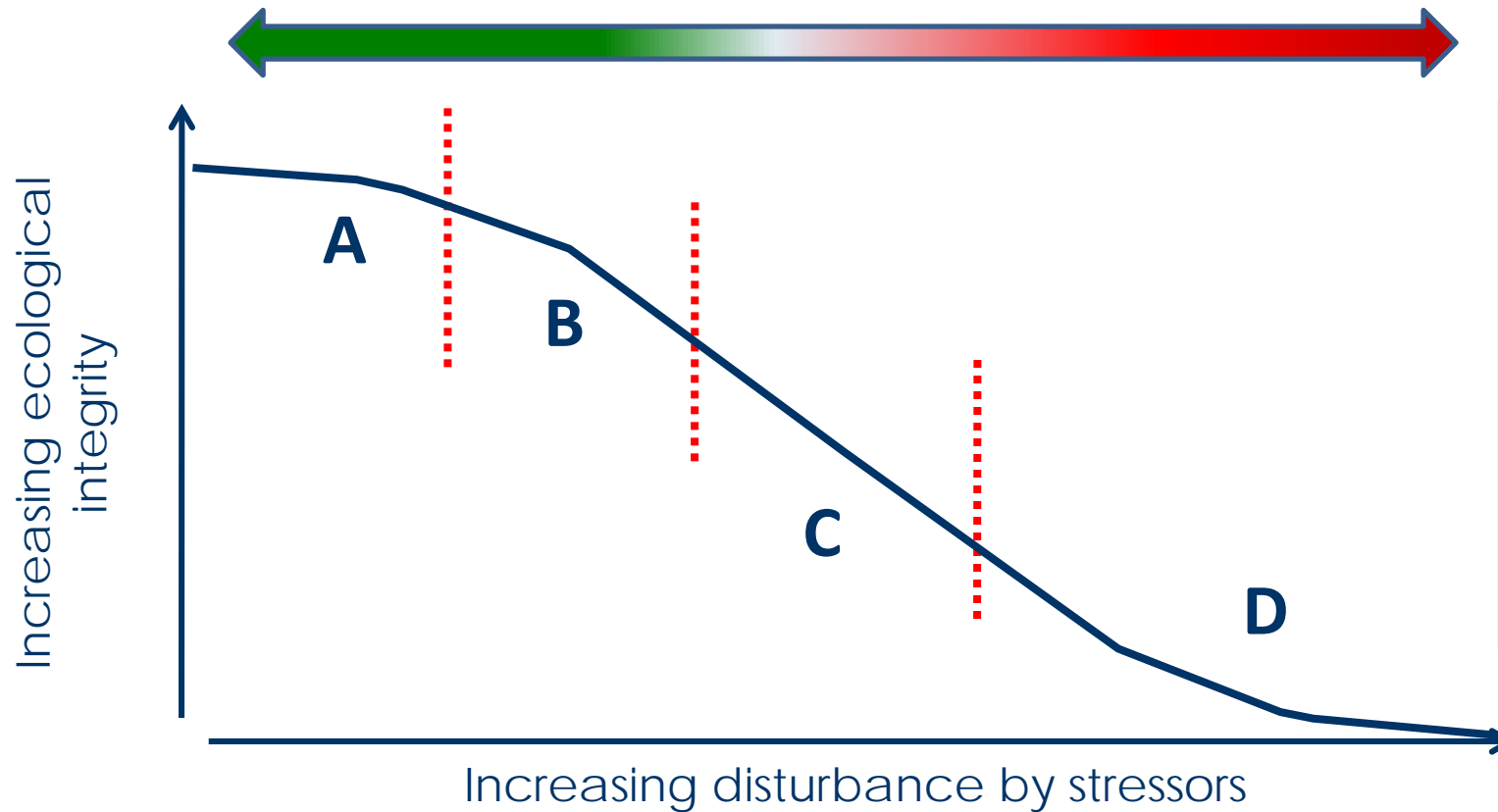
[1] Parrish, J.D., D. P. Braun, and R.S. Unnasch. 2003. Are we conserving what we say we are? Measuring ecological integrity within protected areas. BioScience 53: 851-860.

Conservation Status = risk of rangewide loss for a given species or community type

Number of Occurrences/Area
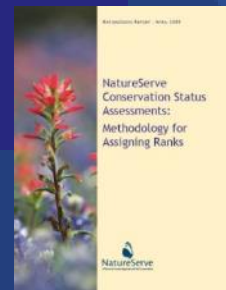
Number of Occurrences/Area w/Good Quality

Range Extent

Area of Occupancy

Long-term Trend

Short-term Trend

Threats (Severity, Scope, and Immediacy)

Apply to portion of range; e.g., N = Nation S=Subnation
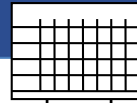
N/S1 Critically Imperiled

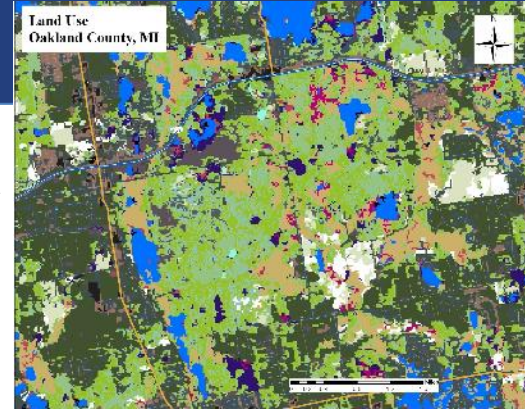N/S2 Imperiled

N/S3 Vulnerable

N/S4 Apparently Secure

N/S5 Demonstrably Secure

NatureServe Report · March 2009

NatureServe
Conservation Status
Assessments:
Factors for Assessing
Extinction Risk

NatureServe

NatureServe
Conservation Status
Assessments:
Methodology for
Assigning Ranks

NatureServe

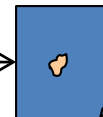# What is it?

Where is it?

Standardized Taxonomy & Classification
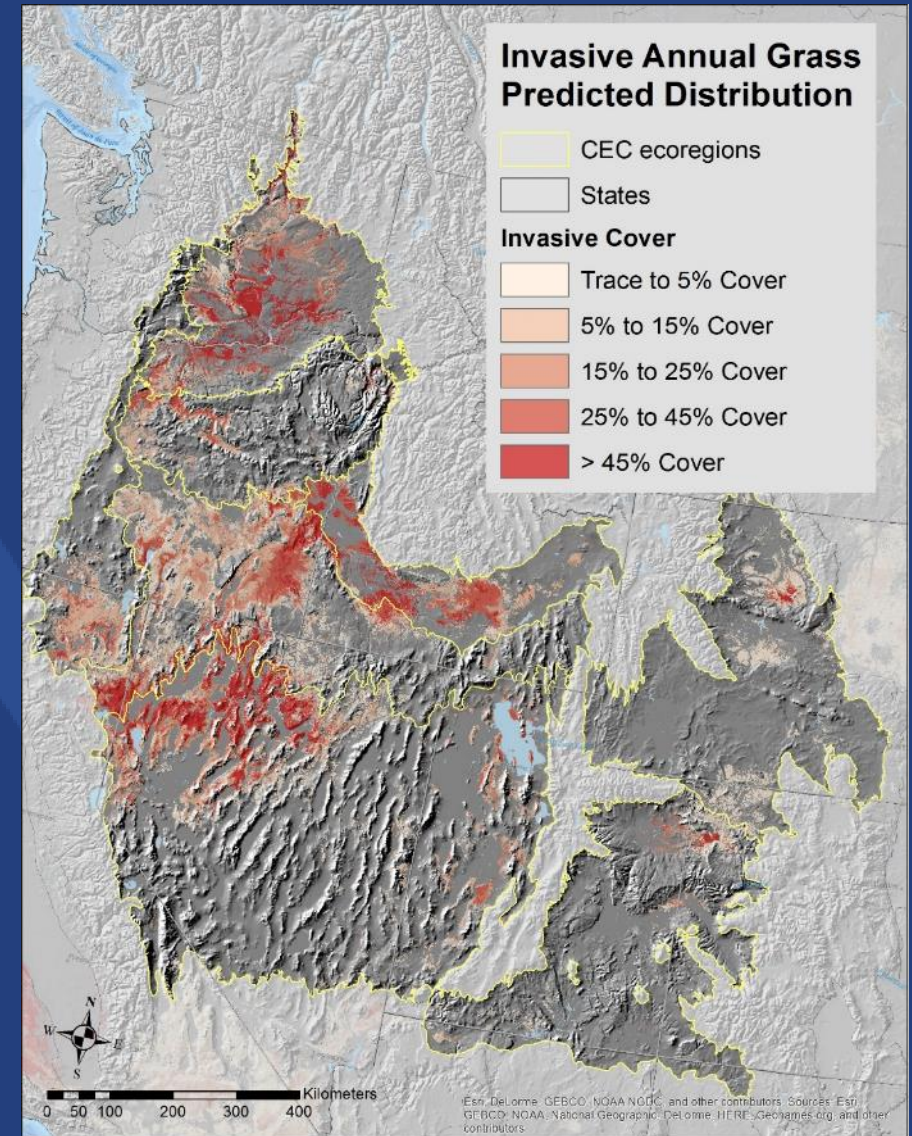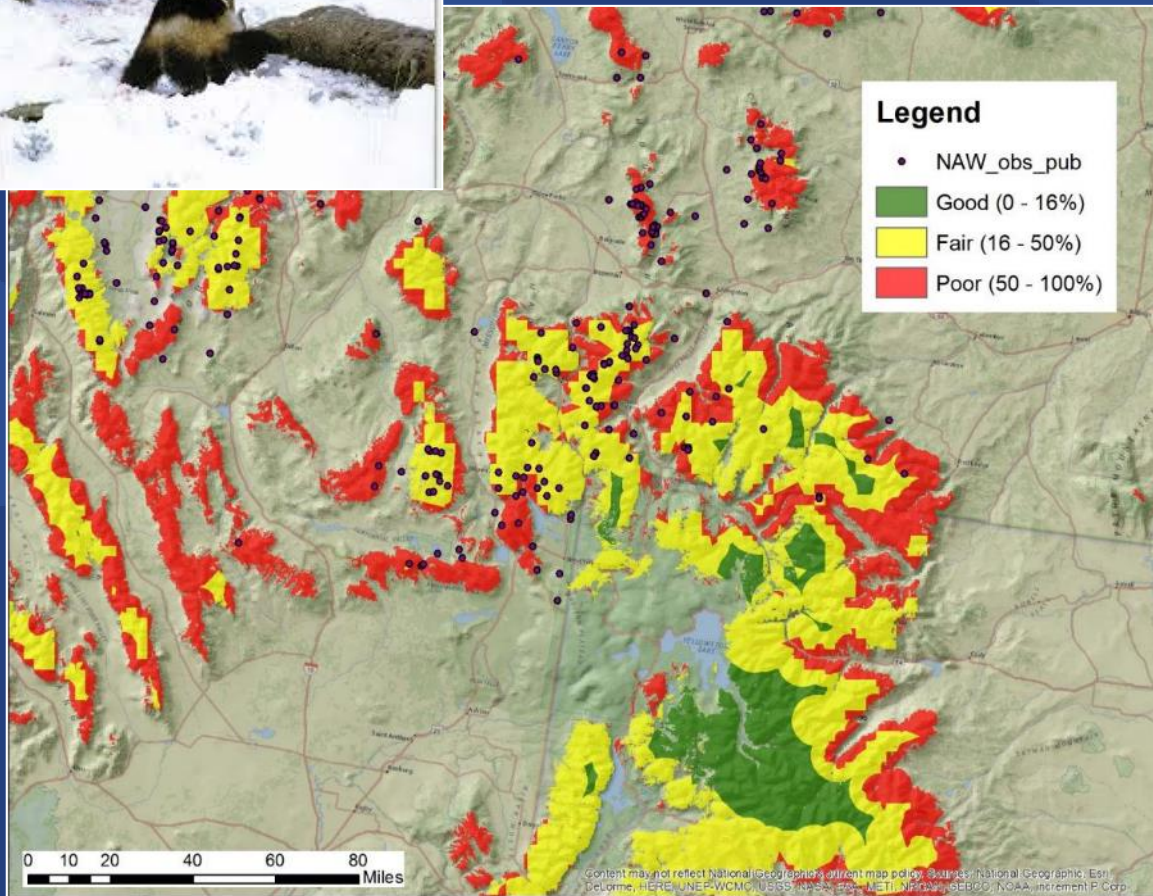
Maps and Spatial Models

Element Occurrences through Field Inventory

Field Observations – Classification, Modeling, and Monitoring

Range Maps, Habitat Distributions, Risk Models

IVC (EcoVeg) Hierarchy

*Faber-Langendoen, D., T. Keeler-Wolf, D. Meidinger, D. Tart, C. Josse, G. Navarro, B. Hoagland, S. Ponomarenko, J-P. Saucier, A. Weakley, and P. Comer. 2014. Eco-Veg: a new approach to Vegetation Description and Classification. *Ecological Monographs* 84(4):533-561.

| Hierarchy Levels	Example
Upper	
Level 1 – Formation Class	Shrubland & Grassland
Level 2 – Formation Subclass	Temperate & Boreal Shrubland & Grassland
Level 3 - Formation	Temperate Grassland & Shrubland
Mid	
Level 4 – Division	Great Plains Grassland & Shrubland
Level 5 – Macrogroup	Great Plains Tallgrass Prairie
Level 6 – Group	Central Great Plains Tallgrass Prairie
Lower	
Level 7 – Alliance	Big Bluestem – Indian grass Mesic Prairie
Level 8 – Association	Big Bluestem – Indian grass / Gayfeather Prairie
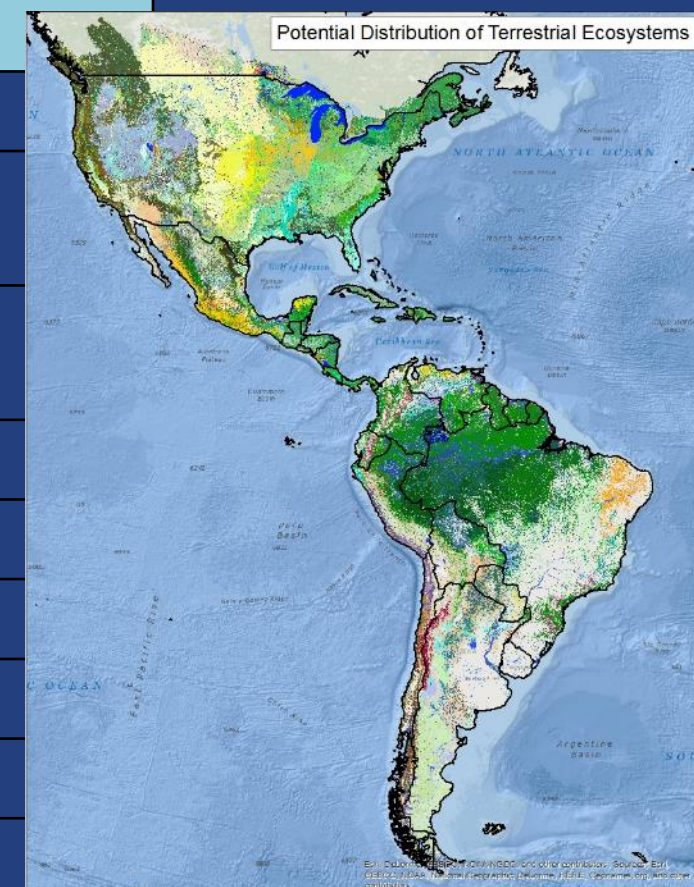
>500,000 standardized and georeferenced sample plots with vegetation structure and composition

https://www.landfire.gov/index.php

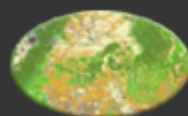Home | About | Data Pro... | Contribute Data | Methods & Applications | Improvements | Search | Help
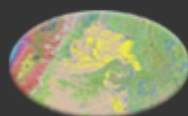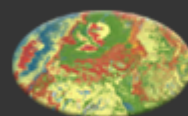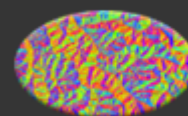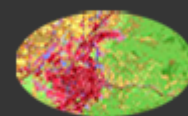
DATA
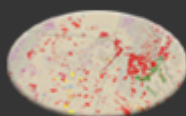
Reference | Disturbance | Vegetation | Fuel | Fire Regime | Topographic | Seasonal

LANDFIRE (LF) is a program that provides over 20 national geo-spatial layers (e.g. vegetation, fuel, disturbance, etc.), databases, and ecological models that are available to the public for the US and insular areas. Learn how LF is important to wildland fire management and supports more than fire.
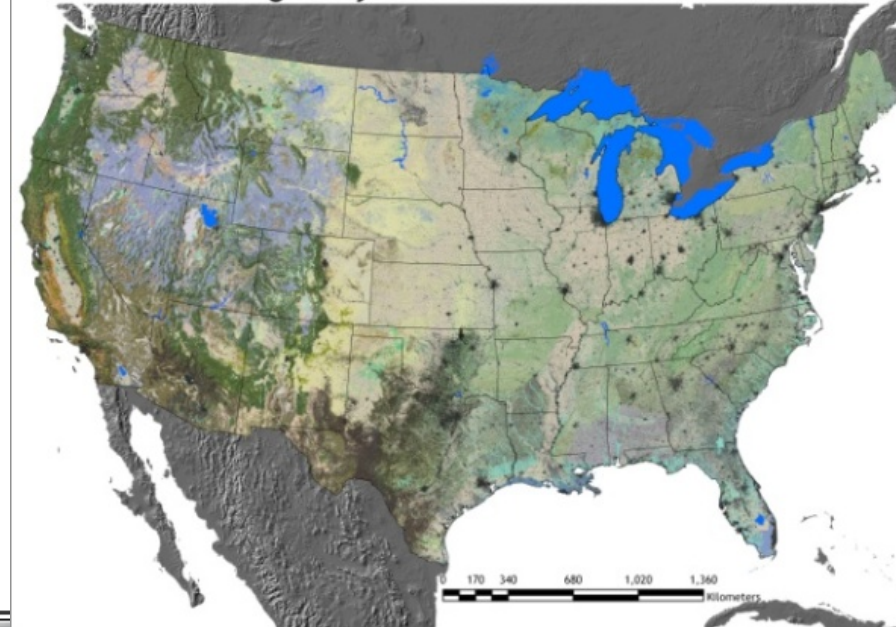
LAND
land cover/disturbance change
endangered species monitoring
climate-carbon-ecological modeling/research
wildlife/habitat activities

regional/national use
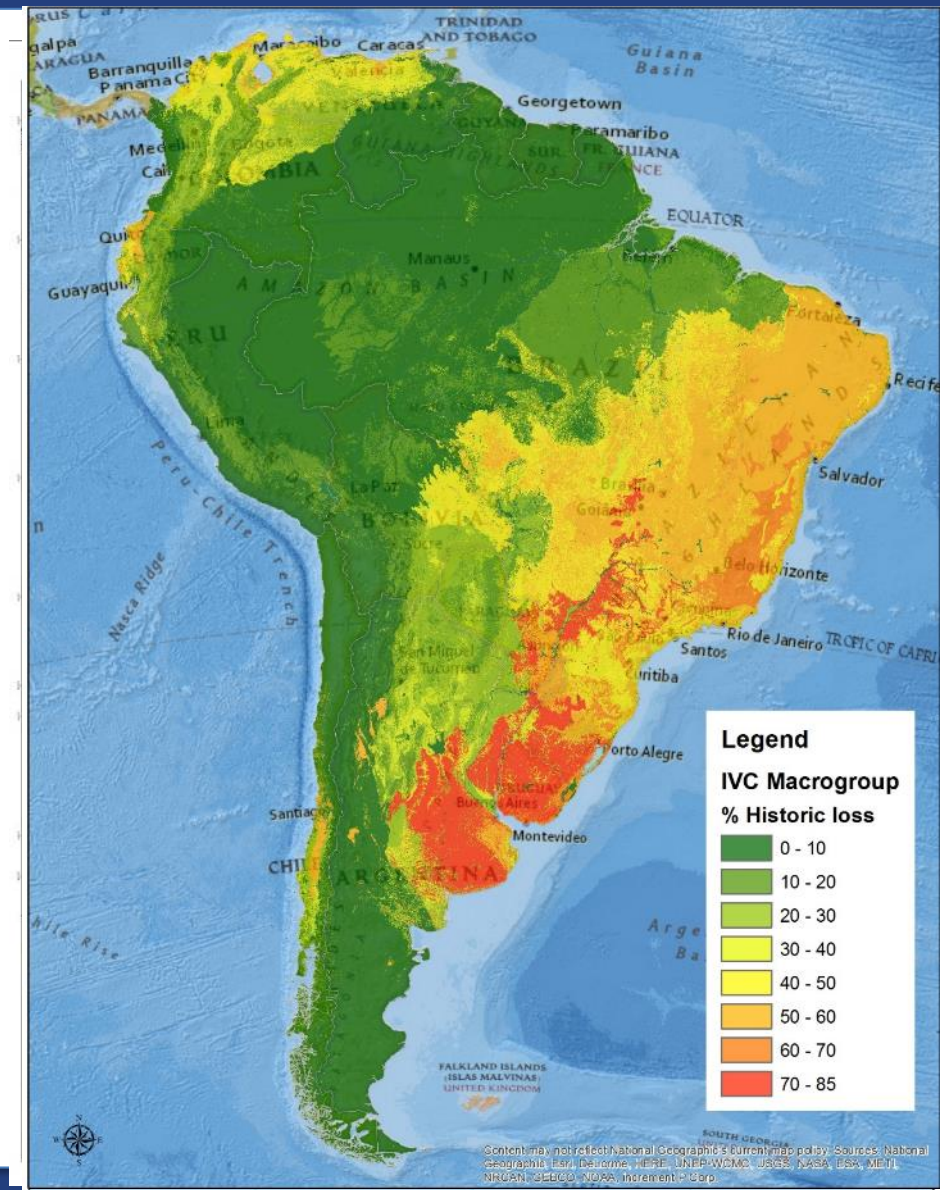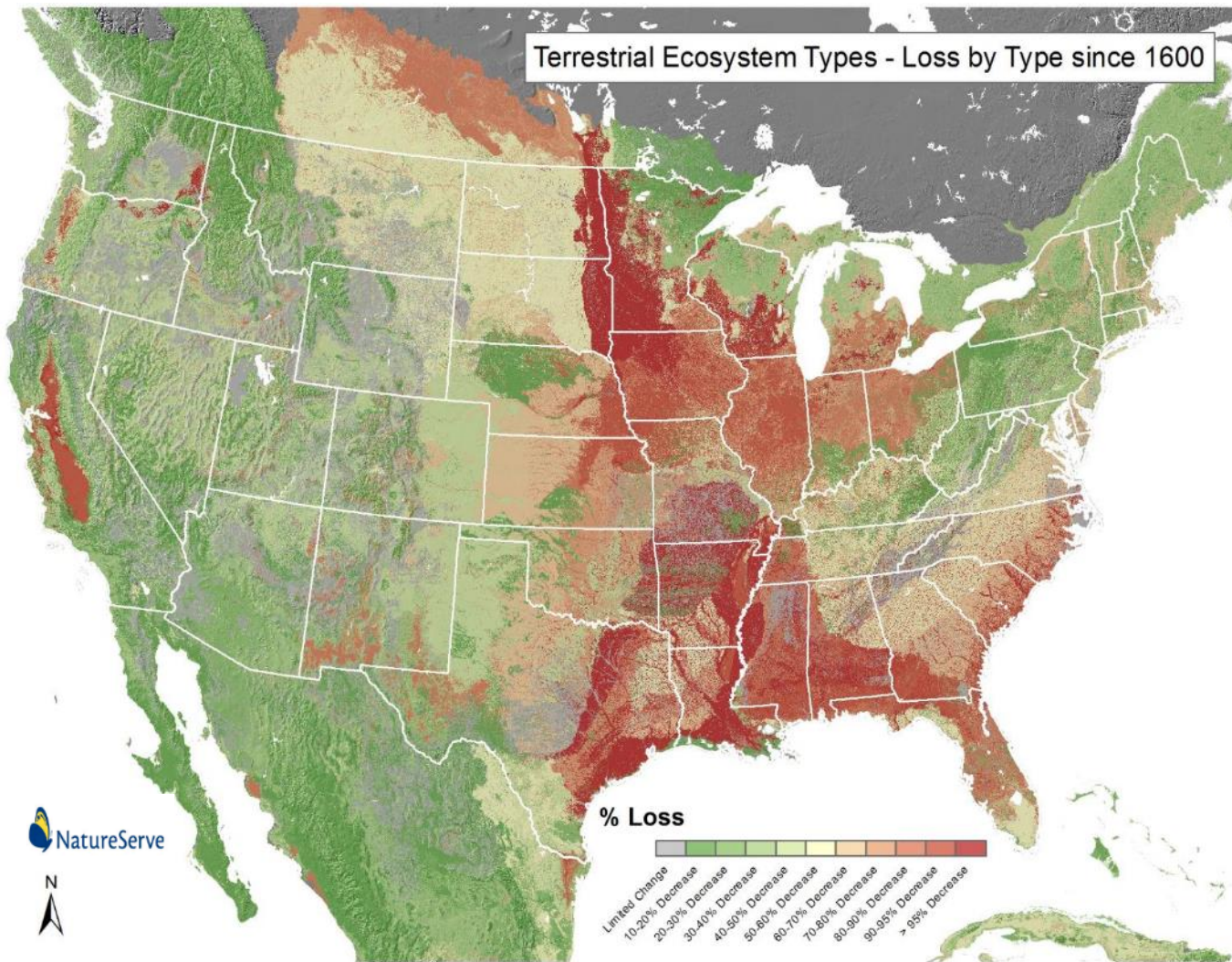informs budgets
natural resource management
strategic decision support
updated regularly

FIRE
fuel treatments
fire suppression
fire management planning
active fire management

Terrestrial Ecological Systems and Land Cover - United States

Distributions and Trends in Extent

Terrestrial Ecosystem Types - Loss by Type since 1600

% Loss
Limited Change, 10-20% Decrease, 20-30% Decrease, 30-40% Decrease, 40-50% Decrease, 50-60% Decrease, 60-70% Decrease, 70-80% Decrease, 80-90% Decrease, 90-95% Decrease, > 95% Decrease

NatureServe

Legend
IVC Macrogroup
% Historic loss
- 0 - 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 85
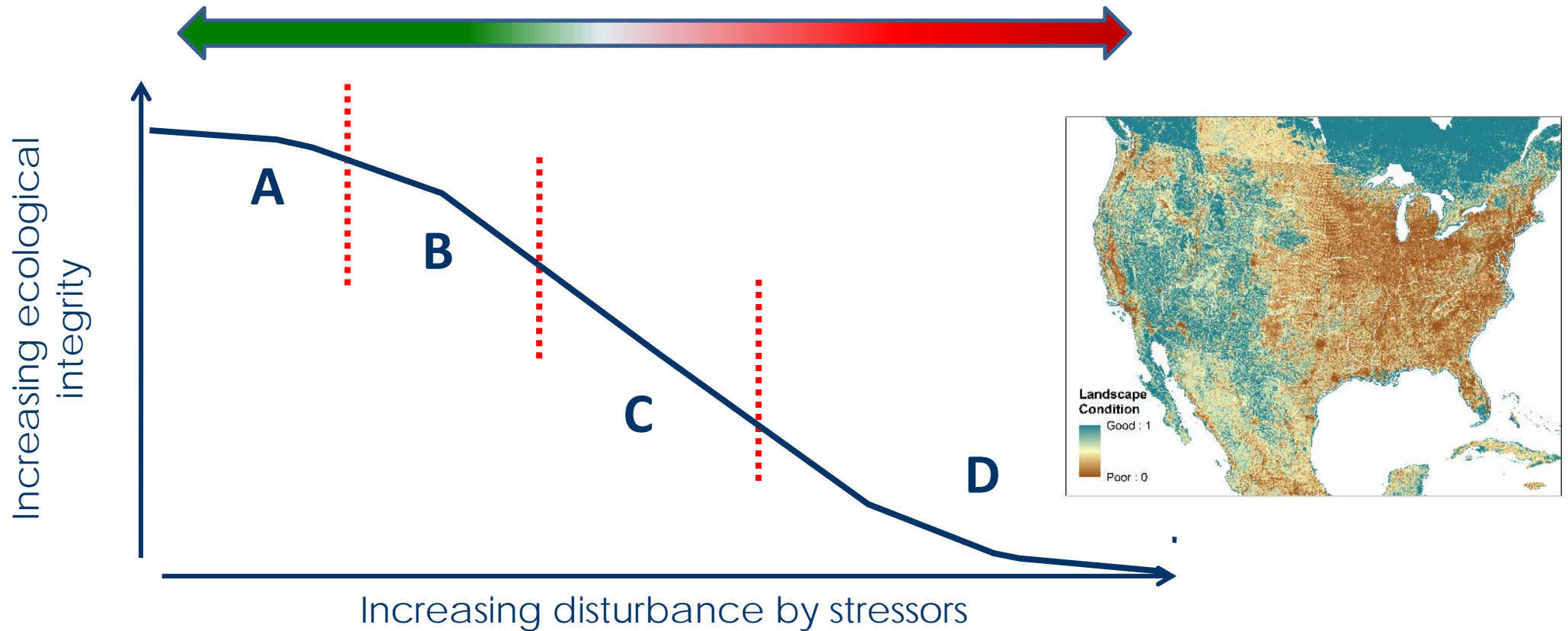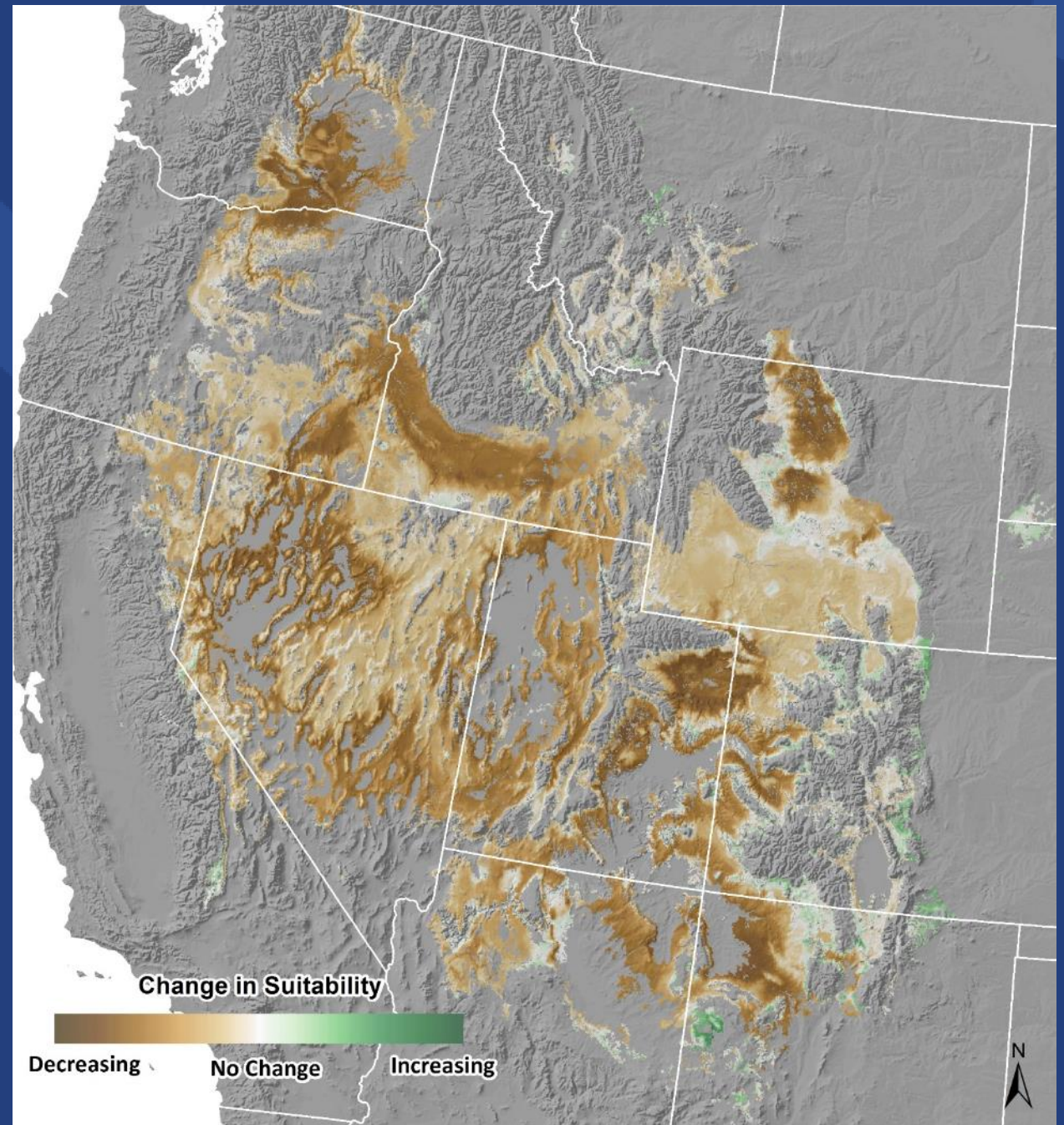
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Climate Change Vulnerability

Trends to mid-21st century
compared to 1948-1980 baseline

Intermountain Basins Big Sagebrush Shrubland

Change in Suitability

Decreasing — No Change — Increasing

Questions & Discussion