



Climate Adaptation: the Power of Conservation Across Boundaries

Steven Fuller, NALCC



The Wildlife
Management Institute



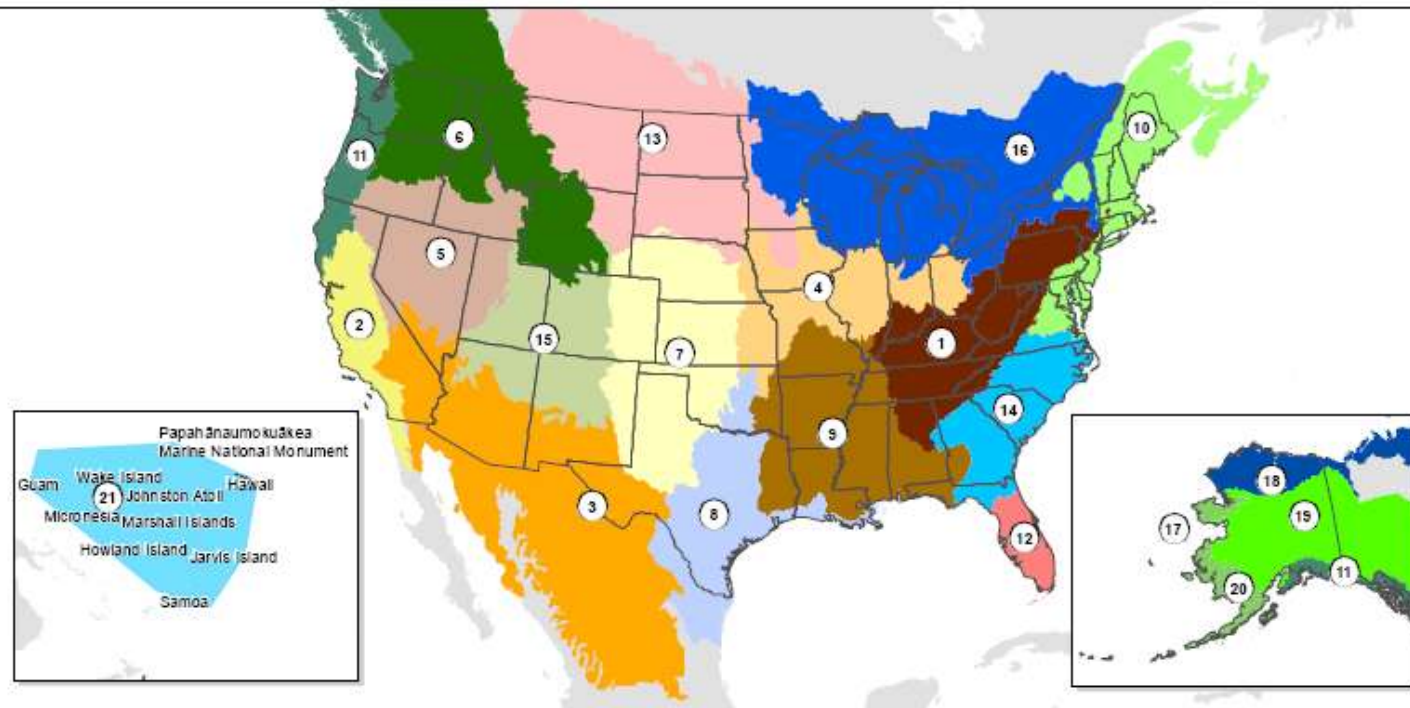
North Atlantic  Landscape Conservation Cooperative



In the face of climate change, the Department of Interior is working together with partners to **realize the common vision of a National network of habitats** founded on the best available science.

We recognize that a landscape conservation approach is a powerful way to plan, implement evaluate, and adapt wildlife conservation in response to climate change

Landscape Conservation Cooperatives



Landscape Conservation Cooperatives

- | | | | |
|---|-----------------------------------|-------------------------------------|----------------------------------|
| 1. Appalachian | 6. Great Northern | 12. Peninsular Florida | 18. Arctic |
| 2. California | 7. Great Plains | 13. Plains and Prairie Potholes | 19. Northwestern Interior Forest |
| 3. Desert | 8. Gulf Coast Prairie | 14. South Atlantic | 20. Western Alaska |
| 4. Eastern Tallgrass Prairie and Big Rivers | 9. Gulf Coastal Plains and Ozarks | 15. Southern Rockies | 21. Pacific Islands |
| 5. Great Basin | 10. North Atlantic | 16. Upper Midwest and Great Lakes | Unclassified |
| | 11. North Pacific | 17. Aleutian and Bering Sea Islands | |

Albers Equal Area Conic NAD83
Produced by FWS, IRTM, Denver, CO
Map Date: 03/16/2010

Strategic Habitat Conservation



U.S. Fish & Wildlife Service

Conservation in Transition

Leading Change



U.S. Fish & Wildlife Service

Rising to the Urgent Challenge

Strategic Plan for Responding to Accelerating Climate Change



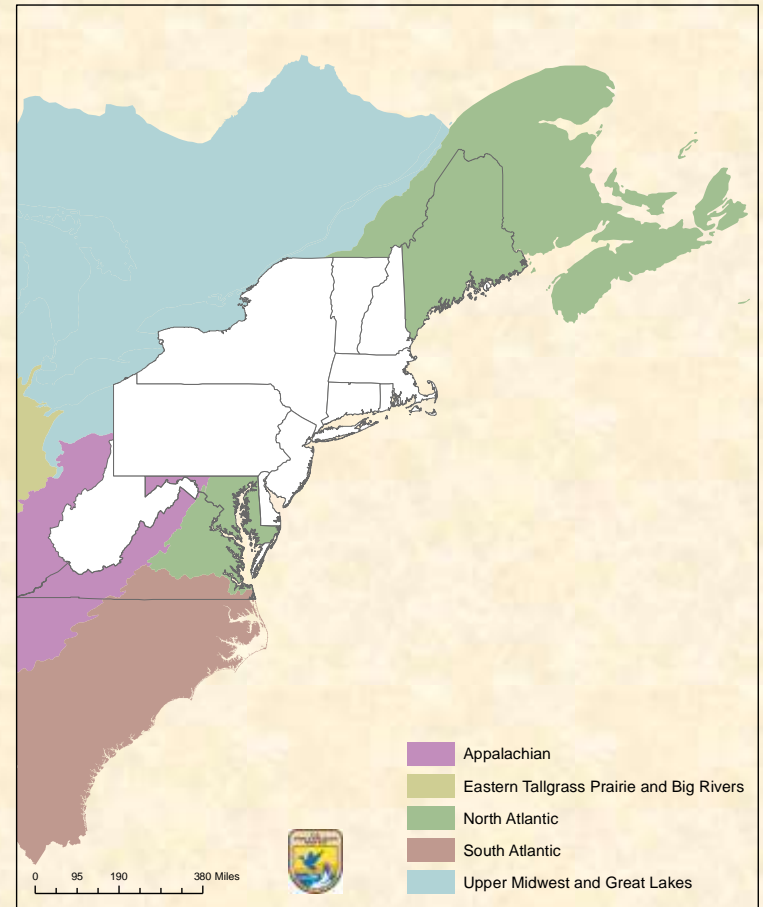
North Atlantic Landscape Con



The North Atlantic Landscape Conservation Cooperative

- 12 states + D.C.
- 4 Canadian provinces
- Multiple partnerships
- 17% of U.S. population
- Large latitude gradient
- Diverse land use
- Diverse systems/habitats
 - Marine
 - Coastal
 - Estuarine
 - Riverine
 - Forests
 - Agriculture
 - Mountains

Landscape Conservation Cooperatives in the Northeast Region



North Atlantic  Landscape Conservation Cooperative



We strive to engage diverse stakeholders in climate adaptation at multiple scales:

- by convening partners to prioritize science needs;
- by developing common datasets, common language, shared objectives, baseline science, and planning tools;
- by developing science applications at multiple scales;
- by providing funding and training to deliver science to broad conservation communities.

→convening partners to prioritize science needs

“Albany II” Northeast Regional Conservation Framework Workshop



June 14-16, 2011
Crowne Plaza Hotel, Albany, New York

Hosted by
Northeast Association of Fish & Wildlife Agencies
North Atlantic Landscape Conservation Cooperative

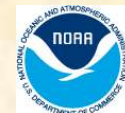
Photo Credit: James Weliver/USFWS



North Atlantic  Landscape Conservation Cooperative

North Atlantic LCC Governance

- Steering Committee
 - States
 - Federal Agencies
 - Tribes
 - NGOs
 - Canadian Partners
 - Existing Partnerships
- Technical Teams
 - Taxonomic and geographic representation
 - Management-oriented scientists
- Staff



North Atlantic  Landscape Conservation Cooperative

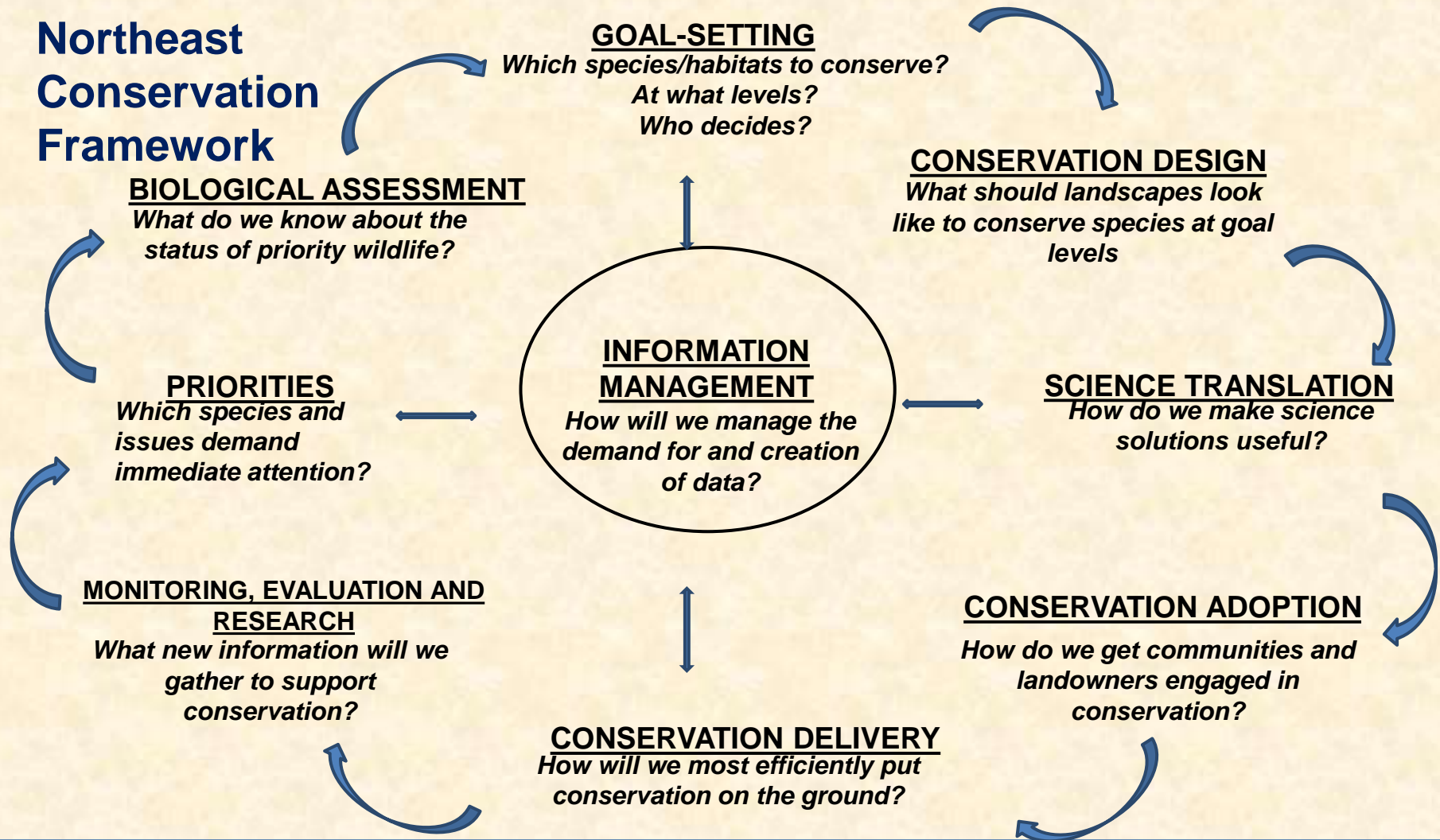




Developing a conservation strategy for many species and habitats is challenging.

...a consistent framework for regional planning

Northeast Conservation Framework



North Atlantic  Landscape Conservation Cooperative



→ developing common datasets, common language, shared objectives, baseline science, and planning tools

**TAKING ACTION TOGETHER:
NORTHEAST REGIONAL SYNTHESIS
FOR
STATE WILDLIFE ACTION PLANS**



Prepared for the Northeast Fish and Wildlife Diversity Technical Committee

By
Terwilliger Consulting, Inc.
December 2013

We assessed the quality of data for over 500 species and prioritized them for conservation.

Table 1.2. Regional SGCN: Summary Statistics. Sources: NatureServe and NALCC.

Taxonomic Group	Number of Species in Region*	Number of Species that are State SGCN**	Percent of species that are State SGCN	Number of RSGCN***	Percent of species that are RSGCN	Number of High Responsibility, High Concern Species***	Percent of High Responsibility, High Concern Species	Number of Species with Federal Status***	Percent of Species with Federal Status
Mammals	128	87	68%	45	35%	8	6%	34	27%
Birds	387	263	68%	110	28%	12	3%	34	9%
Reptiles	74	65	88%	29	39%	6	8%	11	15%
Amphibians	91	73	80%	36	40%	3	3%	4	4%
Fish	441	299	68%	101	23%	16	4%	11	2%
Tiger Beetles	28	27	96%	11	39%	6	21%	2	7%
Freshwater Mussels	111	101	91%	23	21%	7	6%	4	4%
Other Federally listed invertebrates = 11									

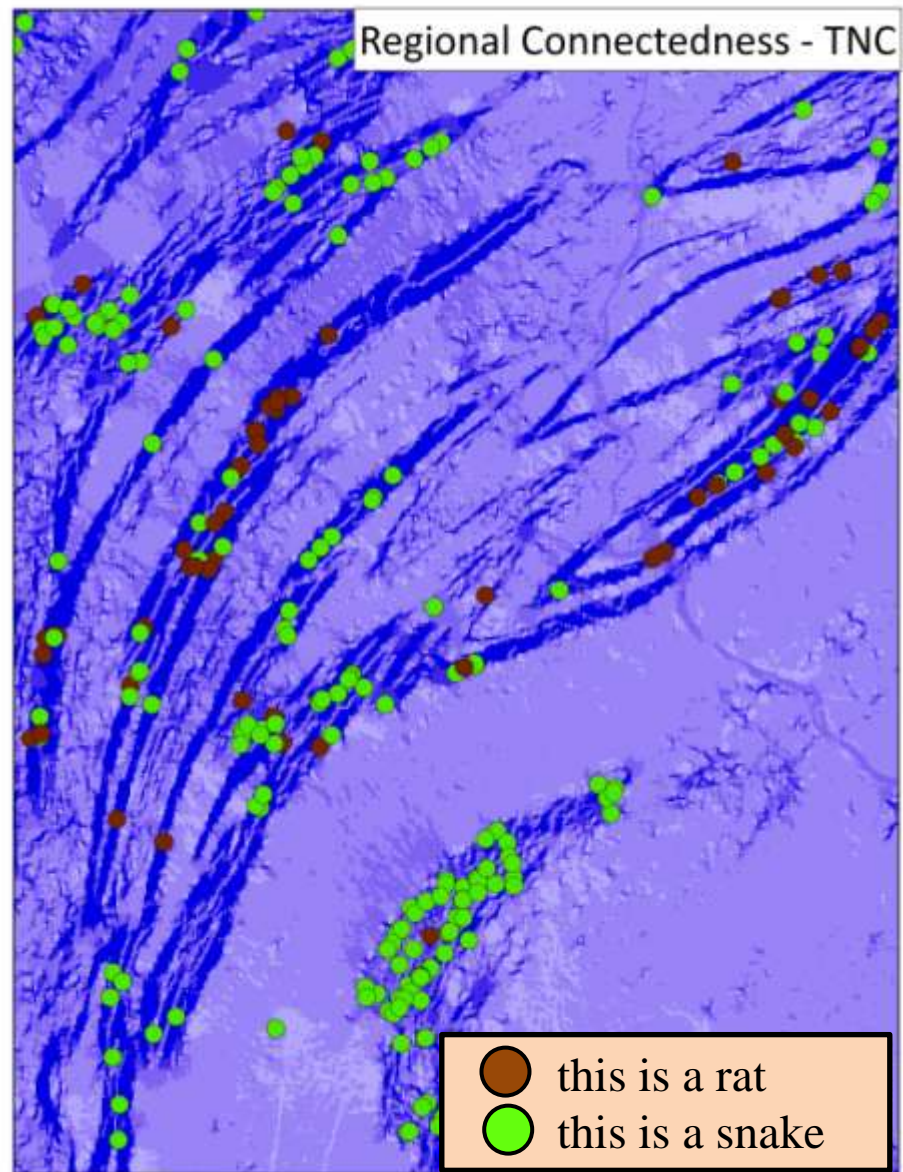
* From NEPARC website and the comprehensive lists of vertebrate species, tiger beetles, and freshwater mussels on the NatureServe Explorer website

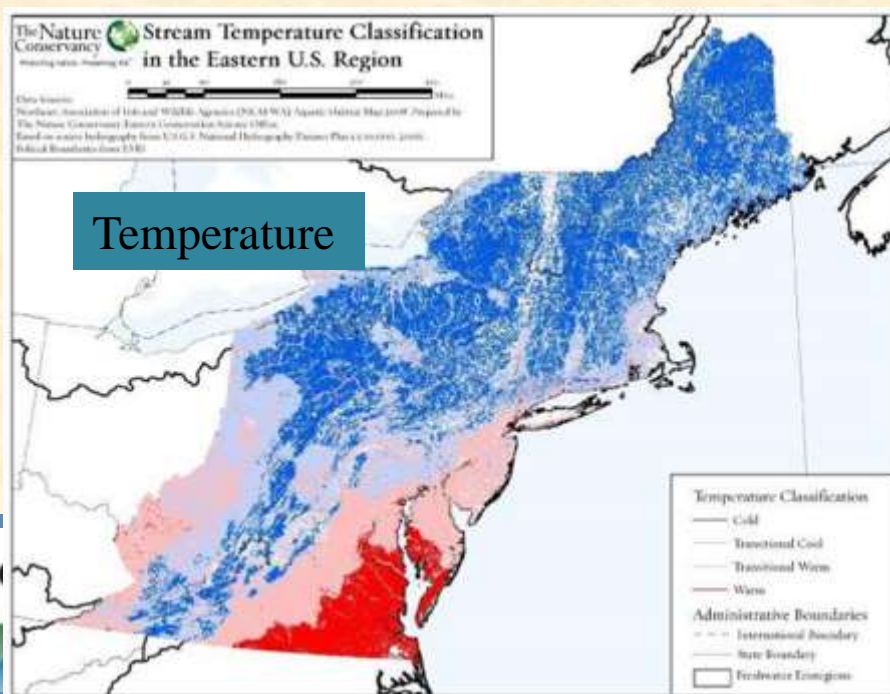
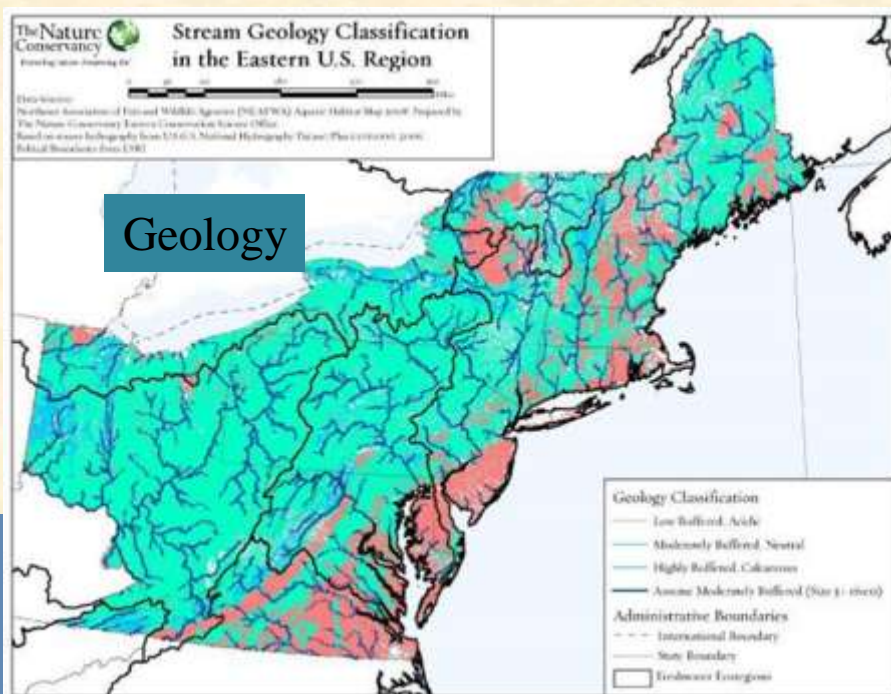
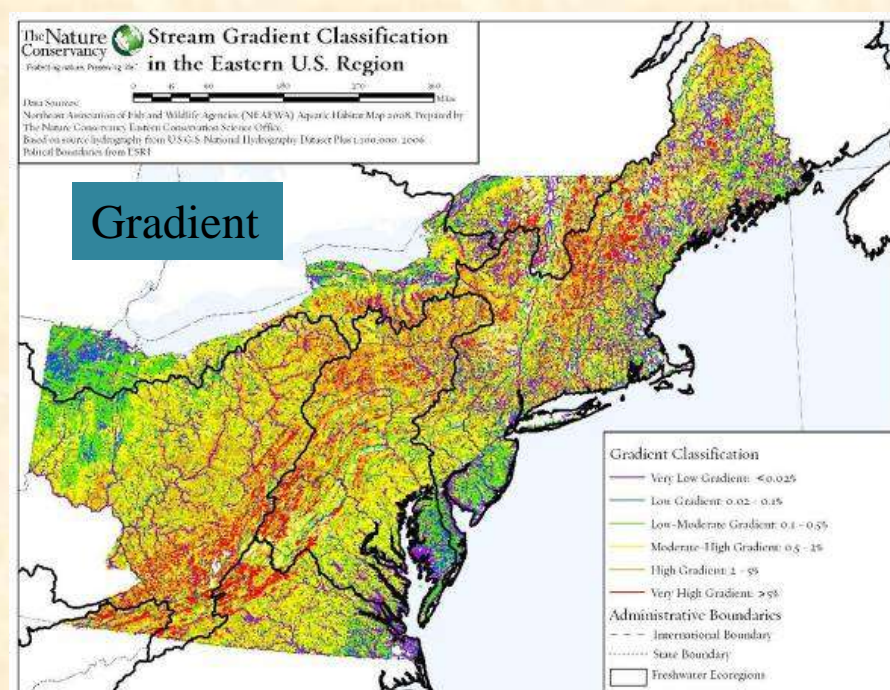
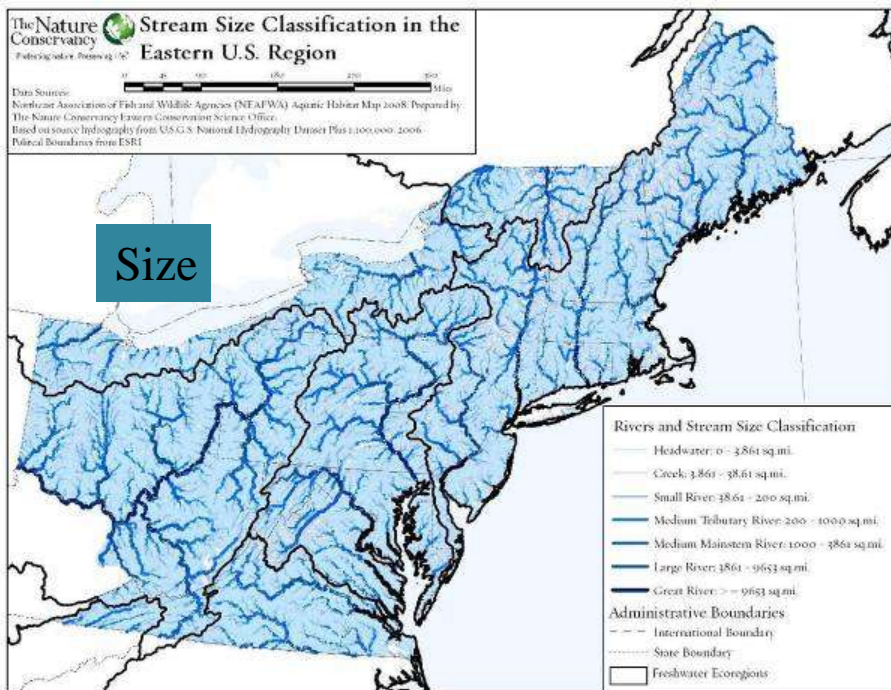
** From Whitlock (2006) comprehensive list of SGCN for all Northeast states

*** From most recent version of RSGCN list, produced by NEFWDC and partners



With consistent data on species distributions, we can begin to identify areas of risk and opportunity. We are using our knowledge to identify surrogates where data are poor.





Conservation

→ developing science applications at multiple scales;





ABOUT US

Who & Why

THE STRATEGY

What & How



Strategy 1.1: Identify areas for an ecologically-connected network of terrestrial, freshwater, coastal, and marine conservation areas that are likely to be resilient to climate change and to support a broad range of fish, wildlife, and plants under changed conditions.

ACTIONS

1.1.1: Identify and map high priority areas for conservation using information such as species distributions (current and projected), habitat classification, land cover, and geophysical settings (including areas of rapid change and slow change).

1.1.2: Identify and prioritize areas currently experiencing rapid climate impacts (e.g., the coastline of Alaska, low-lying islands, and high alpine tundra).

1.1.3: Assess the potential of species to shift ranges, and prioritize conservation efforts taking into account range shifts and accounting for ecosystem functions and existing and future physical barriers.

Best Practices for State Wildlife Action Plans


Voluntary Guidance to States for
Revision and Implementation



November 2012

Best Practices

Mapping and Modeling

-  1. Identify and spatially depict priority areas on the landscape that offer the best opportunities and potential for SGCN conservation as determined by each state, and use the generic term Conservation Opportunity Areas (COAs) for these focal areas.

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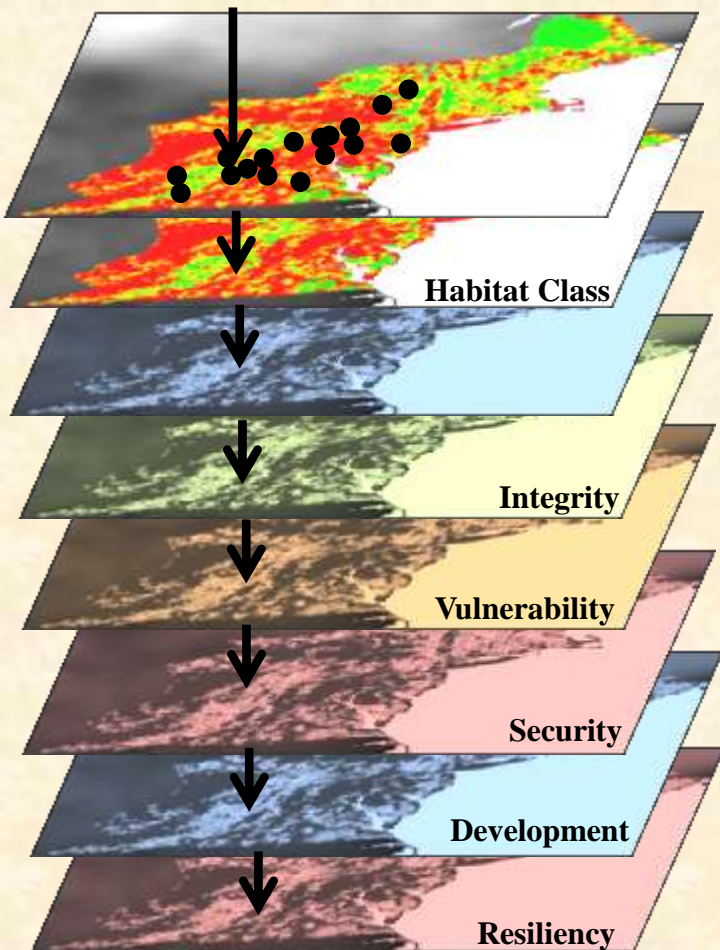
**TAKING ACTION TOGETHER:
NORTHEAST REGIONAL SYNTHESIS
FOR
STATE WILDLIFE ACTION PLANS**



CONSERVATION OPPORTUNITY AREAS

A next step for utilizing regional conservation planning information and tools developed through the RCN program and LCCs in the Northeast is the identification of regional Conservation Opportunity Areas (COAs). These COAs can be developed through a process of selecting conservation features including species and habitats, agreeing on metrics for prioritizing these features, including species occurrences, habitat suitability, ecosystem integrity and ecosystem resiliency, and finally combining and weighting these metrics to achieve goals.

•Surrogate species



Landscape Conservation Design is the sum of many parts that must work together.

But the quality of landscape science data varies across spatial scales...

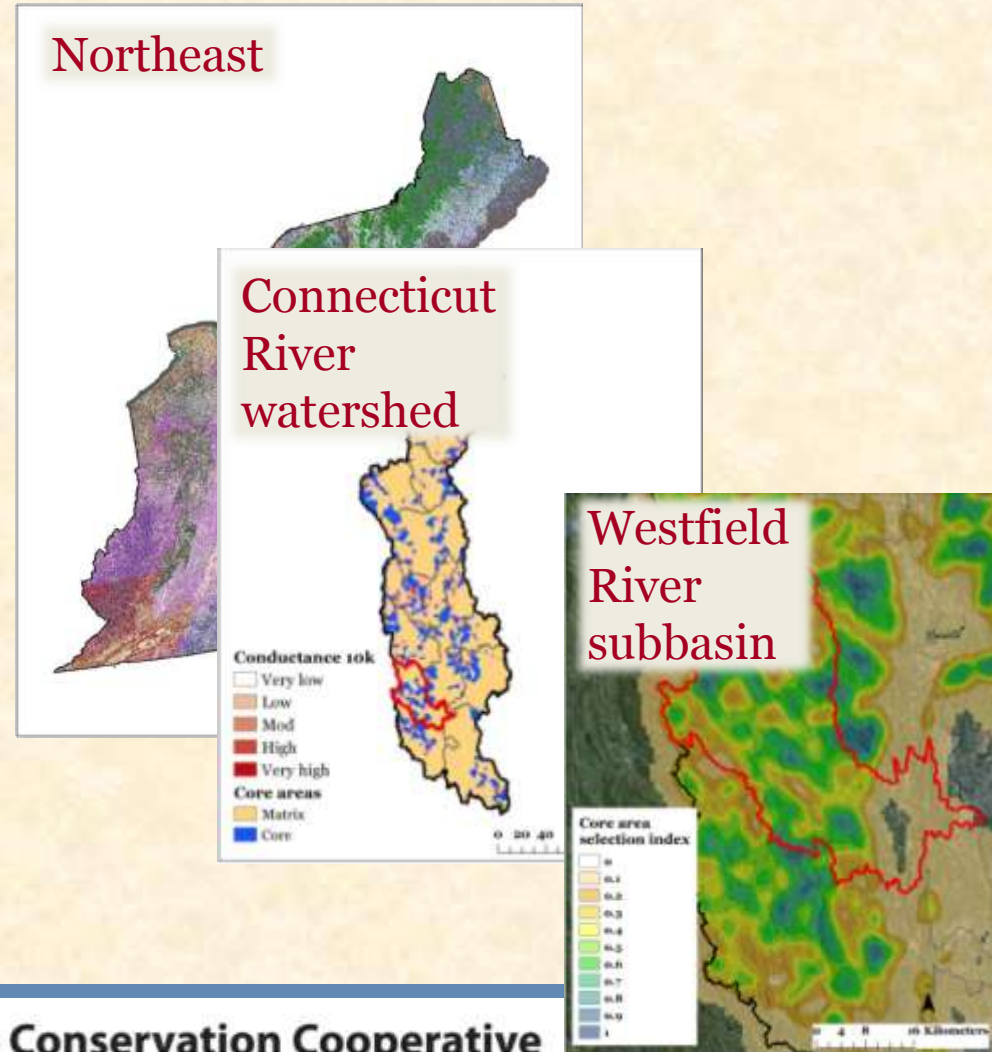


Landscape Conservation Design

Data and tools available at multiple scales

Systematic framework for landscape conservation

- Habitat & Ecosystems models
- Landscape change model (e.g., urban growth, climate change)
- Species distributions
- Connectivity
- Resiliency

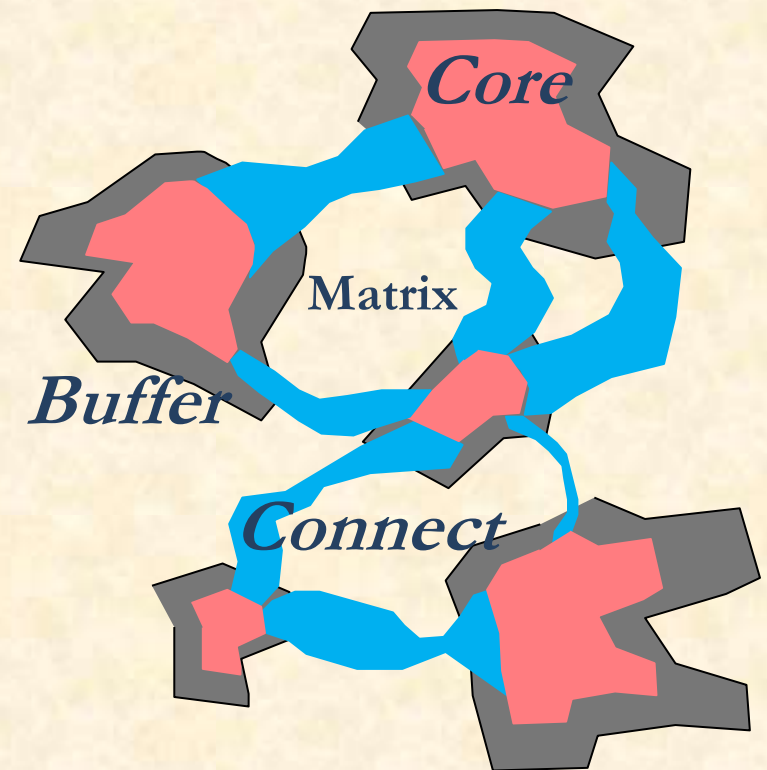


Landscape Conservation Design

Local-Scale Applications

- **Core...** concentrated areas of high ecological value
- **Buffer...** around core areas to prevent future degradation
- **Connect...** linkages between core areas to facilitate connectivity

How much, of what, where & Why



Landscape Conservation Design

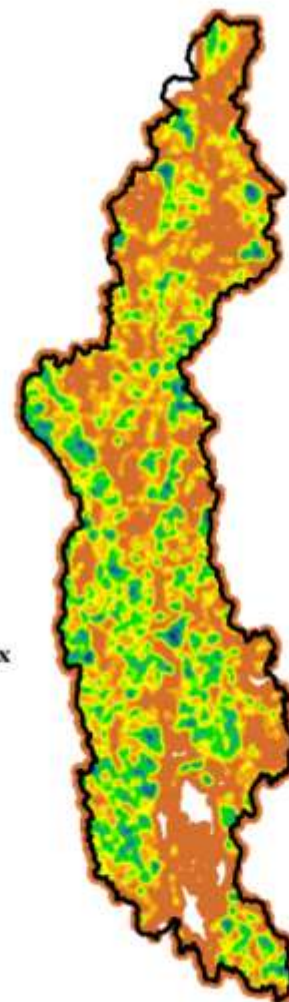
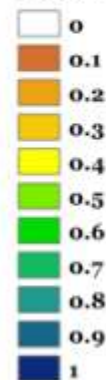
Watershed-Scale Applications

Representative
Species

RSGCNs (Non
Rep. Species)

Ecological
Integrity and
Resilience

Selection index

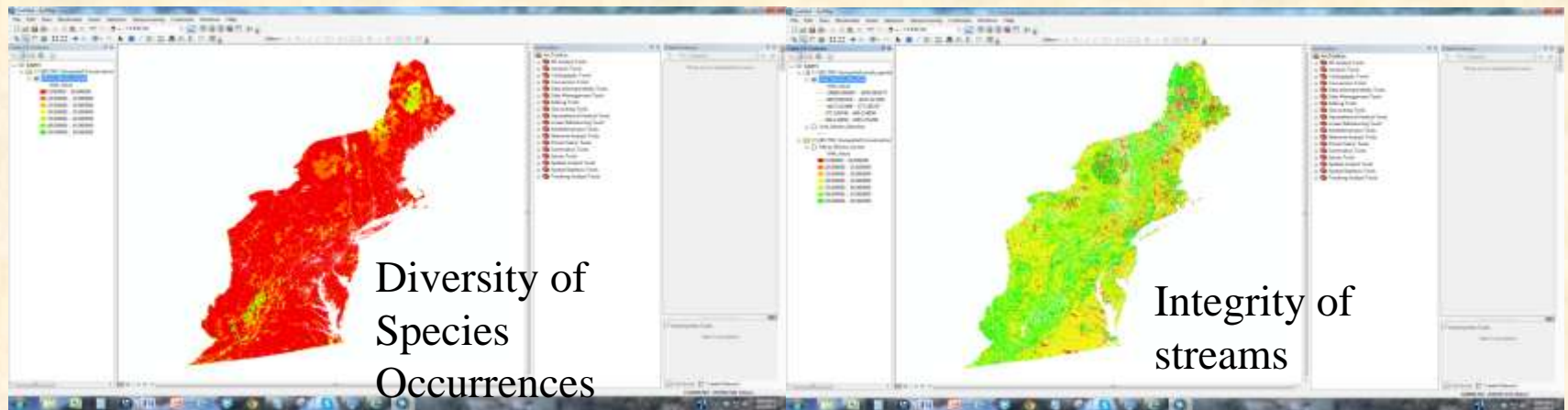
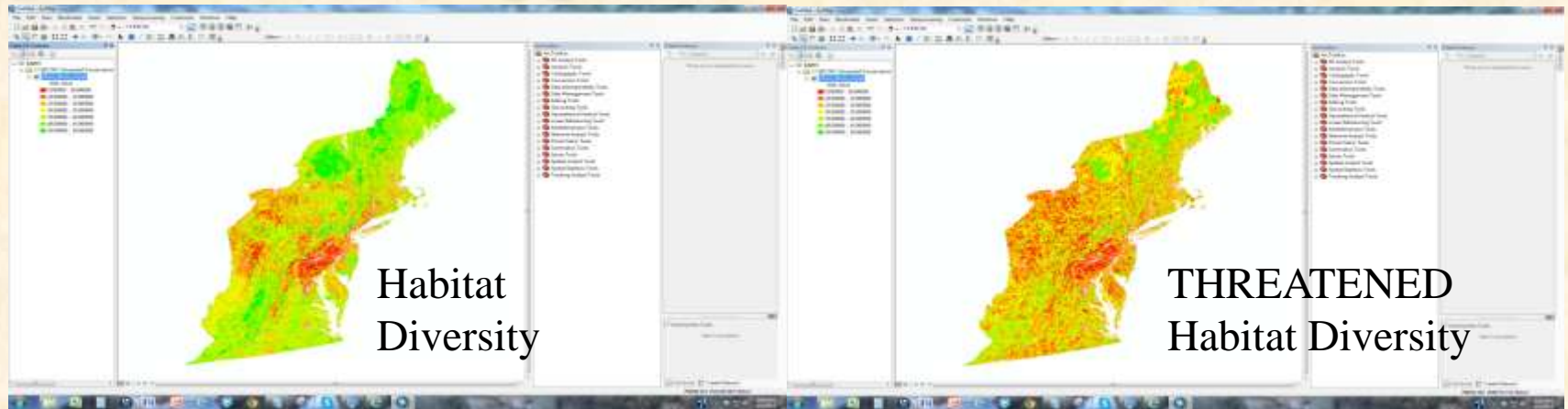


0 20 40 80 Kilometers

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Landscape Conservation Design

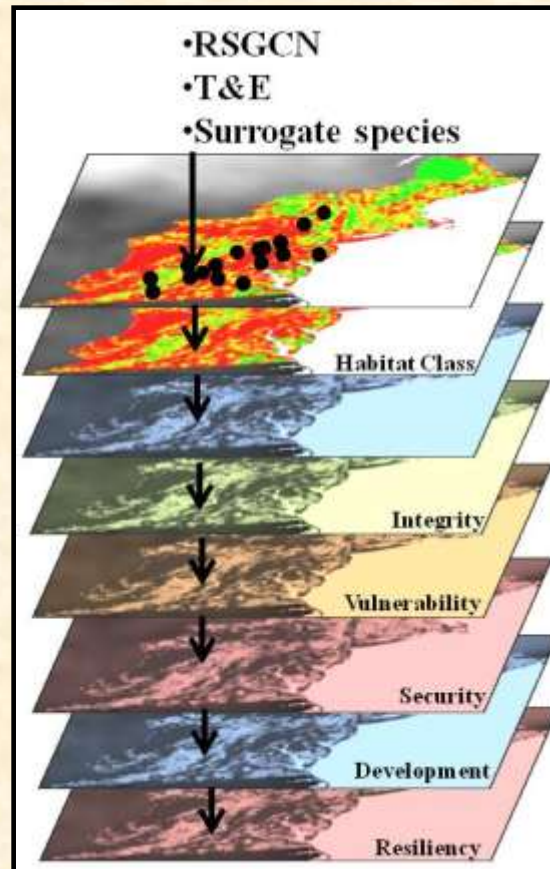
Regional-Scale Applications



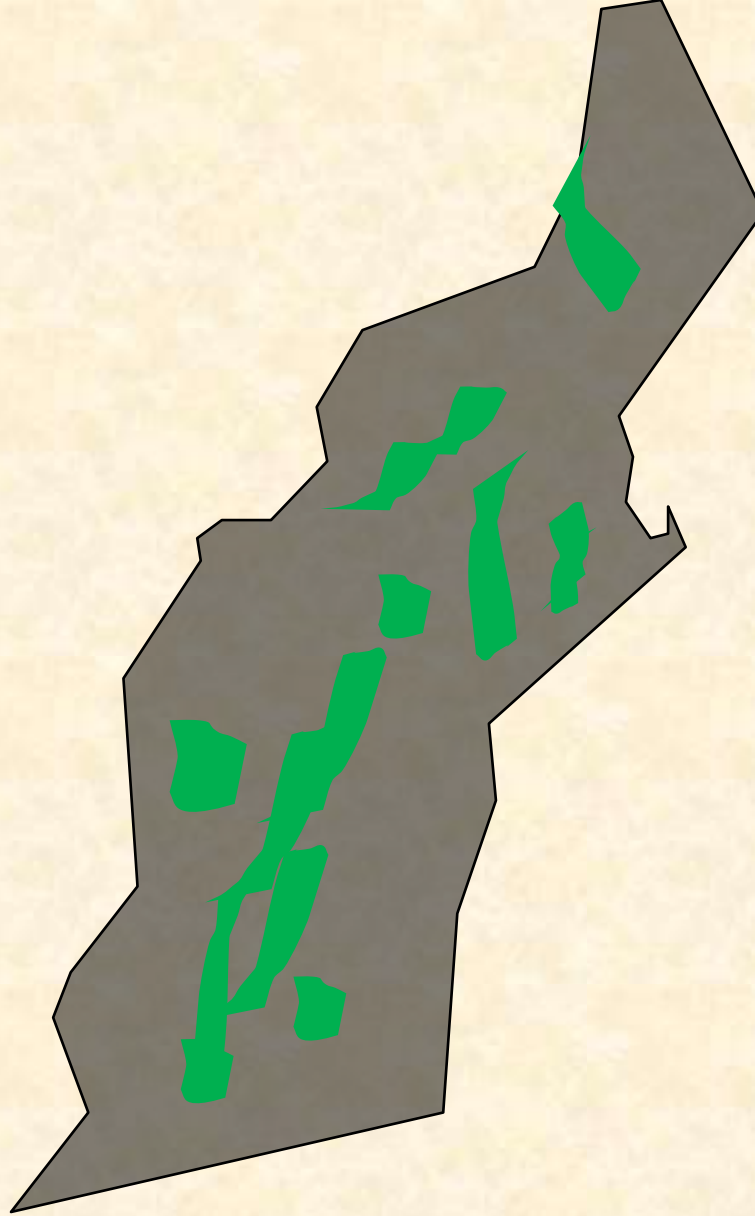
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How do priorities from nested scales of planning relate?



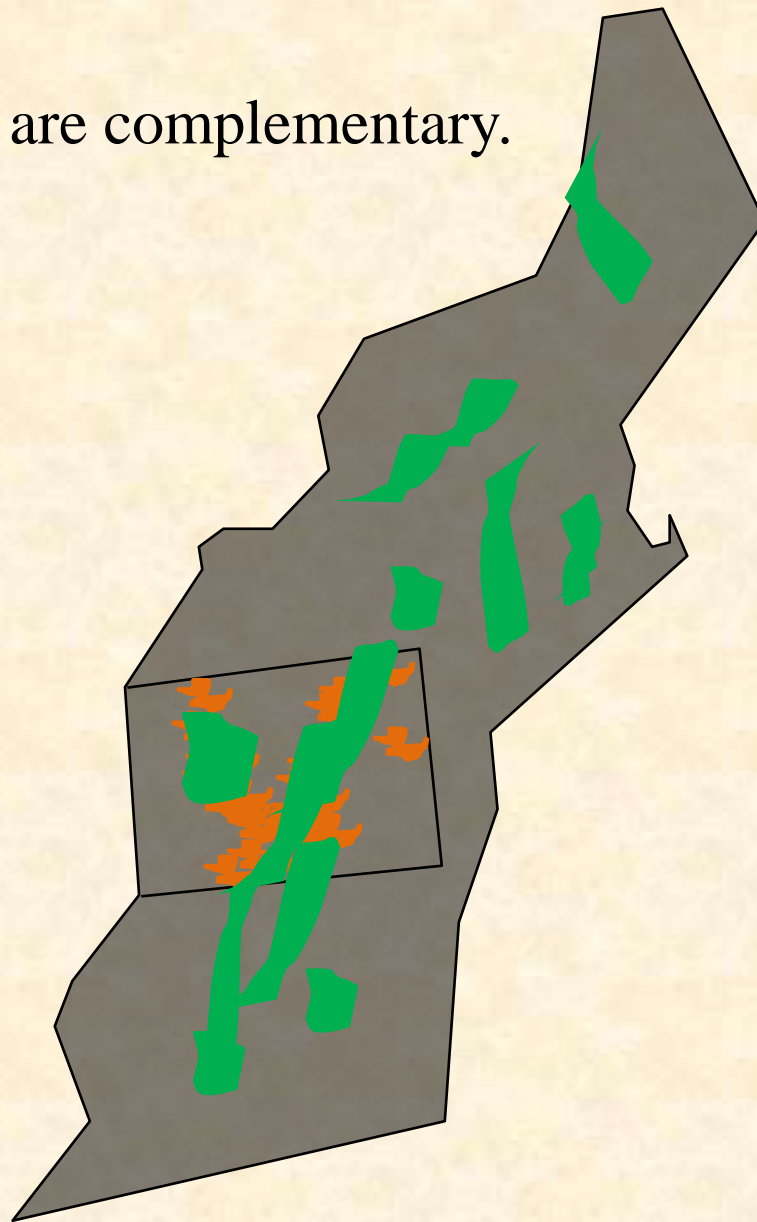
Regional scale
patterns...



State or watershed patterns...



Nested scales of planning are complementary.

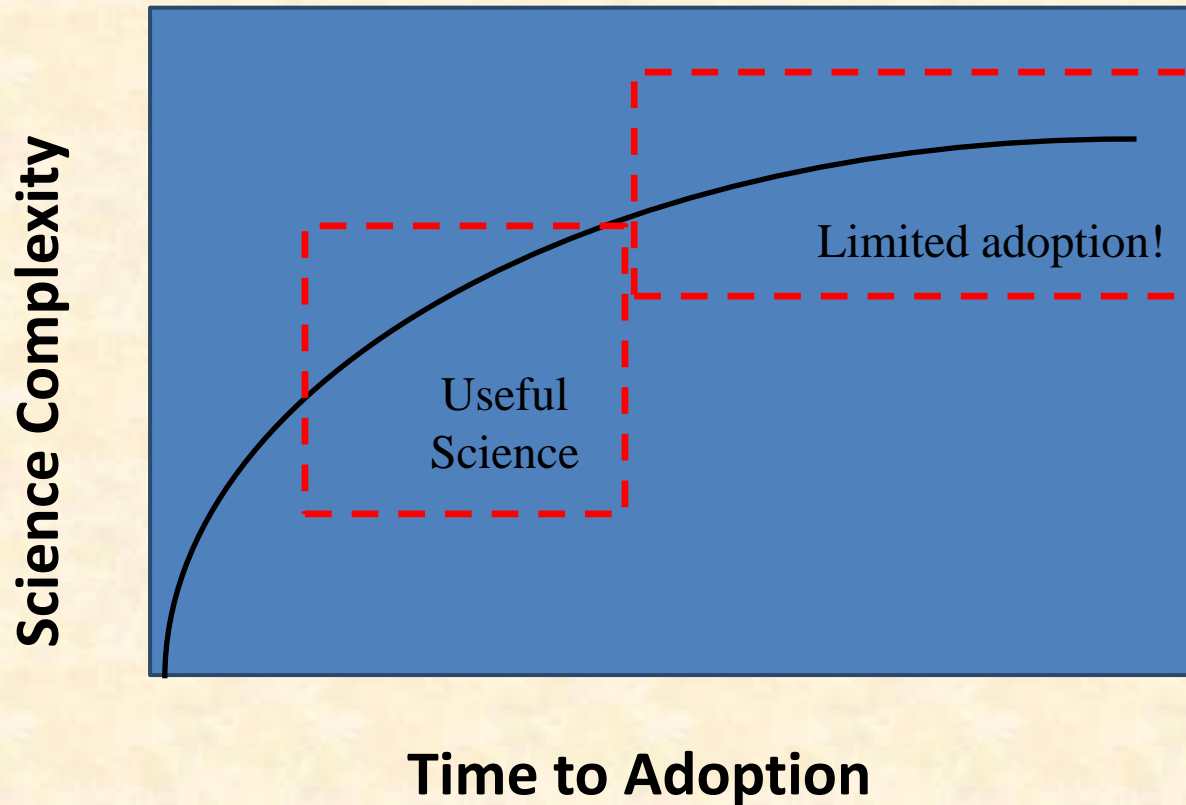


→ **providing funding and training to deliver science to broad conservation communities.**

NALCC Science Delivery Program has funded 8 projects to disseminate science and demonstrate applications to users:

- **land trusts**
- **municipalities**
- **conservation partnerships**
- **state and federal agencies**

We need to think about science utility and adoptability at every step of conservation.



<http://northatlanticlcc.org/projects>

The screenshot displays the North Atlantic Landscape Conservation Cooperative (NALCC) website. The header features the organization's name and a search bar. A navigation menu includes links to Home, The Cooperative, Resources, Projects, Work Spaces, LCC Network, News, Calendar, Members, and Help. The 'Projects' section is active, showing a list of projects. The first project, 'Extending the Northeast Terrestrial Habitat Map to Atlantic Canada', is highlighted. It includes a description of the project's goal to develop a comprehensive terrestrial habitat map for the entire extent of the NALCC region by extending the Northeast Terrestrial Habitat Map to Atlantic Canada and southern Quebec. A map of the region is shown. Below this, the 'Search Results' section is visible, showing a search for 'Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast'. This section includes a description of the project's goal to utilize the national Coastal and Marine Ecological Classification Standard (CMECS) to classify estuarine and marine environments in the northwest Atlantic region (Maine to Virginia). A map of the region is also shown. The website is viewed in a browser window with multiple tabs open, including 'Projects', 'Datasets', and 'Training'.

North Atlantic Landscape Conservation Cooperative

Search Site
only in current section

Home The Cooperative Resources Projects Work Spaces LCC Network News Calendar Members Help

You are here: Home / Projects

Companion Sites LOGIN

Projects

This area describes conservation science projects sponsored by the North Atlantic LCC, and other regional partners, that contribute regional-scale scientific information to aid decision makers who are working to sustain natural and cultural resources, including fish and wildlife populations.

Each year, the North Atlantic LCC invests in conservation science projects to help the LCC partnership define, design and deliver sustainable landscapes in the face of major regional conservation threats, including climate change and habitat loss. Projects are selected in a collaborative process that involves input from partners on the highest priority science needs that should be addressed. Requests for Proposals to address science needs will be prominently announced on the LCC website and elsewhere (most recently in August 2013).

FEATURED PROJECTS

Extending the Northeast Terrestrial Habitat Map to Atlantic Canada

This project will develop a comprehensive terrestrial habitat map for the entire extent of the North Atlantic Landscape Conservation Cooperative (NALCC) region by extending the Northeast Terrestrial Habitat Map to Atlantic Canada and southern Quebec.

1 2 3 4 5

Search Projects

Type in keywords or refine your search using the categories below

Focused Project Search

ECOSYSTEM TYPES

☐ Land
☐ Freshwater
☐ Coastal
☐ Marine

Search Results

Sort by: ☒ Alphabetical ☐ Most recent ☐ Oldest first ☐ NALCC-funded

Application of the Coastal and Marine Ecological Classification Standards (CMECS) to the Northeast

This project will utilize the national Coastal and Marine Ecological Classification Standard (CMECS) to classify estuarine and marine environments in the northwest Atlantic region (Maine to Virginia).

Completion Date: December 2013

North Atlantic Landscape Conservation Cooperative

<http://nalcc.databasin.org/datasets/>

North Atlantic Landscape Conservation Cooperative
Conservation Planning Atlas

powered by DATA BASIN

Get Started Browse Create My Workspace

NORTH ATLANTIC LCC CPA | DATASETS

Datasets Spatial information for visualization or download. [see all 54 datasets](#)

Recommended Datasets

Terrestrial Habitat, Northeast
This is a 30 meter grid that maps upland and wetland wildlife habitats/ecological systems for the Northeast, including all 13 states from Maine to Virginia, west to New York, Pennsylvania and West Virginia. Mapped habitat types are drawn from the Northeastern Terrestrial Habitat Classification System (NETHCS). The NETHCS is based on NatureServe's Ecological Systems Classification, augmented with additional information from individual state wildlife classifications and other information specific to the region.

Precipitation (mm/year) projections for years 2010-2030, RCP 8.5

TNC Aquatic Habitat 7 Classes

Impermeability (%) - Northeast U.S., 2010

USGS National Land Cover Database (2006, 2001, 1992)

Northeast Secured Lands 2011 Gap Status 1 and 2 only Scale = 3M

Looking for something specific? Search datasets by keyword or location

Recent Datasets

Risk of Road Crossing Mortality to

Northeast Ecological Systems (2014 Update)
University of Massachusetts
This dataset represents terrestrial and wetland ecological systems of the Northeast (based on NatureServe's Ecological Systems Classifications) combined with human-modified land types such as roads and agriculture. This dataset was created by substantially modifying The Nature Conservancy's Northeast Ecological Systems (2014 Update) dataset.
North Atlantic LCC (Last modified Apr 2, 2014)

Congressional District Boundaries

North Atlantic Landscape

North Atlantic Landscape Conservation Cooperative