Support for Strategic Conservation

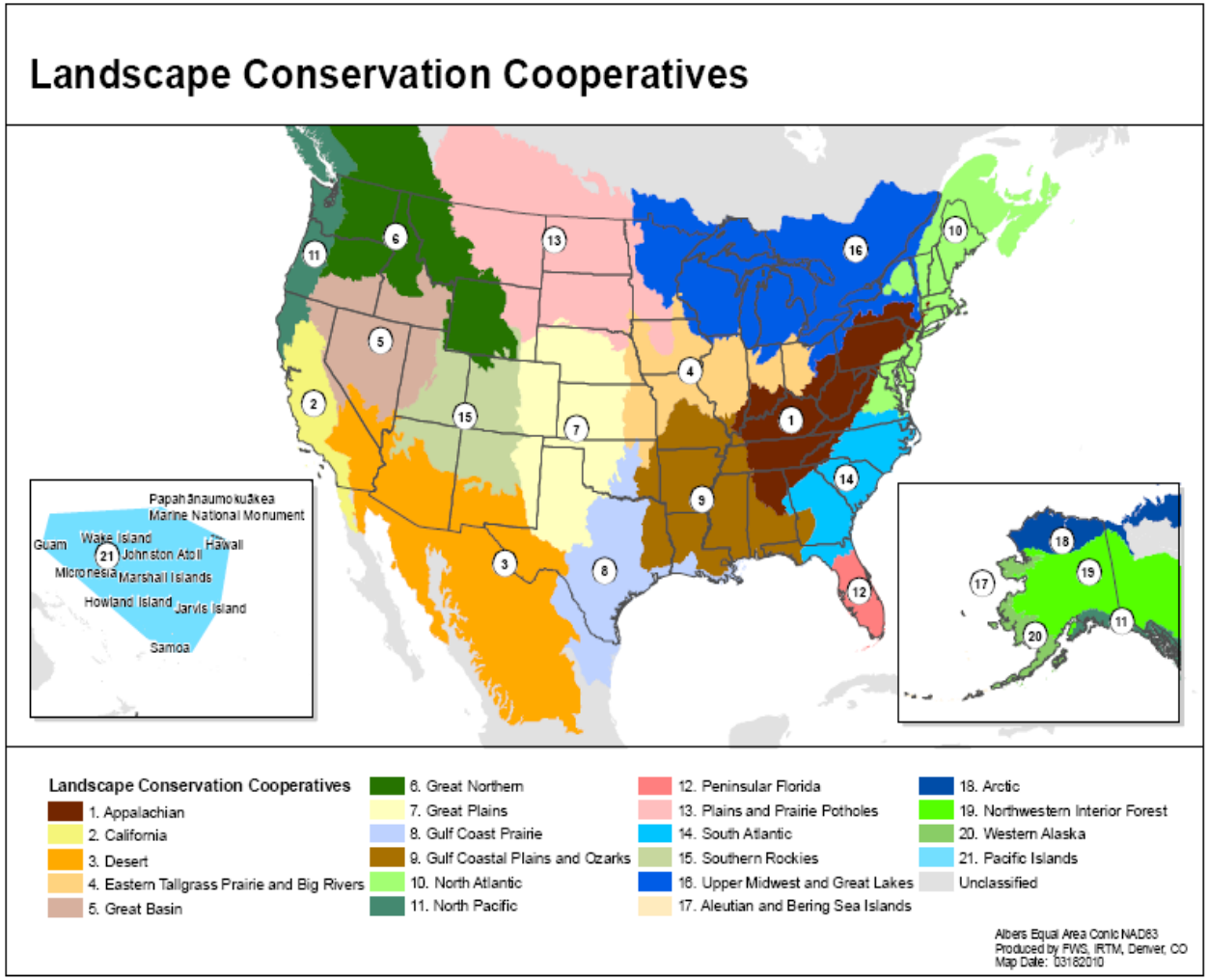
Steve Fuller
Science Delivery Coordinator

North Atlantic
Landscape Conservation Cooperative (NALCC)

The Wildlife Management Institute

LANDSCAPE CONSERVATION COOPERATIVES

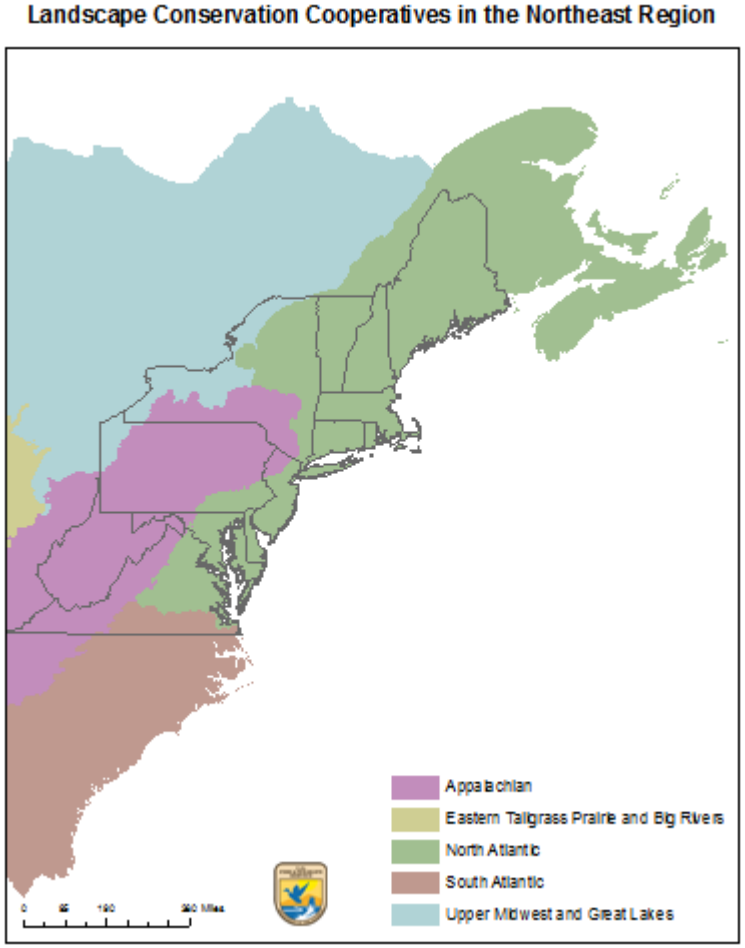
What is an LCC?



- DOI Funded
- Landscape Conservation Partnerships
- Hosted by FWS
- Science support
- Focused on climate and other large-scale conservation issues

What is NALCC?

- 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



Who is involved?

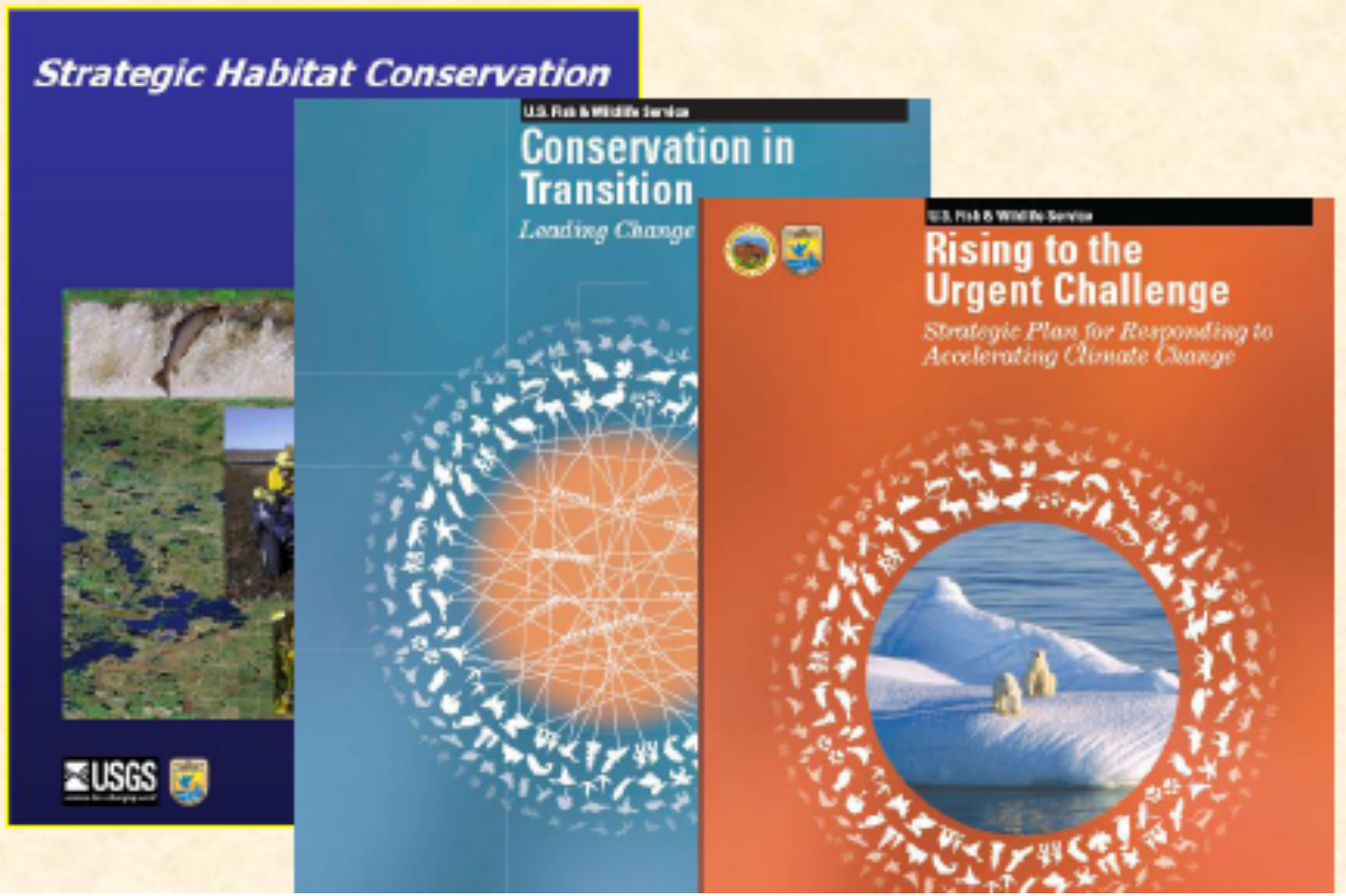
- Steering Committee
  - States
  - Federal Agencies
  - Tribes
  - NGOs
  - Canadian Partners
  - Existing Partnerships
- Technical Teams
  - Taxonomic and geographic representation
  - Management-oriented scientists
- Staff

What are we doing?

We are working together with partners to realize the common vision of a

National network of connected habitats founded on the best available science

Background


Strategic Habitat Conservation
USGS
Conservation in Transition
Leading Change
Rising to the Urgent Challenge
Strategic Plan for Responding to Accelerating Climate Change

Background

NATIONAL *fish, wildlife & plants*
CLIMATE ADAPTATION STRATEGY

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.

Background

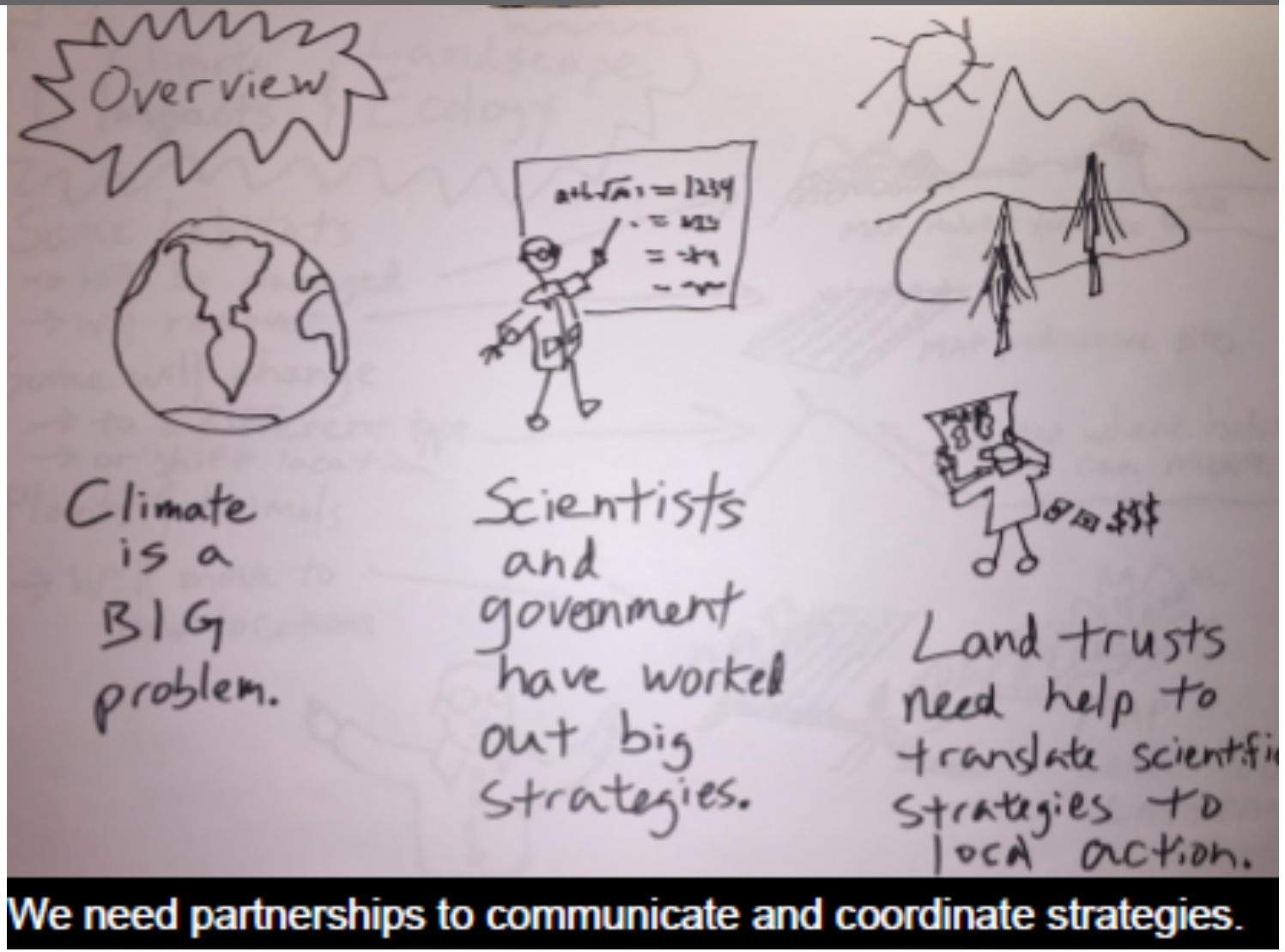
Mapping and Modeling

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.

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.

How will we do IT?



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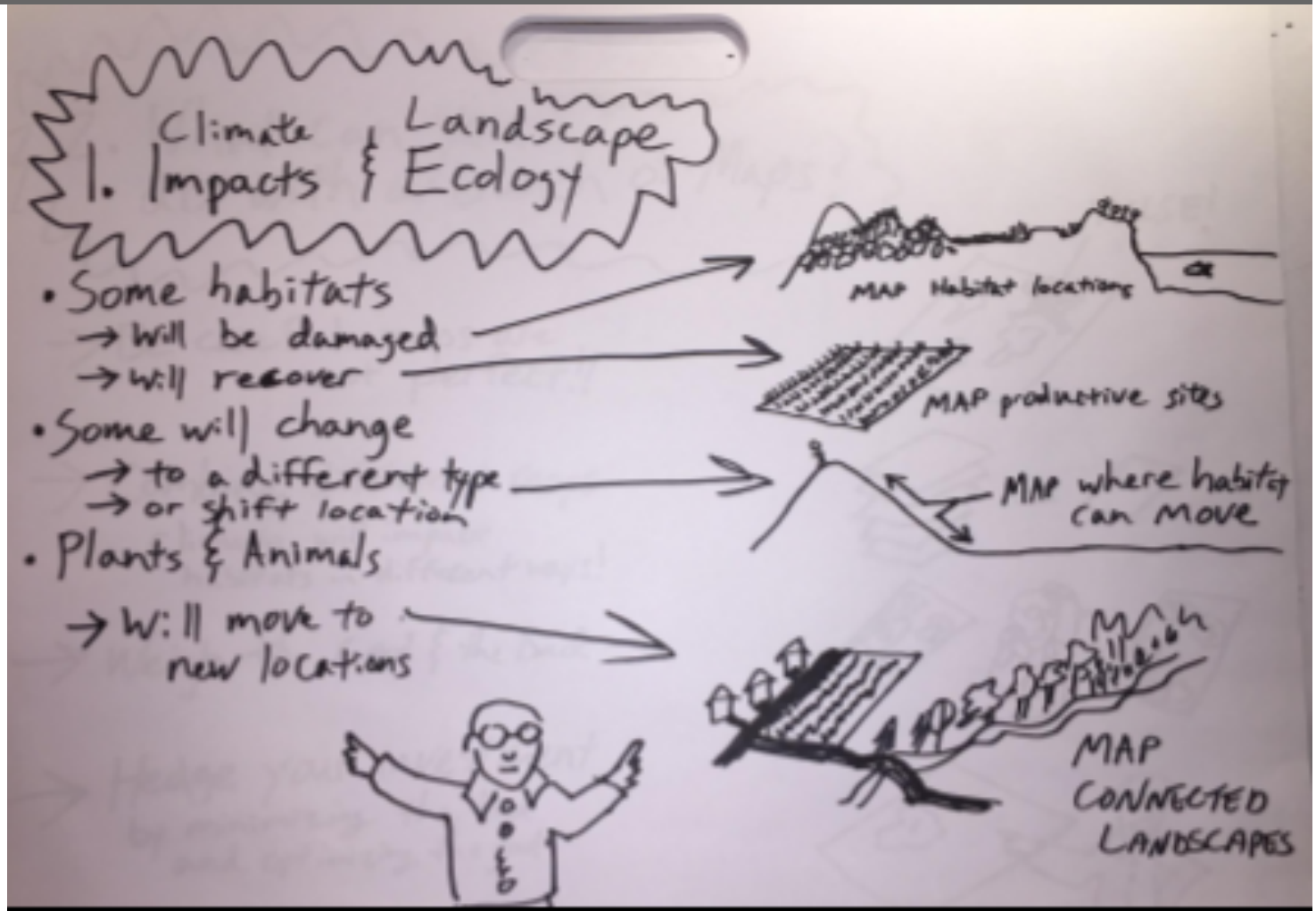
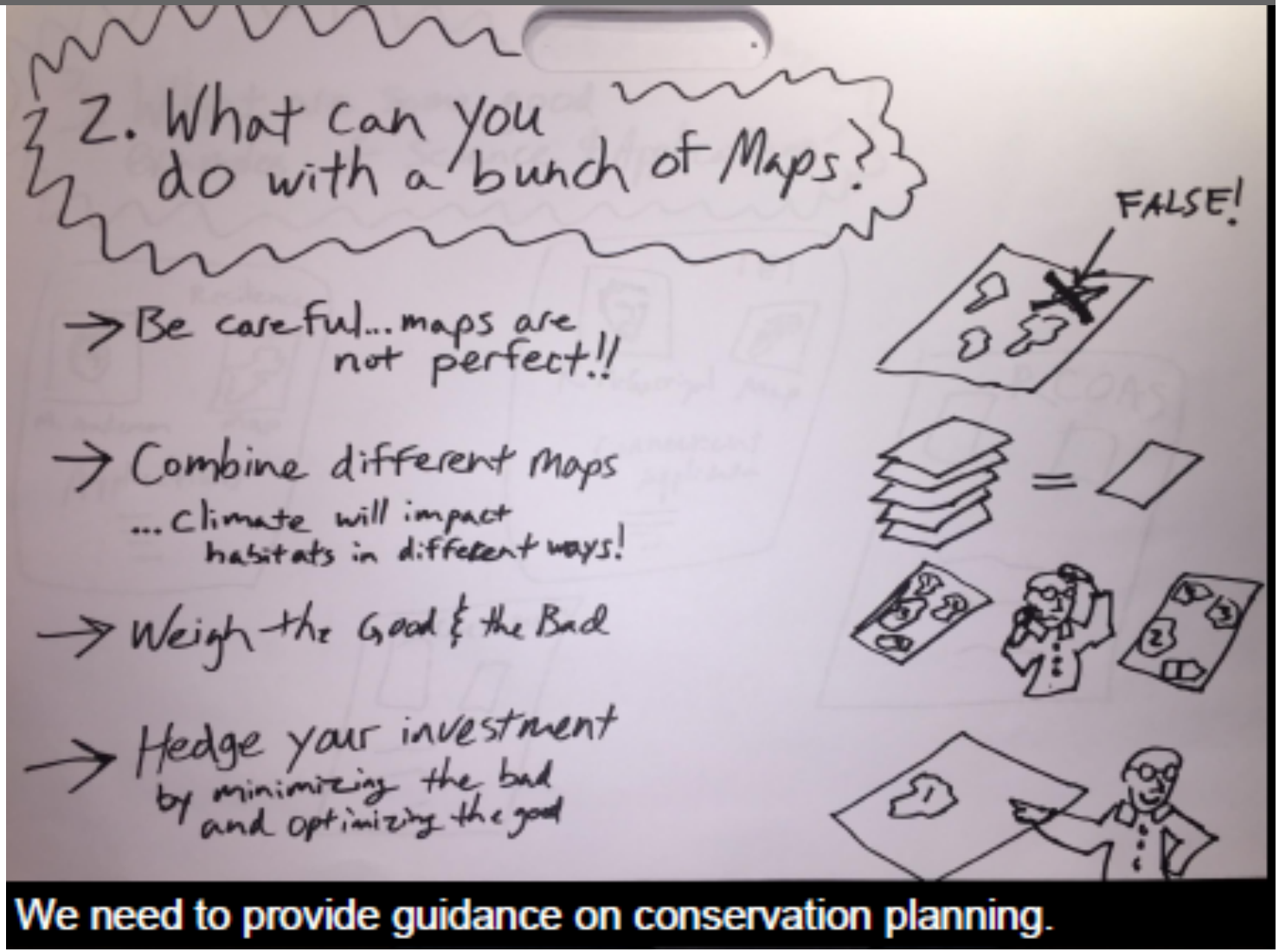


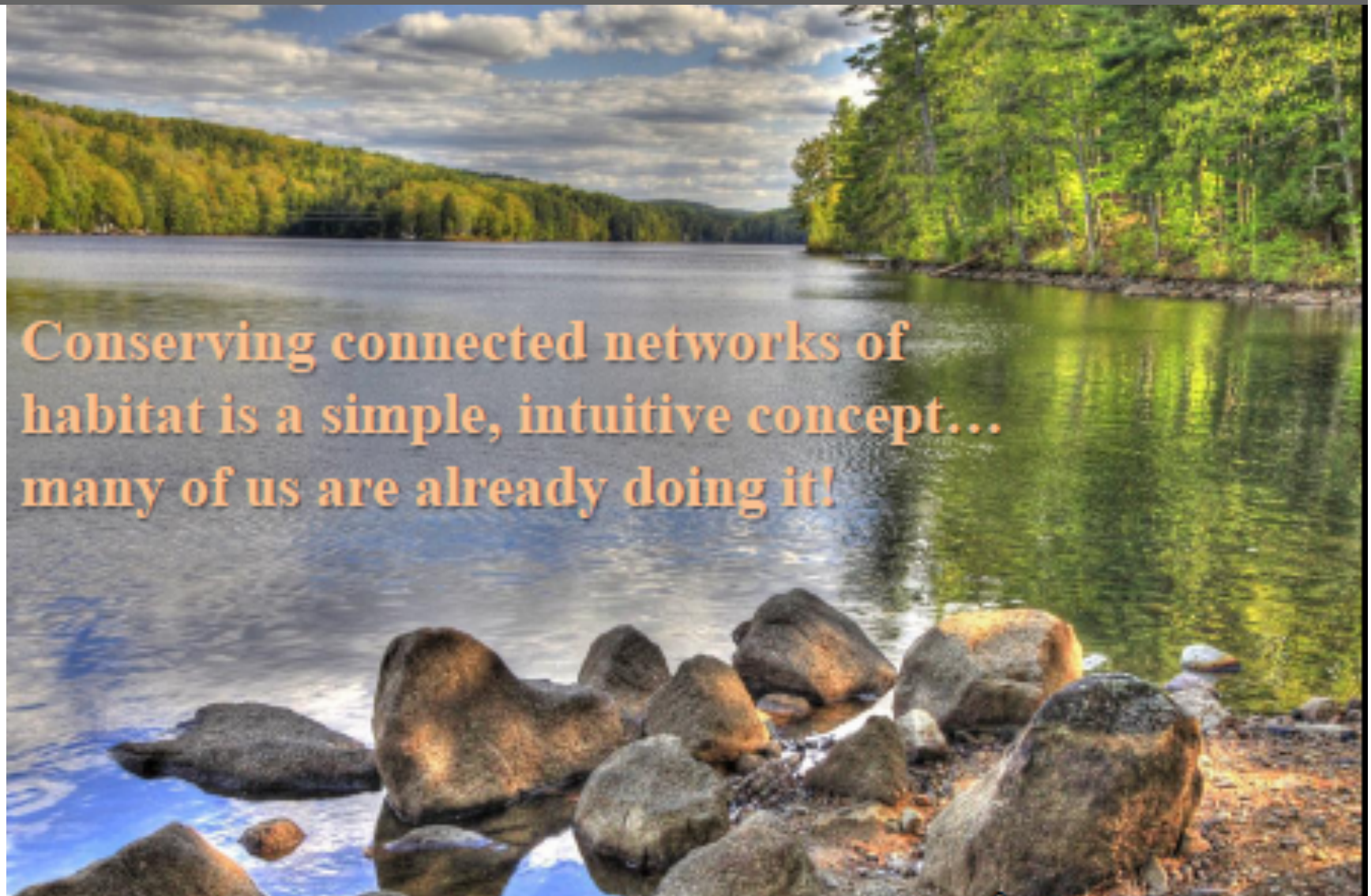
We need to provide guidance on what the science means.

How will we do IT?



We need to provide guidance on conservation planning.

Get involved!



Access

Our website

http://northatlanticlcc.org/

Our Conservation Planning Atlas

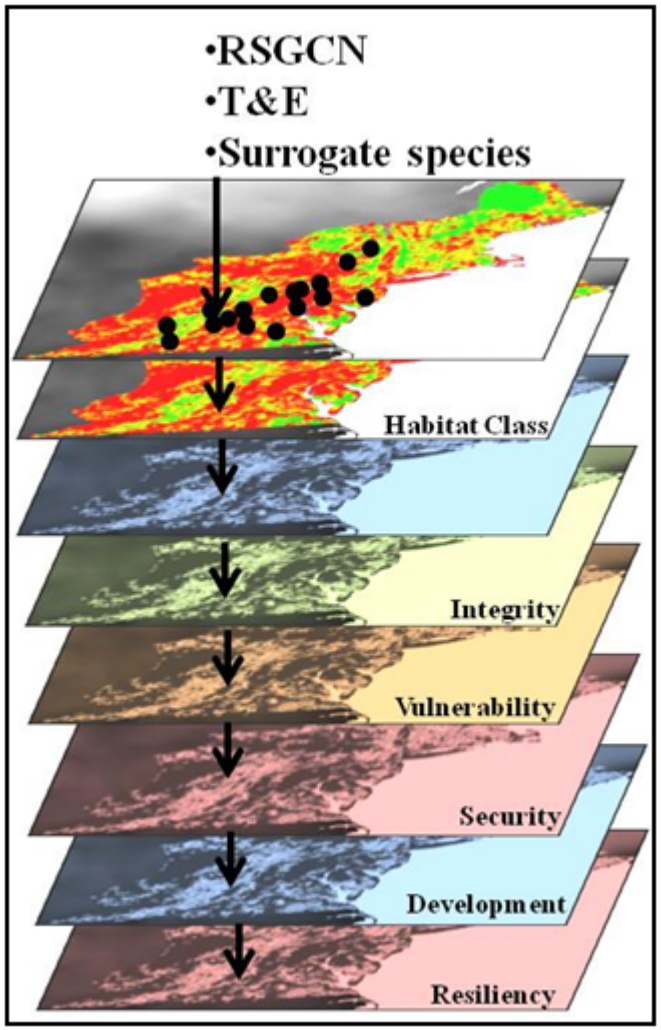
http://nalcc.databasin.org/

Access

Products to check out:

1. Northeast Terrestrial Habitat Classification (The Nature Conservancy)
2. Index of Ecological Integrity (UMASS)
3. Resilience (TNC)
4. Landscape Permeability (TNC)
5. Ecosheds http://ecosheds.org/home
6. Brook Trout Assessment and Decision Support Tool

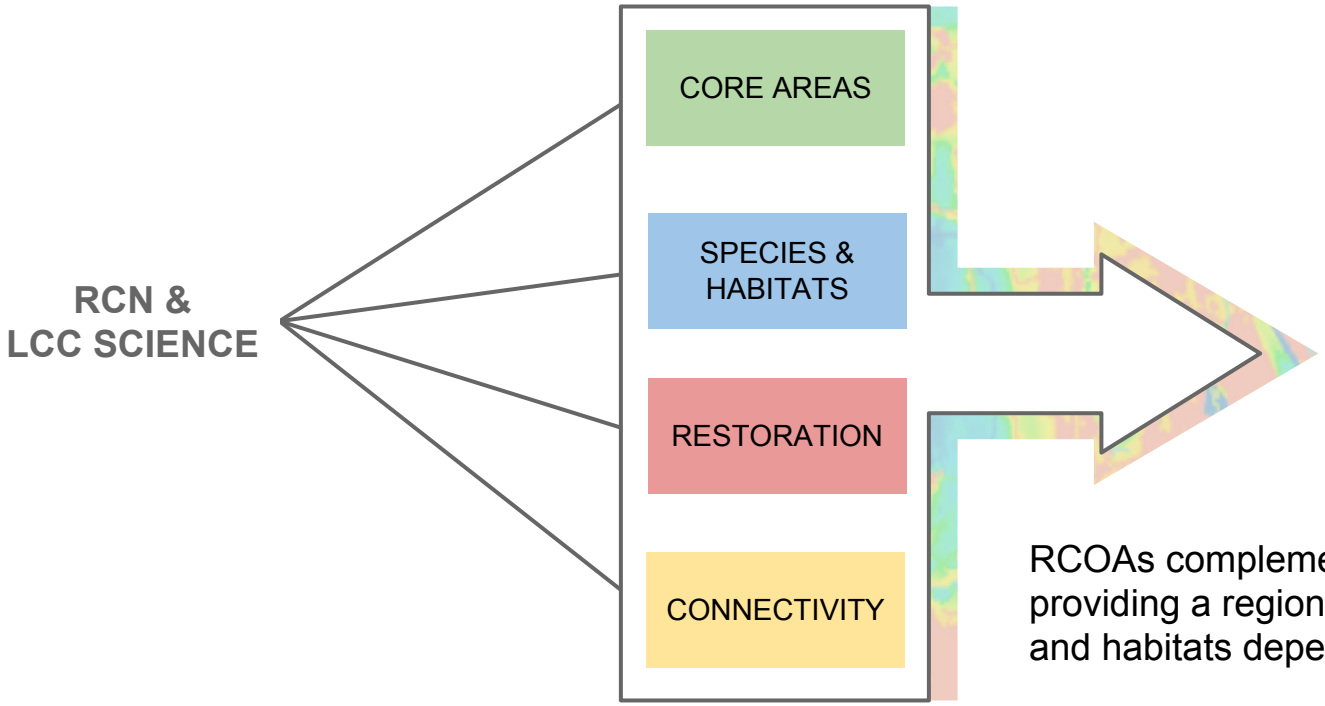
How does it all fit together?



Regional **C**onservation
Opportunity **A**reas

RCOA Vision

RCOAs will identify a **connected** network of **resilient** and **ecologically intact** habitats that will support **biodiversity** under changing conditions



Regional
Conservation
Opportunity
Areas

RCOAs complement state efforts by providing a regional context...which species and habitats depend on my state the most?

Overview

Leveraging investments

Inclusive collaboration

Relevant science

Better implementation

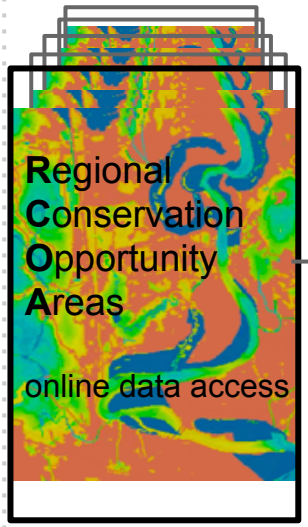
RCN & LCC SCIENCE

CORE AREAS

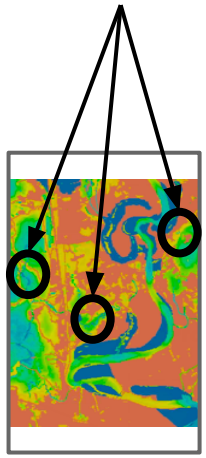
SPECIES & HABITATS

RESTORATION

CONNECTIVITY

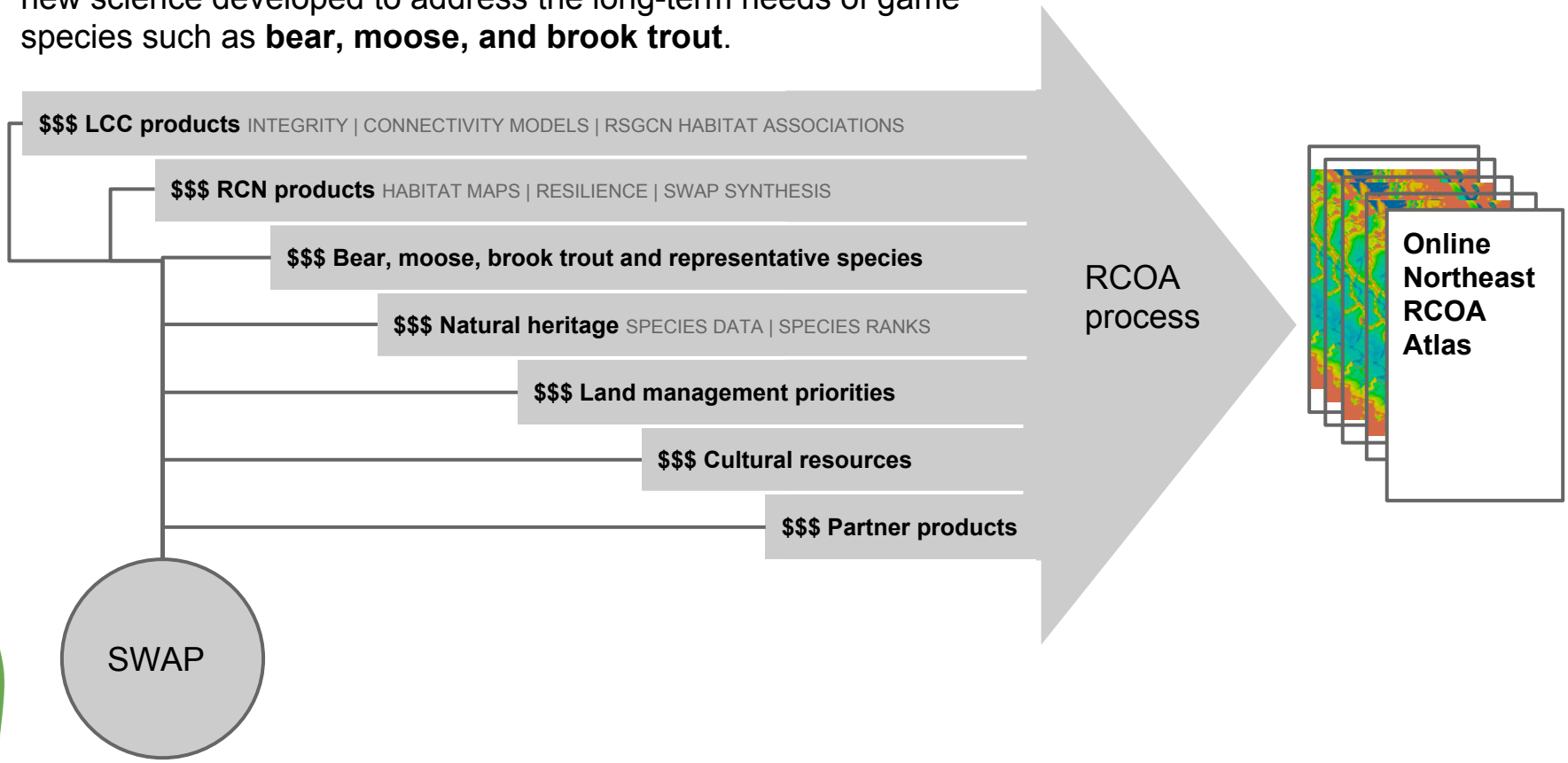


Coordinate partners for voluntary on-the-ground success



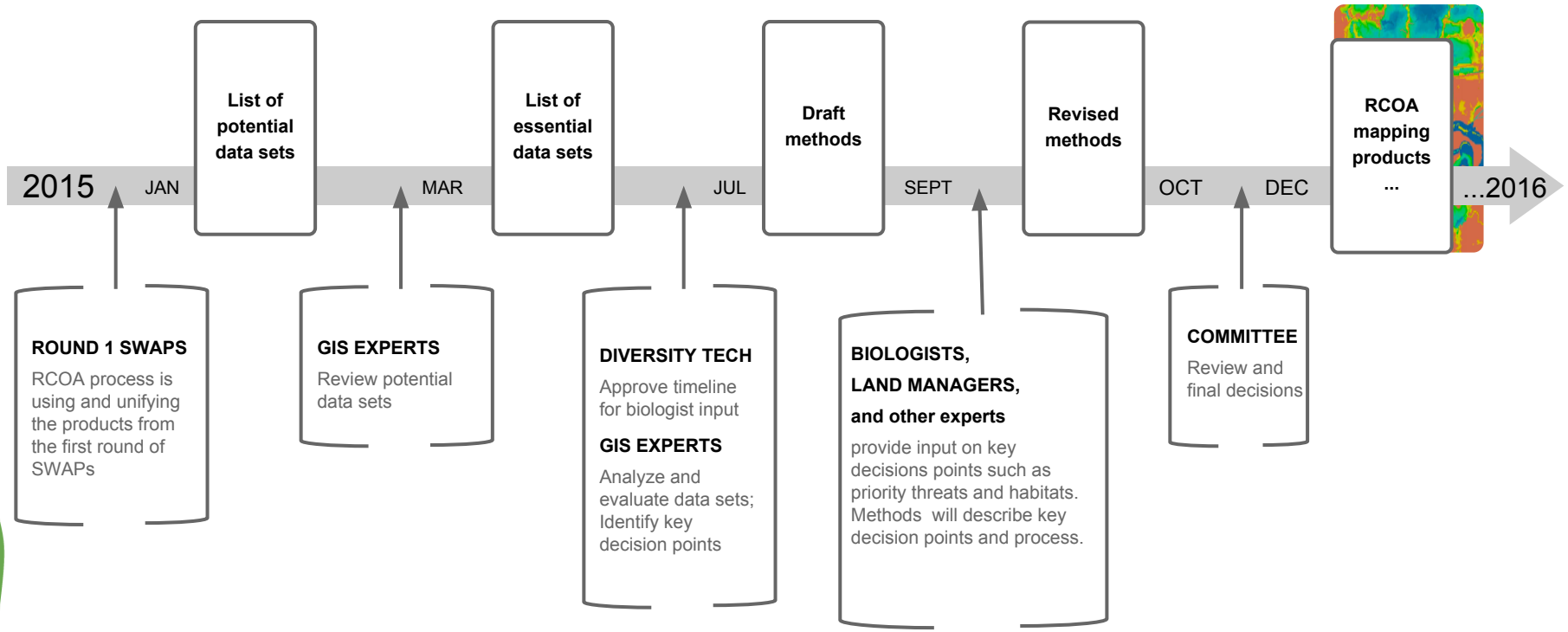
Leveraging investments

The ROCA project is leveraging years of investments by the **RCN Program, LCCs, and Natural Heritage programs**. It is applying new science developed to address the long-term needs of game species such as **bear, moose, and brook trout**.



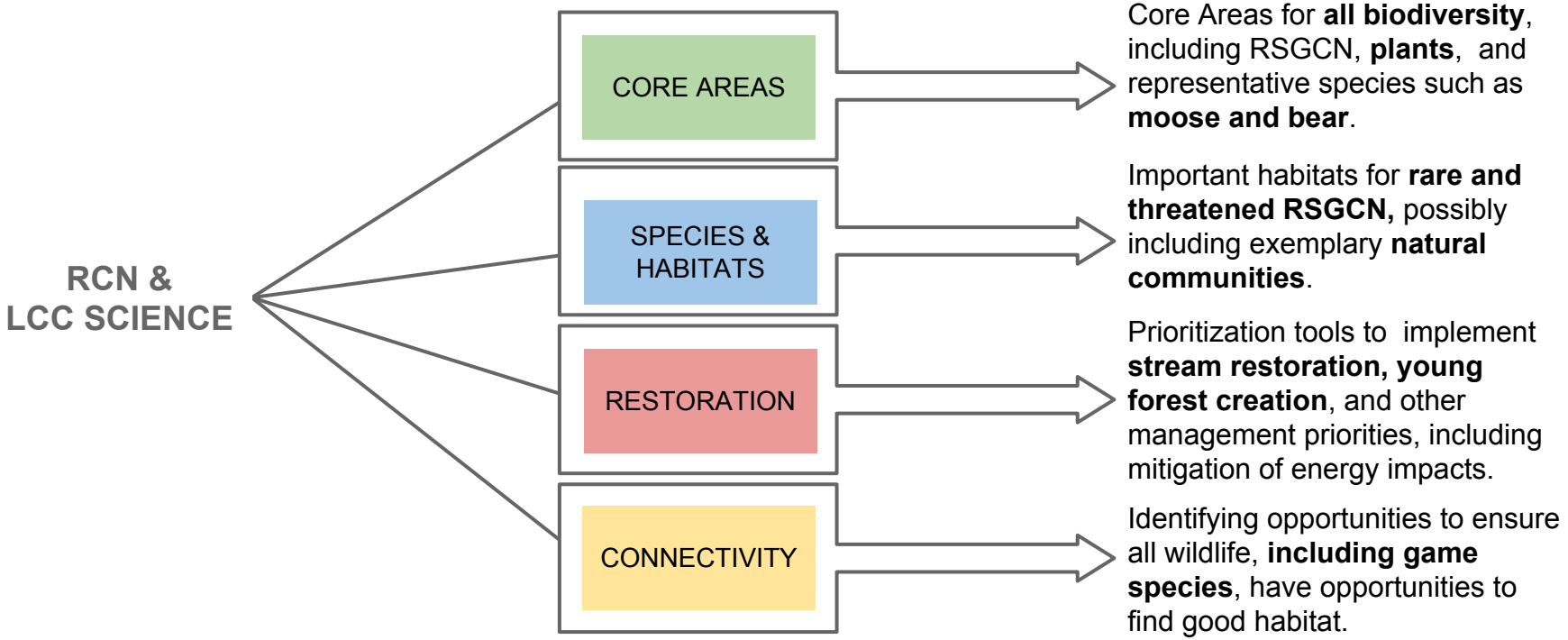
Inclusive process

Key decision points for biologists and diversity tech committee



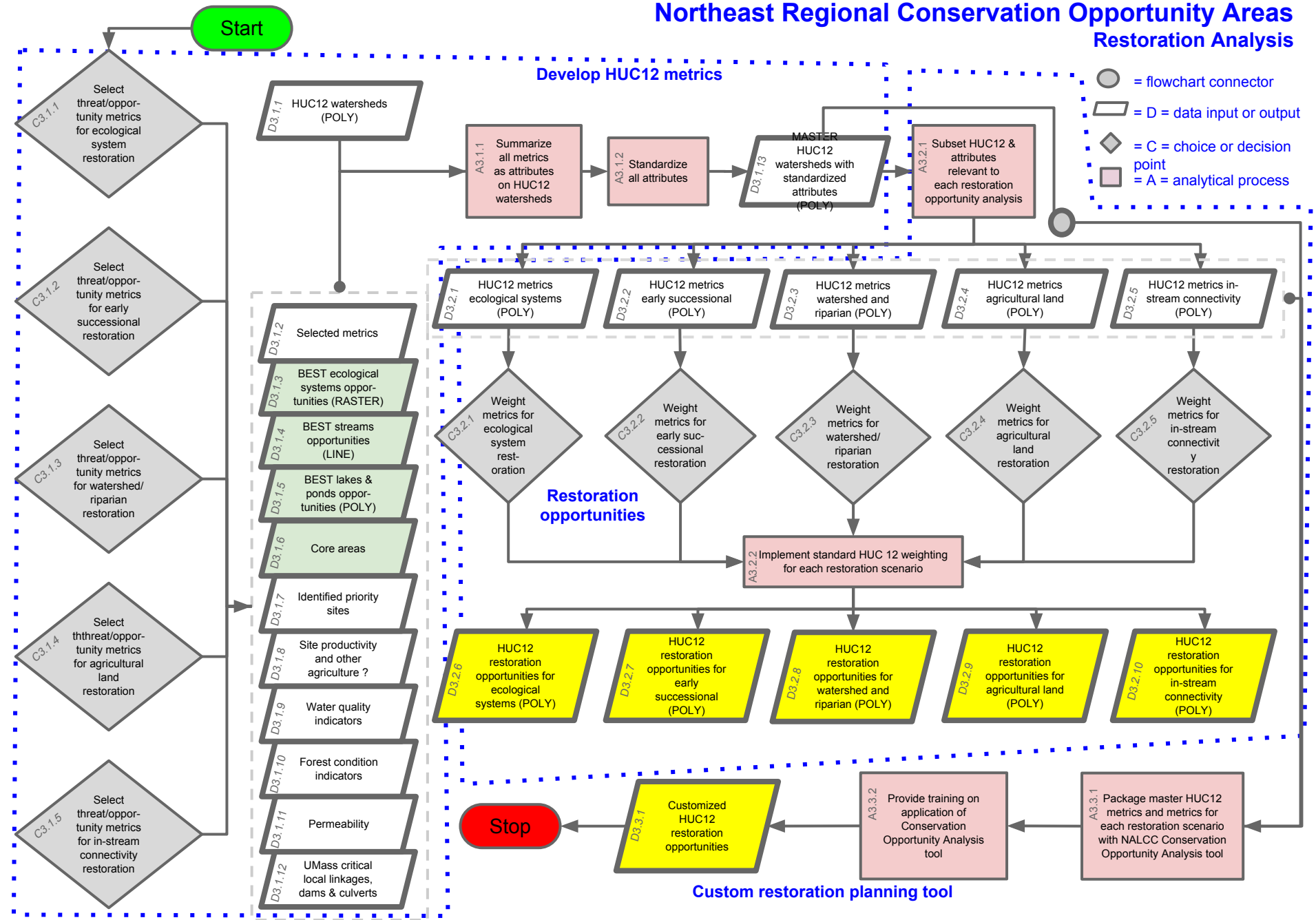
Relevant Science

A **connected** network of **resilient** and **ecologically intact** habitats that will support **biodiversity** under changing conditions



Northeast Regional Conservation Opportunity Areas

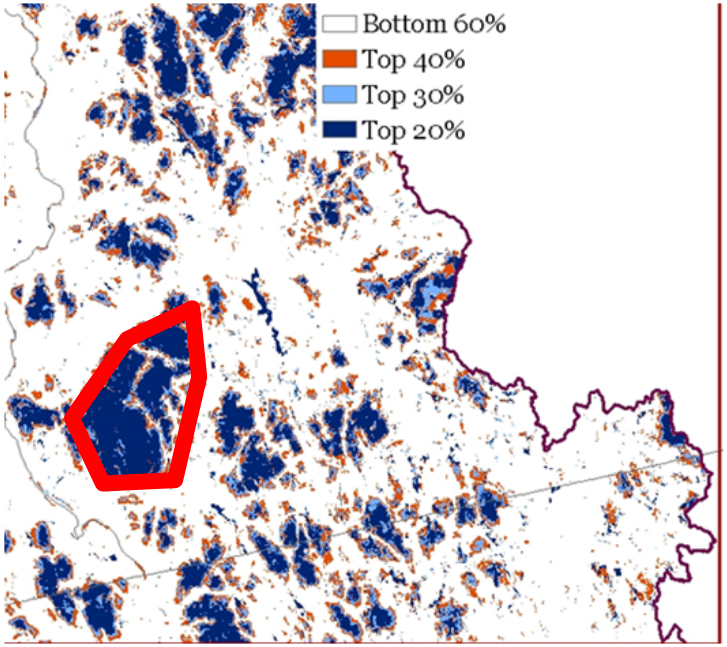
Restoration Analysis

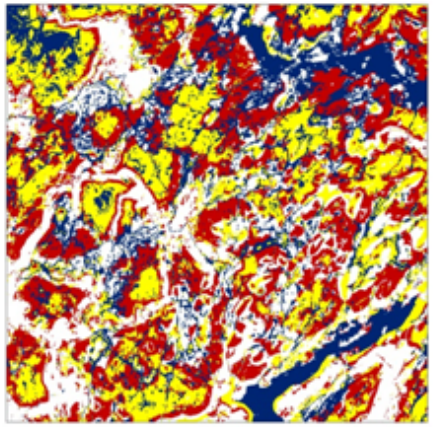


Core Areas

For all biodiversity

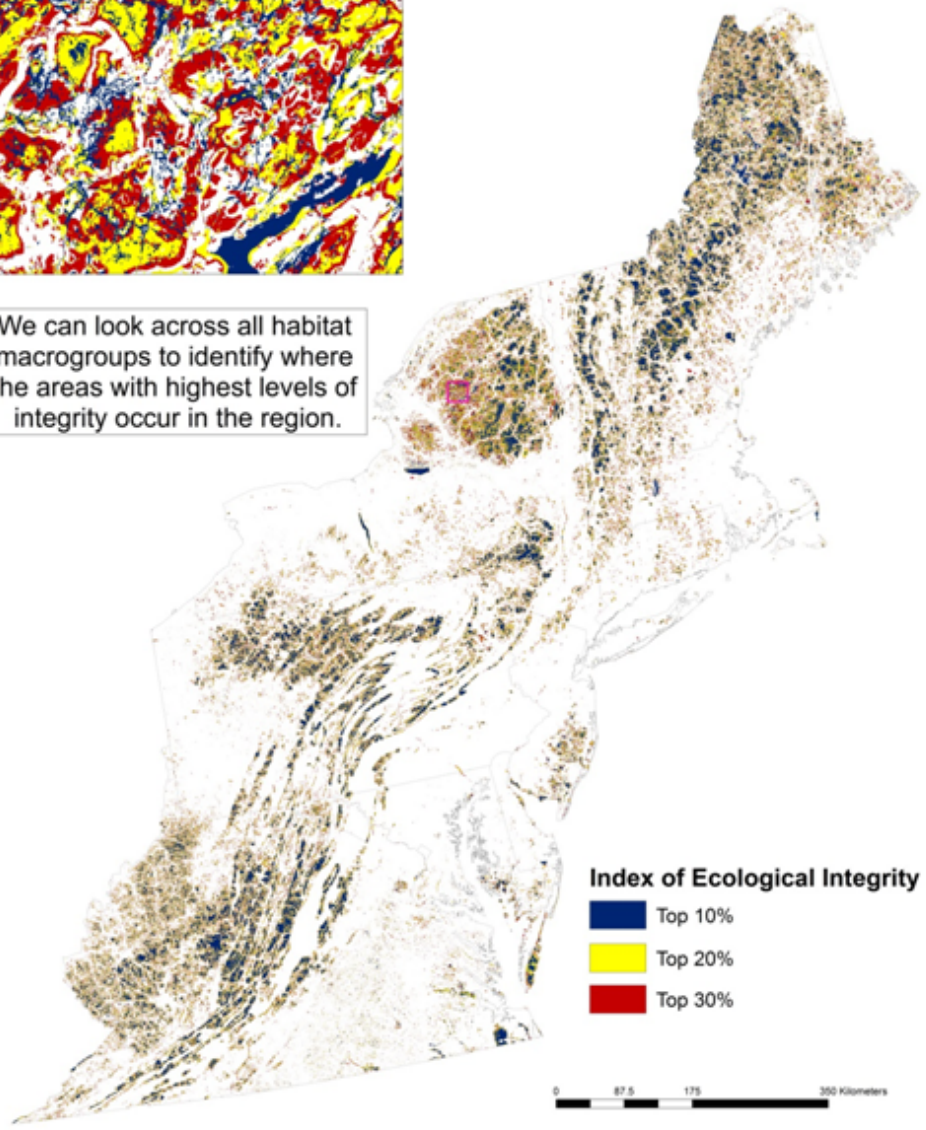
Which landscapes are currently in the best condition?





Index of Ecological Integrity:
Top 10, 20, and 30 Percent

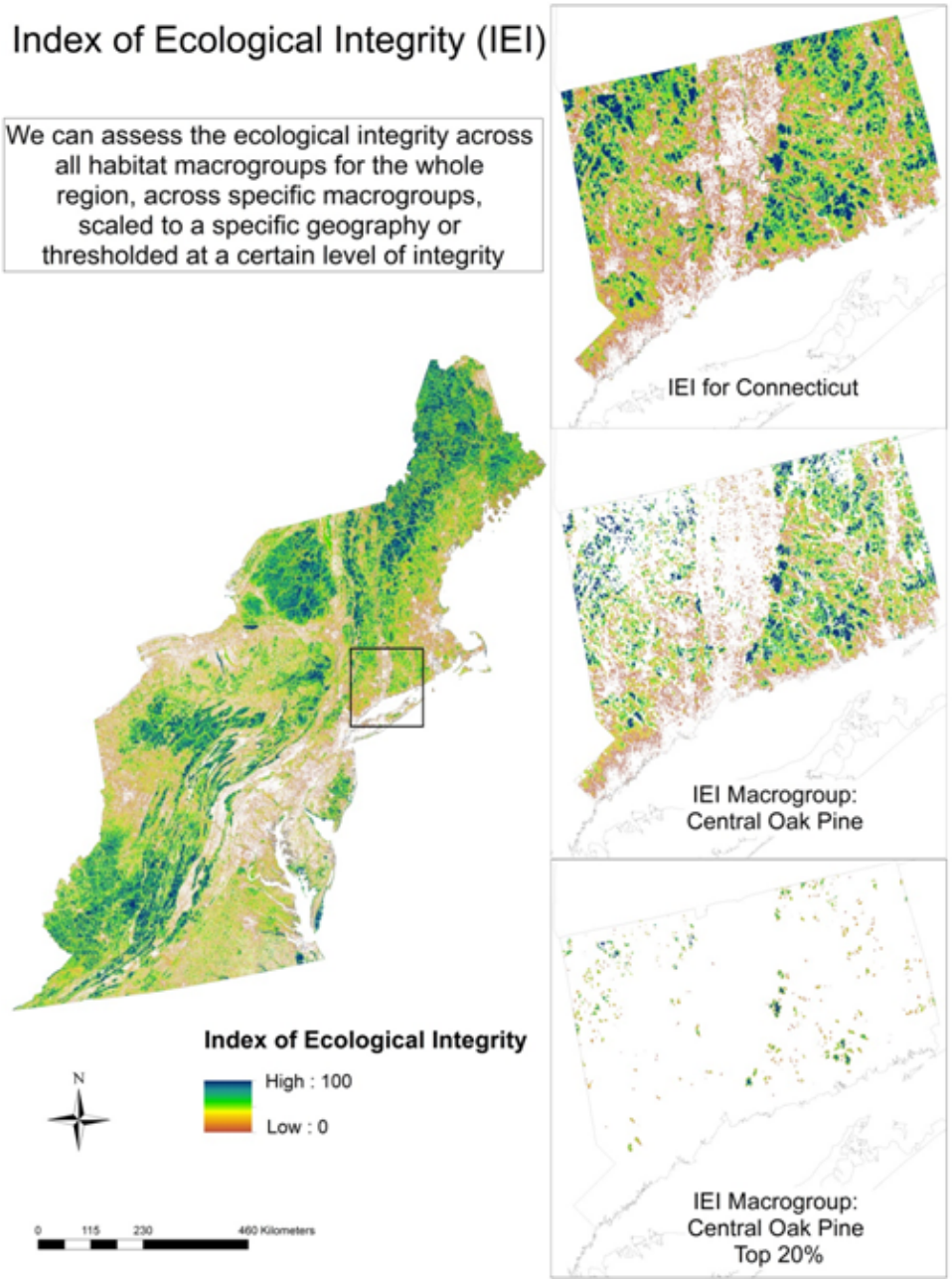
We can look across all habitat macrogroups to identify where the areas with highest levels of integrity occur in the region.



Species and Habitats

Regional Species of Greatest Conservation Need

We will focus on lakes, ponds, streams, and terrestrial systems <u>classes</u> to address the needs of hundreds of Regional Species of Greatest Conservation Need.



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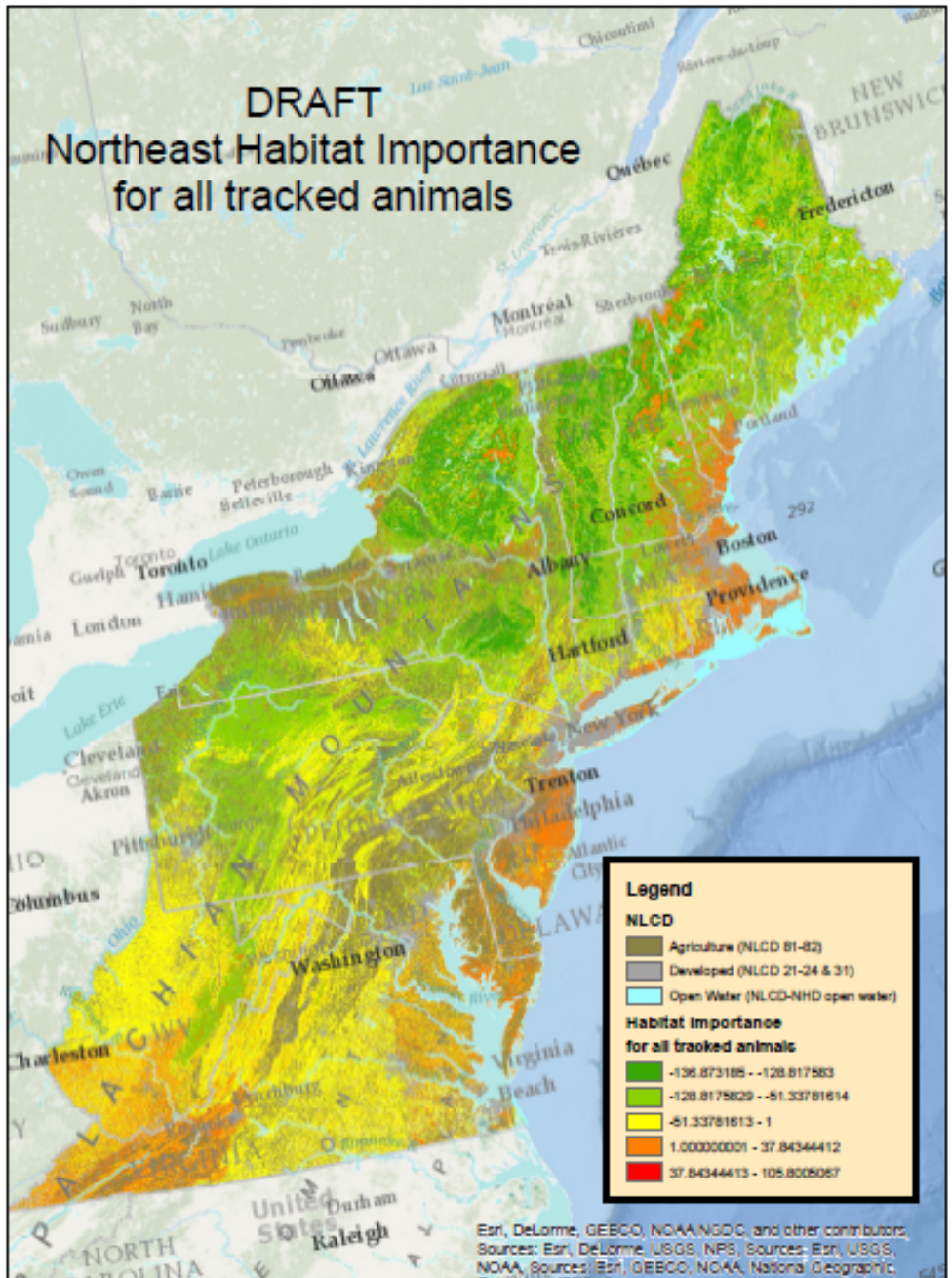


Species and Habitats

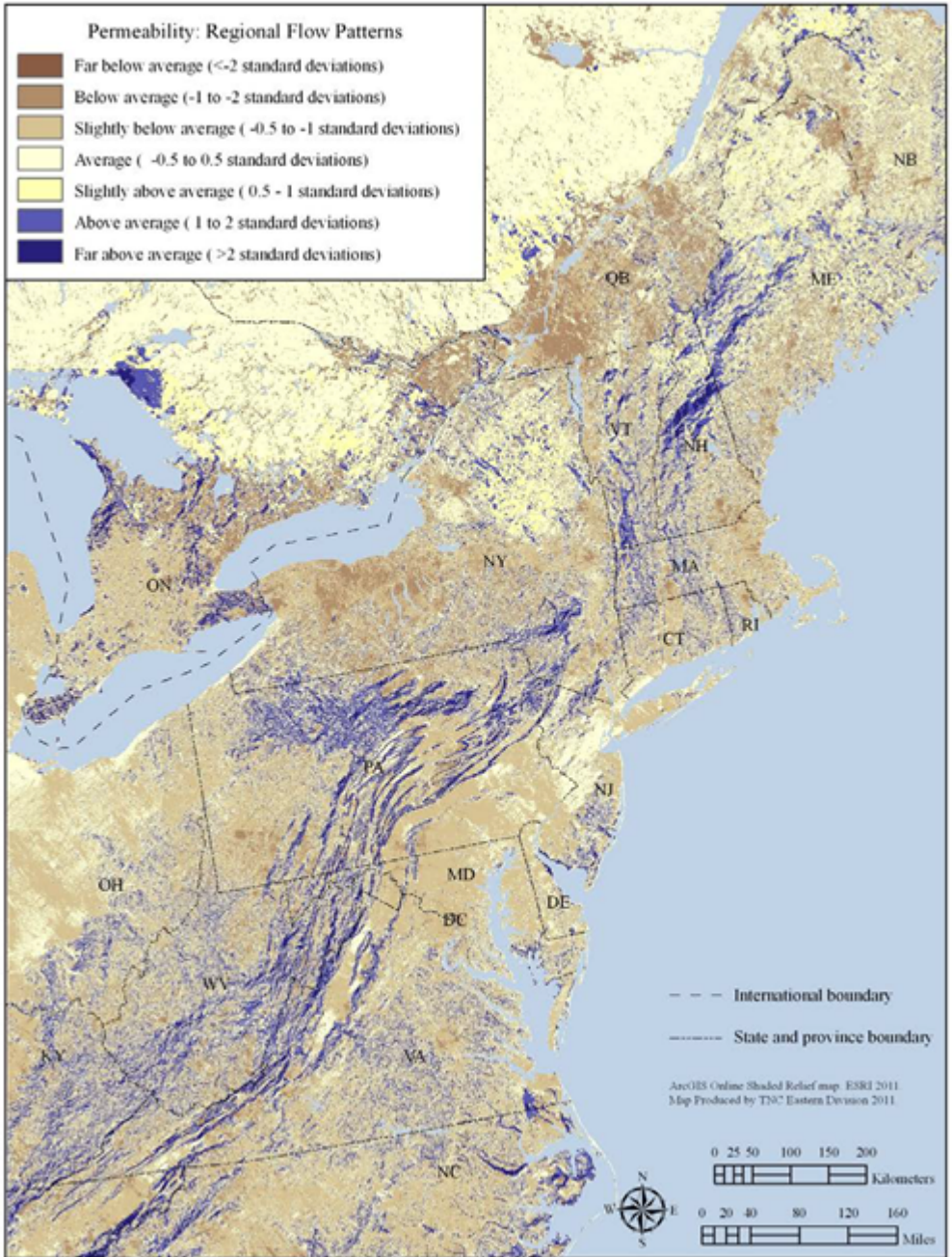
Regional Species of Greatest Conservation Need

Habitat importance helps focus on the most threatened and diverse parts of the landscape.

Connectivity

Connecting core areas and key habitats

We will map large patterns of permeability, key connections between habitats, and zones of potential marsh migration.



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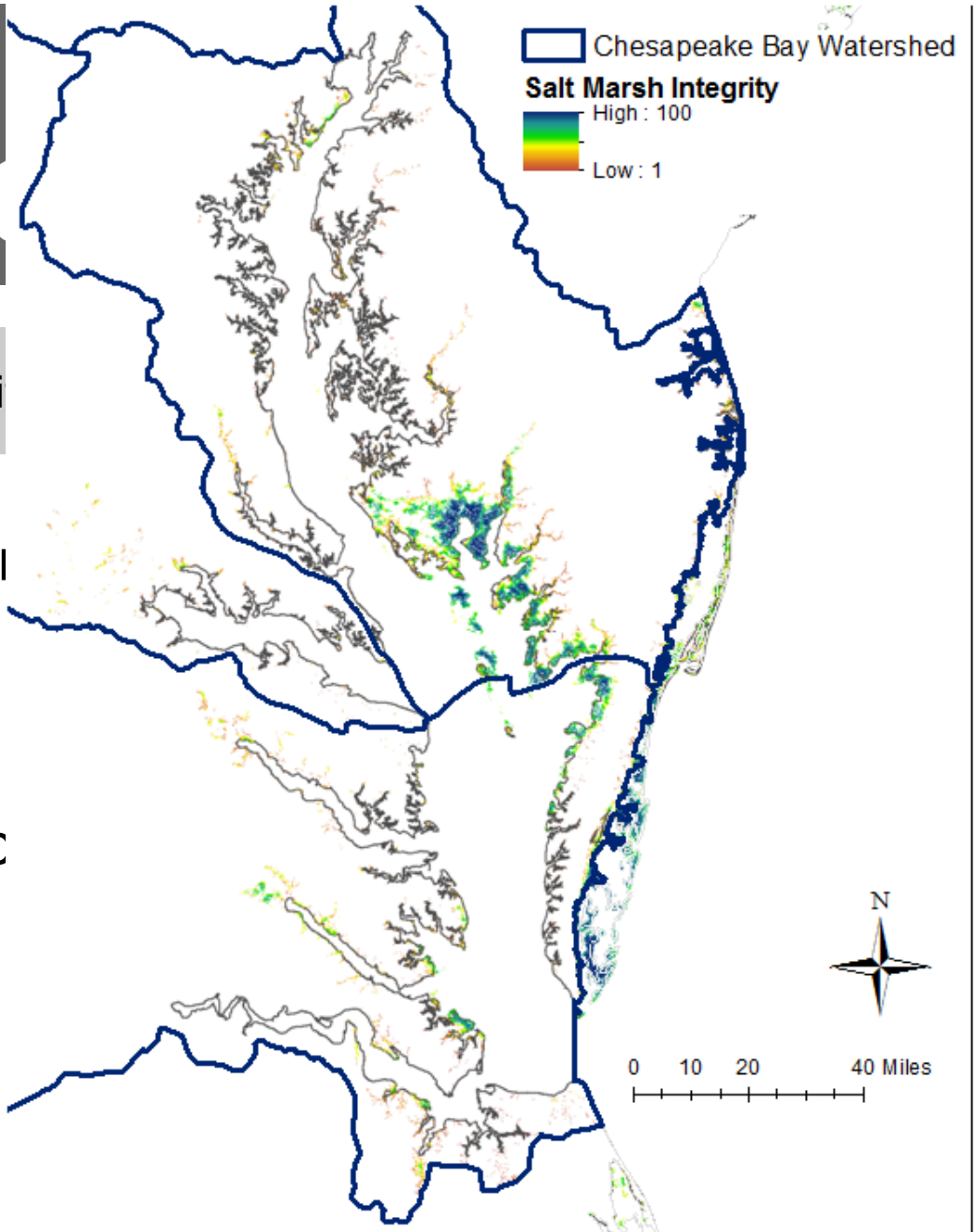
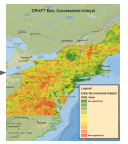
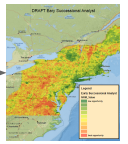
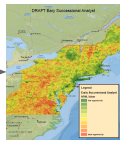
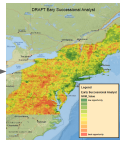
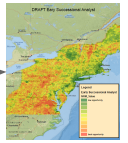


Restoration

Which restoration and management opportunities are we focused on?

Select Opportunity Factors

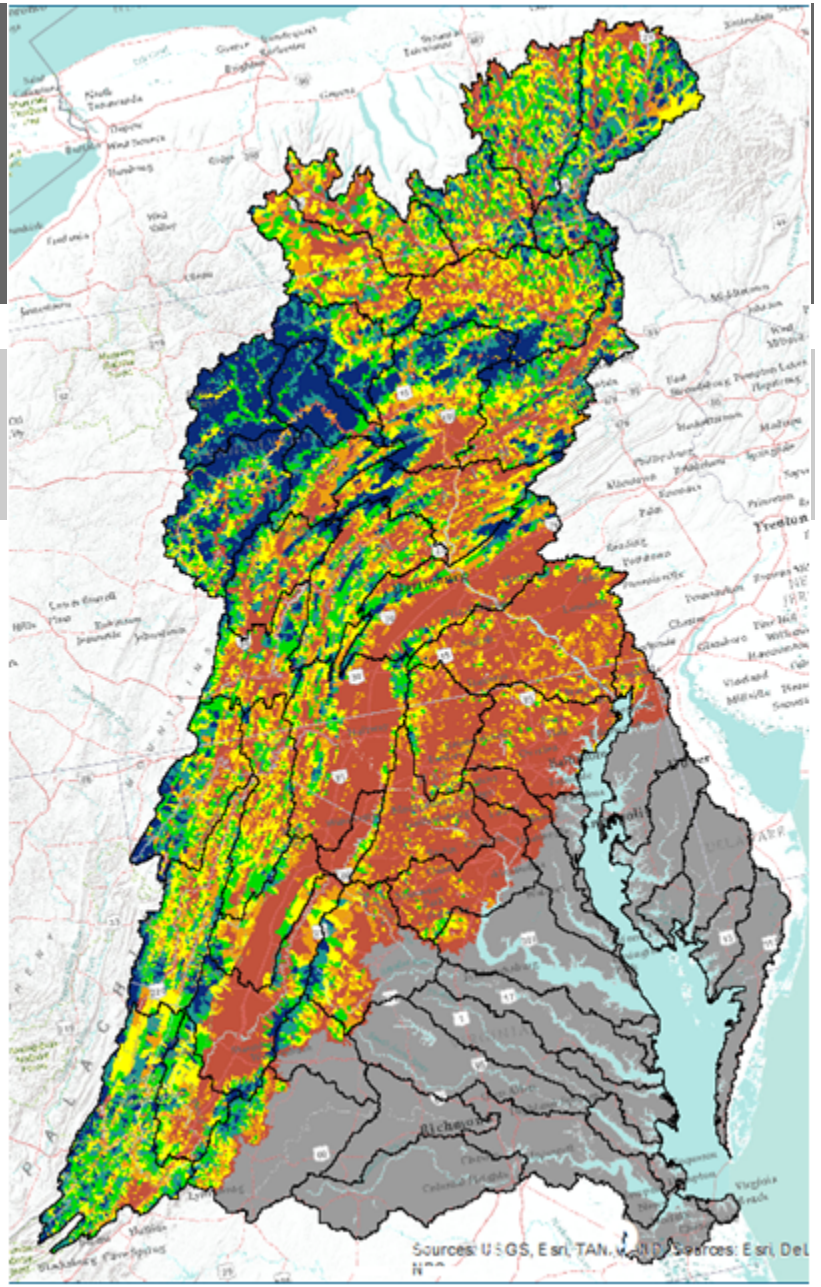
- HUC12 restoration opportunities for ecological systems
- HUC12 restoration opportunities for early successional
- HUC12 restoration opportunities for watershed and riparian buffers
- HUC12 restoration opportunities for agricultural land
- HUC12 restoration opportunities for in-stream connectivity

Restoration

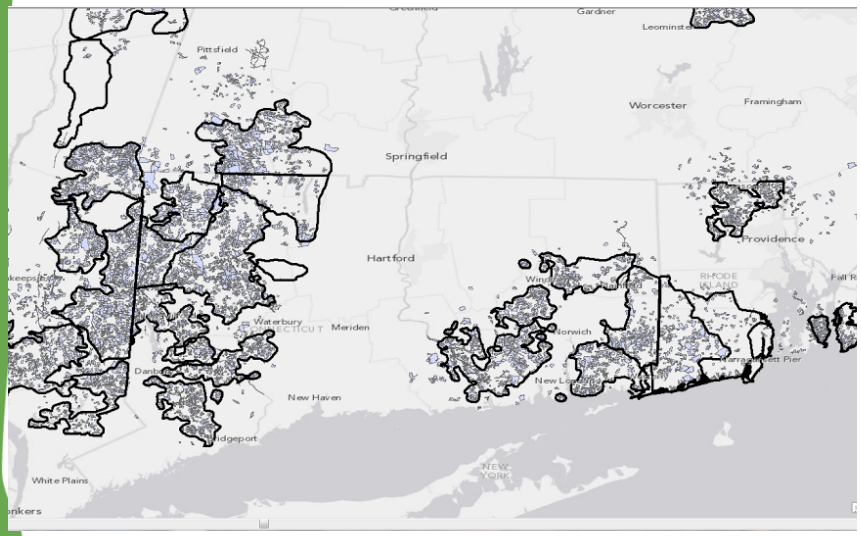
We will refine data by HUC 12 for each restoration category

- Threatened habitats
- Early successional
- Agricultural
- Upland/Riparian areas
- In-steam connectivity

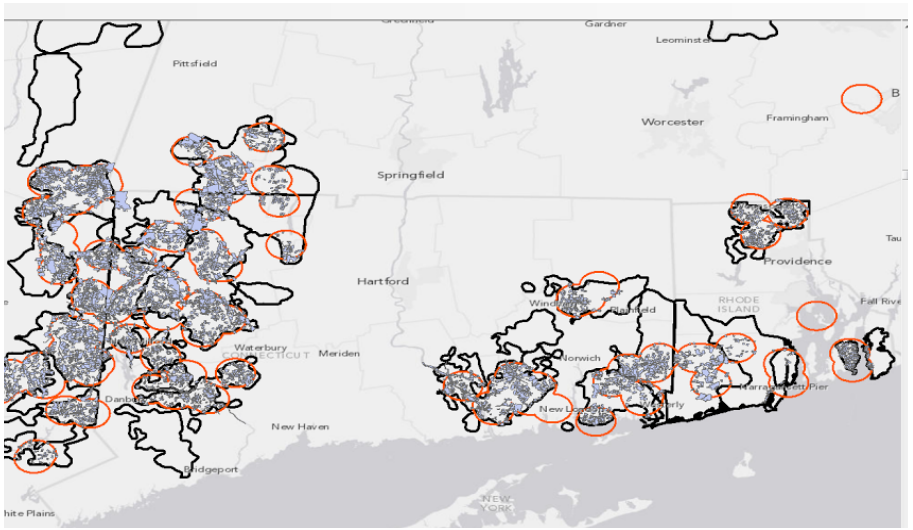


Restoration

Can a regional analysis be relevant locally?



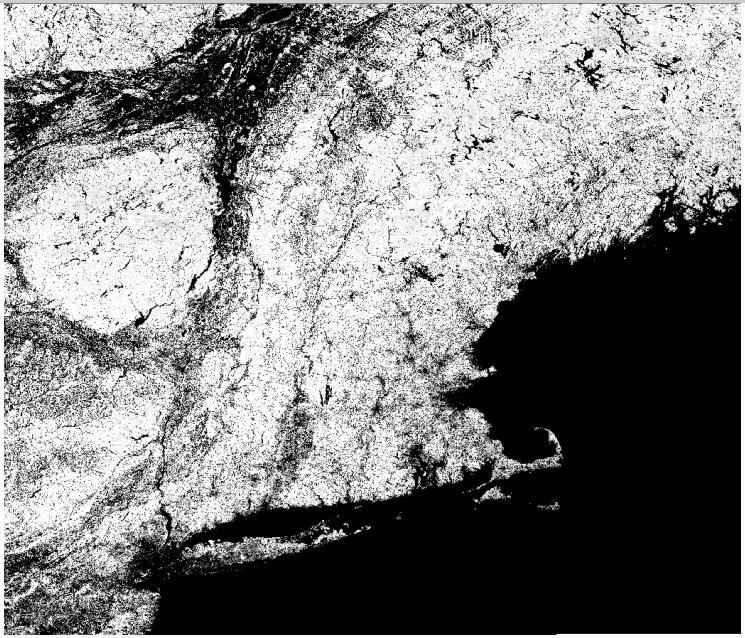
New England Cottontail
Focus Areas & “Best Parcels”



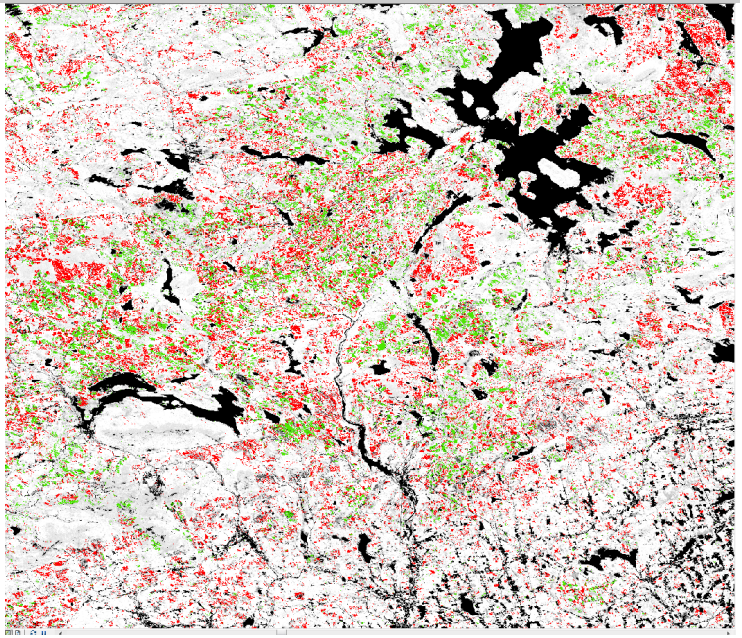
“Best Parcels” within dispersal
of recently occupied sites

Restoration

Are there data that are meaningful at a regional scale?



Forest Cover

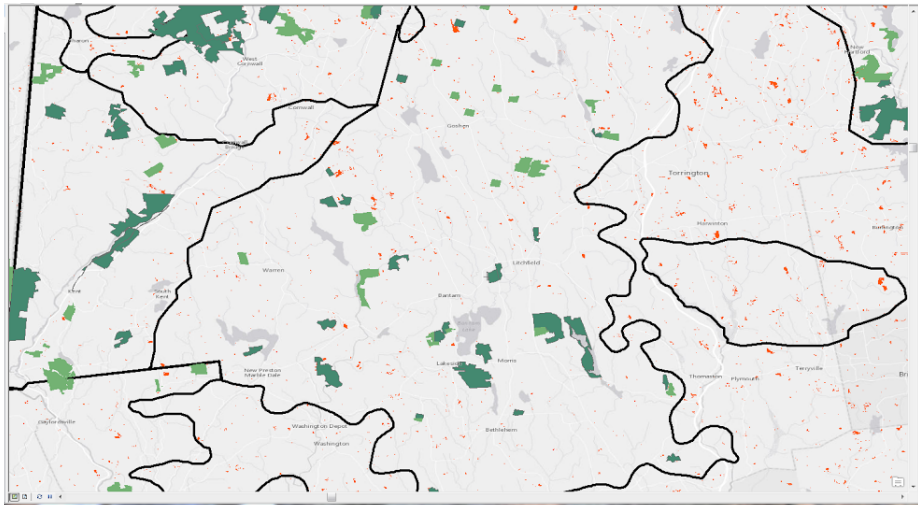


Forest Gain/Loss

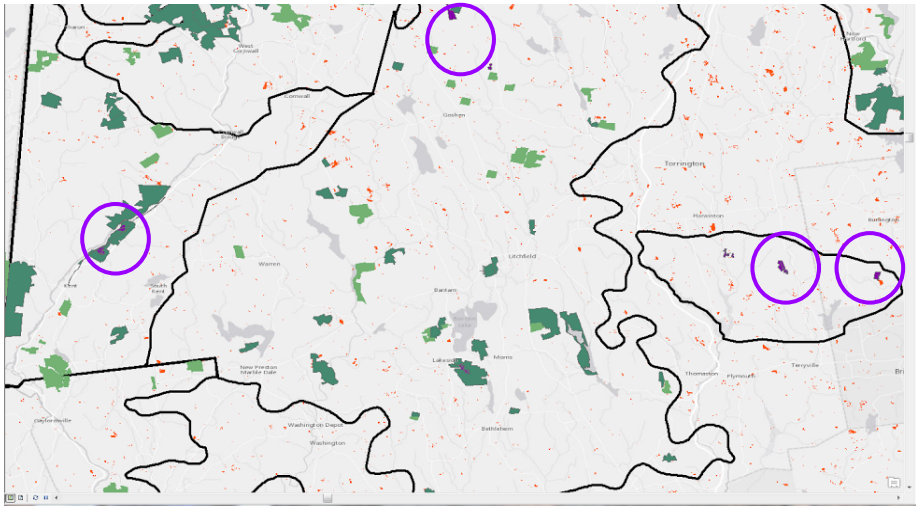
Forest condition data from Hansen et al. 2015

Restoration

How good are regional data?



Forest change data detects management on public and private “Best Parcels” for NEC.



Management footprint confirmed by state project data.

Restoration

What factors can identify restoration/land management opportunities?

MEAN_wc:	Woodcock
MEAN_wf:	wetflat
MEAN_dp:	soildepth
MEAN_sl:	slope
AREA_pa:	pasture
SUM_yr:	sum of age of loss cells
HA_loss:	hectares of loss
CT_loss:	count of loss cells
MEAN_im:	mean percent impervious surface
HA_gain:	hectares of gain
MEAN_fc:	mean percent forest cover
MEAN_dry:	mean distance dryflat
AREA_cu:	area cultivated
MEAN_CA:	index mean CA level

Restoration

Many different factors will be summarized by HUC 12 to screen for opportunities.

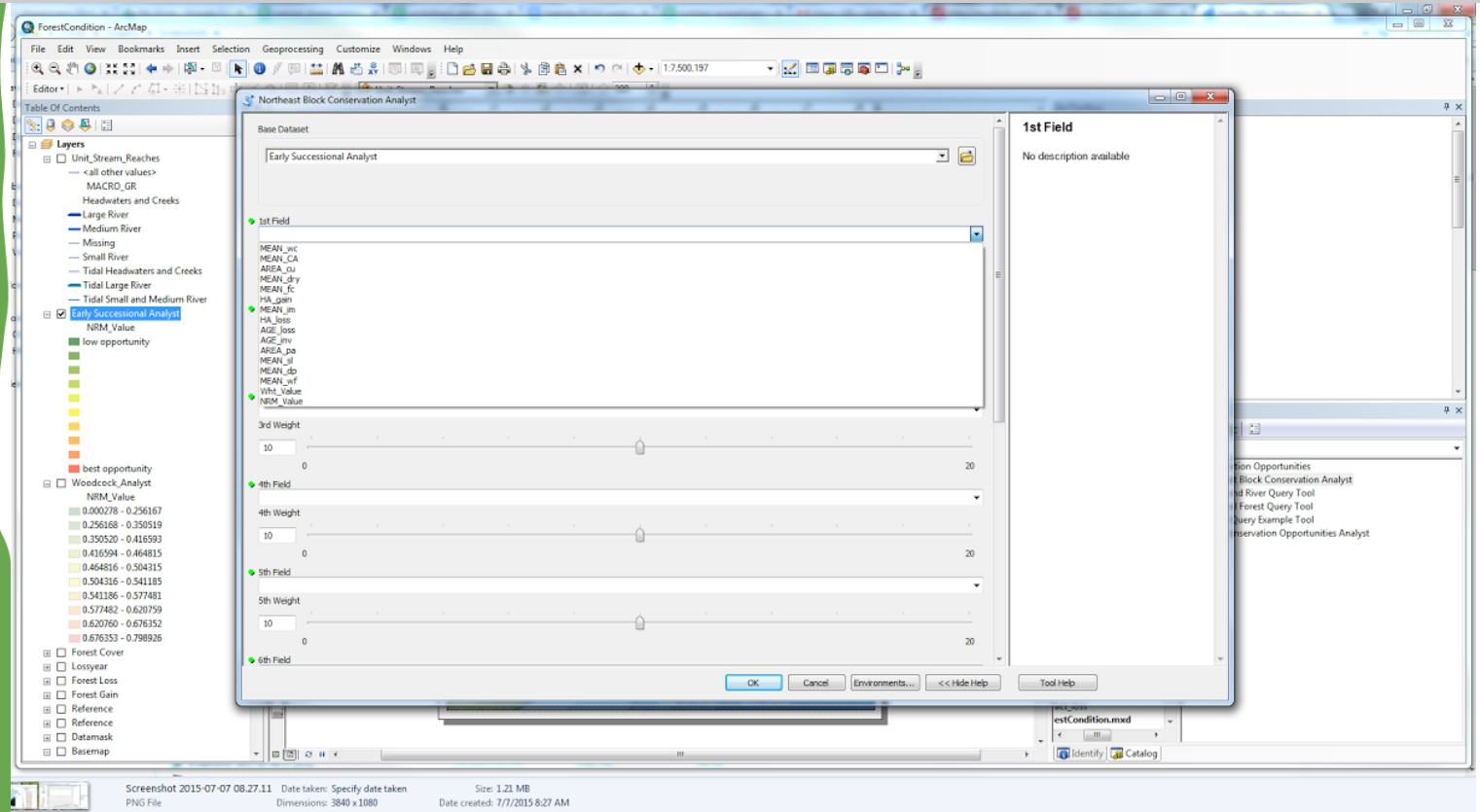
Table

Early Successional Analyst

FID	Shape	HUC_12	STATES	HUC_12_13	MEAN_wc	MEAN_CA	AREA_cu	MEAN_dry	MEAN_fc	HA_gain
0	Polygon	010100010104	ME	010100010104	0.984	0.365	0	0.411	0.874	0.991
1	Polygon	010100010504	ME,QC	010100010504	0.97	0.36	0	0.091	0.658	0.792
2	Polygon	010100010606	ME	010100010606	0.999	0.312	0	0.373	0.835	0.974
3	Polygon	010100010601	ME,QC	010100010601	0.993	0.425	0	0.239	0.72	0.896
4	Polygon	010100010705	ME	010100010705	0.991	0.346	0	0.504	0.92	0.947
5	Polygon	010100011302	QC	010100011302	0	0	0	0.646	0.765	0.927
6	Polygon	010100011506	ME,NB,QC	010100011506	0	0	0	0.498	0.863	0.872
7	Polygon	010100011508	ME,NB,QC	010100011508	0.892	0.363	0.808	0.631	0.632	0.888
8	Polygon	010100012604	ME,NB	010100012604	0.867	0.758	0.728	0.649	0.286	0.788
9	Polygon	010100011301	ME,QC	010100011301	0.977	0.388	0.356	0.629	0.863	0.903
10	Polygon	010100011305	ME,NB,QC	010100011305	0.976	0.64	0.243	0.731	0.768	0.899
11	Polygon	010100010906	ME,QC	010100010906	0.998	0.31	0	0.54	0.928	0.972
12	Polygon	010100011303	ME	010100011303	0.997	0.662	0	0.519	0.985	0.91
13	Polygon	010100010901	ME,QC	010100010901	0.985	0.366	0	0.575	0.908	0.912
14	Polygon	010100011304	ME	010100011304	0.989	0.776	0	0.466	0.977	0.798
15	Polygon	010100010905	ME,QC	010100010905	0.997	0.4	0	0.448	0.974	0.871
16	Polygon	010100010902	ME,QC	010100010902	0.986	0.26	0	0.736	0.943	0.983
17	Polygon	010100011403	ME,NB,QC	010100011403	0.961	0.347	0.685	0.638	0.842	0.946
18	Polygon	010100011306	ME	010100011306	0.993	0.371	0	0.647	0.991	0.698
19	Polygon	010100011308	ME,NB,QC	010100011308	0.972	0.363	0	0.69	0.796	0.978
20	Polygon	010100010907	ME	010100010907	0.993	0.324	0	0.605	0.975	0.909
21	Polygon	010100011105	ME,QC	010100011105	0	0	0	0.812	0.599	0.788
22	Polygon	010100011402	ME,NB,QC	010100011402	0	0	0	0.61	0.896	0.944
23	Polygon	010100011404	ME,NB,QC	010100011404	0.845	0.328	0.711	0.64	0.733	0.817
24	Polygon	010100011401	ME,NB,QC	010100011401	0	0	0	0	0.767	0.963
25	Polygon	010100011507	ME,NB,QC	010100011507	0.874	0.332	0.823	0.626	0.633	0.896
26	Polygon	010100011503	NB,QC	010100011503	0	0	0	0	0.688	0.876
27	Polygon	010100012603	ME	010100012603	0.969	0.642	0.852	0.489	0.804	0.954

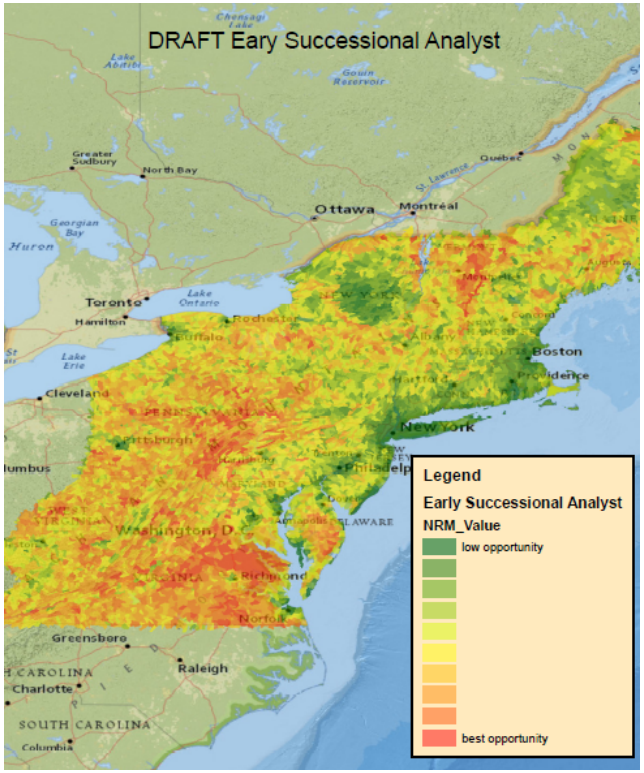
Restoration

We have a tool that allows users to weight their opportunity factors.



Restoration

Results can be made available as maps or customized at your desk.



Better implementation

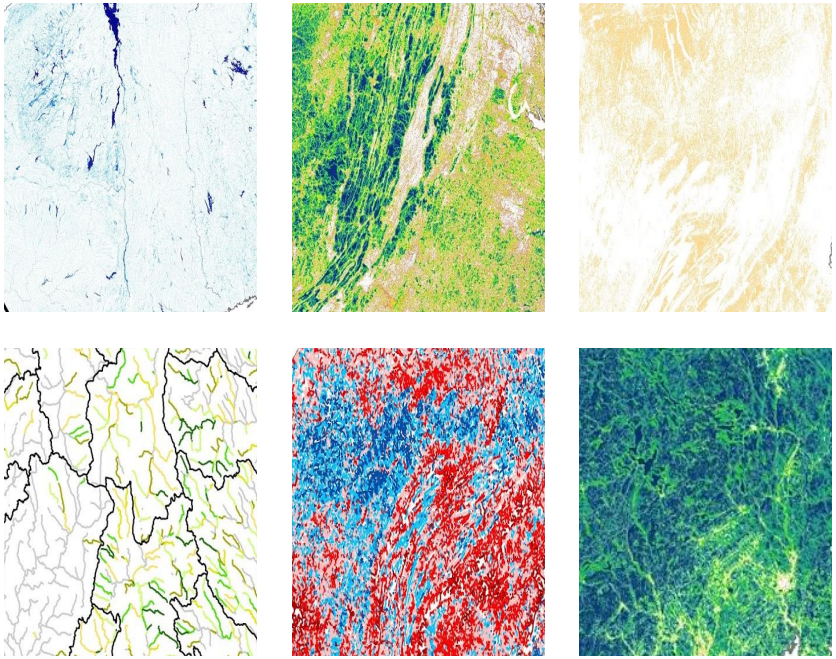
What does Efficient Conservation look like?

- Regional patterns clarify conservation priorities.
- Habitats that appear secure locally may be in trouble elsewhere.
- Is my state the battleground or sideshow for species X?
- The best opportunities to pre-empt listing might be where species are not on the radar.
- Which species and habitats is my state most “responsible” for?
- Where can we hedge our investments against future conditions?
- Understanding the regional context complements state COAs!
- **Maps help align priorities and leverage funding.**

Products and Uses

Products

An atlas with methodology documentation
Data and Tools to plan conservation



Uses

- Prioritize restoration & land management
- Inform land protection
- Find core areas for all species
- Complement/Confirm state priority areas
- Regional context for state decisions
- Monitor changes in landscape over time
- Inform policy and listing decisions
- Grant applications
- Guide SWAP implementation and RCNs

Restoration

Which restoration and management opportunities are we focused on?

Select Opportunity Factors

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- HUC12 restoration opportunities for watershed and riparian buffers
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