

# Landscape Conservation Cooperatives



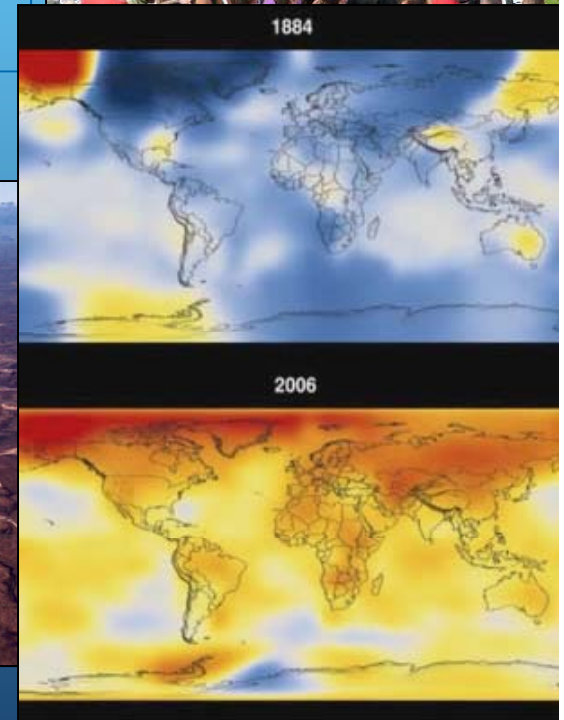
Doug Austen  
LCC National Coordinator, USFWS

May 6, 2012

“The conservation community faces unprecedented issues of scale, pace, and complexity in sustaining our Nation’s fish and wildlife resources.”

Year: 2042

– Global Population ~9 Billion People –  
habitat loss and fragmentation, pollution,  
invasive species, disease, water quality and  
quantity, energy development, all compounded  
by a rapidly changing climate...



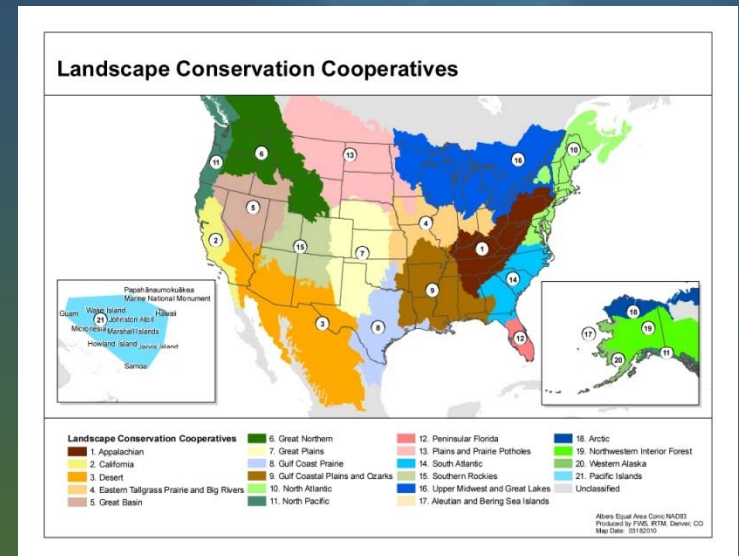
Compounded By Accelerated  
Energy Development



“The conservation challenges of the 21<sup>st</sup> Century represent a force of change more far-reaching and consequential than any previously encountered.”

# Key Themes

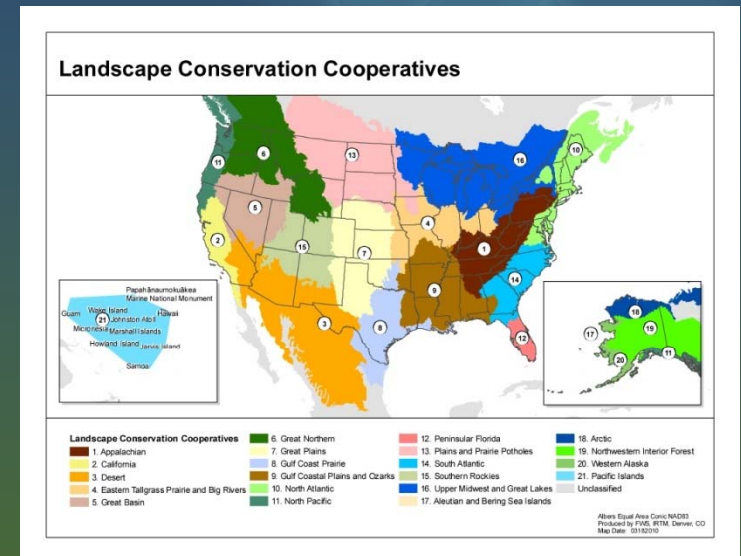
- What are LCC's?
- Science, LCC's and CSC's
- Partnerships
- Examples
- Challenges





# Key Themes

- What are LCC's?
- Science LCC's and CSC's
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# Secretarial Order 3289

Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources (9/14/09)

- DOI Climate Science Centers
- Landscape Conservation Cooperatives

“...Interior bureaus and agencies must work together, and with other federal, state, tribal and local governments, and private landowner partners, to develop landscape-level strategies for understanding and responding to climate change impacts.”



# Landscape Conservation Cooperatives

## What are they?

Applied conservation science partnerships. Partners include federal and state agencies, Tribes, conservation organizations, and universities within a geographically defined area

Fundamental units of planning and adaptive science that inform conservation actions on the ground

A national and international network of land, water, wildlife and cultural resource managers and interested public and private organizations

# LCC Network: Vision and Mission

**Vision:** To sustain natural and cultural resources valued by society for current and future generations.

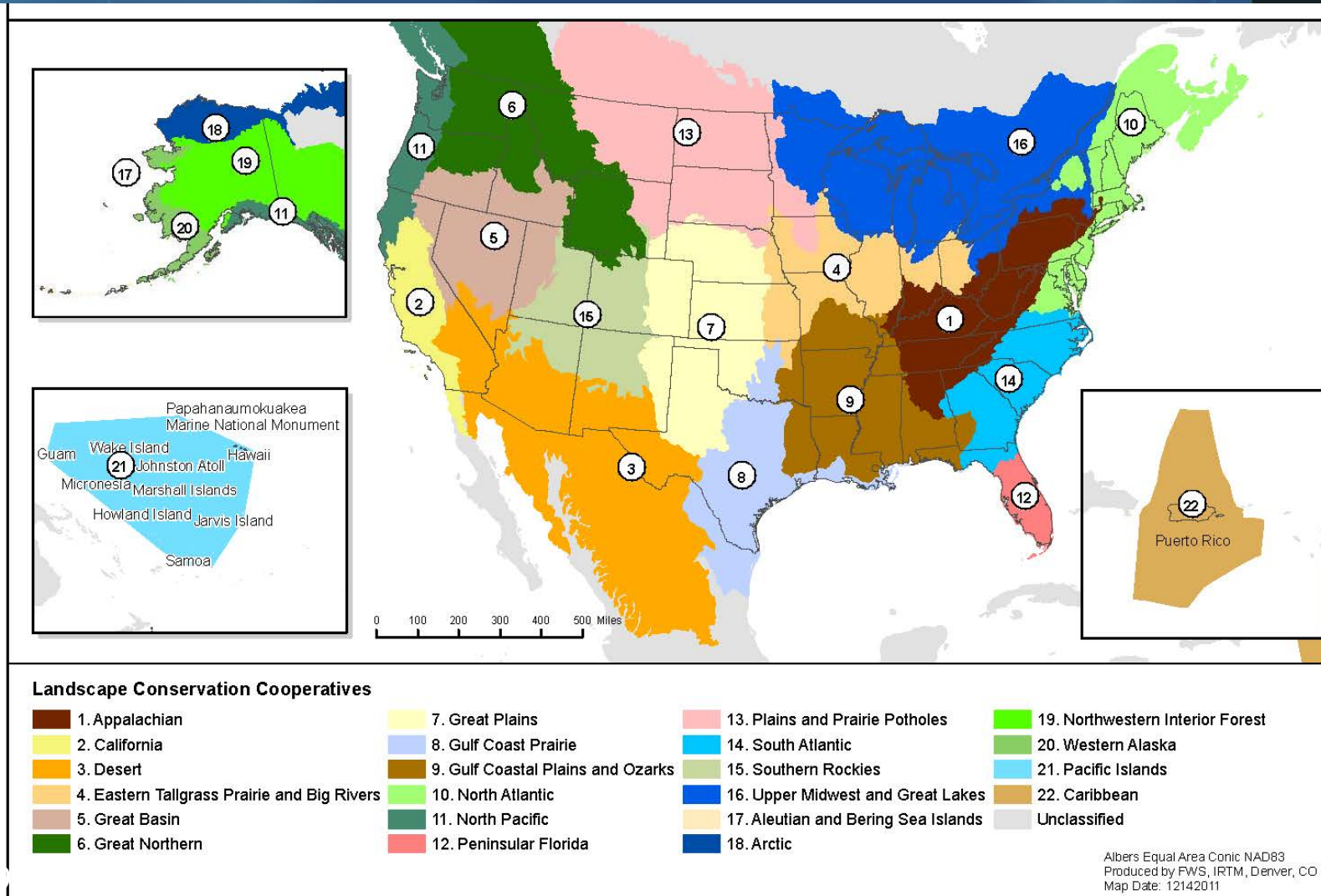
**Mission:** To function as a network of cooperatives that provide the forums for developing a shared vision of landscapes that sustain natural and cultural resources, that cooperates in its implementation, and that collaborates in its refinement.



# Cooperative Landscape Conservation

- Adaptation requires coordination across multiple sectors, geographical scales, and levels of government.
- It's Not Just a Resource Challenge...
- It's a "Way-of-Working" Challenge
  - Adopting a science-based, iterative approach to conservation
  - Capitalizing on our individual strengths and leveraging our collective assets

# LCC Geographies – A Seamless Network



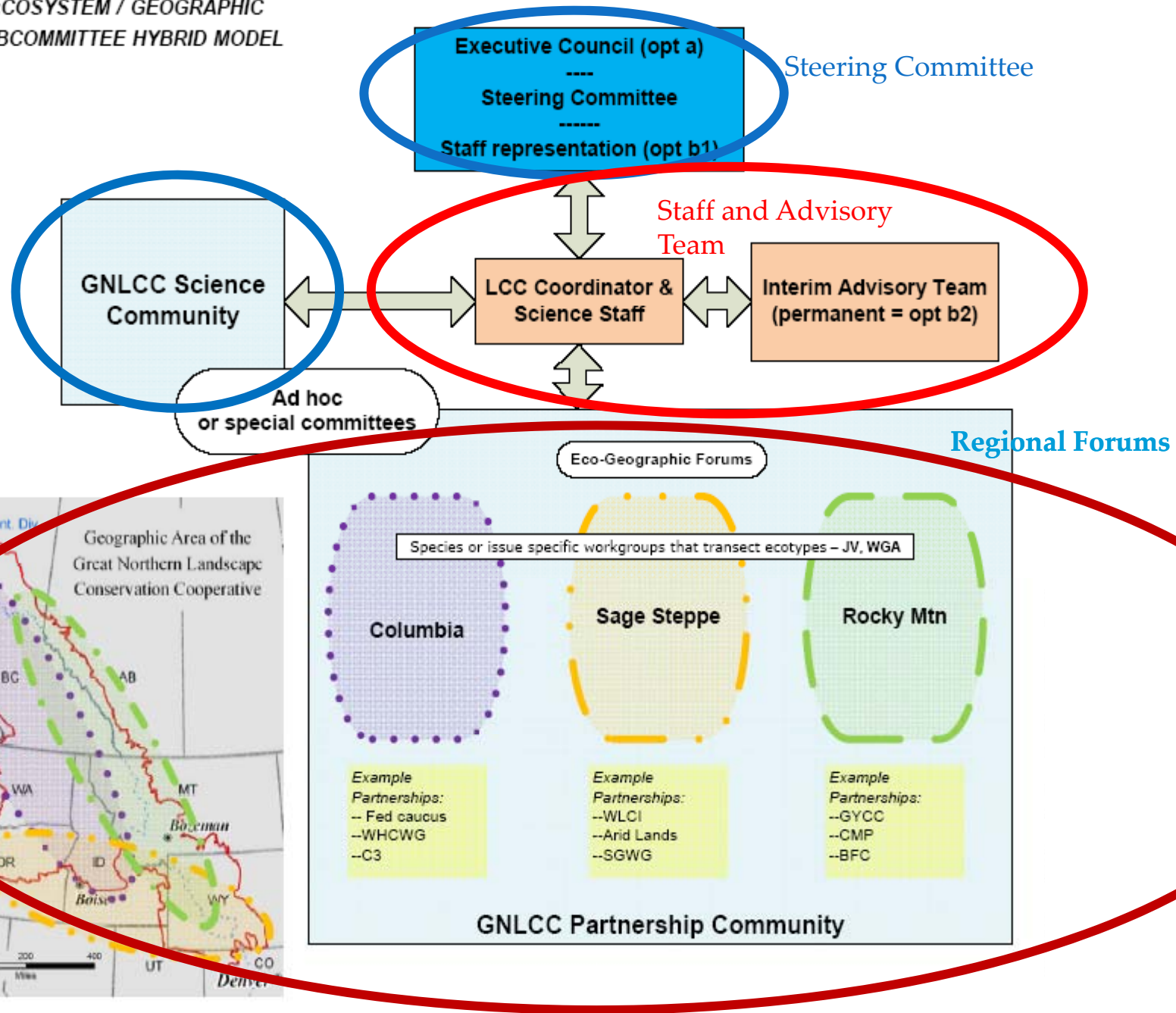
# Example Structure – Great Northern LCC



- Montana
- Wyoming
- Idaho
- Washington
- Oregon
- British Columbia
- Alberta
- Small parts of Colorado & Utah



**ECOSYSTEM / GEOGRAPHIC  
SUBCOMMITTEE HYBRID MODEL**



# GNLCC Steering Committee

Alberta Parks Division and Sustainable Resource  
Development Division  
British Columbia Ministry of Environment and Ministry  
of Forests, Lands and Natural Resource Operations  
Bureau of Indian Affairs  
Bureau of Land Management  
Bureau of Reclamation  
Columbia Basin Federal Caucus  
Confederated Salish and Kootenai Tribes  
Confederated Tribes of the Umatilla Indian Reservation  
Canadian Wildlife Service  
Heart of the Rockies Initiative  
Idaho Department of Fish and Game  
Montana Fish, Wildlife and Parks  
National Park Service  
Nez Perce Tribe  
National Oceanic and Atmospheric Administration  
Natural Resources Conservation Service  
Oregon Department of Fish and Wildlife  
Parks Canada – Waterton Lakes National Park  
US Fish and Wildlife Service  
US Forest Service  
US Geological Survey  
Washington Department of Fish and Wildlife  
Western Association of Fish and Wildlife Agencies  
Wildlife Conservation Society  
Wyoming Game and Fish Department  
Yakama Indian Nation



**GNLCC Vision:**

**The Great Northern Landscape Conservation Cooperative envisions the conservation of land, water, and wildlife at the landscape level through collaborative science and management.**

**GNLCC Goal:**

**Build resource resilience and inform sustainable resource management in the face of landscape stressors**



*Landscape Stressors*  
**Climate Change**

**Land Use/Energy  
Development**

**Invasive Species**

**Columbia  
Basin**

**Upper Columbia  
River, tributaries and  
river valley ecology**

**Rocky  
Mountain**

**Mountain forests,  
alpine and high relief  
ecotypes**

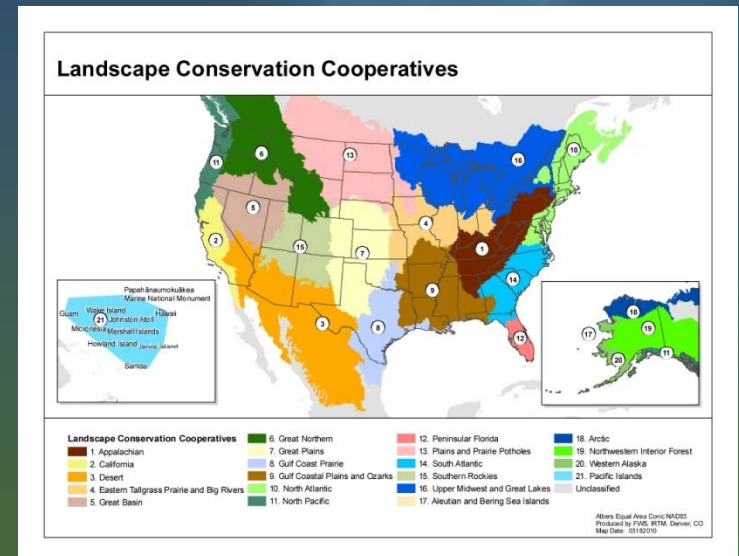
**Sage Steppe**

**Arid land, high-  
elevation prairies and  
deserts**



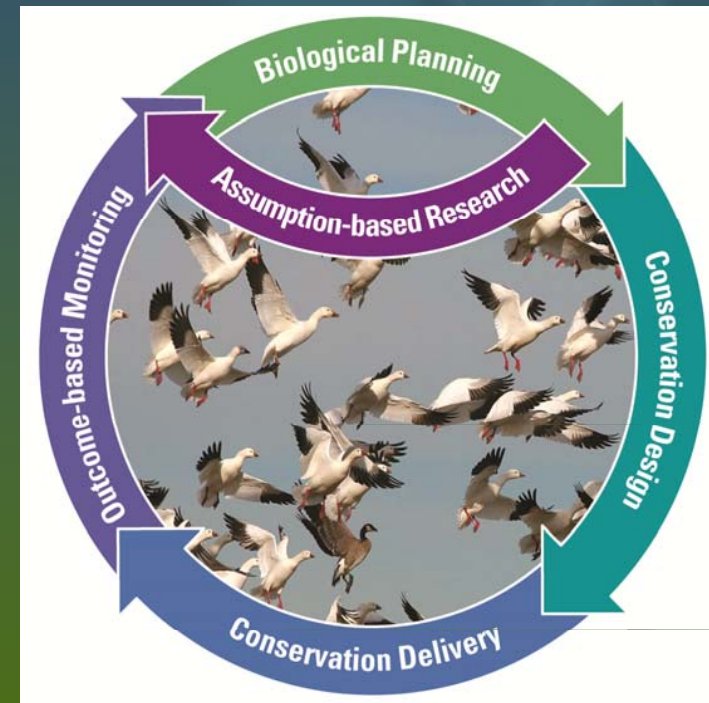
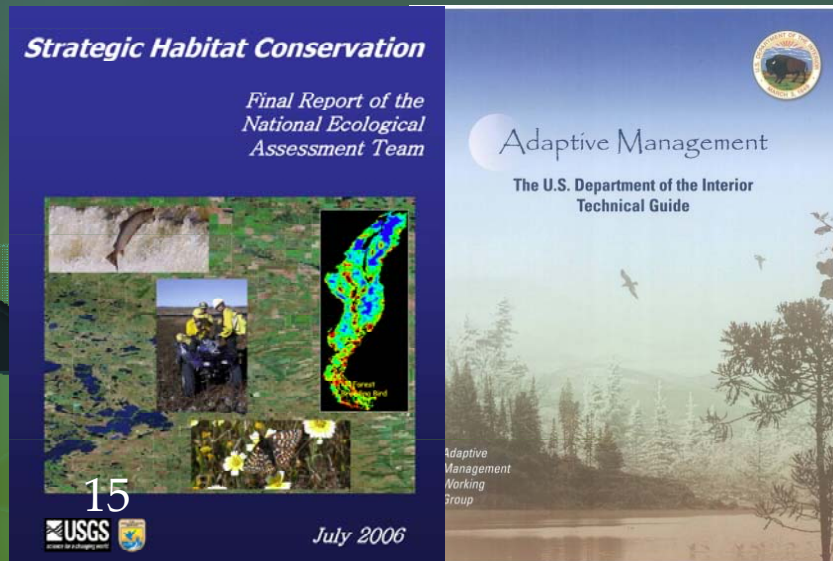
# Key Themes

- What are LCC's?
- Science, LCC's and CSC's
- Partnerships
- Examples
- Challenges



# Science-based & Adaptive

LCCs provide capacity for making strategic science-based decisions within an adaptive resource management framework



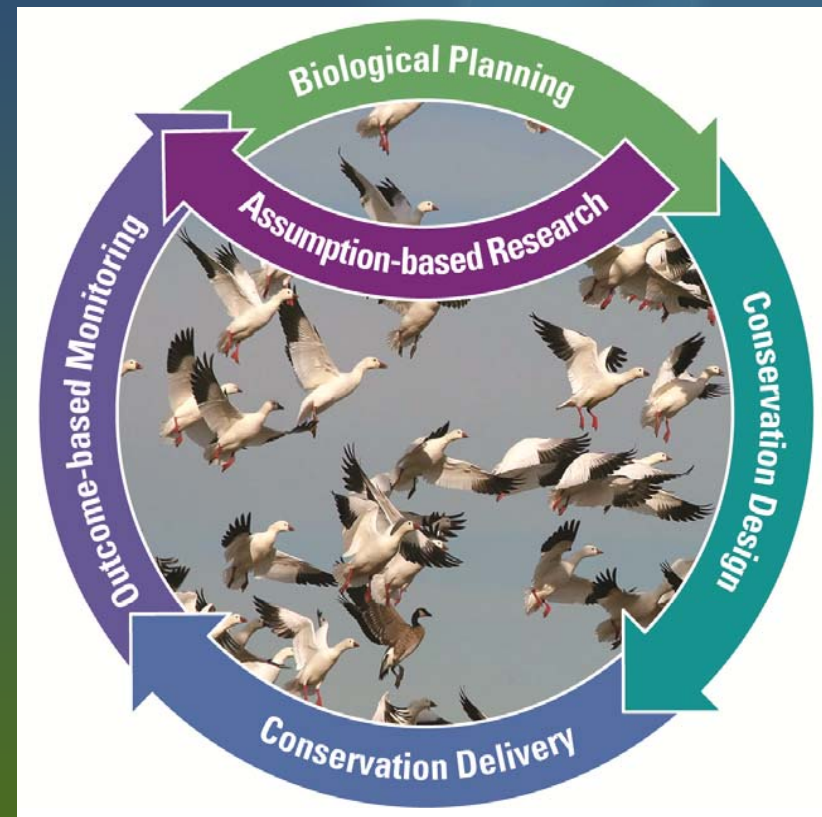
# Strategic Habitat Conservation (SHC)

- A unified conservation approach for defining and pursuing landscape and population sustainability.
- A structured science-based framework founded on an adaptive, iterative process of biological planning, conservation design, conservation delivery, monitoring, and research.



# The role of Science - Adaptive Resource Management

LCCs are grounded in an adaptive, landscape-scale conservation approach designed to ensure that we target science in the right places through thoughtful planning and monitoring of outcomes



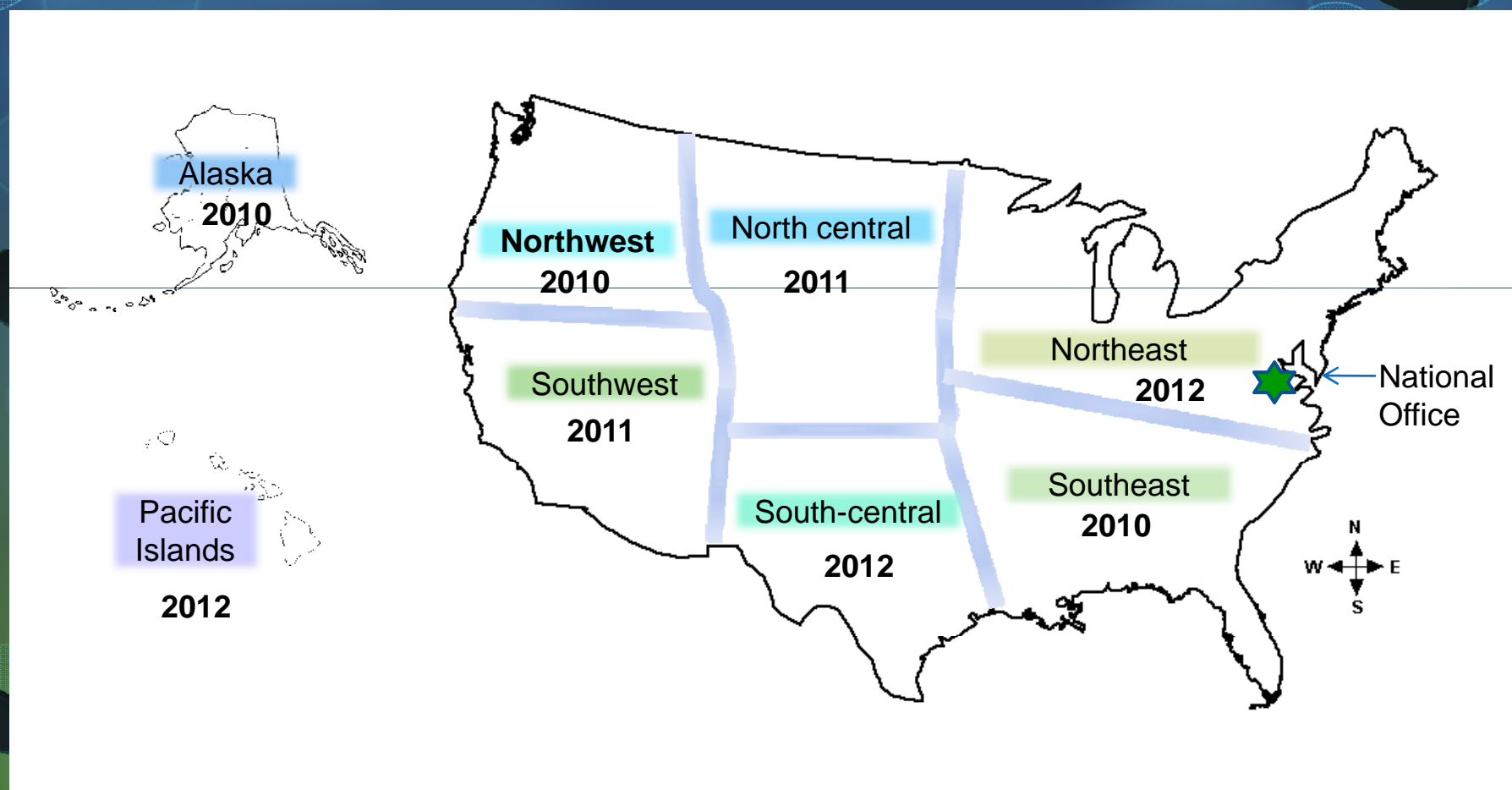
# The role of Science - Adaptive Resource Management

- Outcomes, not actions
- Establish desired results
- Track progress
- Adaptive learning
- Share learning



Taken from: *Measuring Our Effectiveness*. Statement from May, 6, 2010  
Summit of the Conservation Measures Partnership

# NCCWSC National & DOI Regional CSCs



“Fuzzy Boundaries”



# National Climate Change & Wildlife Science Center

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- Mission

- Provide natural resource managers with the tools and information they need to develop and execute management strategies that address the impacts of climate change on fish, wildlife, and their habitats
- Focus on climate change adaption & impacts
  - “Adjustment in natural or human systems in response to actual or expected climatic change effects, to moderate harm or exploit beneficial opportunities”



# NCCWSC Science Priorities

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- Assessments of current climate change information
- Understand climate from natural effects on plants/animals
- Synthesize forecasting of adaptation to climate change
  - Quantify species and habitat vulnerability
  - Develop clearinghouse & network capacity for data
  - Develop management tools

Atmospheric Research and Modeling  
(primarily universities)

Downscaled Global  
Climate Models and  
Derivative Products

DOI Climate Science Centers  
Science-based, university collaboration

Ecosystem Response  
&  
Forecasting

Regional Habitat &  
Population Response

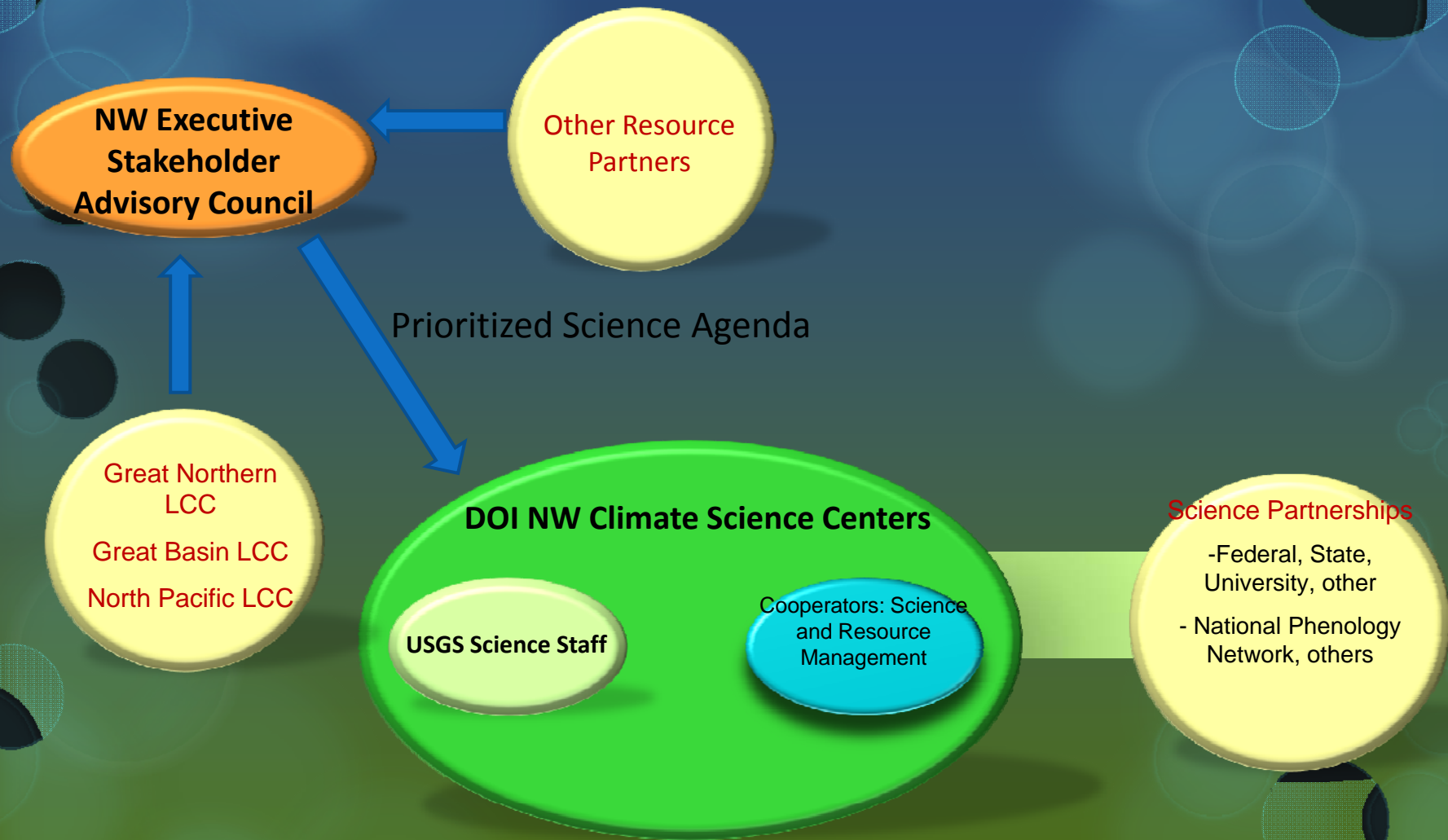
Resource Management-based Partnerships  
(Landscape Conservation Cooperatives + others)

Forecasting  
Habitat & Species  
Response  
(Food,  
Habitat,  
Recruitment)

Adaptive Management & Monitoring  
Site Specific Species or Populations Response



# DOI Northwest CSC Governance



# Northwest Climate Science Center

## Executive Stakeholder Advisory Committee

### State Agencies

- WA Dept. of Ecology
- OR Dept. of Fish & Wildlife
- MO Fish, Wildlife, & Parks

### Tribal Organizations

- Columbia River Inter-tribal Fish Commission (4 Tribes)
- NW Indian Fisheries Commission (25 Tribes)
- Affiliated Tribes of NW Indians (44 Tribes)

### Landscape Conservation Cooperatives (LCCs)

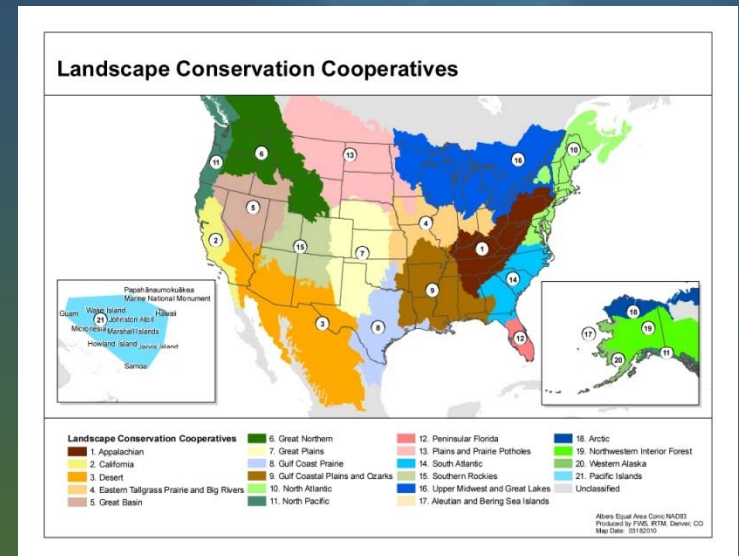
- Great Northern
- Great Basin
- North Pacific

### Federal Agencies

- Bureau of Land Management
- Bureau of Reclamation
- National Park Service
- U.S. Fish & Wildlife Service
- U.S. Geological Survey
- Forest Service-Management
- Forest Service-Research
- National Ocean & Atmospheric Administration
- Bonneville Power Authority
- Federal Highways Administration
- Army Corps of Engineers
- Environmental Protection Agency
- Natural Resources Conservation Services

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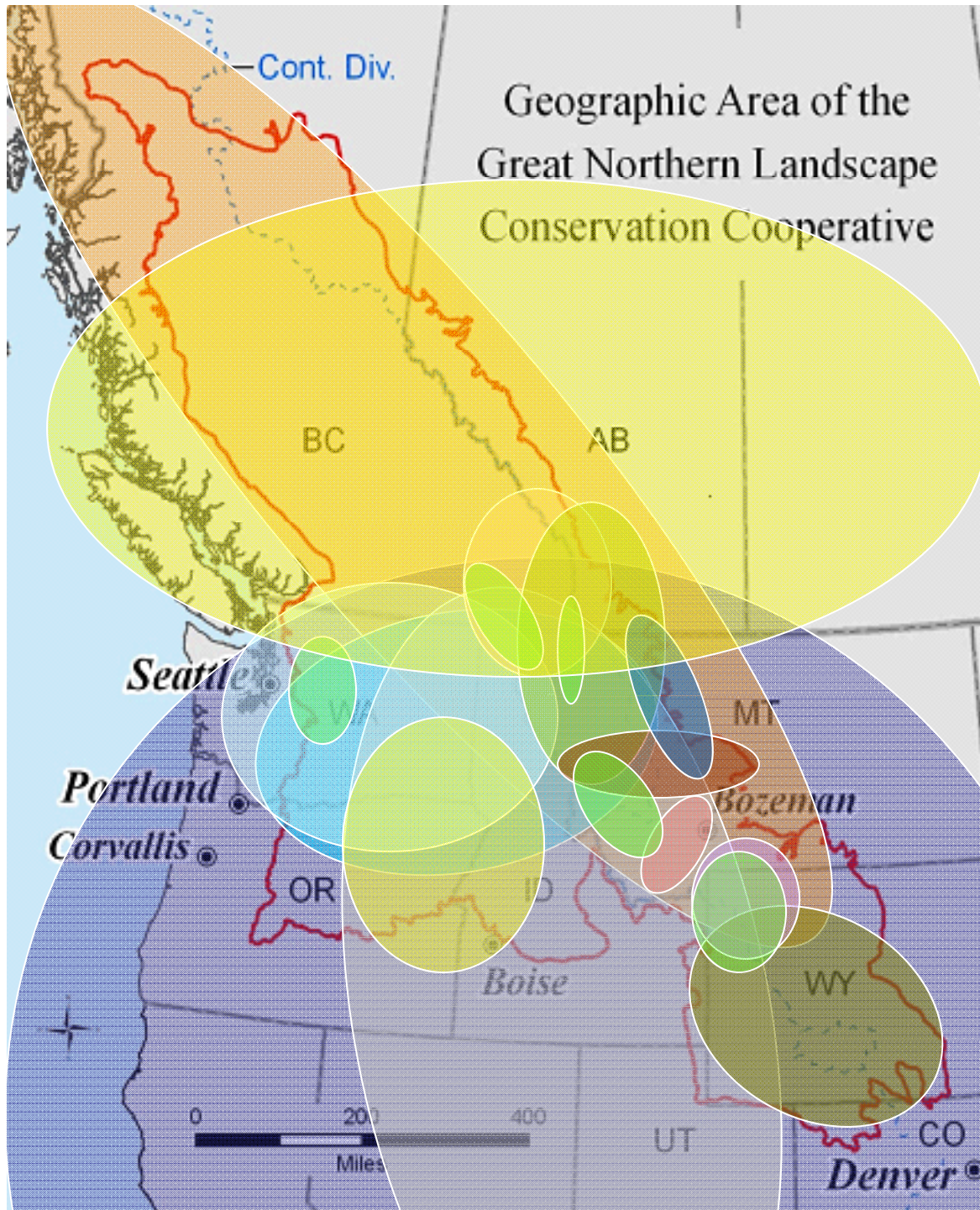


# Partnerships are fundamental

- LCC's provide a consistent framework at the landscape scale
- The partners own the LCC process
- LCC's part of a national collaborative framework







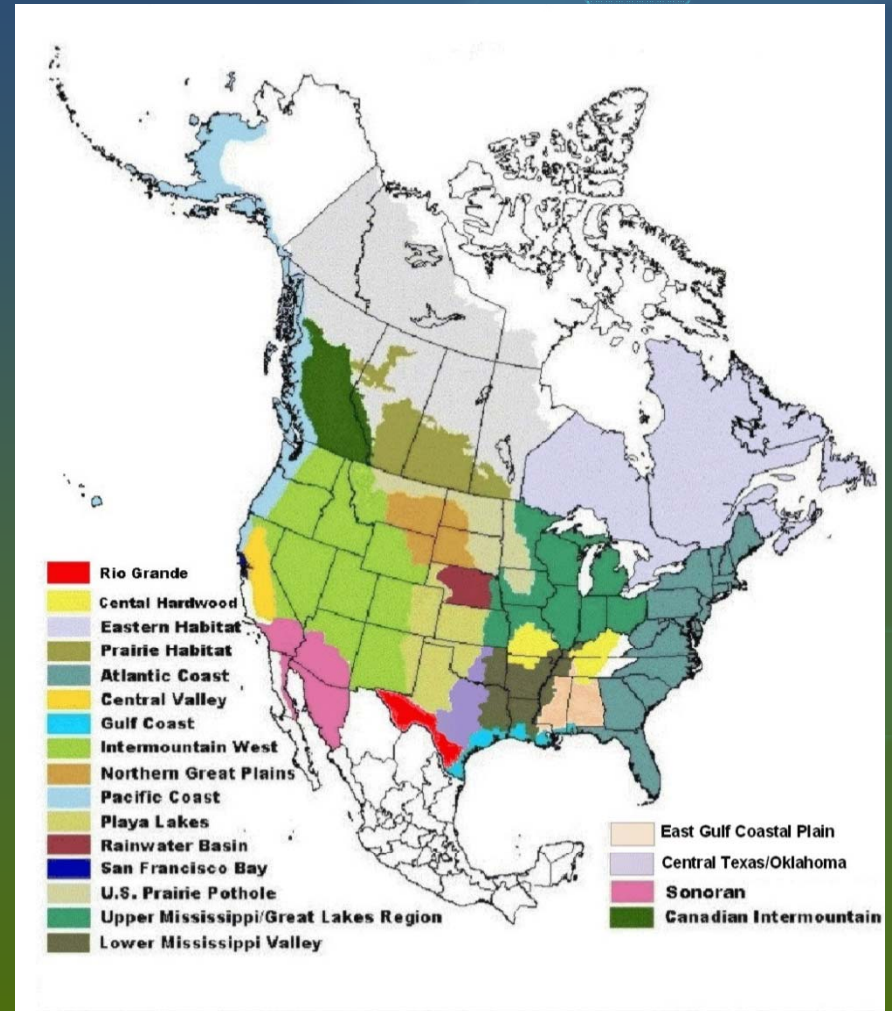
## Geographic Area of the Great Northern Landscape Conservation Cooperative

Greater Yellowstone Coord Comm  
Wyoming Landscape Conservation Initiative  
Arid Lands Initiative  
Kootenay Conservation Program  
Blackfoot Challenge  
Rocky Mountain Front  
Big Hole Conservation Alliance  
Crown of the Continent  
Interagency Grizzly Bear Comm  
Washington Connected Lands  
Columbia Basin Fed Caucus  
Intermountain West JV  
Yellowstone to Yukon  
Western Governors  
CAN Wildlife Directors Council  
And others....



# Current Joint Ventures 17 in the U.S.

- JV's are highly effective conservation partnerships
- Building strong relationship between JV's and LCC's.
- Mutually compatible goals that build upon each others expertise and capacity



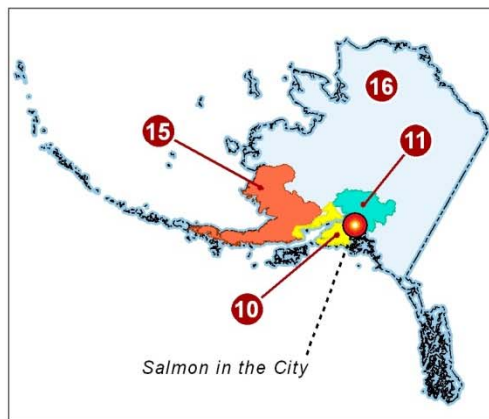


# Fish Habitat Partnerships

March 2010



NATIONAL  
FISH HABITAT  
ACTION PLAN



Salmon in the City

North American Salmon  
Stronghold Partnership

## Geographic/Species Based Partnerships

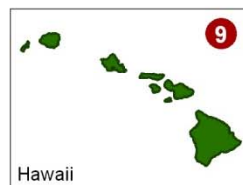
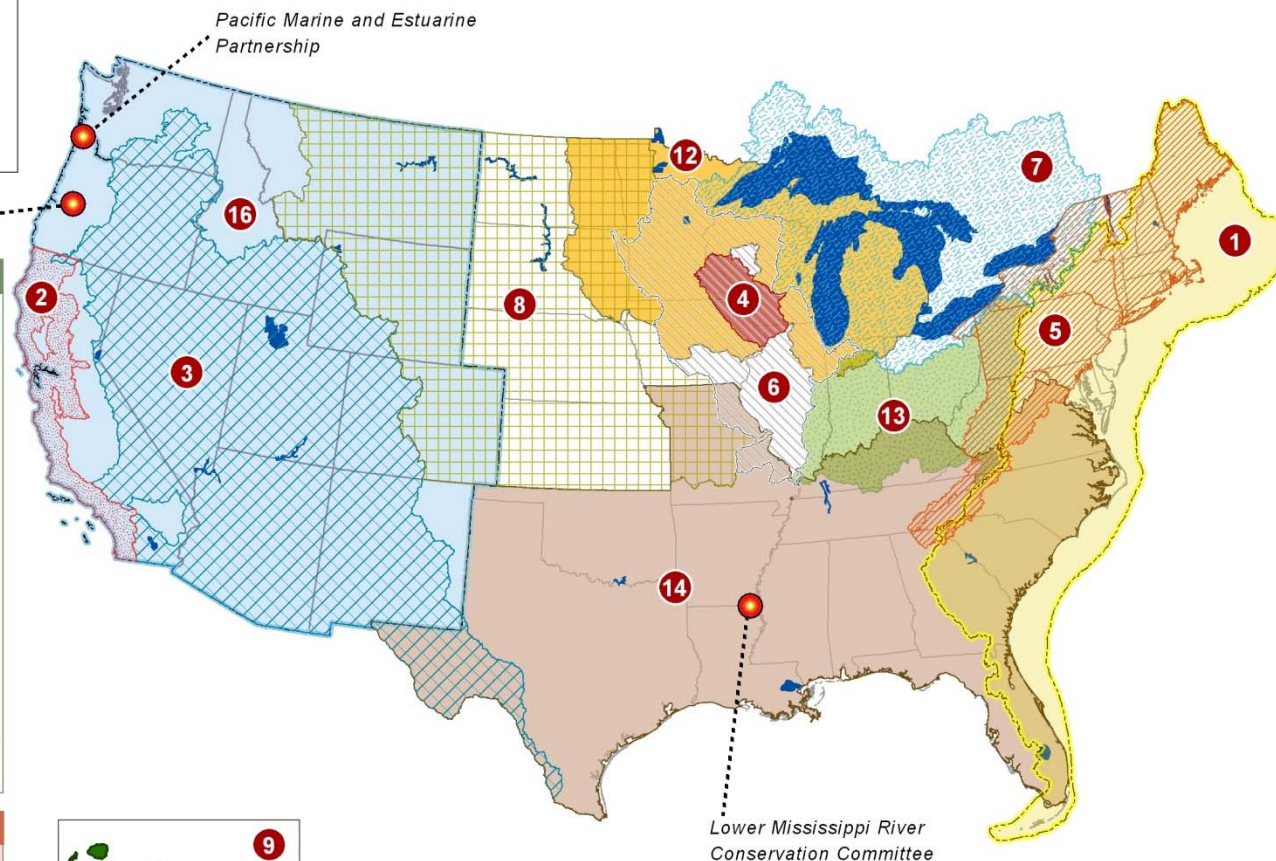
1. Atlantic Coastal FHP
2. California Fish Passage Forum
3. Desert FHP
4. Driftless Area Restoration Effort
5. Eastern Brook Trout Joint Venture
6. Fishers and Farmers Partnership
7. Great Lakes Basin FHP
8. Great Plains FHP
9. Hawaii FHP
10. Kenai Peninsula FHP
11. Mat-Su Basin Salmon Habitat Partnership
12. Midwest Glacial Lakes Partnership
13. Ohio River Basin FHP
14. Southeast Aquatic Resources Partnership
15. Southwest Alaska Salmon Habitat Partnership
16. Western Native Trout Initiative

## System Based Partnership

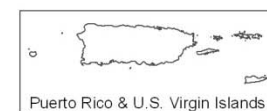
Reservoir FHP



Denotes "Candidate"  
Fish Habitat Partnership

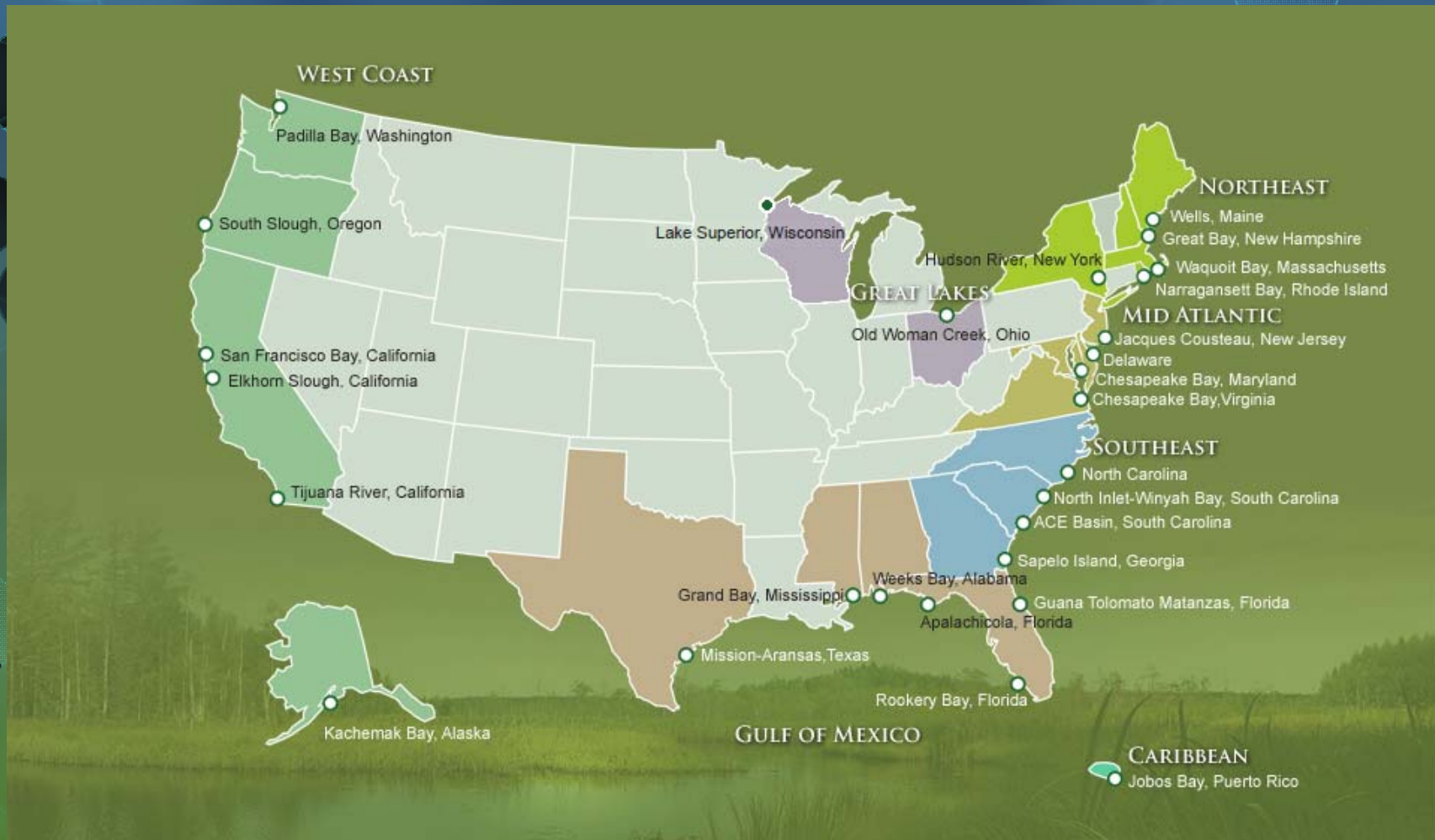


Hawaii



Puerto Rico & U.S. Virgin Islands

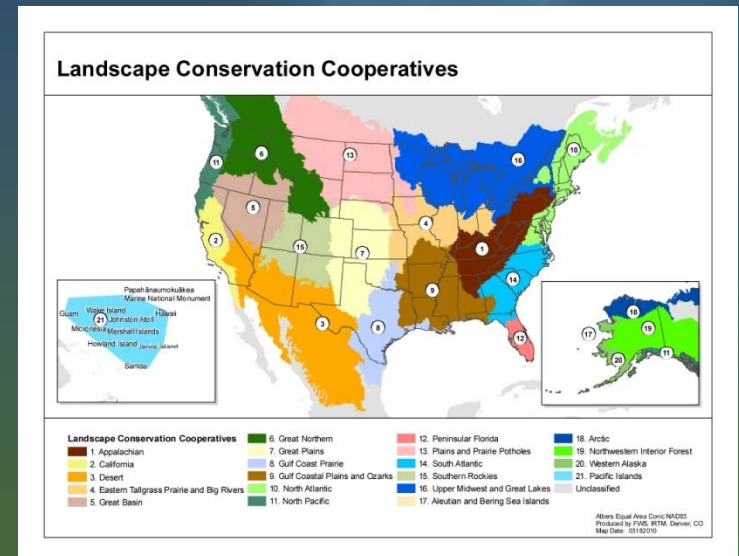
# National Estuarine Research Reserve System





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# Appalachian Landscape Conservation Cooperative



## State

15 States (*NY-AL; IL-VA*)

## Federal

- 3 FWS Regions
- 4 NPS Regions
- 3 USGS Areas
- 1 BLM/OSM Region
- 2 FS Regions + 2 RS
- 2 EPA Regions
- 4 NRCS/ARS Areas
- 1 ACE Region

## Social Dimensions

- highest - persistent poverty in the Nation



**Human  
Dim.**

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Northern

Northern

**Aq x2**

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**DAY 1- Thematic (*Expertise*)  
Groups**

**Terr x2**

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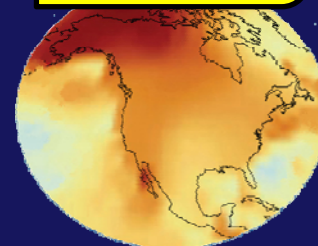
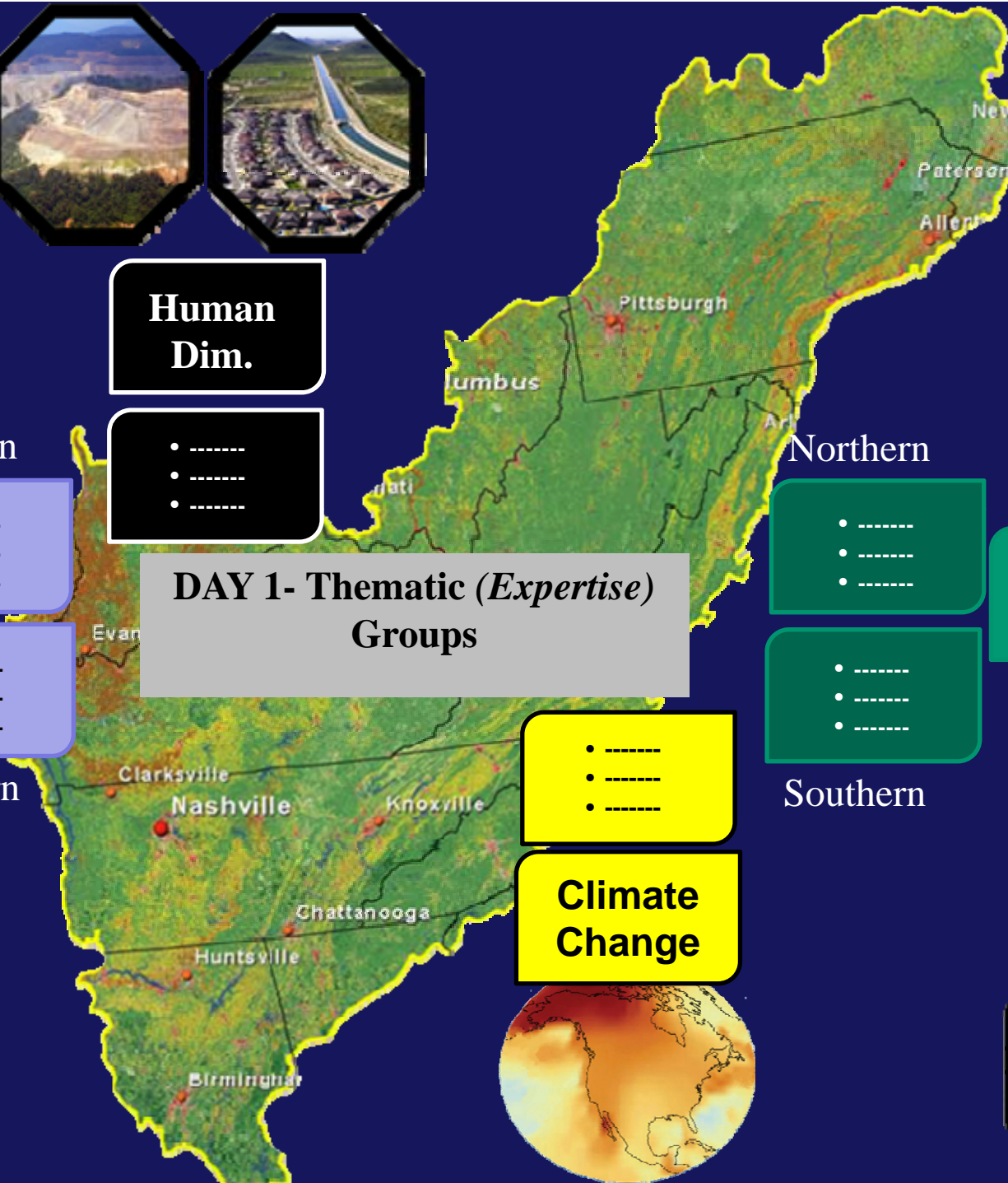
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Southern

Southern

**Climate  
Change**

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DAY 2- Interdisciplinary<sup>(x6)</sup>

DAY 3 –  
Synthesis /  
Writing  
Team

x6

Northern

Northern

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Southern

Southern





# Appalachian Landscape Conservation Cooperative

## Appalachian Landscape Conservation Cooperative:

DRAFT Development and Operations Plan

December 2011



**Aquatics. Ecological flows, Species-Habitat Relationships at Multiple Scales & Effects of Alterations**

**Human Dom. / Economic Lands**  
**Resource extraction & demands for energy**

**Terrestrial. Species/habitat distribution trends - *Repr. sp.* (incl. all terrestrial habitats – forest, grasslands, wetlands)**

**Climate Change & Drivers.**  
**Vulnerability assessments (*climate and non-climate stressors*)**

# Arctic LCC

Long-term monitoring of the impacts of climate change on the glaciers and rivers in the Arctic National Wildlife Refuge.



36



Images of McCall Glacier, Brooks Range Alaska. Image "A" taken in 1958 by Austin Post; image "B" was taken in 2003 by Matt Nolan

# Arctic LCC



Glaciers in the Eastern Brooks Range supply water to rivers systems that support important Dolly Varden subsistence fisheries within Arctic NWR. Recent work suggests that these glaciers are melting quickly and will likely be lost by the end of the century.

## PROJECT OUTCOMES:

- Increased understanding of how much water supporting subsistence fisheries is derived from glacier meltwater;
- Increased understanding of what water levels in these systems may be in the future and how that may impact stream ecology and subsistence fisheries as well as coastal estuaries

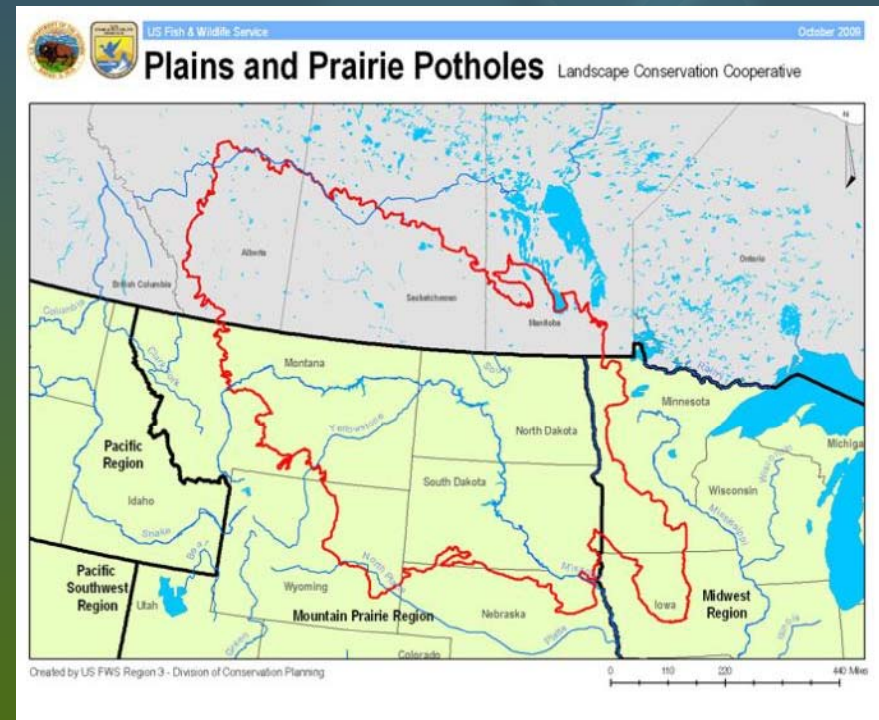


# Plains and Prairie Potholes LCC

PROJECT TITLE: *Capture and Interpretation of Downscaled Climate Change Models to Benefit Avian Conservation*



Prairie Pothole Wetlands and Prairies  
- vulnerable to climate change and  
land use practices



# Plains and Prairie Potholes LCC

Climate change models with greater precision are needed to project climate change impacts on wetlands and ultimately wetland-dependent birds.

## PROJECT OUTCOMES:

- Creation of down-scaled climate models for the Northern Great Plains that will be used to develop habitat niche models of wetland-dependent bird species.
- Niche models can be used by managers to determine where to target habitat acquisition and restoration.
- Assess and describe uncertainty in models





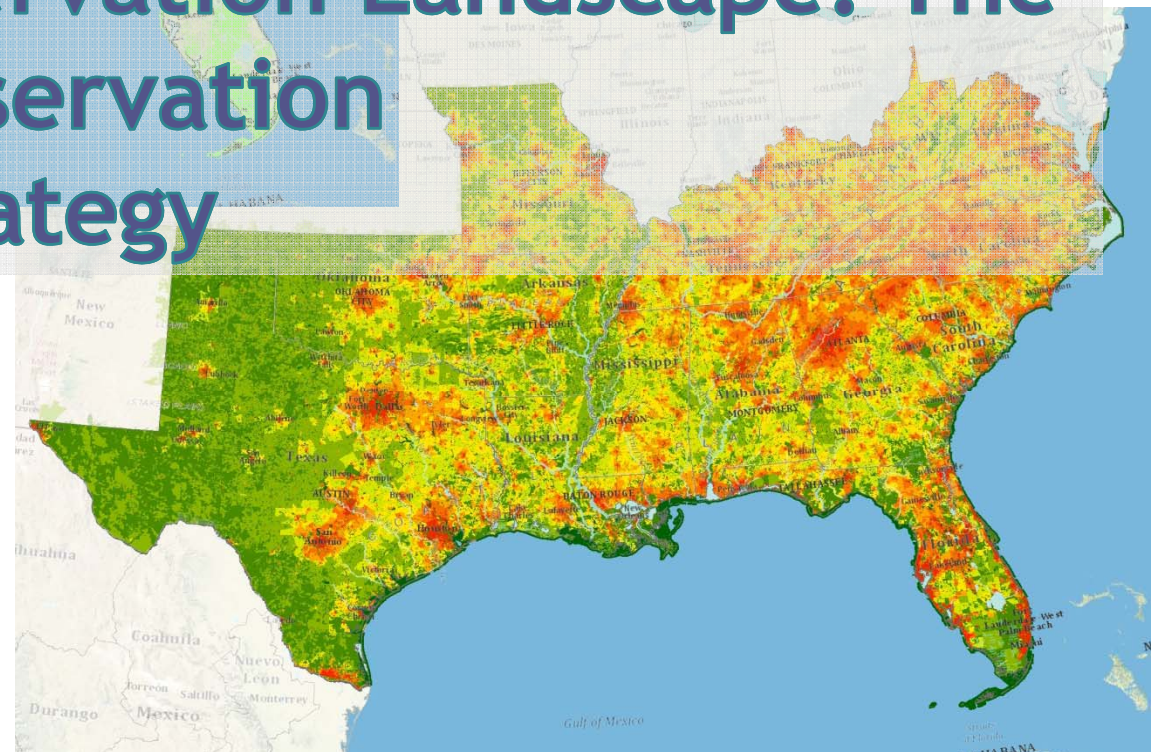


October 23, 2011

Greg Wathen, Coordinator, GCPO LCC

Phone: (615) 533-4359

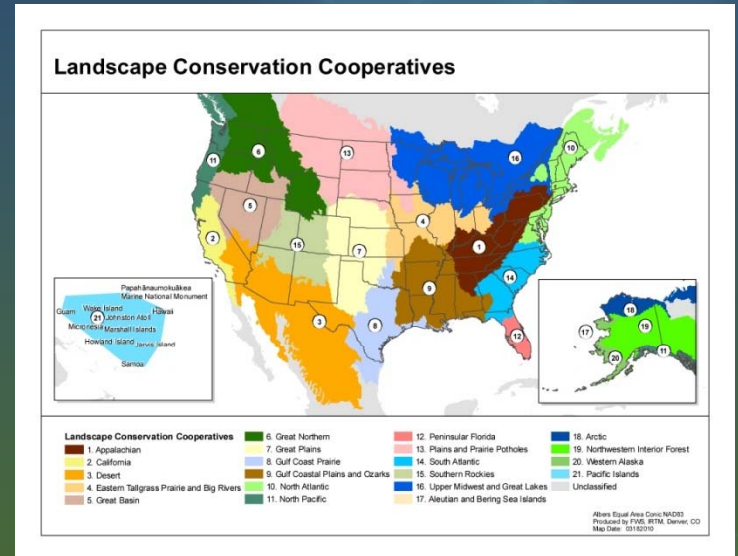
E-mail: [greg.wathen@tn.gov](mailto:greg.wathen@tn.gov)



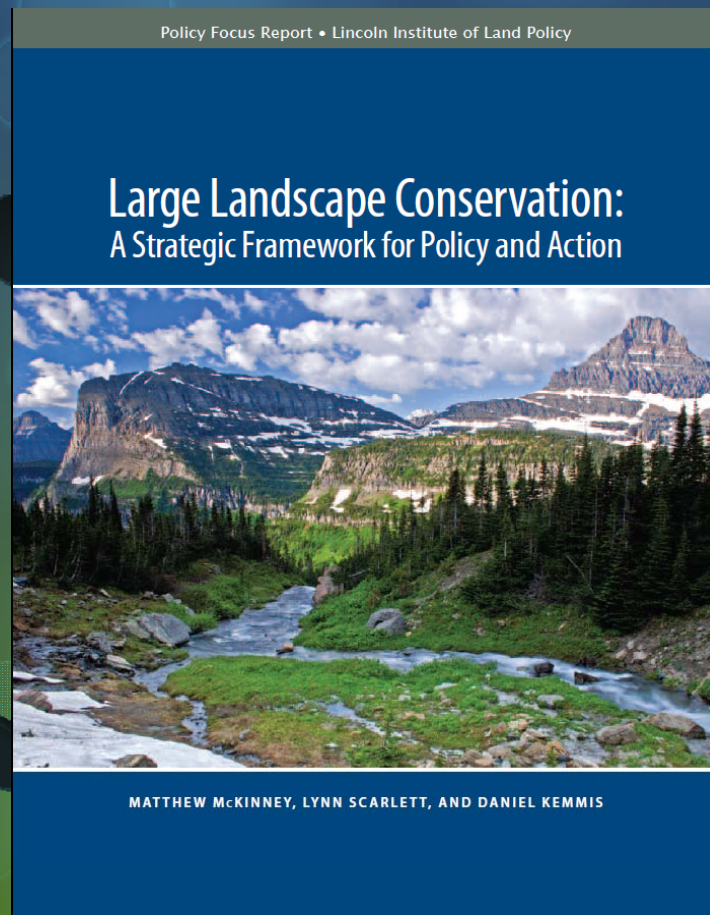


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# Barriers to Large Landscape Conservation



- Lack of Information
- Lack of Capacity
- Lack of a Coordinated Strategy
- Lack of Appropriate Policy Tools
- Fragmented Financial Investment

# Landscape Conservation Cooperatives

Landscape Conservation Cooperatives embody a shared vision for dealing with change on the landscape and will be a key component in addressing the challenge of natural resource stressors

## Thank You!

