National Park Service
U.S. Department of the Interior

The Potential of using Landscape Conservation Cooperatives to Implement the Vision of Revisiting Leopold

Amanda Babson, Tom Olliff, Bill Monahan, Dave Theobald, Cat Hawkins Hoffman, Janet Cakir, Stanton Enomoto

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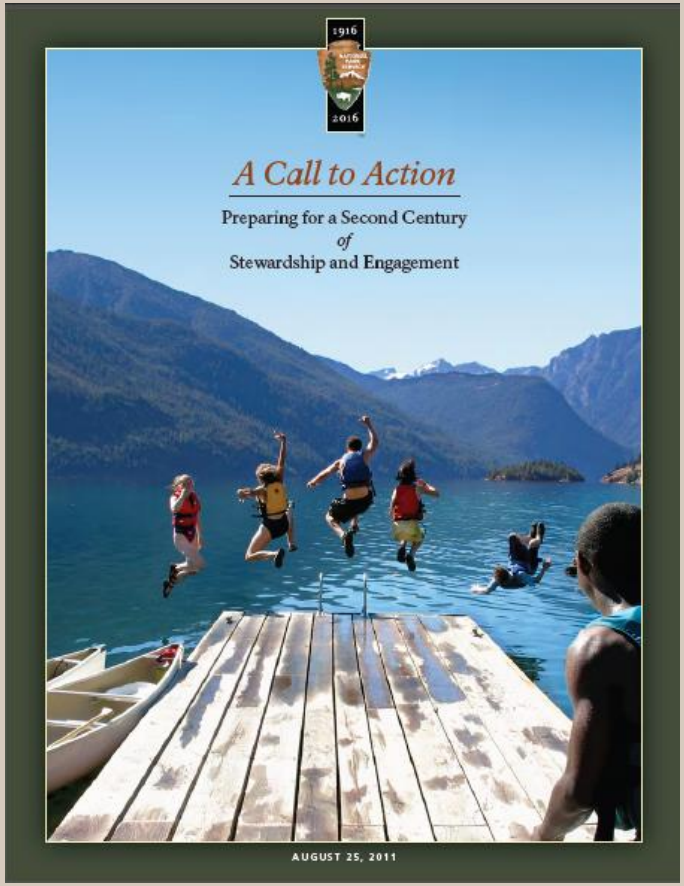
Revisiting Leopold

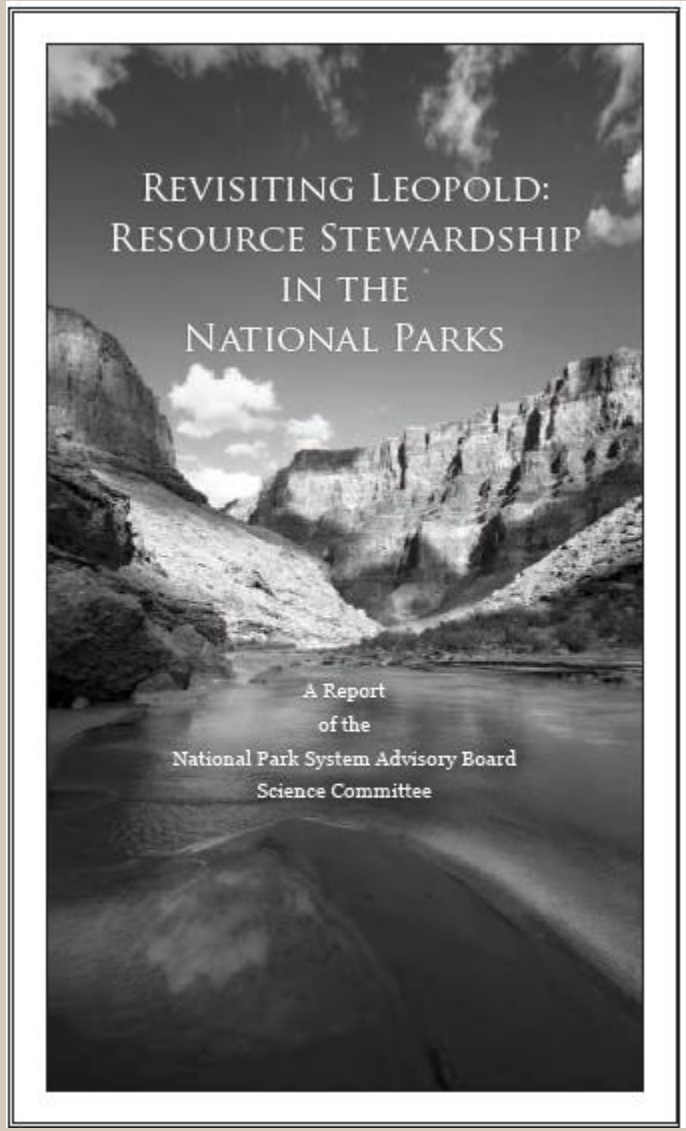
- Mandated by *A Call to Action*
- **Create a NEW BASIS for NPS Resource Management**
- **Establish the NPS as a leader in addressing impacts of climate change**



Revisit Leopold 21 Create a new basis for NPS resource management to inform policy, planning, and management decisions and establish the NPS as a leader in addressing the impacts of climate change on protected areas around the world. To accomplish this we will prepare a contemporary version of the 1963 *Leopold Report* that confronts modern challenges in natural and cultural resource management.

Revisiting Leopold

- **What should be the GOALS for Resource Mgt in the NPS?**
- **What POLICIES are necessary to achieve these goals?**
- **What ACTIONS are required to implement these policies?**



Revisiting Leopold

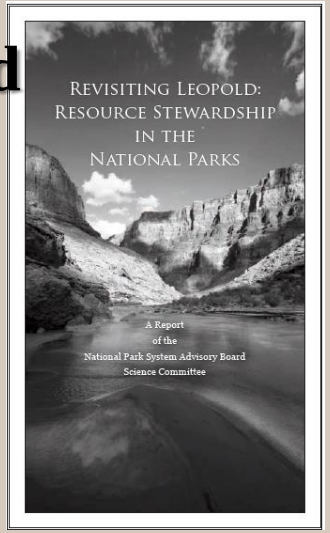
RECOMMENDATION: The NPS should adopt as an overarching goal of resource management

to steward NPS resources for CONTINUOUS CHANGE that we do not fully understand,

in order to PRESERVE ECOLOGICAL INTEGRITY and CULTURAL AND HISTORICAL AUTHENTICITY

provide visitors with transformative experiences, and

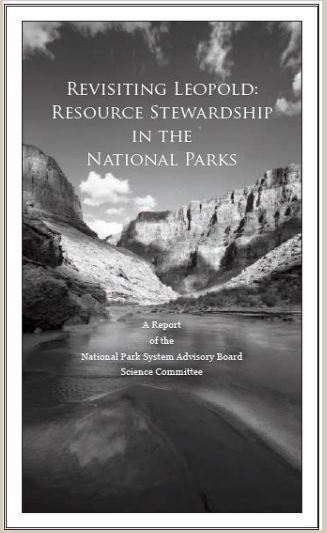
FORM THE CORE OF A NATIONAL CONSERVATION LAND- AND SEASCAPE



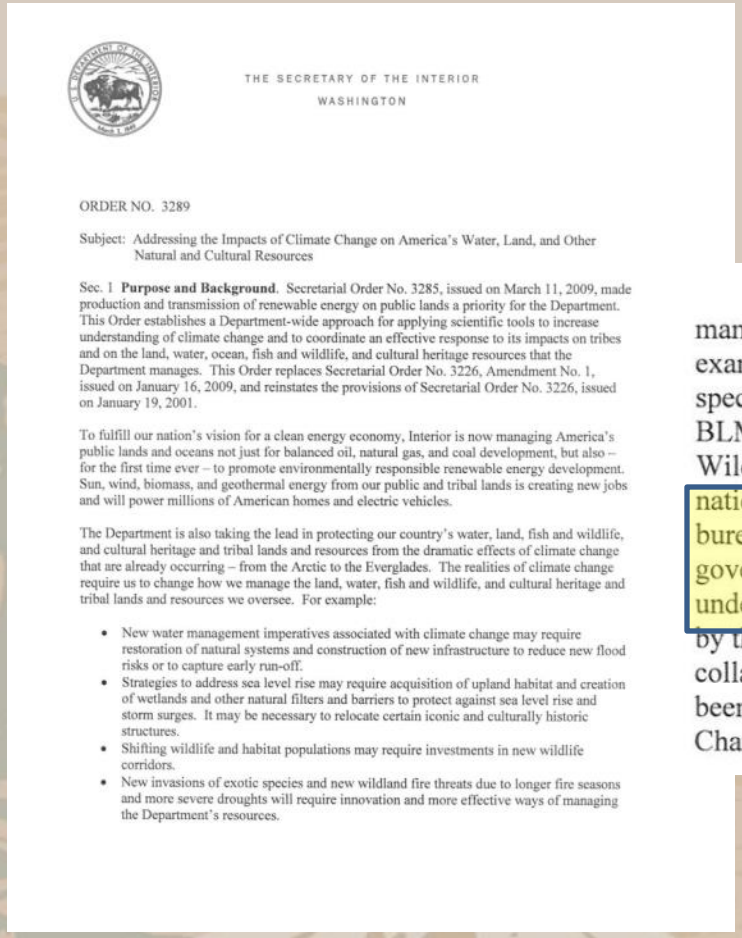
Revisiting Leopold

The NP System should become the core element of a national (and with international collaboration, continental and oceanic) network of lands and waters. (p.15).

HOW?



Secretarial Order 3289



THE SECRETARY OF THE INTERIOR
WASHINGTON

ORDER NO. 3289

Subject: Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources

Sec. 1 **Purpose and Background**. Secretarial Order No. 3285, issued on March 11, 2009, made production and transmission of renewable energy on public lands a priority for the Department. This Order establishes a Department-wide approach for applying scientific tools to increase understanding of climate change and to coordinate an effective response to its impacts on tribes and on the land, water, ocean, fish and wildlife, and cultural heritage resources that the Department manages. This Order replaces Secretarial Order No. 3226, Amendment No. 1, issued on January 16, 2009, and reinstates the provisions of Secretarial Order No. 3226, issued on January 19, 2001.

To fulfill our nation's vision for a clean energy economy, Interior is now managing America's public lands and oceans not just for balanced oil, natural gas, and coal development, but also – for the first time ever – to promote environmentally responsible renewable energy development. Sun, wind, biomass, and geothermal energy from our public and tribal lands is creating new jobs and will power millions of American homes and electric vehicles.

The Department is also taking the lead in protecting our country's water, land, fish and wildlife, and cultural heritage and tribal lands and resources from the dramatic effects of climate change that are already occurring – from the Arctic to the Everglades. The realities of climate change require us to change how we manage the land, water, fish and wildlife, and cultural heritage and tribal lands and resources we oversee. For example:

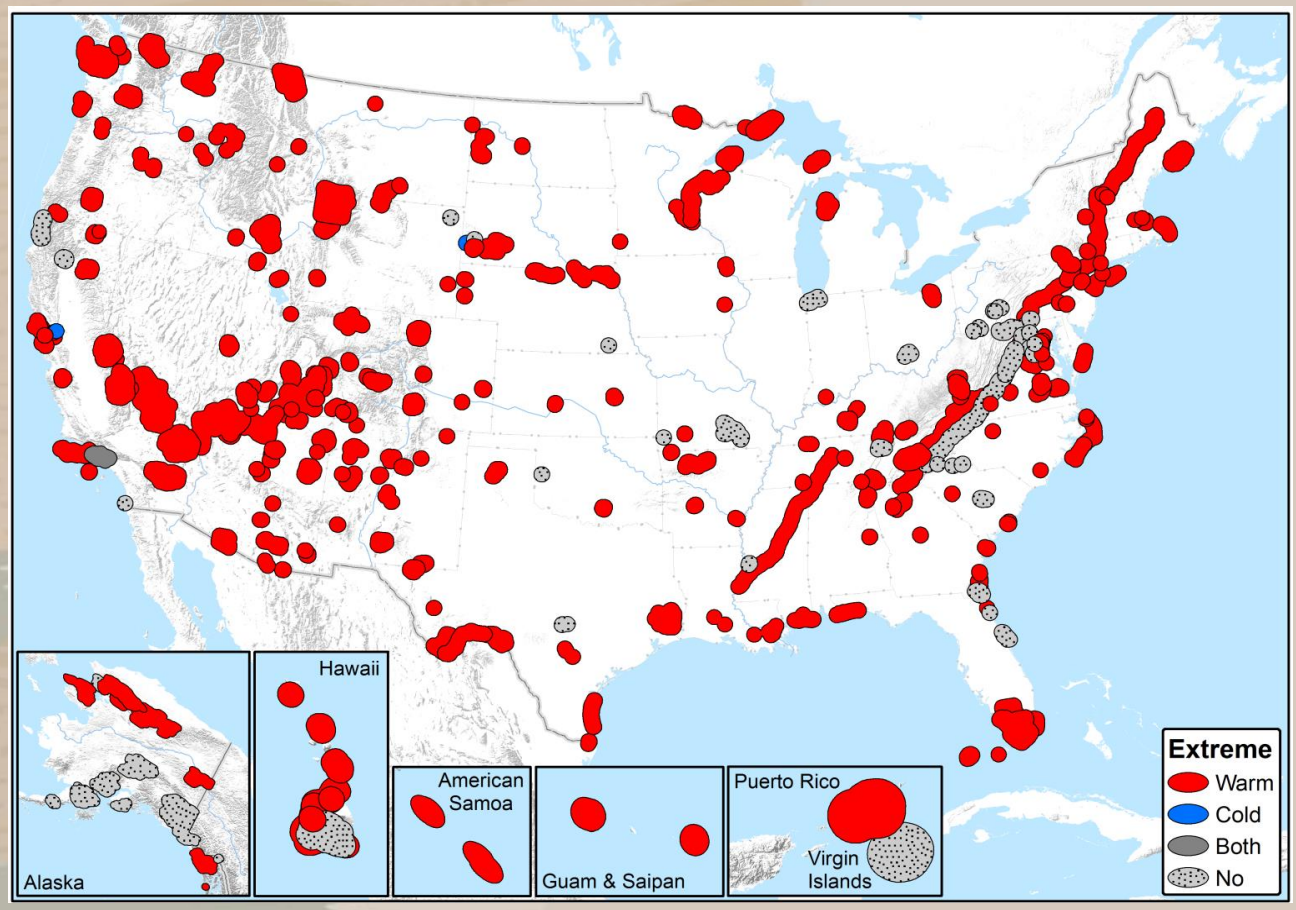
- New water management imperatives associated with climate change may require restoration of natural systems and construction of new infrastructure to reduce new flood risks or to capture early run-off.
- Strategies to address sea level rise may require acquisition of upland habitat and creation of wetlands and other natural filters and barriers to protect against sea level rise and storm surges. It may be necessary to relocate certain iconic and culturally historic structures.
- Shifting wildlife and habitat populations may require investments in new wildlife corridors.
- New invasions of exotic species and new wildland fire threats due to longer fire seasons and more severe droughts will require innovation and more effective ways of managing the Department's resources.

(c) Landscape Conservation Cooperatives. Given the broad impacts of climate change, management responses to such impacts must be coordinated on a landscape-level basis. For example, wildlife migration and related needs for new wildlife corridors, the spread of invasive species and wildfire risks, typically will extend beyond the borders of National Wildlife Refuges, BLM lands, or National Parks. Additionally, some bureau responsibilities (e.g., Fish and Wildlife Service migratory bird and threatened and endangered species responsibilities) extend nationally and globally. Because of the unprecedented scope of affected landscapes, 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. Interior bureaus and agencies, guided by the Climate Response Council, will work to stimulate the development of a network of collaborative "Landscape Conservation Cooperatives." These cooperatives, which already have been formed in some regions, will work interactively with the relevant DOI Regional Climate Change Response Center(s) and help coordinate adaptation efforts in the region.

"…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."

“Extreme” Temperatures

Pushing the envelope: 81% of parks (235/289) are already “**extreme warm**” (i.e. most recent 10-30 years warmer than 95% of historical conditions going back to 1901)



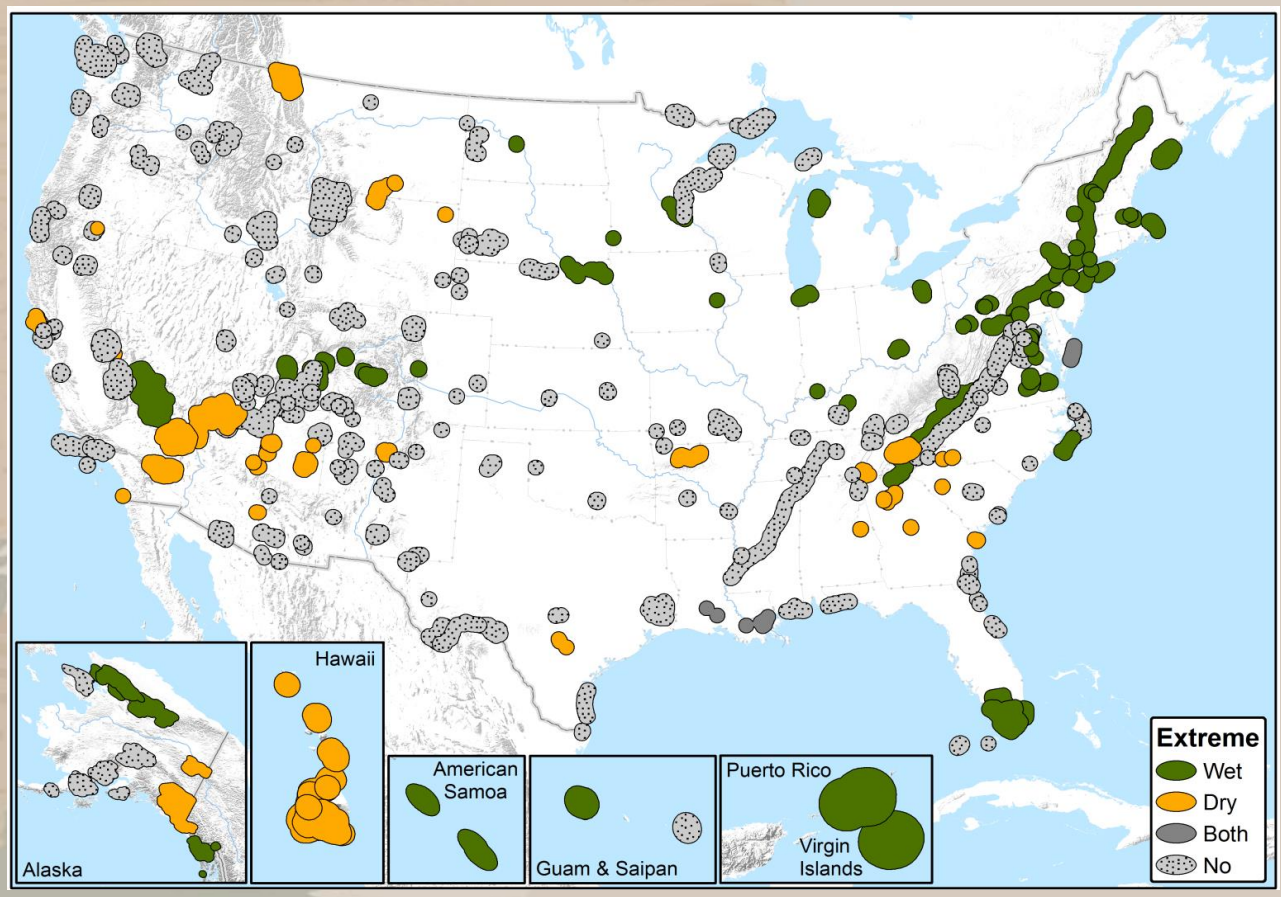
“Extreme” for any one of 7 temperature variables

Monahan & Fisichelli (2014)

“Extreme” Precipitation

78 parks (27%) “extreme wet”
2 parks (<1%) both “extreme wet and dry”

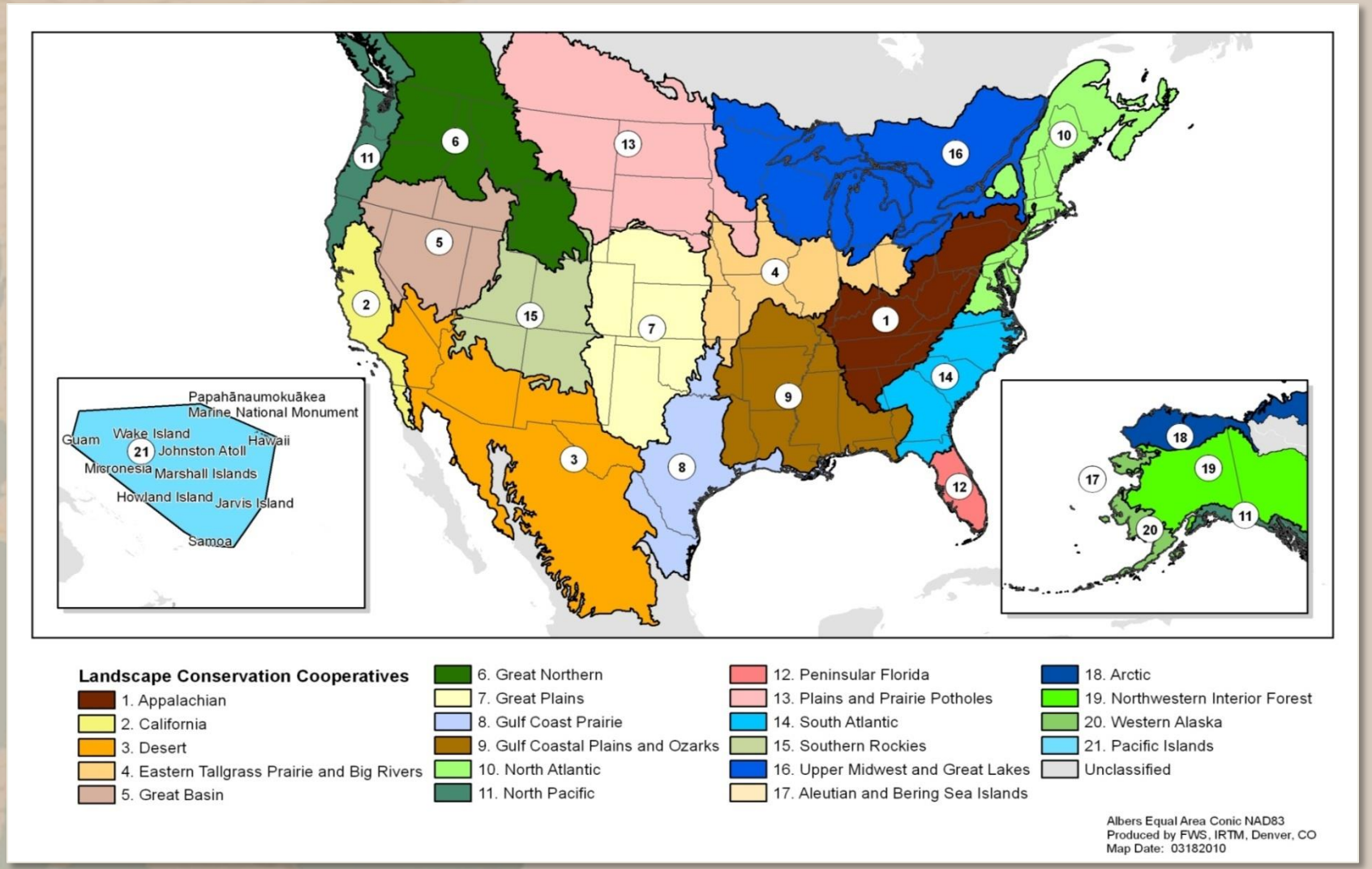
43 parks (15%) “extreme dry”
166 parks (57%) no extreme



“Extreme” for any one of 7 precipitation variables

Monahan & Fisichelli (2014)

Seemless Network



LCCs—What are they?

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

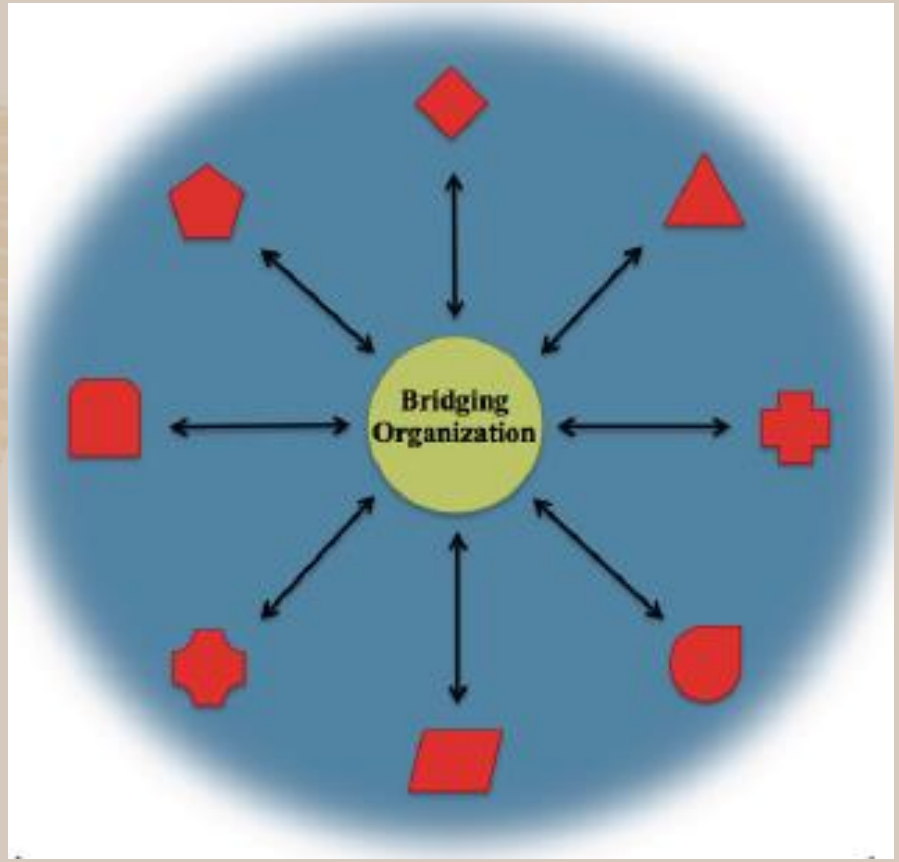
Fundamental units of planning and adaptive science that inform conservation actions on the ground

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

LCCs as Bridging Organzations

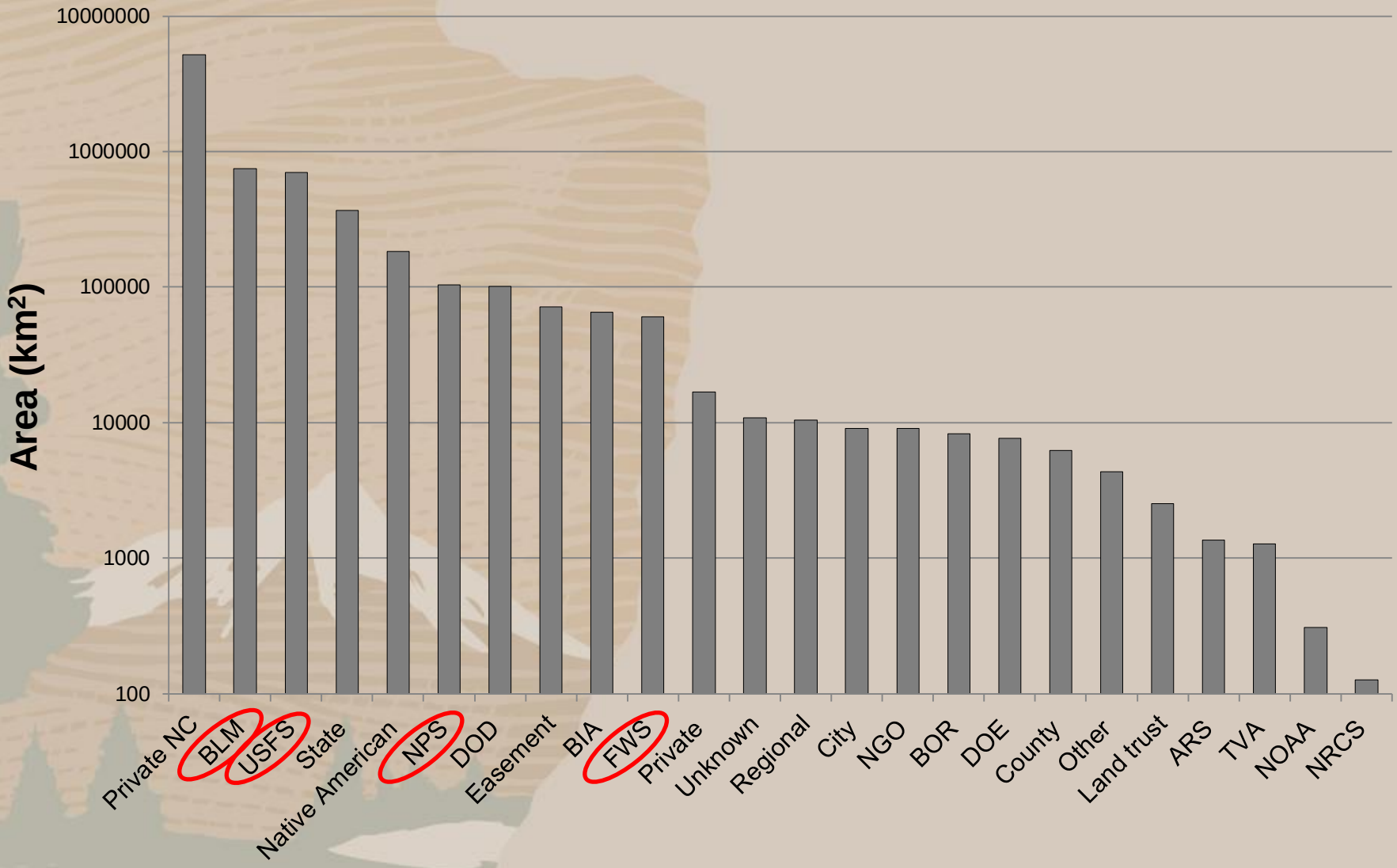
Bridging organizations create social networks to facilitate:

- knowledge co-production
- trust building
- sense making
- social learning
- vertical and horizontal collaboration
- conflict resolution

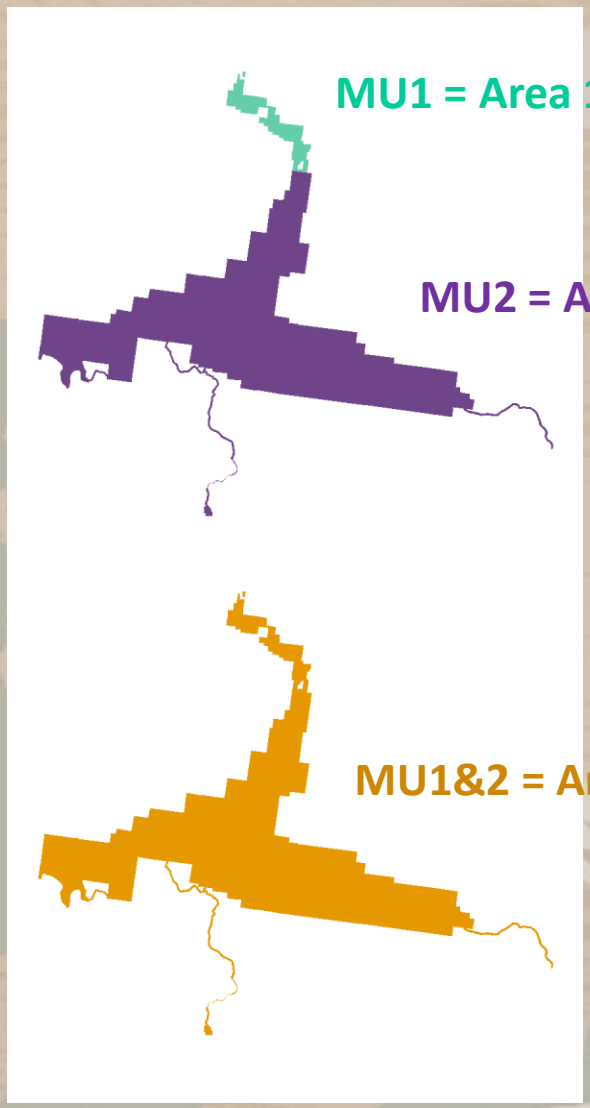


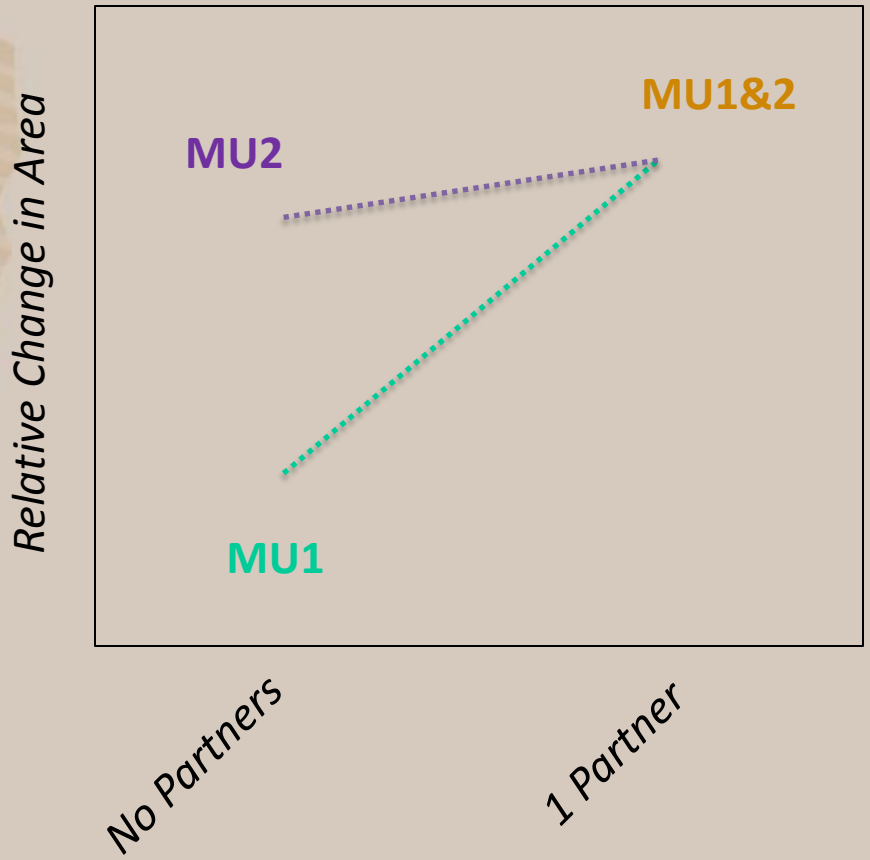
Courtesy of Graham McDowell, Oxford University

Who Manages the Most Land?

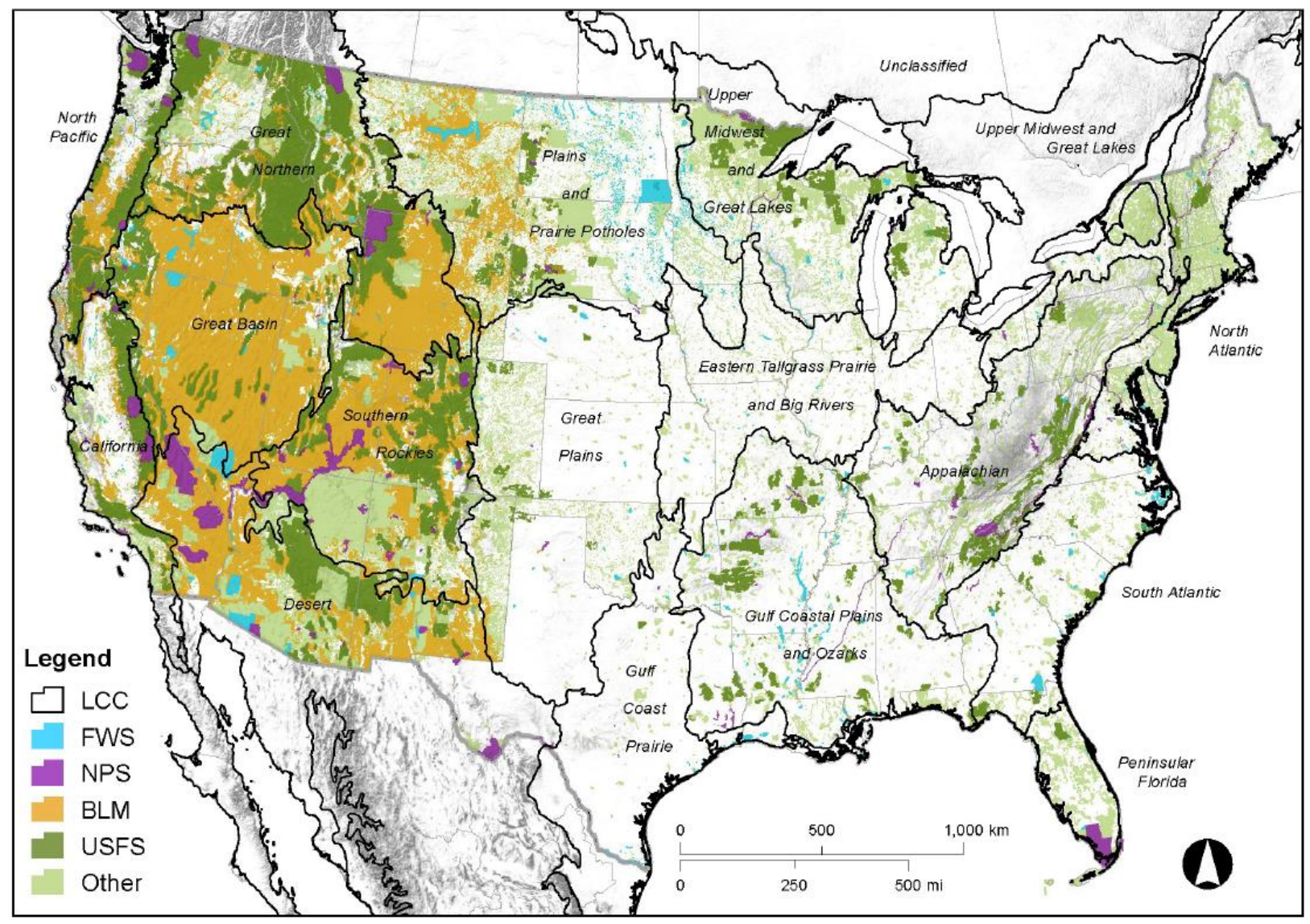


Measuring Power of Partnerships



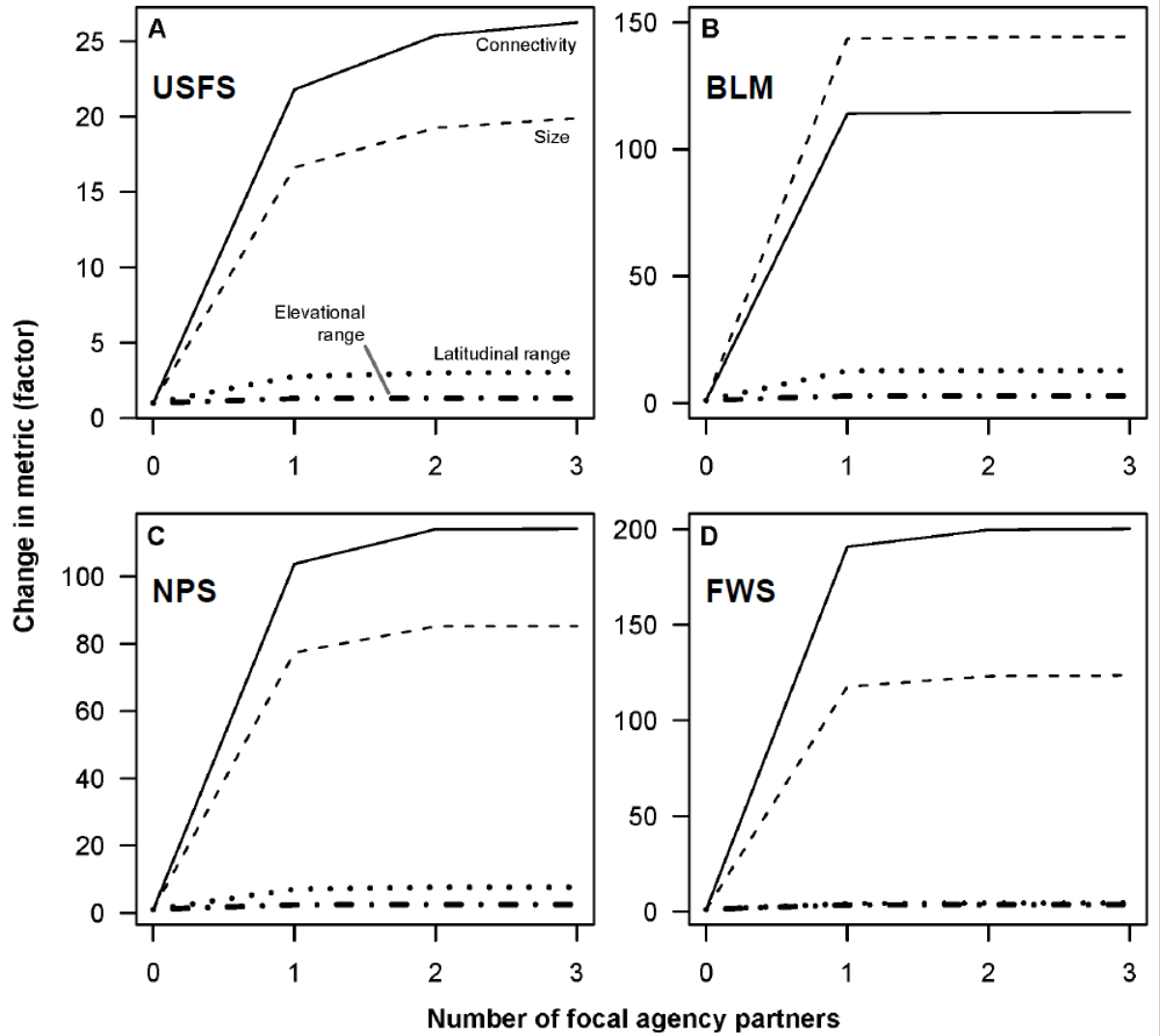


Potential Partners



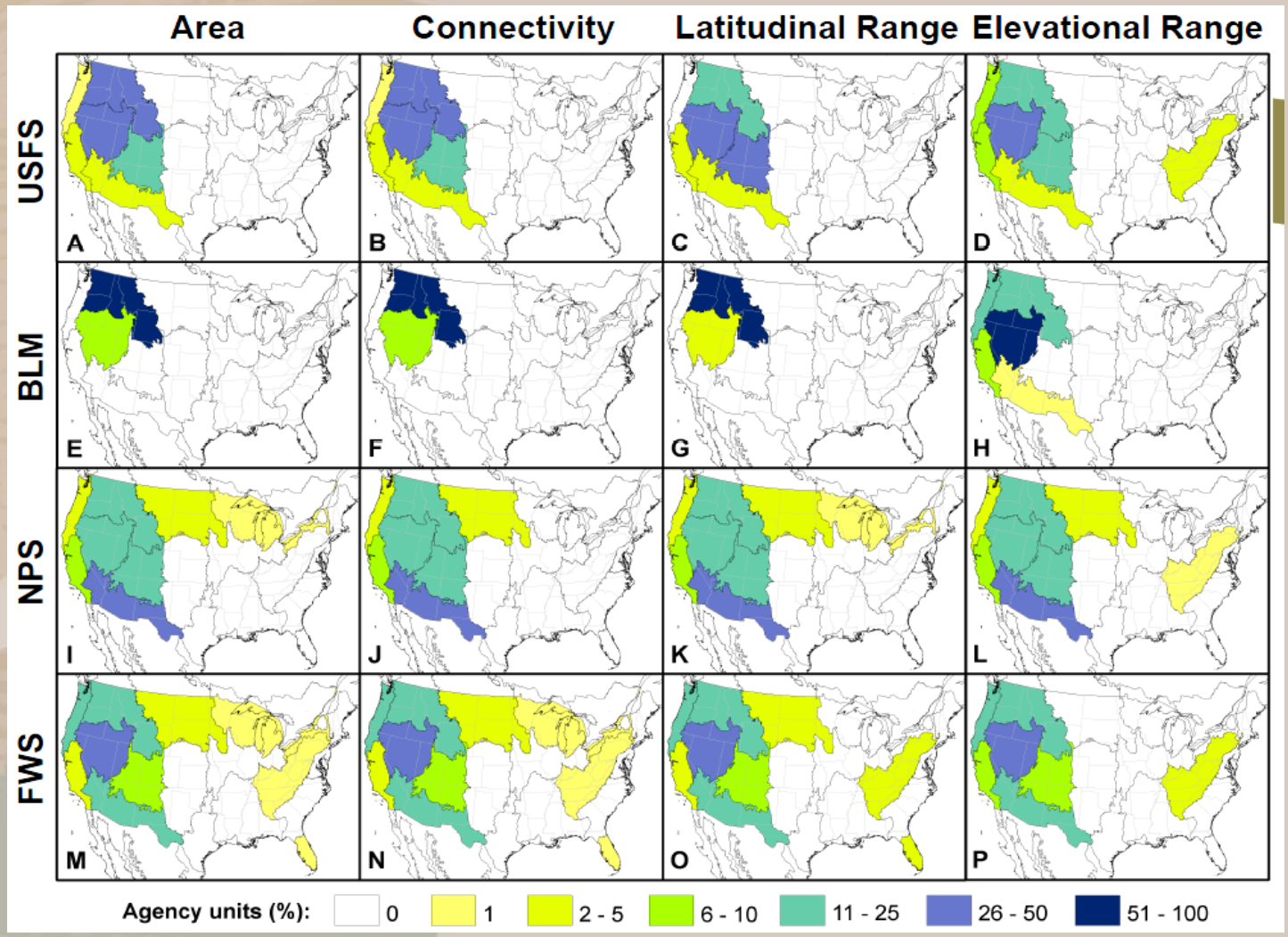
Results across LCCs

How do landscape metrics increase under different partnerships?



Results across LCCs

Where are the top 100 management unit partnerships by agency and landscape metric?



Engaging the Cultural Resource Community

Held a workshop with State Historic Preservation Offices.

Met with National Park Service Southeast Region Cultural Resources team.

Attended Gullah Geechee Management Plan Roll-out meeting.

Met with the Catawba Indian Nation.

Outcome: Helping to Conserve…

IMPORTANT CULTURAL LANDSCAPES

Rural Farms

Rice Fields

Battlefields

Longleaf Pine

NATURAL RESOURCES FOR LIVING CULTURES

Clean Water

Longleaf

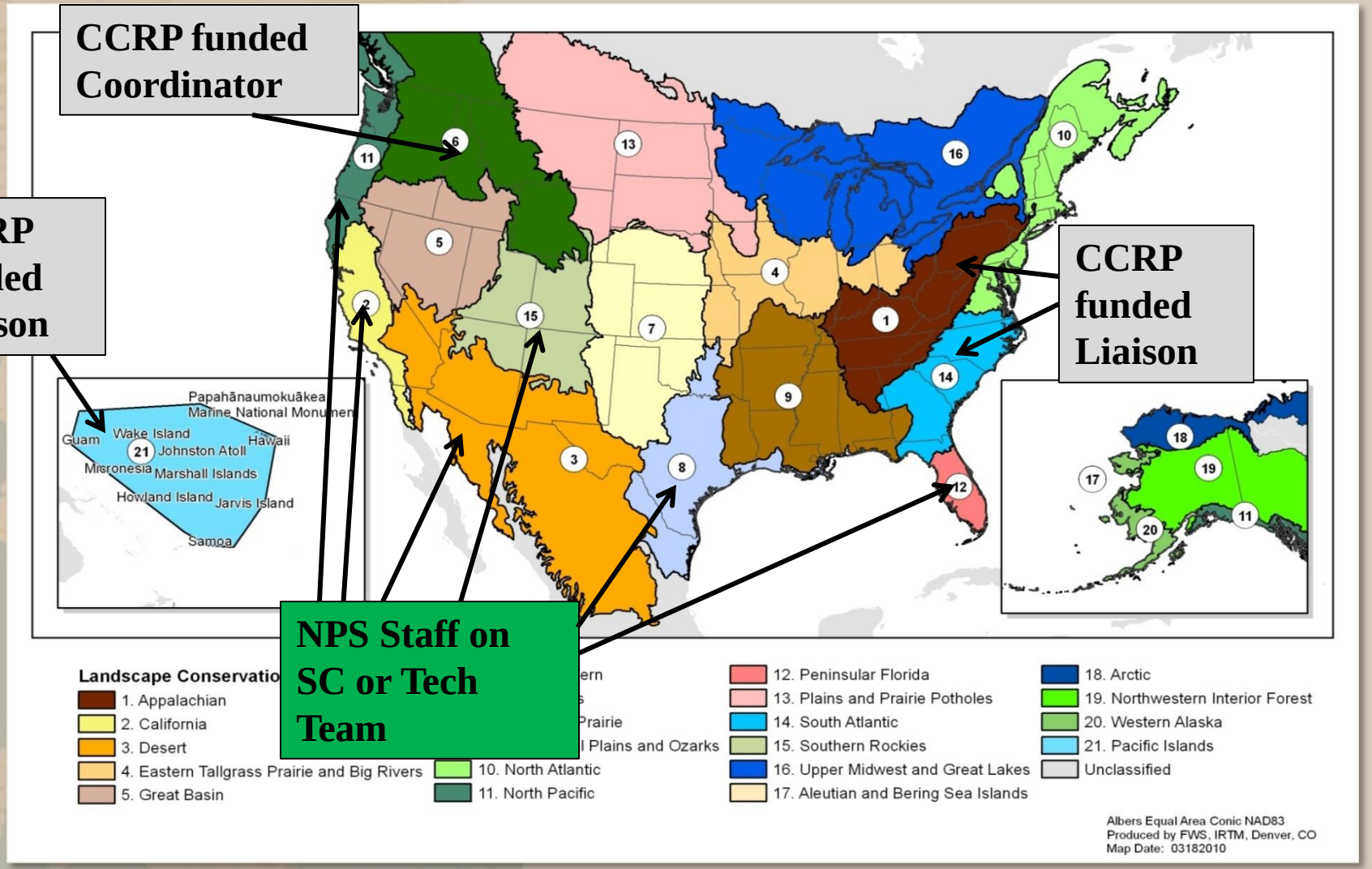
Sweetgrass

Clay

Shellfish

Huntable Species

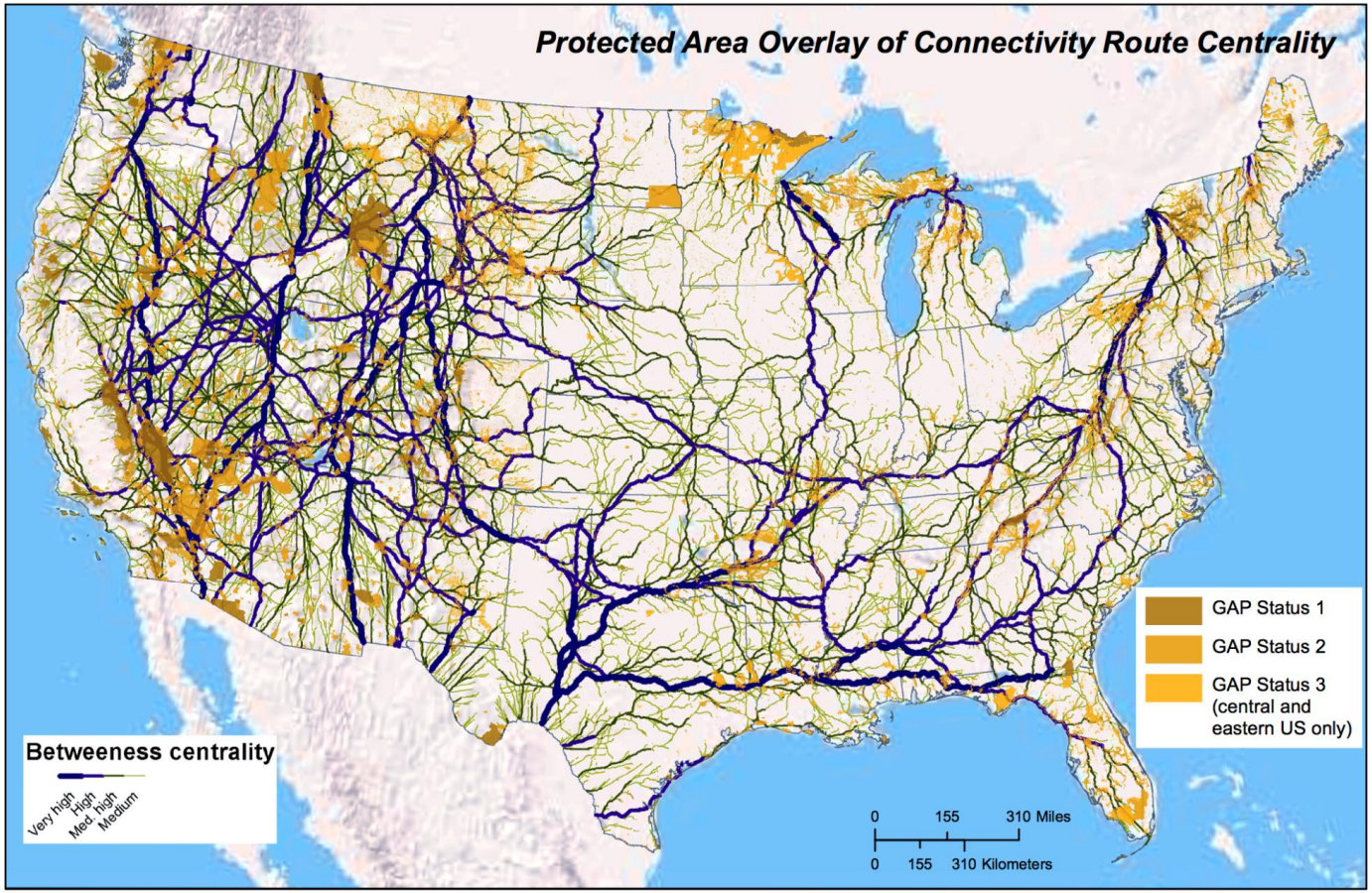
NPS is already involved in LCCs



NP System adds value to LCCs

- Profile (when parks talk, people listen)
- Strong focus on, expertise in, and affiliation with cultural resources
- Many National Parks add the protected end of the spectrum to a matrix of conservation lands
- NPS has critical conservation lands in strategic places
- The Scaling Up Initiative already supports landscape conservation

NP System has lands critical to connectivity



This map shows connectivity routes that are expected to be most permeable to movement among areas with low degrees of human modification. Betweeness centrality is a metric describing the relative importance of a given connectivity route to the broader landscape configuration. Protected areas (GAP Status 1 and 2 and 3 in the central and eastern US - defined by EPA Ecoregions) are overlaid for reference. This map is intended for illustrative purposes only.

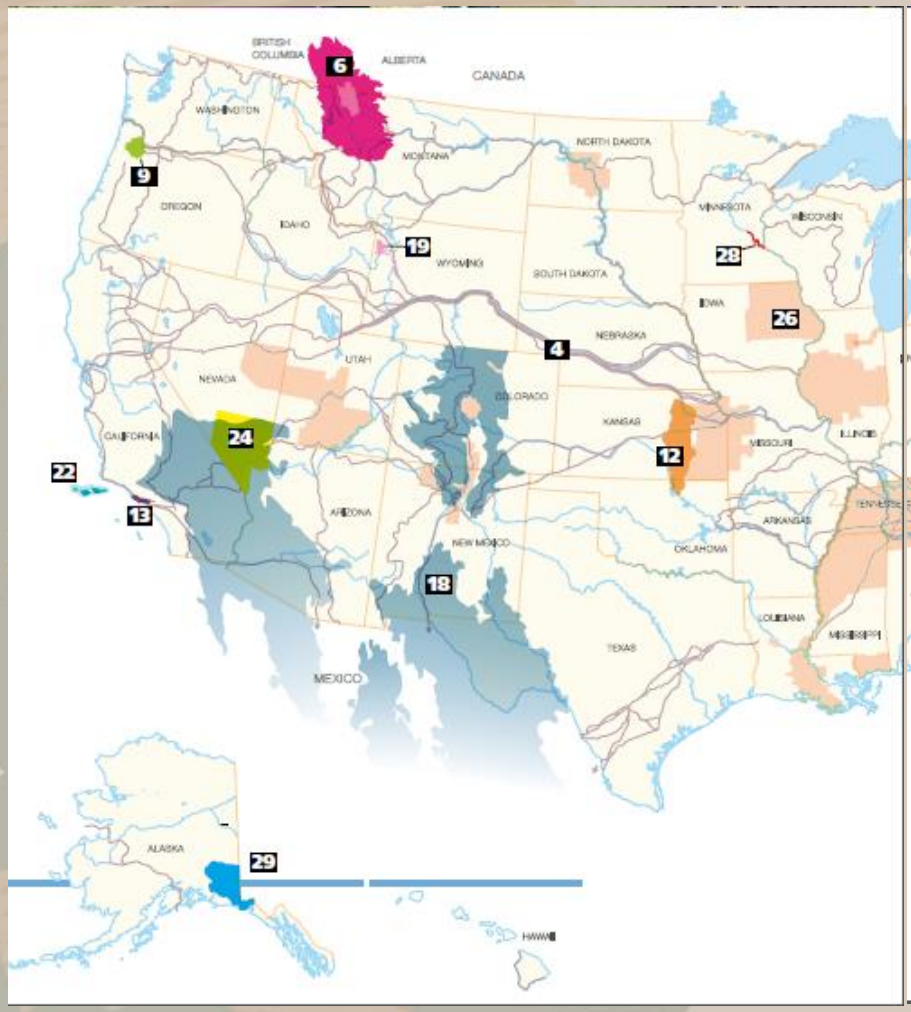
Data Sources:

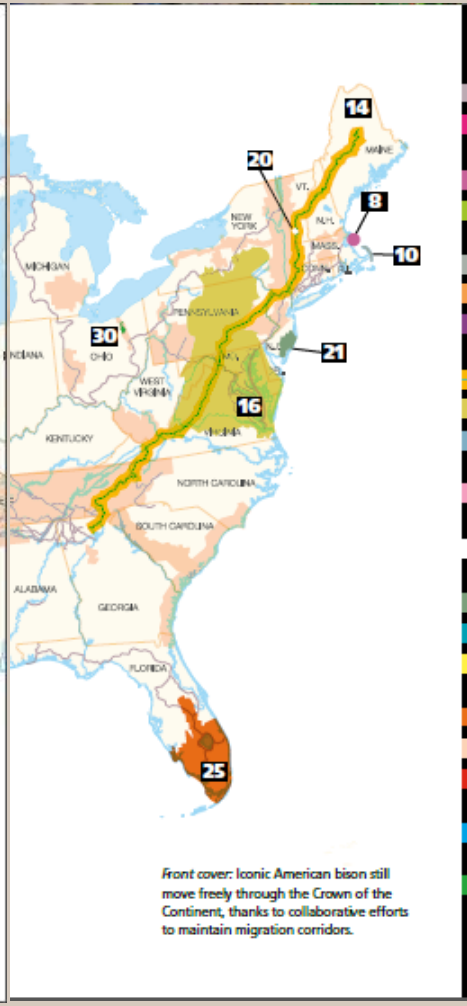
Theobald, D.M., Reed, S.E., Fields, K., & Soulé, M. 2012. Connecting natural landscapes using a landscape permeability model to prioritize conservation activities in the United States. Conservation Letters 5(2): 123-133.

U.S. Geological Survey, Gap Analysis Program (GAP). 2012. Protected Areas Database of the United States (PADUS), version 1.3 Combined Feature Class.

Overlay map produced by: Center for Large Landscape Conservation (406) 586-8082 www.largelandscapes.org

NP Scaling Up





Front cover: Iconic American bison still move freely through the Crown of the Continent, thanks to collaborative efforts to maintain migration corridors.

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National Trails 4

Waterton-Glacier International Peace Park and the Crown of the Continent 6

Boston Harbor Islands 8

Rivers, Trails, and Conservation Assistance: Intertwine Alliance 9

Cape Cod National Seashore 10

Tallgrass Prairie National Preserve 12

Santa Monica Mountains National Recreation Area 13

Appalachian National Scenic Trail 14

Chesapeake Bay Watershed 16

Southwest Desert Large Landscape Conservation Area 18

Grand Teton National Park and Path of the Pronghorn 19

Marsh-Billings-Rockefeller National Historical Park 20

Pinelands National Reserve 21

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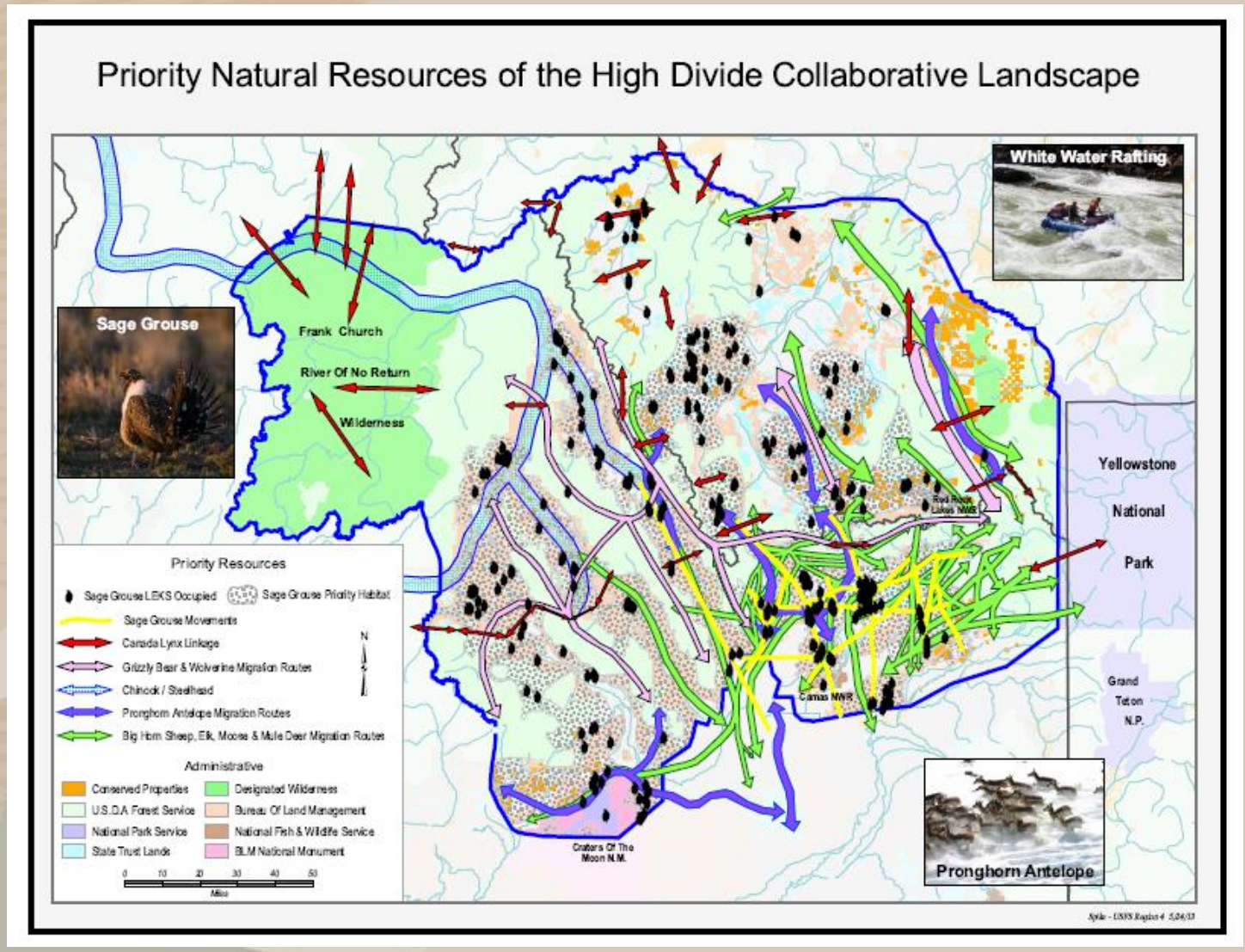
Example from the Great Northern LCC



LCCs can add opportunity to NPS, especially in “creating a network of conservation lands”

- Sanctioned, WASO-promoted collaborative partnership
- Similar goals to those recommended in Revisiting Leopold Report
- NPS is already involved in LCCs—but might benefit from being more involved
- Conservation potential from engaging in this type of partnership is noteworthy
- By engaging with LCCs, NPS could, at least in part, become part of a core of conservation lands

Thank You!

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