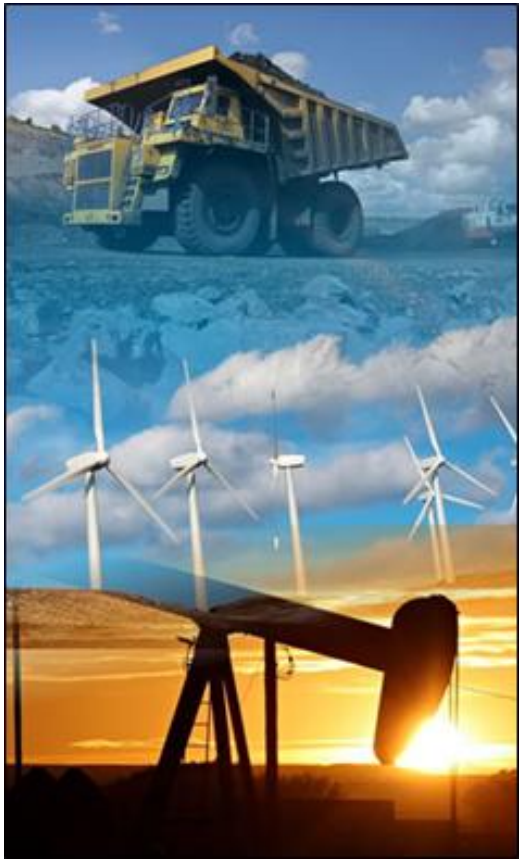

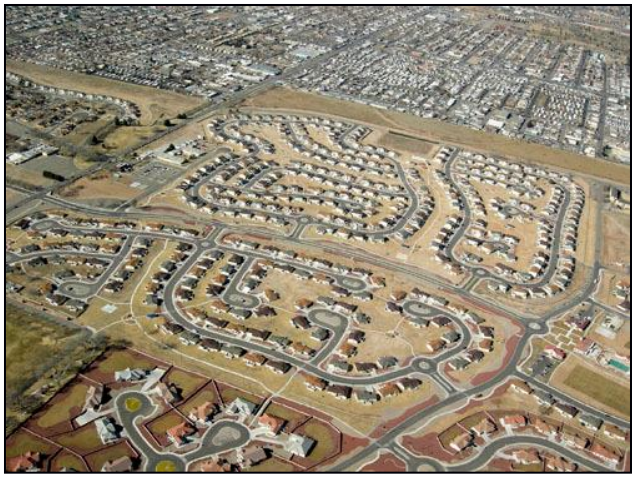

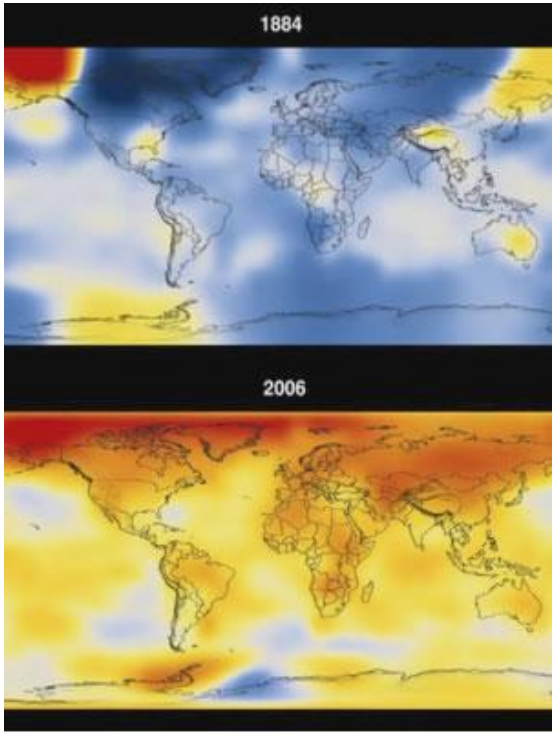
1884
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maritima
macgillivraii
juncicola
fisheri
sennetti
peninsulae
pelonota
nigrescens
mirabilis
Breeding Range
Year Round
Wintering Range


maritima
macgillivraii
juncicola
fisheri
sennetti
peninsulae
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Breeding Range
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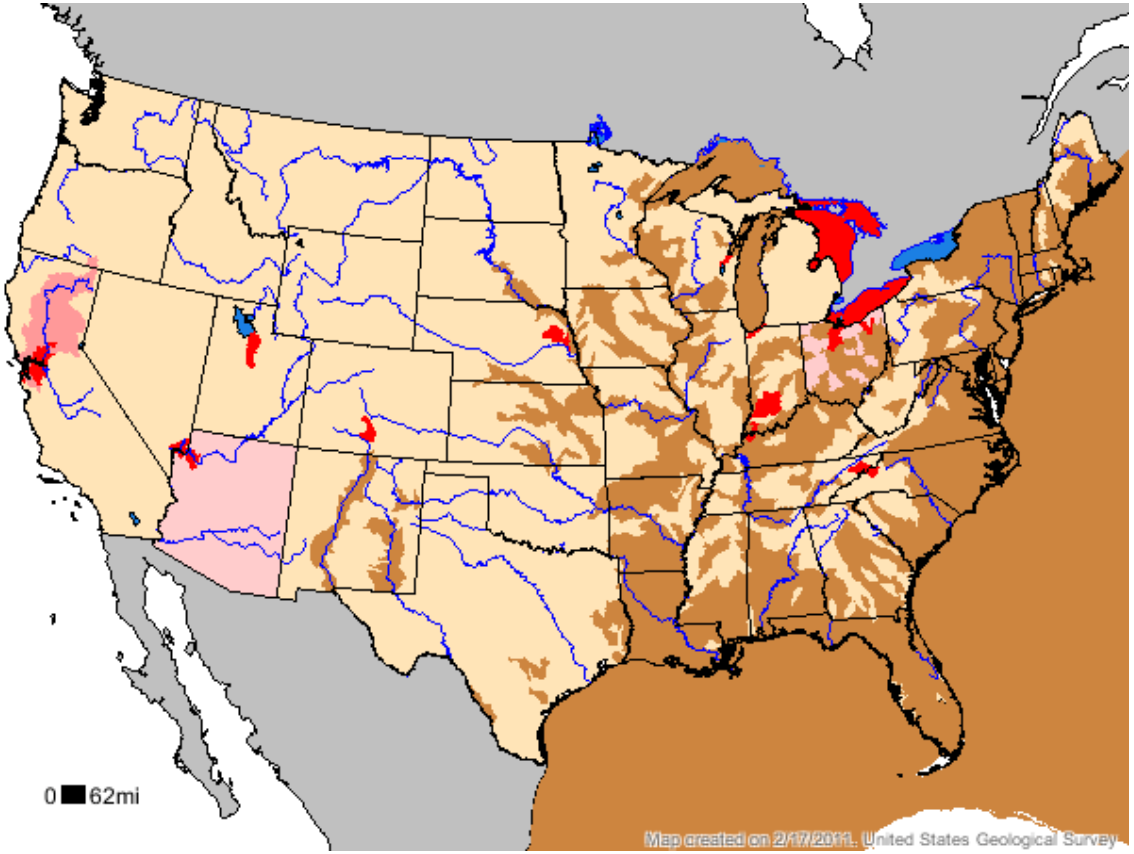
Wintering Range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Map created on 2/17/2011, United States Geological Survey


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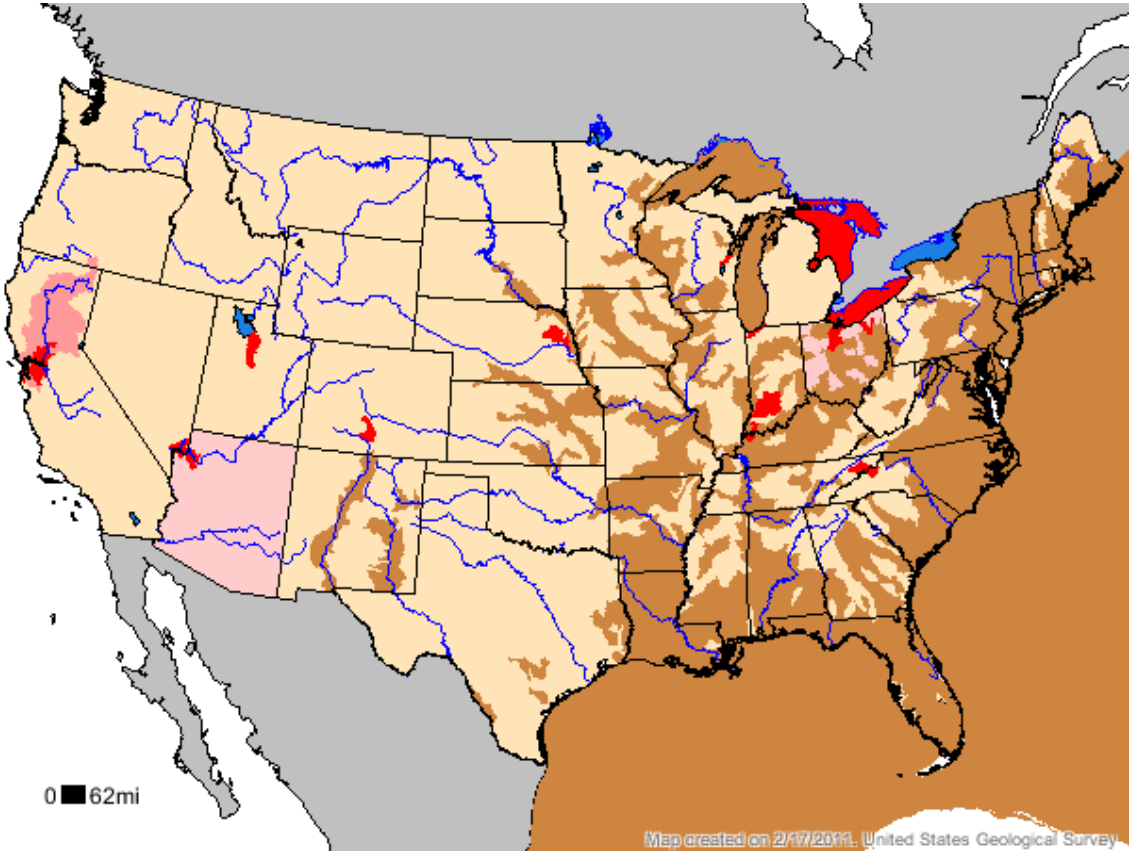
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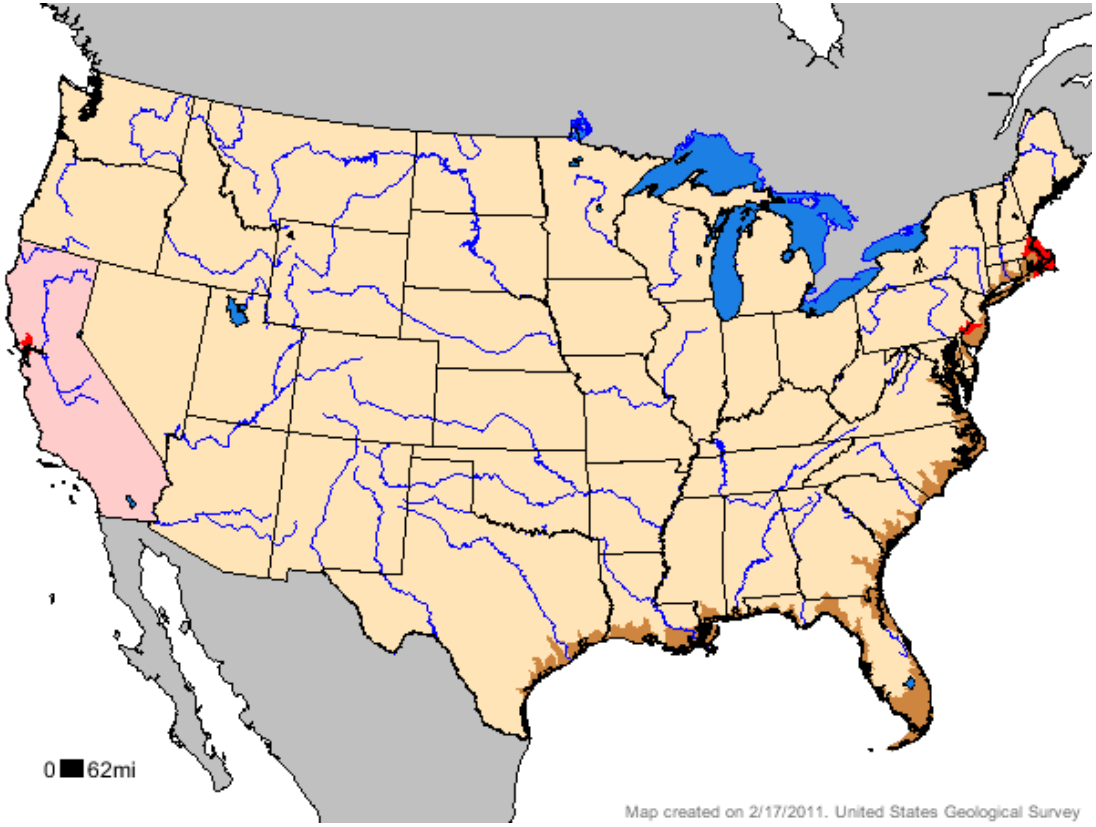
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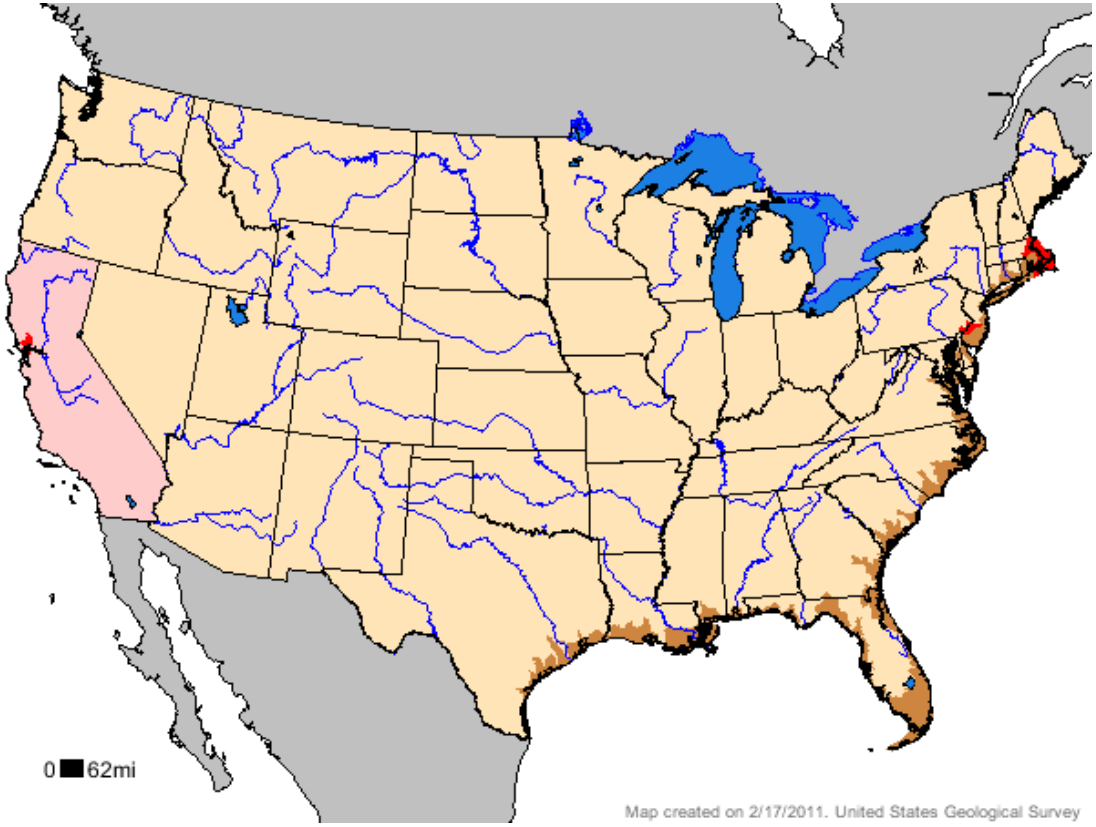
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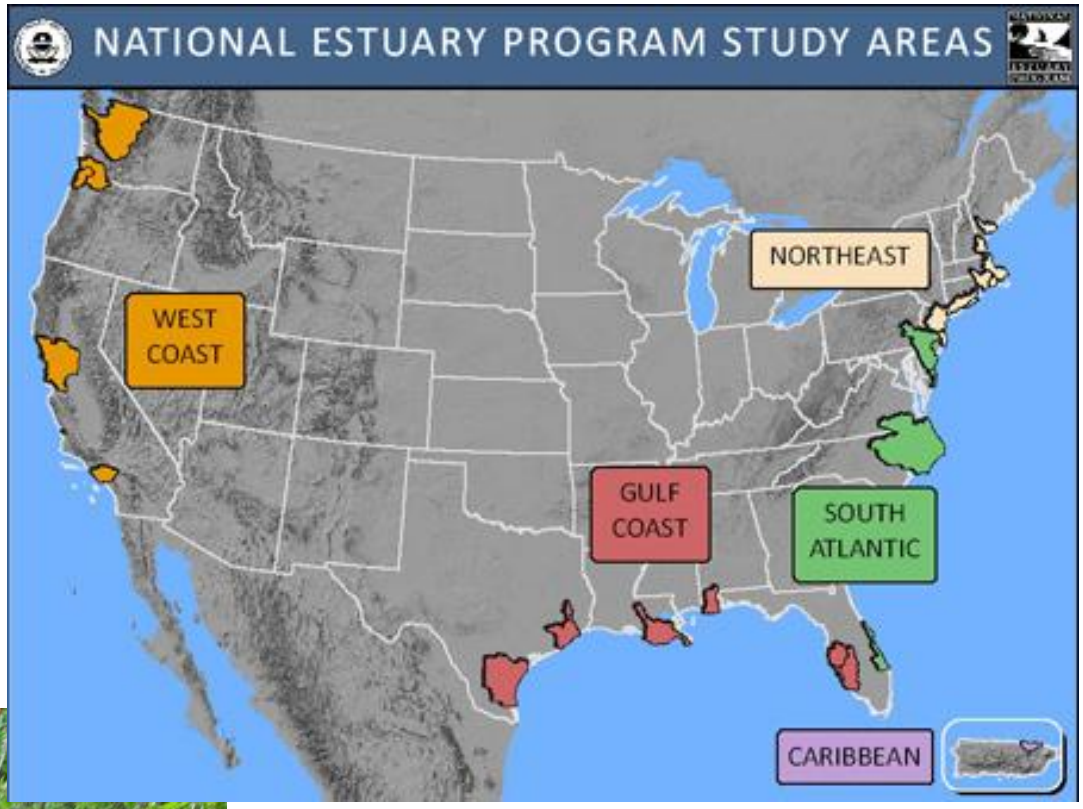
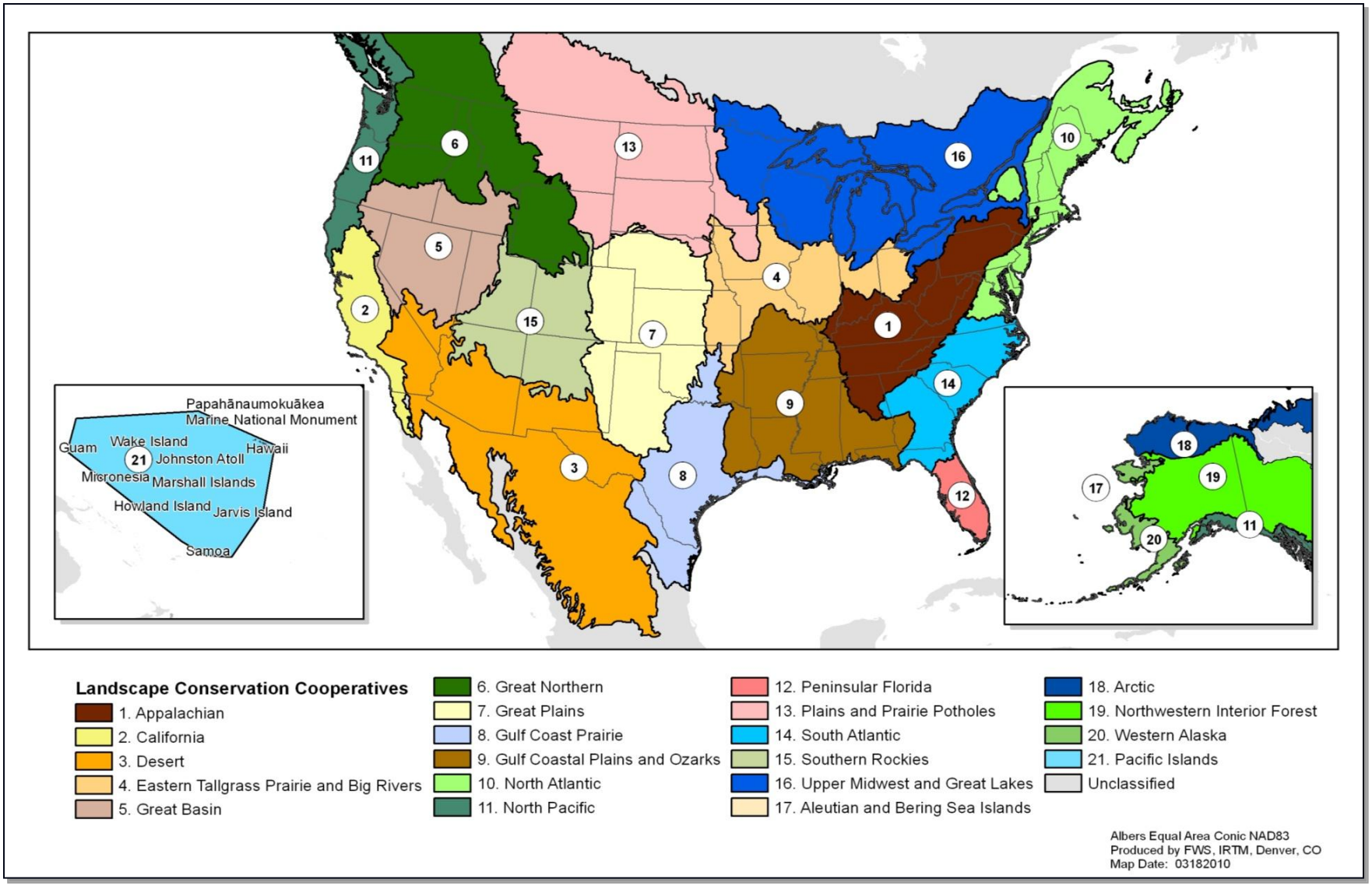

NATIONAL ESTUARY PROGRAM STUDY AREAS
WEST COAST
NORTHEAST
GULF COAST
SOUTH ATLANTIC
CARIBBEAN

Anthony Zukoff


Craig Tanner

Do we have a shared plan for how to sustain natural and cultural resources?

Landscape Conservation Cooperatives: Geographic Areas



Landscape Conservation Cooperatives

- Roles
  - Offer partners a landscape perspective for their conservation activities

Landscape Conservation Cooperatives

- Roles
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  - Develop explicit linkages across existing conservation partnerships that span multiple taxa and habitats

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  - Pull these pieces together to help conservation partners define and design sustainable landscapes
    - Conservation Adaptation Strategy


Atlanta Medical Center

The Mission

The mission of the South Atlantic Landscape Conservation Cooperative is to foster landscape scale conservation to sustain natural and cultural resources for future generations.

Steering Committee

- VA Dept. of Game & Inland Fisheries
- NC Wildlife Resources Commission
- SC Dept. of Natural Resources
- GA Dept. of Natural Resources
- FL Fish & Wildlife CC
- The Nature Conservancy
- National Park Service
- U.S. Geological Survey
- Environmental Protection Agency
- U.S. Forest Service
- Department of Defense
- U.S. Fish & Wildlife
- NOAA
- South Atlantic Fishery Management Council

Partnership committee

- Albemarle-Pamlico Natural Estuary Program
- Southeast Aquatic Resource Partnership
- Atlantic Coast Joint Venture
- Atlantic Coast Fish Habitat Partnership
- Southeast Partners in Amphibian and Reptile Conservation
- Southeast Partners in Flight
- Eastern NC / SE Virginia Strategic Habitat Conservation team

The technical teams for the SALCC are the partnerships

Full time staff of SALCC

- Coordinator (FWS) – Ken McDermond
- Science coordinator (FWS) – Rua Mordecai
- Socioeconomic adaptation coordinator (NPS) – Aug 1st
- Information transfer (USFS/FWS) – Sept 1st ?
- Gulf Coast Coordinator (NOAA/FWS) – Coming soon…
- GIS position (FWS) – Coming soon…

Part-time staff of SALCC

- Doug Newcomb (Raleigh ES) – GIS
- Stacy Shelton (FWS external affairs) – Communication
- Tons of other support from a variety of partners

http://www.southatlanticlcc.org

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A networking hub for partners in the South Atlantic LCC

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February 1, 2011 to February 2, 2011 - Raleigh, NC

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Created by Jennifer Strickland Aug 24, 2010 at 10:17am. Last updated by Ken McDermond Dec. 16, 2010.

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Rua Mordecai

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Quick Add...

Groups Edit

Geospatial
7 members

Rivers and streams
23 members

Aquatic invasives
8 members

The Nature Conservancy
8 members

Inventory & Monitoring
15 members

+ Add a Group View All

Landscape Conservation Cooperatives

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    - Conservation Adaptation Strategy

Optimal conservation strategies for dynamic landscapes

James B. Grand, USGS,
Alabama Cooperative Fish and Wildlife Research Unit

Max Post van der Burg, USGS,
Northern Prairies Wildlife Research Center

Tyler Kreps, Auburn University
Alabama Cooperative Fish and Wildlife Research Unit

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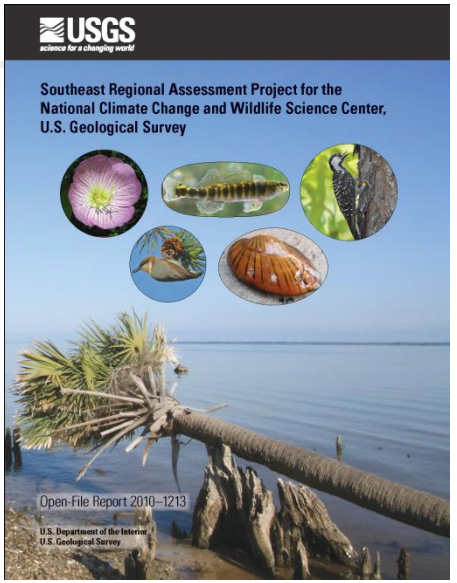
Southeast Regional Assessment Project (SERAP)



1. Downscaled climate change projections
2. Sea level rise in Mississippi and Alabama
3. Impacts of climate change on bird habitats
4. Projected impacts of climate change and urban growth on habitats of priorities
5. Avian range dynamics in response to land use and climatic change
6. Multi-resolution assessment of potential climate change effects on biological resources: Aquatic and hydrologic dynamics
7. **Optimal conservation strategies for dynamic landscapes**

Funded by: USGS, National Climate Change & Wildlife Science Center
USFWS, Multi-state grants
South Atlantic LCC

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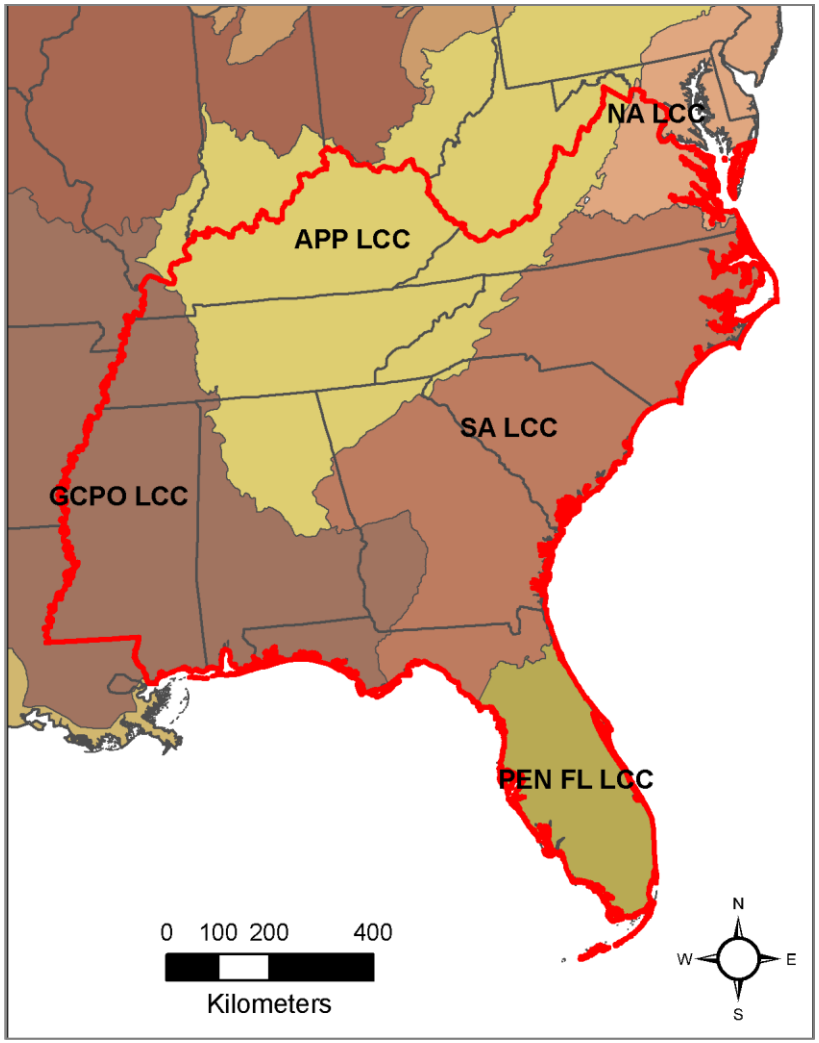
Southeast Regional Assessment Project (SERAP)

1. Climate change projections (SE US)
2. Sea level rise (MS and AL)
3. Historic impacts on bird habitat (SAMBI)
4. Change in priority species habitats (SAMBI)
5. Avian patch and range dynamics (SAMBI)
6. Aquatic species and hydrologic dynamics (ACF)
7. **Optimal conservation strategies to cope with climate change** (SA & GCPO LCCs)



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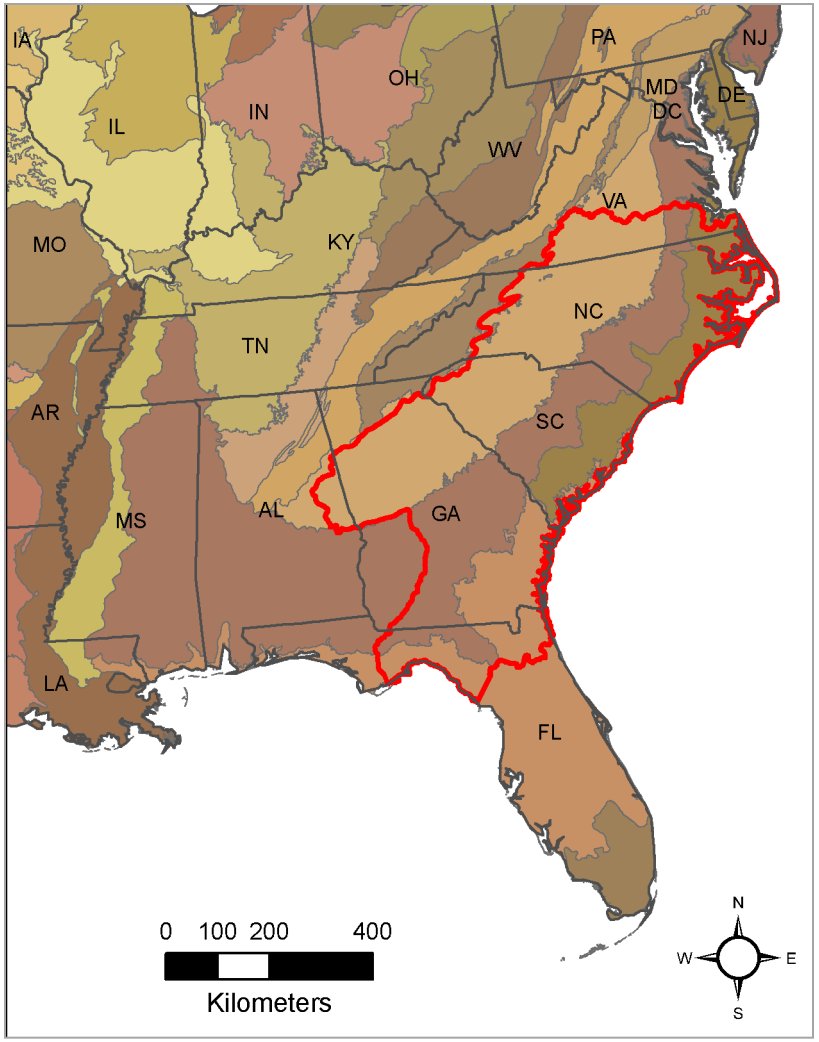
Project Scope and Spatial Extent

- Spatial Extent:
  - South Atlantic LCC
- Scope:
  - Conservation-related decisions by partners in SA LCC



Optimal strategies

- Define the conservation objectives
- Identify and model the strategies
  - Collections of actions & policies
- Predict and compare the consequences of each strategy
  - Incorporating – climate change, urbanization
- Determine optimal strategies
  - Greatest likelihood of meeting all objectives
  - Value of strategy ~ $\frac{\text{rewards} * \text{uncertainty} * \text{risk}}{\text{cost}}$
  - Incorporate tradeoffs

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Optimal strategies

- Integration using Bayesian Belief Networks

- Spatial optimization using heuristics

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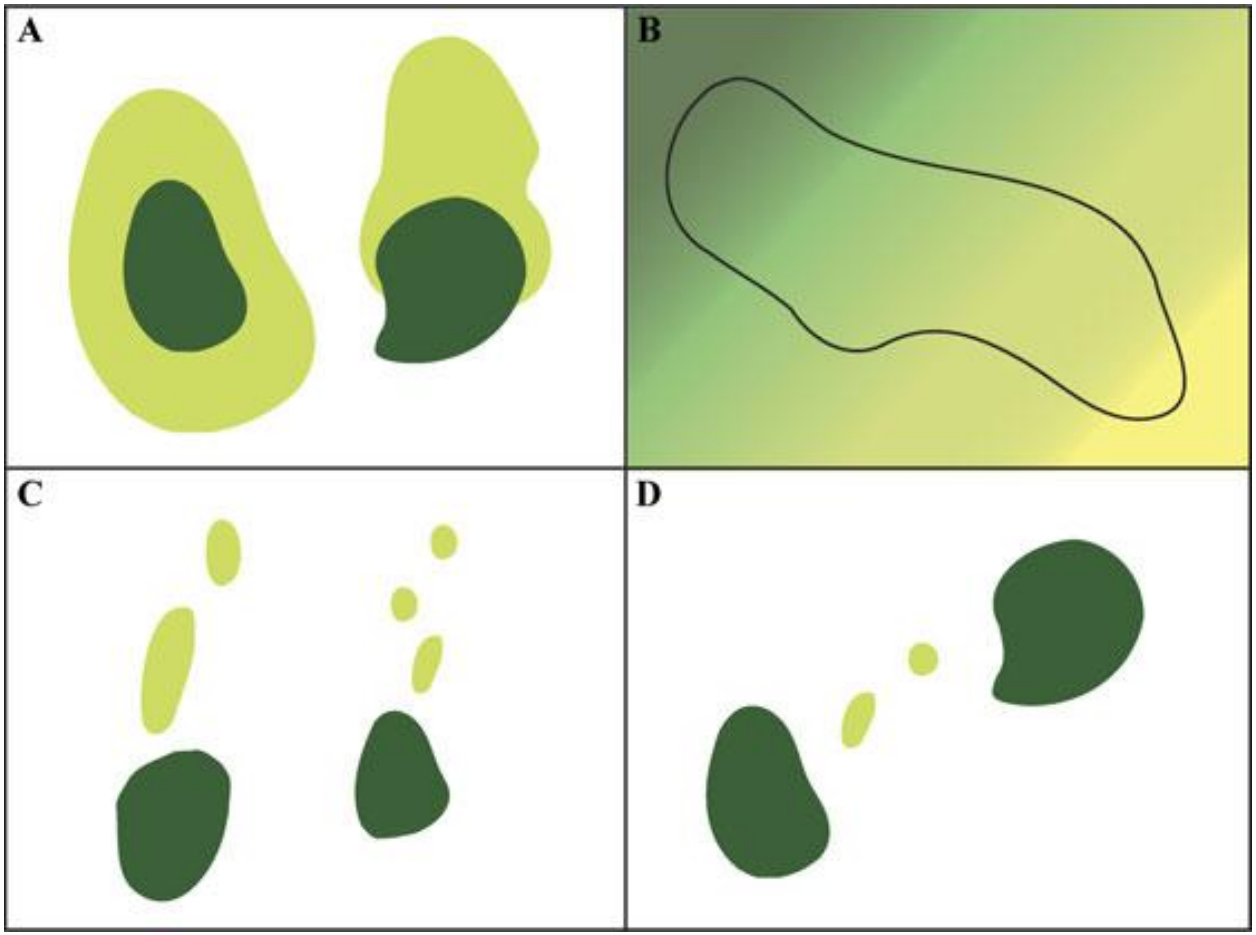
Example strategies

- Enlarge existing reserves (a), Protect habitat gradients (b), Corridors for migration (c), Connect existing reserves (d)



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Project plan

- Phase I – developing a prototype
  - Identifying the problem
  - Eliciting concerns
- Phase II – developing functional prototype
  - Developing the objectives network
  - Identifying information needs
  - Soliciting feedback from SA LCC partners
  - Functional prototype
- Phase III
  - Refining objectives with technical groups
  - Refining/revising prototype
  - Reporting

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Phase I developing a prototype

- December 2010 & January 2011
  - Conference Calls with ad hoc working group
    - Introducing the project
    - Describing the problem
    - Identifying conservation concerns
- February 2011
  - Presentation to SA LCC Steering Committee
  - Formation of working group
- May 2011
  - 3-day workshop in Auburn

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ad hoc Working group

- National Park Service
- U.S. Fish & Wildlife Service
- Environmental Protection Agency
- Environmental Defense Fund
- U.S. Forest Service
- Georgia Department of Natural Resources
- The Nature Conservancy
- National Oceanic and Atmospheric Administration

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3-day workshop in Auburn, AL

- Attendees
  - **Rua Mordecai** (SALCC)
  - Laurel Barnhill (USFWS)
  - Cat Berns (TNC)
  - Joe DeVivo (NPS)
  - Rick Durbrow (EPA)
  - Ken McDermond (SALCC)
  - Steve Musser (NRCS)
  - Ben Wigley (NCASI)
- Facilitators:
  - Max Post van der Burg
  - Barry Grand
- Assistance
  - Conor McGowan
  - Amy Silvano
  - Tyler Kreps

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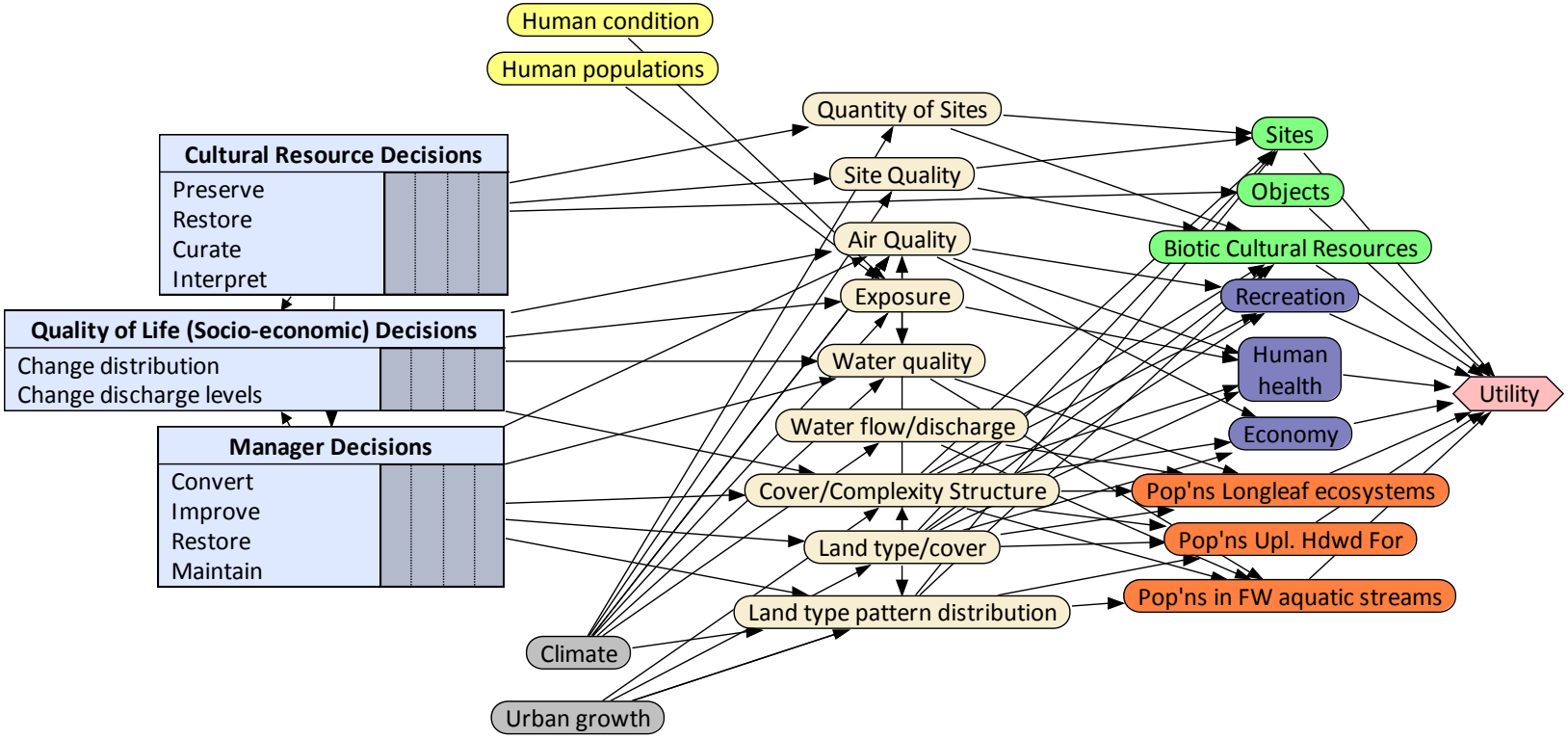
Influence diagram → decision model

(Prototype 0.3.2)



How we get there → **What's Important**

Five questions from APNEP planning

- What is a healthy Albemarle-Pamlico Estuarine System?
- What is the status of Albemarle-Pamlico Estuarine System?
- What are the biggest threats to Albemarle-Pamlico Estuarine System?
- What actions should be taken that will move us from where we are today to a healthy Albemarle-Pamlico Sounds by 2020?
- What and where are the priorities?

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What is a healthy ~~Albemarle-Pamlico Estuarine System~~ SALCC?

Cultural resources
- Sites
- Objects
- Biotic cultural resources

Socioeconomic resources
- Recreation
- Human health
- Economy

Natural resources
- Integrity of ecological systems
- Viability of T&E species

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What is the status of ~~Albemarle-Pamlico Estuarine System~~ SALCC?

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What are the biggest threats to ~~Albemarle-Pamlico Estuarine System~~ SALCC?

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Future change
- Climate change
- Urbanization
- Aquatic flows

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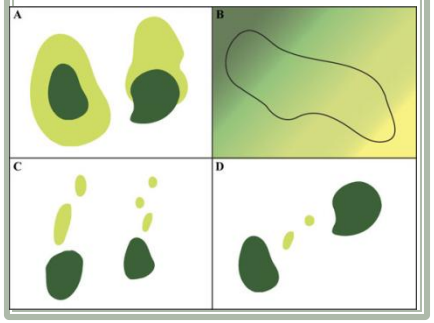
What actions should be taken that will move us from where we are today to a healthy ~~Albemarle-Pamlico Sounds by 2020~~ SALCC by 2050?

Strategies



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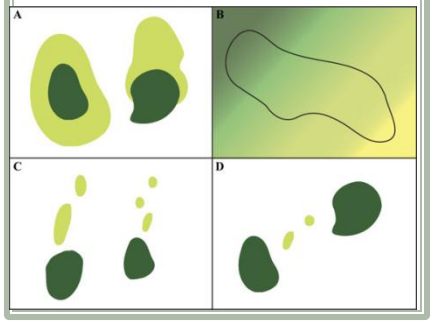
What and where are the priorities?

Strategies



Future change

- Climate change
- Urbanization
- Aquatic flows

Landscape response

- Quantity of sites
- Quality of sites
- Air quality
- Exposure
- Water quality
- Water flow/discharge
- Land type/cover
- Land pattern
- Land cover structure

Cultural resources

- Sites
- Objects
- Biotic cultural resources

Socioeconomic resources

- Recreation
- Human health
- Economy

Natural resources

- Integrity of ecological systems
- Viability of T&E species

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Draft fundamental objectives of conservation decision makers in the SALCC

Results from initial Optimal Conservation Strategy workshop (May 3 – 5, 2011)

Cultural resources
- Sites
- Objects
- Biotic cultural resources

Cultural resources – These resources are ethnographic; that is, they have a relationship to what people do on the landscape. Examples include huntable and fishable populations of animals, access to public lands, archeological sites and objects. The measurable attributes of these resources are the number, representation of cultures, and value as defined by NPS and other stakeholders.

Socioeconomic resources
- Recreation
- Human health
- Economy

Socioeconomic resources – These directly affect quality of life for humans and may contribute to their livelihood and health. Examples include the economic impacts of commercial fishing and timbering as well as influences of these activities on human health and environmental justice. The measurable attributes here are related to economic cost-benefits and human health (e.g. risk of exposure).

Natural resources
- Integrity of ecological systems
- Viability of T&E species

Natural resources – These resources are based on the integrity of ecological systems that characterize natural areas and managed landscapes that people care about. Fish and wildlife populations are both products and indicators of the integrity of systems. Integrity is measured as the degree to which the structure and composition of fish, wildlife, and plant populations meet historical levels, and in some cases (TES) the long-term viability of populations.

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What do LCC partners want to know?

1. Where they should take action to contribute most to LCC objectives.
   - Not prescriptive about specific actions
   - Value based on contribution to shared objectives of the LCC partners

2. How will those actions contribute to their agencies' objectives.

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Problem statement

- The LCC should serve as the umbrella group under which all of the partners come together to make decisions regarding the conservation of natural and cultural resources.

- With that in mind, our problem has two parts:

  - 1) Help partners choose **strategies** that are based on a **shared scientific understanding** about the landscape of the Southeast.

  - 2) Help partners solve **shared** problems with similar objectives.

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Phase II → functional prototype

- Identification of Data Needs - June
  - Engagement of SERAP Pis
  - Engagement of other partners
  - In house model development
- Input from additional SA LCC partners – July
  - Input on model structure & objectives
- Development of first functional prototype – July
  - Limited to available information
- Presentation at ESA – August 7, 2011

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How do we predict consequences?

- SERAP data & models
  - Downscaled climate projections
  - Sea level rise (part)
  - Land cover change
  - Responses of birds

- But for many objectives…
  - LCC partners – APNEP, EPA, NPS, SARP, PARC, ACJV, USFS, USGS
    - Facilitated by SA LCC Science Coordinator
  - In-house modeling capacity
  - Expert opinion
  - Surrogates
  - Long-range – applied research

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Phase III → prototype refinement

- Engagement with technical groups – August/September
  - Systems & taxa group(s)
  - Cultural resource group
  - Socio-economics group
  - Decision makers
- Development of additional data and models September/October
- Final prototyping report December 2011
  - Identification of information/research needs

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What are the products?

- Comparison of strategies
  - Utility value of each strategy
  - Predicted outcome for each objective
  - Time- and value-ordered list of places for conservation
  - GIS depictions of same

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Some exciting things about this approach

- Allows for the formal accounting of uncertainty
- Quantitative way to prioritize research based on potential for changing decisions
- Rigorous way of informing decisions under uncertainty

Take home messages

- You are the LCC
- LCCs are self directed partnerships
- Please join the website

http://www.southatlanticlcc.org

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