Biodiversity Metrics

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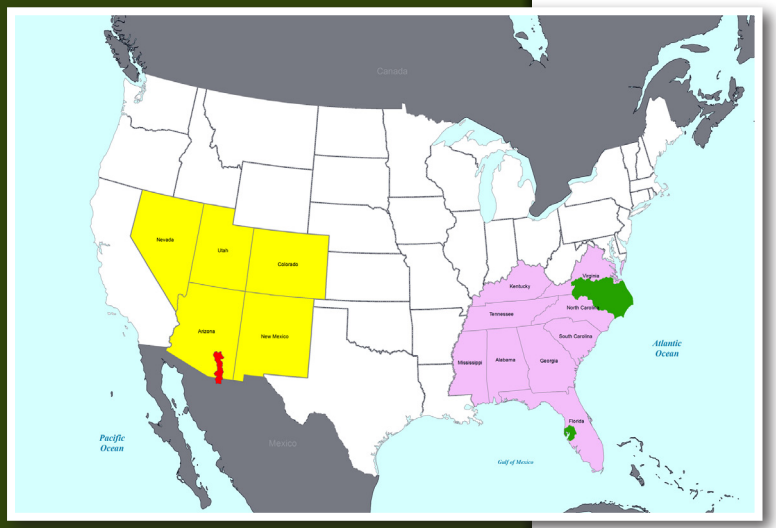


Project Study Areas

Ecosystem services, i.e., "services provided to humans from natural systems," have become a key focus of this century in resource management, conservation planning, human well-being, and environmental decision analysis. Mapping and quantifying ecosystem services have become strategic national interests for integrating ecology with economics in order to help explain the effects of human policies and the subsequent impacts on both ecosystem function and human welfare. Some characteristics of biodiversity are valued by humans in many ways, and thus are important to include in any assessment that seeks to identify and quantify the value of ecosystems to humans. Some biodiversity metrics clearly reflect ecosystem services (e.g., abundance and diversity of game species), whereas others reflect indirect and difficult to quantify relationships to services (e.g., relevance of species diversity to ecosystem resilience, cultural value of native species). Wildlife habitat has been modeled at broad spatial scales and can be used to map a number of biodiversity metrics. In this approach, we map metrics reflecting ecosystem services or biodiversity features using U.S. Geological Survey Gap Analysis Program data, including land cover, land stewardship, and deductive habitat models for terrestrial vertebrate species. Example metrics include species-of-greatest-conservation-need, threatened and endangered species, harvestable species (i.e., upland game, waterfowl, fur bearers, and big game), total species, and specific taxa. The project is being conducted at multiple scales in a phased approach, starting with community-based studies (San Pedro, Albemarle-Pamlico, and Tampa Bay), then multi-state regional areas (Southwest and Southeast), finally culminating in a national-level *Atlas of Sustainable Ecosystem Services* under development by the U.S. Environmental Protection Agency and its partners.

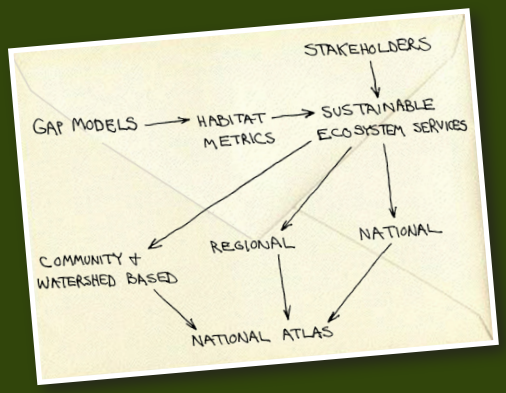
Focus on Clients

Include Decision Makers

Indicators to Inform Tradeoffs

Scaled to Inform Decisions

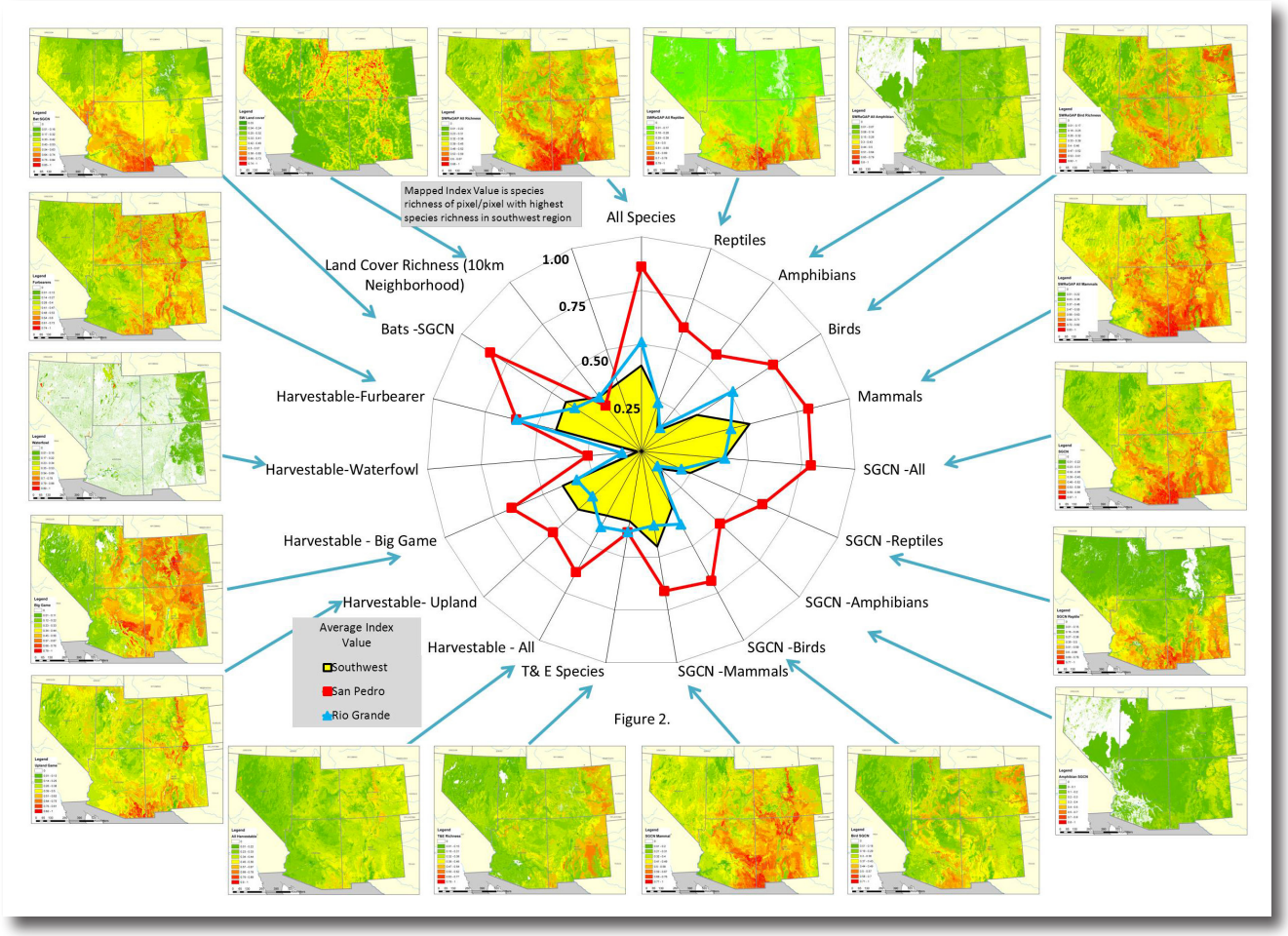
Relevant to People



- Climate Vulnerable Species
- Common Species in Decline
- Culturally Important Species
- Grassland Obligate Species
- Harvestable Species
- Land Cover Richness
- Listing Candidate or Sensitive Species
- Migratory Bird Species
- Riparian Obligate Species
- Species of Economic and Recreational Importance
- Species of Greatest Conservation Need
- Threatened & Endangered Species
- Total Species & Taxa Richness

http://fws-case-12.nmsu.edu/CASE/ES/

Biodiversity and Ecosystem Services



Biodiversity Metrics for Southwest Region portrayed as a Radar Graph

Environmental Protection Agency

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