



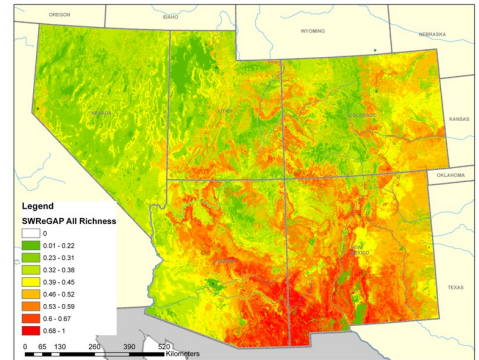
NEW MEXICO COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT  
US GEOLOGICAL SURVEY—BIOLOGICAL RESOURCES

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## CURRENT AND PAST RESEARCH

### Research on Biodiversity and Ecosystem Services

CASE is currently working with the USGS National Gap Analysis Program to model terrestrial vertebrate species across the entire contiguous US. Our focus currently is on reptile species.



Terrestrial Species Richness Map of the Southwestern United States.

The Center for Applied Spatial Ecology (CASE) was created by the Research Unit in 2004. The lab has participated in a variety of research projects and has provided technical assistance to university, non-governmental organizations, and state and federal agencies.

The emphasis of CASE is to conduct spatially oriented research at various scales to support natural resources management. Research results provide managers with the ecological context needed to make management decisions at a variety of temporal and spatial scales by incorporating field investigations with the application of computer technologies. The goal of CASE is to provide technical and biological knowledge to bridge the gap between spatial research and management application.

Staff have provided educational opportunities for a wide variety of cooperators including New Mexico Department of Game and Fish Game Commission Short Courses. CASE staff have been invited speakers at professional meetings and developed, coordinated, and facilitated professional workshops.

### Research on Community Ecology

CASE has conducted research on fire ecology, landscape vegetation change, and invasive species. CASE staff conducted a fire ecology study on White Sands Missile Range. CASE staff have conducted vegetation change analysis in the Chisos Mountains of Big Bend National Park using aerial photography and satellite imagery. CASE staff have conducted research on invasive species modeling and risk analysis for Big Bend National Park and Holloman Air Force Base, New Mexico.

CASE is also working with the EPA and USGS on identifying biodiversity metrics that represent ecosystem services at local, regional and national efforts. CASE is also working with the NRCS and ARS to identify broad scale biodiversity metrics and link this information to fine scale conservation practices.



Project Study Area for Ecosystem Services

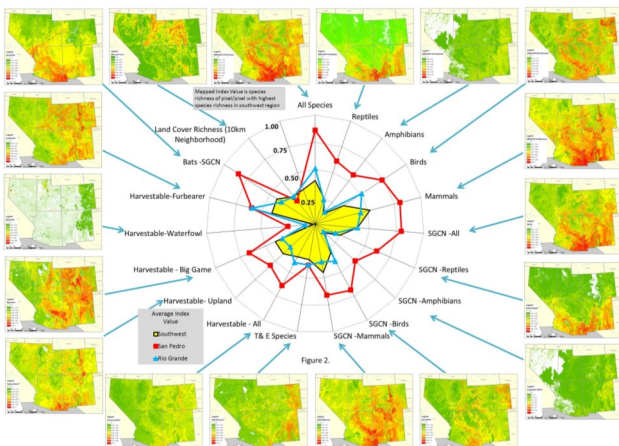
Case is currently collaborating on an working a National Science Foundation gran on Coupled Natural and Human Systems. The effort is looking at Acequia water systems in northern New Mexico and linking culture and nature in an integrated analysis of community resilience to climate and land-use changes.

CASE is currently working with collaborators in the EPA, USGS, NRCS, and ARS on using alternative future scenarios using climate change urban growth to identify potential changes in biodiversity. This work includes the above mentioned projects as test cases for this analysis.

CASE was one of 5 labs that completed the Southwest Regional Gap Analysis Project (SWReGAP). This was broad scale assessment of biodiversity across Arizona, Colorado, Nevada, Utah, and New Mexico. CASE used GAP data to incorporate ecological context into conservation planning for Fort Bliss Military Reservation and with the New Mexico Department of Game and Fish on their Comprehensive Wildlife Conservation Strategy.

### Research on Species and Habitat

CASE has participated in specific species or species habitat research on a wide variety of scales. CASE is currently conducting research on the role of invasive plant species on White Sands pupfish and burrowing owl. In the past, CASE used a spatial risk assessment to assess Species At Risk (SAR) impacts military missions and provided management alternatives to preclude federal listing in the future. CASE staff have also completing a conservation modeling effort for Texas horned lizard on Holloman Air Force Base.



Biodiversity Metrics for Southwest Region portrayed as a Radar Graph