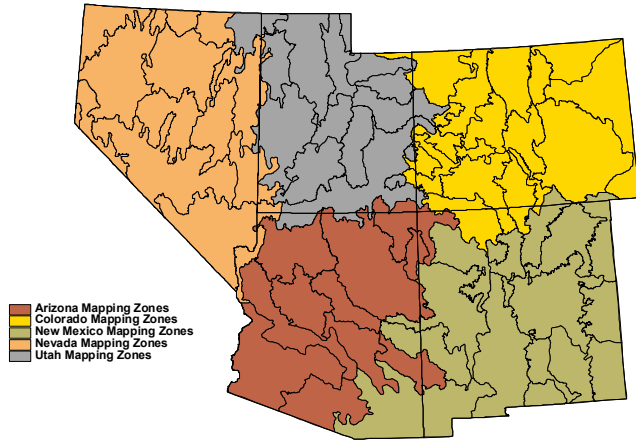


Southwest Regional Gap Analysis Project

The Southwest Regional Gap Analysis Project (SWReGAP) is a mapping and assessment of biodiversity for the five-state region encompassing Arizona, Colorado, Nevada, New Mexico, and Utah. It is a multi-institutional cooperative effort coordinated by the U.S. Geological Survey's National Gap Analysis Program (GAP). The primary objective of this project is to use a coordinated mapping approach to create detailed, seamless maps of land cover, habitat for native terrestrial vertebrate species, land stewardship, and management status. This information is analyzed to identify animal species habitats and natural land cover types that are underrepresented on lands managed for their long term conservation. Knowledge of these "gaps" can aid proactive conservation planning in context with other human interests.



Background

GAP provides regional assessments of the conservation status of native vertebrate species and natural land cover types to facilitate the application of this information to land management activities. SWReGAP is an effort by USGS and partners to produce another generation of land cover and vertebrate species data with improved resolution, detail, and accuracy.

The five-state project area includes approximately 1,373,774 sq. km. Federal lands encompass approximately 52% of this area, state lands— 7%, tribal lands — 9%, and other categories of ownership — 32%.

Total cost for project completion is estimated at nearly \$5,000,000. With partial funding from USGS, SWReGAP is seeking both cash and in-kind support from cooperators. This support will be crucial to project completion.

Land Cover

The region was segmented into mapping zones, attempting to divide the area into homogeneous landscape units. The zones are based on expert knowledge, elevational gradients, and satellite imagery interpretation. Project labs in each state will map land cover within these zones rather than within state boundaries. The mapping zone approach will: (1) allow each team or lab to focus its efforts and specialize on interpretation of fewer, spectrally similar vegetation types; and (2) achieve a seamless, regional land cover map.

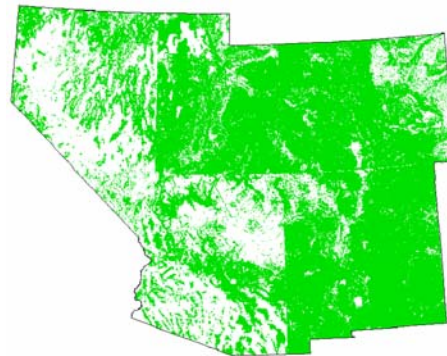
- 1999-2001 Landsat 7 Enhanced Thematic Mapper Plus imagery and sophisticated analytical procedures will be used to classify the vegetation.
- Land cover will be mapped to a 2-5 ha resolution.
- Land cover mapping will adhere to Federal Geographic Data Committee standards and will use the National Vegetation Classification System (NVCS). NVCS is a standardized classification system that provides a hierarchical framework for describing vegetation. Land cover will be mapped using a combination of ecological systems and alliance level classification and will include exotic and semi-natural types.
- High-resolution sensors are being researched to refine vegetation mapping in riparian areas.
- Accuracy assessment will be conducted to provide needed information to end-users.



Landsat 7 Satellite image of Southwestern New Mexico. Imagery similar to this will be used in land cover mapping.

Animal Habitat Modeling

SWReGAP will map predicted suitable habitat for all terrestrial vertebrates that breed or use habitat in the region for an important part of their life history. Habitat modeling uses, but is not constrained by known occurrence. It also uses probable and possible occurrence to define range limits. Outcomes are depicted as habitat maps for nearly 900 animal species.

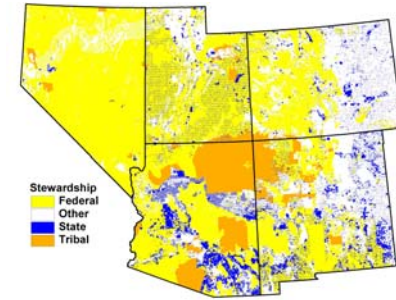


Predicted distribution of mule deer (*Odocoileus hemionus*) habitat in the five SWReGAP states.

Land Stewardship

SWReGAP will produce a land stewardship map for the five-state southwest region that indicates individual management units of public land and private conservation lands when voluntarily provided. Each tract will be characterized for land ownership, managing institution, and management status to reflect degree of maintenance of biodiversity. GAP currently uses a scale of 1 to 4 to denote relative degree of maintenance of biodiversity for each land tract. A status of "1" denotes the highest, most permanent level of maintenance, and "4" represents the lowest level of biodiversity management.

A comparison of ownership/managing entities to biodiversity management status will be made in order to report the representation of stewardship among the management status categories, and statewide.



Sample map showing four categories of stewardship for the SWReGAP region. Final stewardship map will show more detailed categories for managing institutions.

Gap Analysis

The objective of gap analysis is to determine the representation of each mapped element (animal habitat and land cover distributions) according to managing entity and management status. The results will be reported in a way useful for land stewards in their development of land use and management plans that conserve or restore those biotic elements or avoid causing further impairment.

Products and Applications

Digital products are anticipated to be available on CD-ROM and the Internet (www.gap.uidaho.edu) in 2005. Products will be available for the entire region, as well as for individual states and include:

- 1) GIS datasets of land cover, animal habitat distribution, and stewardship/ownership
- 2) Gap analyses results
- 3) Areas of species richness
- 4) Ancillary data used in modeling
- 5) Report of methods and results

GAP products are provided to the public and those entities charged with land use research, policy, planning, and management. GAP has provided resource data and analyses to federal, state, regional, and local government institutions, as well as private conservation organizations.