

## *Southwest Regional Gap Analysis Dataset: Its Value to the Bureau of Land Management*

*By Keith Francis, Physical Scientist, BLM, National Science and Technology Center*

### **Background**

The Southwest Regional Gap Analysis Project (SWReGAP; <http://fus-nmcfwru.nmsu.edu/swregap/default.htm>) is a mapping project and assessment of biological diversity (biodiversity) for the five-State region encompassing Arizona, Colorado, Nevada, New Mexico, and Utah. The project is a multi-institutional, cooperative effort coordinated by the U.S. Geological Survey's (USGS) National Gap Analysis Program (GAP). The Bureau of Land Management (BLM) is one of many agencies cooperating with and supporting this project.

The project originated in 1998 with workshops regarding species management in the face of broad habitat loss in the five-State region. In 1999, funds were distributed and regional and State coordinators were hired or designated. Landsat imagery was acquired, and the fundamental themes of land cover and animal modeling were started in 2000–2003. The project area covers 530,415 square miles in the five-State region, 52% of which is federally managed. BLM-managed lands encompass 31% of the area. Total cost for the project is estimated at nearly \$5 million.

The primary objective of Gap Analysis is to use a coordinated

mapping approach to create a detailed, seamless database and maps of land cover, habitat for native terrestrial vertebrate species, and land stewardship. These layers of information are analyzed to develop maps showing species habitat and land cover that are underrepresented on lands managed for long-term conservation. These “gaps” in biodiversity and management can aid proactive conservation planning in support of long-term planning needs and other human interests. The objective is to produce a proactive, rather than a reactive, response to land management activities.

The final analysis, or “Gap Analysis,” is a scientific method for identifying the degree to which native animal species and natural plant communities are represented in the present-day network of conservation lands. Those species and communities not adequately represented constitute gaps in conservation lands and planning efforts. The National GAP's mission is to promote biodiversity conservation by developing and sharing information on where species and natural communities occur and how they are being managed for their long-term survival—an important part of the overall National Biological Information Infrastructure (<http://www.nbio.gov/>)

Over the years, GAP has developed successful methodologies for managing the country's diversity of life forms by using a wide range of tools and procedures, accepted and used universally. New standards in classifying vegetation communities have been developed by using a consistent set of satellite images to render digital databases and maps that apply GAP information to everyday resource decisions and

long-range planning. Many States have implemented a statewide Gap Analysis, and only recently have regional Gap Analyses been implemented.

The BLM has been an active participant and one of the cooperative agencies assisting the USGS with the data collection. The BLM has provided \$70,000 to the SWReGAP to assist field data collection in all five states. At this time, there is no known funding support for the Northwest Regional Gap Analysis Project (NWReGAP). The BLM continues to support regional Gap Analysis, as a cooperating and contributing agency.

### **Dataset Review**

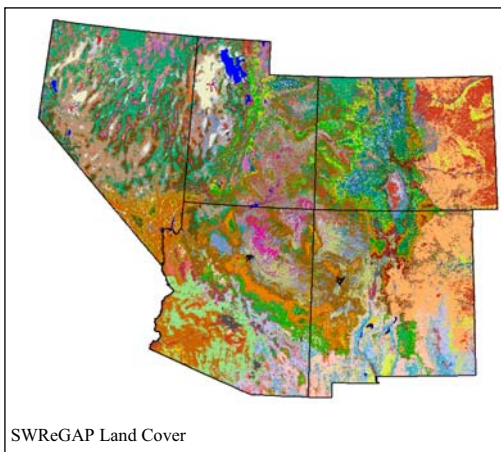
In the BLM's responsibility for managing the Nation's public lands, the SWReGAP dataset can make a significant contribution by providing data for a variety of resource management and land use applications and identifying the gaps in managing species and natural communities in the five-state region. This type of regional data offers the BLM the ability to extend management plans seamlessly across State boundaries in the five-State region, transgressing field office and State office jurisdictions. A larger, seamless dataset to cover virtually all the BLM States, (except California and Alaska) will result when the NWReGAP is finished. A variety of applications are available for each of the three GAP data themes and for the Gap Analysis itself.

Stewardship data provide not only ownership information, but also an assessment of the management status of the ownership in the form of a code or measure of intent to maintain biodiversity. The stewardship suggests the ability of the BLM to affect future planning on



pecially managed public lands (<http://fws-nmcfwru.nmsu.edu/swregap/stewardship/>).

The land cover database provides the largest application data resource for BLM use. Applications include wild fire monitoring, forest inventory, environmental monitoring and surveys, impact assessment and risk management, water quality investigation, watershed analysis, range management, wildlife habitat monitoring, invasive species monitoring, National Environmental Policy Act (NEPA) analysis, land use planning, and others (<http://landcover.usgs.gov/otherlinks.asp>). Another land cover database, the National Land Cover Database (NLCD) last released in 1992, is of a lower resolution and much older than these regional land covers.



The animal habitat modeling dataset contains terrestrial vertebrate distribution maps and tables. These products are detailed, high-confidence maps of the distribution of individual animal species, which will be used for comparison with the other datasets for the final Gap Analysis (<http://fws-nmcfwru.nmsu.edu/swregap/habitatreview/>). The final Gap Analysis will support the BLM's long-range land use planning projects, as well as other applications, such as identifying gaps in the species management on public lands.

The SWReGAP is one of three regional Gap Analysis projects; the others are the Southeast Regional Gap Analysis Project (SEReGAP) and the NWReGAP. The SEReGAP contains eleven States in the southeastern area of the United States. The NWReGAP project would add five of the BLM States (Oregon, Washington, Idaho, Montana, and Wyoming) to the SWReGAP's five BLM States, for a total of 10 of the 12 "BLM States." Only Alaska and California of the 12 BLM western States would not be included in a regional Gap Analysis. The California State Gap Analysis project was released in 1990 and information from this review suggests a future reanalysis. A regional Gap Analysis has not yet been initiated in Alaska

### Information Dissemination at the Bureau of Land Management

The SWReGAP will be formally released at the National Gap Analysis Conference and Interagency Symposium (December 6–8, 2005, in Reno, Nevada). This conference should serve as an excellent training opportunity and resource for information about the regional Gap Analysis data, as well as the subject matter related to National GAP and associated data. Interest is being reviewed in exploring the development of SWReGAP presentations at national BLM program meetings, as well as hands-on training to be used in the BLM to assist users on how to use gap data and its many possible applications.

### Conclusion

The data and gap assessment is exceedingly beneficial to the BLM in its responsibilities for managing the public lands. The BLM can benefit by advancing this national and regional Gap Analysis program led by the USGS as a cooperative agency with the other Federal management agen-

cies. This advancement can be in the form of funding, as was done for SWReGAP for field inventory, or in applying the final data (SWReGAP) to support the BLM's mission. While the BLM is a limited contributor in funding, it will be a major consumer of gap data and analysis because of the greater quantity of Federal lands (31% of the SWReGAP project area) it manages and limited development of similar data within the BLM.

The value of this new level of regional Gap Analysis and associated data can be advanced for the BLM through the continuation of NSTC's representation, which will keep BLM personnel informed of the developments and applications of regional gap data and serve as a point of contact for both the National GAP and BLM users in fiscal year 2006.

### Contact

Keith Francis  
Physical Scientist  
Bureau of Land Management  
NSTC, Denver Federal Center  
Building 50, P.O. Box 25047  
Denver, CO 80225-0047  
Phone: 303-236-0113  
Email: [Keith\\_Francis@blm.gov](mailto:Keith_Francis@blm.gov)

The Bureau of Land Management RESOURCE NOTES, which are posted on this Web site (<http://www.blm.gov/nstc/resource/notes/resnotes.html>), are early announcements of technical and informational topics for BLM personnel and their customers. Information contained in this RESOURCE NOTE has not been peer-reviewed. Conclusions and opinions expressed herein do not necessarily represent those of BLM. Use of trade names does not imply U.S. government endorsement of commercial products.

Technical Editor - Deborah Harris  
([Debbie\\_Harris@blm.gov](mailto:Debbie_Harris@blm.gov))  
Graphic Designer - Ethel Coontz ([Ethel\\_Coontz@blm.gov](mailto:Ethel_Coontz@blm.gov))

If you would like to prepare a RESOURCE NOTE for electronic distribution, or if you have an idea or can suggest an author for a RESOURCE NOTE, contact [NSTC@blm.gov](mailto:NSTC@blm.gov); phone: 303-236-2772 with the TOPIC and the NAME of the writer, including MAILING ADDRESS, phone number, and e-mail address. Thank you for your interest in RESOURCE NOTES.

 National Science & Technology Center  
Bureau of Land Management