# CHAPTER 7

# PRODUCT USE AND AVAILABILITY

Julie Prior-Magee

Photo from SWReGAP Training Site Image Library

Recommended Citation

Prior-Magee, J.S. 2007. Product use and availability. Chapter 7 in J.S. Prior-Magee, et al., eds. Southwest Regional Gap Analysis Final Report. U.S. Geological Survey, Gap Analysis Program, Moscow, ID.

Corresponding author: J. Prior-Magee is to be contacted at jpmagee@nmsu.edu Tel. 575- 646-1084

# HOW TO OBTAIN THE PRODUCTS

It is the goal of the Gap Analysis Program and the USGS Biological Resources Discipline (BRD) to make the data and associated information as widely available as possible. Use of the data requires specialized software called geographic information systems (GIS) and substantial computing power. Additional information on how to use the data or obtain GIS services is provided below and on the GAP home page (URL below). While a DVD or CD-ROM of the data will be the most convenient way to obtain the data, it may also be downloaded via the Internet from the national GAP web site at:

http://gapanalysis.nbii.gov

The web site will also provide, over the long term, information on the status of our regional project, future updates, data availability, and contacts. Following this project's completion, DVD/CD-ROMs of the final report and data should be available at a nominal cost--the above home page will provide ordering information. To find information on this GAP project's status and data, follow the links to "Projects" and then to the particular region of interest.

The Southwest Regional Gap Analysis Project (SWReGAP) data will also be available from the following sites: the SWReGAP website http://fws-nmcfwru.nmsu.edu/swregap/ and the Utah State University Remote Sensing/GIS Lab website http://earth.gis.usu.edu/swgap.

Minimum GIS Required for Data Use: The regional data are provided as Arc/Info grids or Erdas Imagine (img) files for land cover, Erdas Imagine (img) for habitat models, and personal geodatabase or shapefile for land stewardship. This requires users to have access either to Spatial Analyst within ESRI's family of products, Erdas Imagine, or the ability to convert and view the data in another raster format. The complete datasets and the final report will require several terabytes of disk space (approximately 2.5 terabytes) for complete uncompressed datasets. This is comprised mostly of habitat models at 30-m resolution and 8-bit. These models can be converted to 4-bit to take up less space. Habitat models at 240-m resolution are smaller and will use approximately 37 gigabytes. Currently most computers can easily manage the functions necessary for display and navigating through the individual layers. Additional analysis may require tiling of the data or the use of more efficient algorithms.

## Disclaimer

Following is the official Biological Resources Discipline (BRD) disclaimer as of 29 January 1996, followed by additional disclaimers from GAP. Prior to using the data, you should consult the GAP home page (see How to Obtain the Products, above) for the current disclaimer.

Although these data have been processed successfully on a computer system at the BRD, no warranty expressed or implied is made regarding the accuracy or utility of the data on any other system or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. This disclaimer applies both to individual use of the data and aggregate use with other data. It is strongly recommended that these data are directly acquired from a BRD server [see above for approved data providers] and not indirectly through other sources which may have changed the data in some way. It is also strongly recommended that careful attention be paid to the content of the metadata file associated with these data. The Biological Resources Discipline shall not be held liable for improper or incorrect use of the data described and/or contained herein.

These data were compiled with regard to the following standards. Please be aware of the limitations of the data. These data are meant to be used at a scale of 1:100,000 or smaller (such as 1:250,000 or 1:500,000) for the purpose of assessing the conservation status of animals and vegetation types over large geographic regions. The data may or may not have been assessed for statistical accuracy. Data evaluation and improvement may be ongoing. The Biological Resources Discipline makes no claim as to the data's suitability for other purposes. This is writable data which may have been altered from the original product if not obtained from a designated data distributor identified above.

## Metadata

Proper documentation of information sources and processes used to assemble GAP data layers is central to the successful application of GAP data. Metadata is a description of the content, quality, lineage, contact, condition, and other characteristics of data. It is a valuable tool that preserves the usefulness of data over time by detailing methods for data collection and data set creation. It greatly minimizes duplication of effort in the collection of expensive digital data and fosters sharing of digital data resources. Metadata supports local data asset management such as local inventory and data catalogs, and external user communities such as Clearinghouses and websites. It provides adequate guidance for end-use application of data such as detailed lineage and context. Metadata makes it possible for data users to search, retrieve, and evaluate data set information by providing standardized descriptions of geospatial and biological data.

The Federal Geographic Data Committee (FGDC) approved the Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998) in June 1998 and the National Biological Information Infrastructure (NBII) <http://www.nbii.gov> approved the Biological Data Profile (BDP) in 1999. The BDP adds fields for biological information such as taxonomy, analytical tools, and methodology to the FGDC standard core set of elements. Visit <http://www.nbii.gov> – Metadata – FGDC Metadata – Standards for more information. Executive Order 12906 requires that any spatial data sets generated with federal dollars will have FGDC-compliant metadata.

Each spatial data layer submitted must be accompanied by its metadata (*.html file) in the same directory. The data producer must also submit an additional directory (called “meta_master”) which will include each metadata file in four forms (*.txt, *.html, *.xml, and *.sgml). There are many tools available for metadata creation. For some examples,

see <http://www.nbii.gov> – Metadata – FGDC Metadata – Tools. Please note that some tools are free, and some are not. The redundancy in output format is to provide one file for error checking (*.txt), one for presentation on the Internet (*.html), and two for indexing elements for the spatial data clearinghouse (*xml, *.sgml). Remember, metadata describes the development of the spatial data set being documented. If there are companion files to the GIS data, use metadata to reference (reports, spreadsheet, another GIS layer).

USGS (NBII and FGDC) personnel conduct metadata training to meet FGDC standards and to include biological data. Metadata workshops provide an introduction to the metadata standard with hands-on practice producing documentation for a sample data set using appropriate software: Intergraph's "Spatial Metadata Management System" (SMMS) and USDA Forest Service North Central Research Station's "Metavist" are commonly used. The workshops provide an understanding of the FGDC metadata standard and also cover topics such as the metadata clearinghouse, metadata development tools, and strategies for metadata production. See <http://www.nbii.gov> – Metadata – FGDC Metadata – Training for more information and access to the training calendar.

## Appropriate and Inappropriate Use of These Data

All information is created with a specific end use or uses in mind. This is especially true for GIS data, which is expensive to produce and must be directed to meet the immediate program needs. For GAP, minimum standards were set (see A Handbook for Gap Analysis, Scott et al. 1993) to meet program objectives. These standards include: scale or resolution (1:100,000 or 100 hectare minimum mapping unit), accuracy (80% accurate at 95% confidence), and format (ARC/INFO coverage tiled to the 30' x 60' USGS quadrangle). For complete project standards, refer to the Gap Analysis Handbook available from the "Conducting a Gap Analysis" section of the National GAP web site http://gapanalysis.nbii.gov.

Recognizing, however, that GAP would be the first, and for many years likely the only, source of statewide biological GIS maps, the data were created with the expectation that they would be used for other applications. Therefore, we list below both appropriate and inappropriate uses. This list is in no way exhaustive but should serve as a guide to assess whether a proposed use can or cannot be supported by GAP data. For most uses, it is unlikely that GAP will provide the only data needed, and for uses with a regulatory outcome, field surveys should verify the result. In the end, it will be the responsibility of each data user to determine if GAP data can answer the question being asked, and if they are the best tool to answer that question.

Scale: First we must address the issue of appropriate scale to which these data may be applied. The data were produced with an intended application at the ecoregion level, that is, geographic areas from several hundred thousand to millions of hectares in size. The data provide a coarse-filter approach to analysis, meaning that not every occurrence of every plant community or animal species habitat is mapped, only larger, more generalized distributions. The data are also based on the USGS 1:100,000 scale of

mapping in both detail and precision. When determining whether to apply GAP data to a particular use, there are two primary questions: do you want to use the data as a map for the particular geographic area, or do you wish to use the data to provide context for a particular area? The distinction can be made with the following example: You could use GAP land cover to determine the approximate amount of oak woodland occurring in a county, or you could map oak woodland with aerial photography to determine the exact amount. You then could use GAP data to determine the approximate percentage of all oak woodland in the region or state that occurs in the county, and thus gain a sense of how important the county's distribution is to maintaining that plant community.

Appropriate Uses: The above example illustrates two appropriate uses of the data: as a coarse map for a large area such as a county, and to provide context for finer-level maps. Specific case-study examples are provided in Appendix 7-1, but following is a general list of applications:

- Statewide biodiversity planning
- Regional (Councils of Government) planning
- Regional habitat conservation planning
- County comprehensive planning
- Large-area resource management planning
- Coarse-filter evaluation of potential impacts or benefits of major projects or plan initiatives on biodiversity, such as utility or transportation corridors, wilderness proposals, regional open space and recreation proposals, etc.
- Determining relative amounts of management responsibility for specific biological resources among land stewards to facilitate cooperative management and planning.
- Basic research on regional distributions of plants and animals and to help target both specific species and geographic areas for needed research.
- Environmental impact assessment for large projects or military activities.
- Estimation of potential economic impacts from loss of biological resource-based activities.
- Education at all levels and for both students and citizens.

Inappropriate Uses: It is far easier to identify appropriate uses than inappropriate ones, however, there is a "fuzzy line" that is eventually crossed when the differences in resolution of the data, size of geographic area being analyzed, and precision of the answer required for the question are no longer compatible. Examples include:

- Using the data to map small areas (less than thousands of hectares), typically requiring mapping resolution at 1:24,000 scale and using aerial photographs or ground surveys.
- Combining GAP data with other data finer than 1:100,000 scale to produce new hybrid maps or answer queries.
- Generating specific areal measurements from the data finer than the nearest thousand hectares (minimum mapping unit size and accuracy affect this precision).
- Establishing exact boundaries for regulation or acquisition.

- Establishing definite occurrence or non-occurrence of any feature for an exact geographic area (for land cover, the percent accuracy will provide a measure of probability).
- Determining abundance, health, or condition of any feature.
- Establishing a measure of accuracy of any other data by comparison with GAP data.
- Altering the data in any way and redistributing them as a GAP data product.
- Using the data without acquiring and reviewing the metadata and this report.