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## **INTRODUCTION**

Thank you for obtaining this USGS Gap Analysis Program CD. GAP is a large and complex biodiversity assessment program active throughout the U.S. and administered by the U.S. Geological Survey. The information found on this CD represents several years of work and the participation of many researchers and cooperating agencies and institutions (See the Report for authors and cooperators.) These CDs contain data and information that have never before existed. As with all map abstractions of the real world, the data are not perfect, but allow many opportunities for research, land management, conservation planning, business applications, and education. A list of appropriate and inappropriate uses is provided in "Appendix 1" of this document, but we stress that no decisions should be made solely on the use of this data; field confirmation is highly recommended. We hope you find the information valuable for your particular use and we would like to hear about all applications of the data. Please send information to us at the address provided in the "Product Response Form" folder on this CD. Finally, we hope that using this CD stimulates your desire to either continue to partner with GAP or become a new cooperator in future updates and improvements.

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## **CD CONTENTS**

This two CD-ROM set contains the geographic information system (GIS) data and final report for the North Dakota Gap Analysis Project (ND-GAP). If you are new to using GIS data, see "Appendix 1" of this document.

The final report describes the methods used to produce the data, accuracy statements about the data, results of data analysis, and limitations of the data. It is provided in Adobe Acrobat (PDF) format "report.pdf" along with reader software for popular platforms (see "Getting Started").

Updates and additional readers for other platforms can be obtained for free over the Internet at: <http://www.adobe.com/products/acrobat/readstep.html>. The report also contains graphic images of the map data.

This product supersedes all previous releases. To download updates or corrections to this product, go to the "Products" section of the National GAP ftp Site at: [<ftp://ftp.gap.uidaho.edu/products/north\\_dakota/>](ftp://ftp.gap.uidaho.edu/products/north_dakota/) and download the information you need.

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## GETTING STARTED

### What You Need To Use This CD

The final report should operate readily on any modern computer with current operating software. The final report is in PDF format and you will need Adobe Acrobat Reader to view it. To install the Reader that is packaged with this product, follow steps one and two below. If you already have Adobe Acrobat installed on your system and would like to use your current Reader, skip step one and follow the simple instructions in step two.

#### Step 1: Installing Adobe Acrobat Reader

- ◆ Insert the GAP CD into your CD-ROM drive and open the CD volume.
- ◆ Open the folder named "Readers". Depending on which operating system you are using (MacOS or Windows)\*, open the "Mac" or "Win..." folder respectively. Refer to the following table to choose which folder location and subsequent installation file you need to run:

Operating System*	File	Folder Location
Macintosh	"Acrobat Installer"	\Readers\Mac
Windows 3.xx	"rs16e301.exe"	\Readers\Win31
Windows 95/98/NT/XP/2000	"rp505enu.exe"	\Readers\Windows

\* Other operating system versions of Adobe Acrobat Reader can be downloaded over the Internet at the following URL address: [<www.adobe.com/prodindex/acrobat/readstep.html>](http://www.adobe.com/prodindex/acrobat/readstep.html)

- ◆ Quit all running applications.

- ◆ Double-click the appropriate installation file (Mac or Windows).
- ◆ Follow the instructions on your screen.

**Important:** If there is a failure at any point during the installation of Acrobat Reader, the installer performs a complete uninstall. For this reason, it is important not to close the installer application by clicking the close box of the background window after clicking the "Thank You" dialog box that appears at the end of the installation. If you wait for a second or two, the installer will automatically close the background windows after the installation is complete.

If you are having trouble installing, read Adobe's technical troubleshooting guide on the Internet at the following URL: <<http://www.adobe.com/support/products/acrobat.html>>

**Step 2: Running the program and reading the final report.**

- ◆ Insert the GAP CD into your CD-ROM drive and open it.
- ◆ Open the "Start" folder.
- ◆ Double click on the "Project Report.pdf" file. Acrobat Reader will automatically be launched and the "Project Report.pdf" file will be loaded.

If for some reason, Acrobat Reader will not launch automatically, you can also manually start Adobe Acrobat Reader by double-clicking the Acrobat Reader icon that is installed on your system. Once Acrobat Reader is running, choose "OPEN" from the "FILE" menu, select the "Project Report.pdf" file from the "Start" folder on your CD-ROM drive. In both cases, the State's Final Report Cover Page will appear on the screen once successfully loaded.

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## **GENERAL NOTES FOR USE OF THE GIS DATA**

The data are configured to operate on either a UNIX workstation or a PC with at least a 486-66 processor or better and an ISO 9660-compatible driver (i.e., UNIX driver MS CD-ROM extensions); CD player (8x or faster recommended). The data are provided in native ESRI ARC/INFO format (see <<http://www.esri.com/>>) with which they were produced, but some other popular GIS software (such as GeoMedia, see <<http://www.ingr.com/>>) can read or import are.

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## **CONTENTS OF THE GIS DATA**

The GIS Data are provided under the directory named "GISData" on each CD. The contents of each are described below.

## GIS Data Contents (CD1 of 2):

### "GISData" Directory:

Ancillary: Contains ancillary datasets that were used for the North Dakota Gap project.

Verts: directory for herptiles and some birds. Each includes individual species grids, hypergrids, supporting spreadsheets, and metadata.

Hexagons: North Dakota GAP hexagon coverages and six associated databases that can be related to each hexagon using the HEXSGEO\_ attribute for range maps and locational data

## GIS Data Contents (CD2 of 2):

### "GISData" Directory:

verts: directory for mammals and remaining birds. Each includes individual species grids, supporting spreadsheets, and metadata.

Analysis: Spreadsheets for the Gap Analysis of North Dakota vertebrates and land cover.

Landcover: land cover directory for North Dakota

Stewardship: stewardship file for North Dakota.

Metadata: Metadata for North Dakota gis data

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## APPENDIX 1: OBTAINING AND USING GAP DATA

Before accessing GAP data, please read the following information. The National Gap Analysis Program does not provide software or data analysis services. We recommend that you contact your state universities and/or GIS library or distribution centers for such assistance. Additional suggestions are provided below.

### If You Are New To GIS And Digital Spatial Data:

You will need a Geographic Information System (GIS) to use GAP data (though not the digital report, which is in a graphic form for viewing only). There are a number of resources available to provide assistance to new GIS users or those desiring GIS services. Some locations you may wish to examine for basic GIS information, products, and services are:

<http://www.esri.com/conservation/> , <http://www.opengis.org/> and <http://www.ctsp.org/gisinfo.html>. Your state GAP project report may also identify a service provider in your state.

### Using GAP Data:

All information is created with a specific end use or uses in mind. This is especially true for GIS data, which are expensive to produce and must be directed to meet the immediate program needs. For GAP, minimum standards were set (see Standards Chapter in the GAP Handbook accessible from the home page of the GAP Portal at <http://www.gapanalysis.nbio.gov>) to meet program objectives. These standards include: scale or resolution, accuracy, and format. The standards are constantly evolving, and therefore projects begun previous to the date of the current standards may not meet those standards.

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 may or may not 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 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 data 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. Following is a general list of applications:

- ◆ Statewide biodiversity planning
- ◆ Regional (Councils of Government or ecoregional) 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 (EIS) 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:

- ◆ Use of the data as a "content" map for 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 resulting in precise measurements.
- ◆ 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 nonoccurrence 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.