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MONTANA

The Newsletter of the Montana GIS Users' Group

Winter 1998

1998 Montana/Idaho GIS Conference

by Tom Tully, Butte/Silver Bow GIS

Well, here we are again, that time of year to start planning on attending the 1998 Montana/Idaho GIS Users Conference, to be held at the Ramada Copper King Inn in Butte, Montana, April 27-30. For you old-timers in the audience whose memories are still intact, this year's conference will be the 10th annual - amazing how time flies, isn't it?

This year's conference promises to be right up there with the best of them; great speakers, great workshops, and, great presentations. Two topnotch keynote speakers have been lined up: Joseph Berry, GIS consultant with Berry & Associates and columnist for "GIS World"; and Earl Epstein, the School of Natural Resources, Ohio State University.

For the second year in a row, the Idaho URISA chapter will play an integral role in the conference. Idaho and Montana GIS users have joined forces on a two year trial basis for the purpose of sponsoring the annual conference, so a big welcome to the Idaho contingent.

As for the rest, the usual format and many of the usual suspects will prevail. Monday, April 27, pre-conference workshops will cover many facets of GIS utilization, and will represent a broad range of users. Public Night, with activity booths and prizes for K-12 students, along with demonstrations and displays, should be well attended. In addition, Ken Wall will offer a GPS Basics workshop geared toward teachers and students, using simpler and less expensive hand held GPS receivers (See related article). This workshop dovetails nicely with the theme of this year's conference, GIS in the Mainstream, as a way of bringing GIS and GIS-related technology to the general public. Tuesday night's banquet will be followed by an evening of music and dancing, courtesy of the Hot Tamales, of Missoula, Montana. Don't think your feet won't be moving then.

For more details check out the web site at: http://mbmgsun.mtech.edu/giscon98/, which is updated on a regular basis, as information becomes available.

Status of Elk Habitat Project

Rocky Mountain Elk Foundation and Geodata Services, Inc.

By Ken Wall and Allan Cox, Geodata Services, Inc., and Kirk Horn, Rocky Mountain Elk Foundation

Introduction

The mission of the Rocky Mountain Elk Foundation (RMEF), headquartered in Missoula, Montana, is to ensure the future of elk, other wildlife and their habitat. An important step in achieving that mission is a thorough understanding of the distribution, condition and key limiting factors associated with elk habitat. Toward that end, the RMEF entered into a geographic information system (GIS) project with Geodata Services, Inc. of Missoula: The Status of Elk Habitat. The Project will gather expert opinion and mid-scale data to complete a baseline mapping of millions of acres--the entire North American continent--within a two-year timeline. Sponsored by the RMEF and the U.S. Department of Agriculture (USDA), Forest Service, Northern Region, the Project is a cooperative effort to produce the first comprehensive mid-scale look at the status of North American elk habitat. The objectives are to provide an international long-term perspective of wildlife habitat across land jurisdictions and ownership; to capture baseline information to provide a means for monitoring trends in elk habitat conservation; to develop an intuitive tool to plan and compare RMEF project work with important habitat needs; and to support long-term habitat conservation, easement and acquisition work, conservation education, and habitat management.

Project Overview

The Status of Elk Habitat Project got its start with the 1996 publication of *Status of Elk in North America, 1975-1995*, by the RMEF. This document depicted elk populations, but did not address habitat. Based on a needs assessment in 1996, Geodata was brought in to assist the RMEF

(Elk continued on Page 2)

(Elk continued from Page 1)
in the GIS implementation of the Status of Elk Habitat Project. In the spring of 1997, the USDA Forest Service, Northern Region biologists and the RMEF completed a pilot project with Montana and Colorado, with financial assistance from the Forest Service. In the fall of 1997, under the direction of Kirk Horn, past Director of Fish, Wildlife and Rare Plants, Northern Region of the Forest Service and currently on detail with the RMEF as Project coordinator, mapping began with state, tribal and federal cooperators for the United States and Canada. The first edition of the assessment will be completed by February 1999.

The objective of the Project is to develop a series of eight base map layers that display the status of elk habitat across North America. The process involves using existing maps and habitat data when possible, instead of creating new data. The RMEF are working with state, federal and tribal wildlife specialists in a collaborative effort to map general summer and winter range, crucial summer and winter range, migratory corridors, parturition areas, and other important habitat features. The same wildlife professionals also subjectively assign key limiting factors to each of the habitat polygons. The limiting factors are domestic livestock impacts, habitat succession/maturation, urban sprawl, public land habitat availability, increased road densities, riparian impacts, timber harvest impacts, depredation, limited private land access, artificial feeding, habitat conversion, social carrying capacity exceeded, late seral stages needed, recreation, and special situations.

The base GIS data layers are at a 1:250,000 scale. The data will provide the framework for future large-scale project work at 1:24,000 or larger. The base GIS data layers are:

Elk habitat (e.g., winter and summer ranges)
Shaded relief (based on digital elevation models--both color and gray scale)
The habitat limiting factors
Hydrography (e.g., lakes, rivers, and streams)
Major state and federal highways
Major towns and cities
State, provincial, county, and ocean (where applicable) boundaries
Elk management units (where available)

In addition to the base layers, supplemental data layers, where available, can be included. These layers may include general land ownership, public land survey, major roads, census geography, the Geographic Names Information System, administrative stewardship (national forests, national parks, state parks, wildlife refuges, etc.), RMEF projects (point coverage), zip code areas, and management plans.

Upon completion of the Project, a compact disk with the eight base layers of data, ArcExplorer™ * GIS data viewing software, copyright information, and documentation for the Status of Elk Habitat Project base layers and software will be made available to Project cooperators throughout the U.S. and Canada.

Future Applications

While the Status of Elk Habitat Project has significant merit in its own right, it will also start the RMEF on a road to use GIS for many other applications. The RMEF functional areas most likely to benefit from GIS in the future include the lands and conservation programs, conservation education, membership development, fund raising, and field operations. The following uses for GIS have already been identified:

To support visitor center displays, videos and publications;
To help respond to information requests;
To conduct analysis of member demographics;
To support work with public agencies and private landowners on conservation activities;
To support Internet delivery of geographic data and maps; and
To provide coarse-scale to fine-scale strategic planning project support

The Status of Elk Habitat is an exciting project that is expected to realize widespread application and benefits. For example, assessing and monitoring elk habitat can have a direct positive impact on assessing, monitoring and conserving habitat for endangered species such as the wolf or grizzly bear. There is already interest from the educational community in using some of the information to supplement educational materials and for interpretative exhibits for tourist visitor centers. Most importantly, the information will directly support the primary mission of the RMEF: to ensure the future of elk, other wildlife and their habitat.

For more information about the Project, contact Kirk Horn at the RMEF at (406) 523-4500 or rmef@rmef.org, or Geodata Services, Inc. at (406) 721-8865 or geodata@geodata-mt.com.

* ArcExplorer is a registered trademark of Environmental Research Systems Institute, Inc, Redlands, CA.

College of Technology Announces Graduation

by Mike Frankovich, College of Technology

The College of Technology will graduate the first group of students in May 1998 from the GIS/GPS program. The program was started in Fall 1996 and provides training in GIS and GPS along with related instruction in Math, Communication, Surveying and Map Design. The students will receive an Associate of Applied Science degree. Anyone interested in interviewing these students can call the Placement Office at 406-496-3730. Along with the graduating students, there are students in the program who will be finishing their second Semester in May. These students are currently seeking internships for the summer. They will have completed the first level of ArcView and MapInfo software class along with Data Acquisitions and related Math and Communications. They will not have had any GPS training; that comes in Fall 1998. Anyone looking for interns can contact Mike Frankovich at 406-496-3745 or E-mail mfrankovich@po1.mtech.edu . Information about the program may be obtained from the Student Services Office at 406-496-3733 or contact Mike Frankovich.

NRIS Announces Availability CD-ROM of Statewide Data in Arc/Info(TM) Shapefile Format

by Fred Gifford, Natural Resource Information System

The Montana Natural Resource Information System (NRIS) at the Montana State Library has recently completed development of a CD-ROM containing basic GIS databases for Montana. The Montana statewide data CD-ROM contains 600 megabytes of data in Environmental Systems Research Institute, ESRI shapefile format. It includes the U.S. Census Bureau 1:100,000 scale 1992 TIGER base map data, 1:100,000 scale major public land ownership, township and section lines provided by the BLM, Census Block boundaries with population data, school and legislative district boundaries, urban area boundaries, 1990 Census designated place boundaries and county boundaries. It also contains locations of mines, highways, major streams, cities & towns, river basins, National Forests, National Parks, National Wildlife Refuges, and wilderness areas. It has colored, shaded relief images at 260 meter and 130 meter resolutions, 1:250,000 scale land use, and the Geographic Names Information System, with the locations of 28,000 named features. The CD comes with ESRI Arc Explorer(TM) software that can be used to view the data from any Microsoft Windows 95 or NT system.

It's a First!
K-12 Education GIS Panel at the 1998 Conference

by Annette Cabrera, Yellowstone County GIS

The Education Subcommittee is pleased to announce the first session devoted to GIS K-12 Education at the 1998 MT/ID GIS conference. In the past several years, educators have shown a growing interest in incorporating GIS into their curriculum. Ed Madej, an ArcView instructor, will be discussing the role the Natural Resource Information System (NRIS) plays in making software and training available to teachers. Margie Lubinski will discuss her experience with adopting a school and how a GIS professional can assist in bringing GIS into the classroom. Teachers who have 'been there and done that' will share their wisdom based on experience. After the speakers, there will be time for a question and answer session. Anyone who is interested in GIS K-12 education is encouraged to attend and participate in the discussion.

The subcommittee has been actively promoting GIS education since its formation in 1994. Activities have included expanding Public Night at the conference to include presentation of student GIS projects along with educational activities for the kids, establishing endowed scholarships at Montana State University and University of Montana, and developing a GIS Resource Box for teachers. In 1997, a $1000 grant was awarded for the development of an Internet training prototype for GIS to a team of teachers at Corvallis High School (see the project at http://www.montana.com/chs/gis/). In 1998, Marlene Zentz, from Billings Riverside Middle School, received a $1000 grant for the development of lesson plans on Lewis & Clark's Journey. They will be included in the GIS Resource Tool Box. Zentz willl present her work during the conference. Look for up-to-the-minute details on the conference website at http://mbmgsun.mtech.edu/giscon98/.

GIS CONFERENCES

April 6-9, GIS '98, Toronto, CA, Contact: 970-221-0037
April 19-22, 11th Annual Geographic Information Systems for Transportation Symposium, Salt Lake City, UT, Contact: 801-965-4155
April 26-30, MapWorld '98, Seattle, WA, Contact: 518-285-6000
April 27-30, 1998 Montana/Idaho GIS Conference, Butte, MT, Contact: 406-723-8262,ext.220
June 1-3, First International Conference on Geospatial Information in Agriculture and Forestry, Lake Buena Vista, FL, Contact: 313-994-1200, ext. 3234.
July 19-23, URISA '98,Charlotte, NC, Contact: 847-824-6300
July 27-31, 18th Annual ESRI User Conference, Contact 909-793-2853

Update on "Montana GIS Users Go Online"

By Michael Sweet, University of Montana

(Author's note: This article reiterates and updates information originally presented in the article entitled "Montana GIS Users Going Online" by Ken Wall. The article appeared in the Fall 1997 issue of *GIS News*.)

In 1992, to facilitate communication among members of the Montana GIS Users' Group, UM established the MTGIS list-server (or "listserv"). Since that time there has been a tremendous growth in the number of persons who use email to communicate. The list-server at the UM currently hosts more than 100 groups with over 10,000 subscribers. The most active GIS list-server at the UM is GISCONF. The Montana GIS Users' Group uses this list-server for sharing information on plans for the 1998 Montana/Idaho GIS Conference in Butte.

There are two additional GIS-related list-servers currently being established. They should be in operation by the time this issue of *GIS News* is received. The MGIC list-server will facilitate the sharing of information on the activities of the Montana Geographic Information Council. The TWG list-server will support the activities of the Montana Interagency GIS Technical Working Group. If you have trouble accessing the list-server software for the aforementioned groups, please contact the list-server administrator or Michael Sweet (*sweet@forestry.umt.edu*, 243-5265) at UM.

A list-server is an email-based communication system wherein a message sent to it by any subscriber is automatically distributed to all other subscribers. A typical use is to pose a question to other subscribers or make an announcement of general interest. The University of Montana (UM) has a very good FAQ (Frequently-Asked-Questions) document on list-servers available at the *http://www.cis.umt.edu/faqs/listserv.htm* web address.

The list-server software receives commands by reading the first line of a message. It does not read beyond the first line. Including text beyond the first line may result in an "I don't understand this command" message from the list-server.

The following two examples do not require you to be a subscriber, and allow you to test the sending of commands to a list-server. In the first example, you are asking the list-server for a list of all list-server groups at UM. In the second example, you are asking for more information about a particular list-server group.

Example One, How to request a listing:

Send the following email message:

TO: *listproc@discuss.umt.edu*
FROM: *sweet@forestry.umt.edu*
lists

In your email you will receive a catalogue of list-server groups. In it, find the Montana GIS Users' Group (*mtgis@listserv.umt.edu*). Having identified the alias (MTGIS), you can request more information:

Example Two, How to request more information:

Send the following email message:

TO: *listproc@discuss.umt.edu*
FROM: *sweet@forestry.umt.edu*
info mtgis

To exchange information with subscribers to the MTGIS group, you need to be a subscriber. Subscribing to a list-server simply means adding your name and email address to the distribution list of a group in which you are interested. If your email address changes, you will need to re-subscribe. The next example shows how Michael Sweet would subscribe to the MTGIS list-server:

Example Three, subscribing to the MTGIS list-server:

Send the following email message:

TO: *listproc@discuss.umt.edu*
FROM: *sweet@forestry.umt.edu*
subscribe mtgis michael sweet

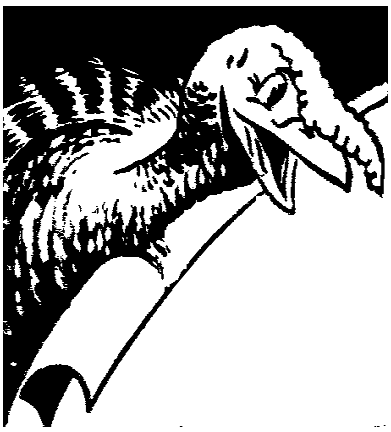
The list-server software will confirm this subscription by sending a welcome message.

Once you have subscribed to a group, there are a host of options. The following table provides a quick summary for the MTGIS list-server:

Send To Address	Message Body	Action
listproc@discuss.umt.edu	recipients mtgis	A list of subscribers to the MTGIS list-server group will be sent to your email address.
listproc@discuss.umt.edu	which	A list of list-servers to which you are a subscriber will be sent to your email address.
mtgis@discuss.umt.edu	(any message from you)	Your message will be distributed to all other MTGIS subscribers.
listproc@discuss.umt.edu	unsubscribe mtgis	The list-server will delete your email address from the list of MTGIS subscribers.

GIAC Teaches ArcView to 4th Graders with 'Missing Turkey Mission'

by Gretchen Burton, Montana State University, Geographic Information and Analysis Center



Needy families around the United States had a little more to be thankful for this year because of some computer literate fourth graders at Irving School in Bozeman.

The students, using computers at Montana State University-Bozeman, found a load of turkeys that were accidentally dropped when Air Force One was flying across the country Nov. 20. The plane was on a secret goodwill mission when the pilot unwittingly deployed the hatch and the turkeys fell out. No one was sure where they landed until the Irving students tracked them down while using computers at the Geographic Information and Analysis Center (GIAC) at MSU.

OK. OK. There was no mission of mercy. No turkeys fell out of Air Force One, and President Clinton knew nothing about the Bozeman heroics.

But Irving School really did send 24 fourth graders to GIAC Nov. 21. In honor of Geography Awareness Week, GIAC adopted Irving School and brought the students on campus to learn how to use ArcView. The field trip was also a component of GIAC's outreach program; the center contributes to the University's programs of instruction through research and outreach by conducting on- and off-campus training and assistance in GIS applications and techniques.

Jeanette Cherry, the Administrator for GIAC, welcomed the students and teachers to GIAC's new Computer Lab. After learning a few basics about GIS from Gretchen Burton, a GIS Specialist at GIAC, the students went through a few simple exercises to help learn the tools of ArcView. Anne Loi, the Systems Administrator at GIAC, then introduced the hypothetical problem called The Case of the Missing Turkeys. The fourth graders used their computers to figure out seven clues that would lead them to the lost turkeys.

Clue #2, for example, said, "From Olympia, Washington, fly approximately 530 miles southeast to a potentially active volcano for your next clue." Upon locating the appropriate geographic feature and verifying its identity, the students used an ArcView tool to open the next clue.

Clue #3: "Welcome to Craters of the Moon, Idaho. Go east to the Continental Divide. Follow it south until you find the source of the Arkansas River. Navigate the river until you get to a state capital that starts with the letter L."

Working two or three to a computer, the students raced to see which team could find the turkeys first. Ariann Two-Two, Jodie Nelson and Katie Smith took turns operating the controls of their computer. Scott Raznoff had a hard time sitting still as he and Nick Hamilton came closer to the answer.

Finally, though, Katrina Cherry, Kesley Bannister and Trenton Crowe found the missing birds. Heading west from Bozeman, they had followed their clues to Washington, Idaho, Arkansas, Lake Michigan, Ohio and West Virginia. When they landed in Philadelphia, a picture of a turkey appeared on their computer screen. The search was over.

The students only had an hour at GIAC, and then it was time to return to Irving. Their computer skills should continue to grow, however. Irving hopes to receive free ArcView software for participating in the Adopt-a-School program, and GIS Specialist Lisa Landenburger said, "We will definitely take the time to help the teachers learn the software."

GIAC has already adopted Irving, Anderson School, Hawthorne School and Bozeman High School. The center will continue to work with schools that want to learn about Geographic Information Systems, Landenburger said. Fourth grade teacher Kathi Tullis-Grant said she was pleased with the ArcView program and the skills her students gained during the turkey hunt.

"It's wonderful," she commented. "... It will really reinforce the geography concepts we have learned in class.

Editors note ..... Gretchen Burton and Jeanette Cherry will be hosting a booth with a similar activity for K-12 students at Public Night, April 27, 6:30 - 9:00 pm at the Ramada Copper King Inn in Butte. Students who complete all the activity booths will receive prizes. We hope to see many students, parents and K-12 teachers there.

Workshop: Inexpensive GPS for Work and Play

by Ken Wall, Geodata Services, Inc.

Ken Wall, a GIS consultant with Geodata Services, Inc. in Missoula, Montana, will give a free hour and a half workshop on Public Night at this year's GIS conference on the use of recreational GPS receivers like the Magellan, Eagle, Garmin and Trimble.

Many people working with GIS have used resource grade or survey grade GPS receivers to collect accurate field data with accuracy ranging from centimeters to a few meters. Recreational , or sportsman type GPS for $100-400 have accuracies in the range of 25-100 meters, and are not often thought useful for GIS work. That is not always true, and a short part of this workshop will be directed at ways GIS professionals can use inexpensive GPS units. The major focus, however, is on practical uses of GPS for work and play. Ken will target the workshop at novice users who are interested in purchasing a GPS or have one and want to understand more about how it works and how to use it.

- Want to track your favorite fitness activity like the mileage, average speed and time for your daily jog/hike/ski/walk?
- Find your way back to that special fishing hole or camp site?
- Track your progress cross country on your next vacation (always a ready answer to the kids "how many more miles?" question)
- Navigate to an approximate location for field work?
- Identify the location where you took that special photograph?
- Want to get lost, but still know exactly where you are?

What we will do:

We will cover the basics of how the GPS system works, in layman's terms. This will include information on "selective availability", the Department of Defense's intentional degradation of the accuracy of GIS, which is the reason you can't get 5 meter accuracy with a $250 receiver in most instances. Discussion will also include basic map reading skills, practical tips on using any receiver in the field, commercial and public domain software for PC and Windows to assist in using a GPS receiver and resources to help you evaluate what receiver to buy and how to learn more about it.

What we won't do:

- Although we will have a few receivers available for demonstration and "hands on" work, the workshop will be primarily lecture oriented.
- We will not be providing specific step-by-step instructions on the use of specific receivers. The lecture and handouts will use specific examples, but will discuss feature as generically as possible.
- We won't talk in depth about how to interface GPS with GIS software.
- We won't sell anything or advocate or endorse any one product… they are all fun to use!
- We won't bore participants with technical details (no datums, SIN or COSINE's).

Two New Post-conference Workshops

by Mike Frankovich, College of Technology

Two new post-conference workshops will be offered at the GIS Conference in Butte on Thursday, April 30. If you're interested in attending, contact Janet Cornish, Registration Coordinator, at JanAllyce@aol.com or via phone at 406-723-7993.

Basics of AML for Arc/Info Users [FREE]
Ramada Inn Copper King, 9:00 AM - 12:00 PM.
This workshop will include the basics of AML programming starting from "What is AML?" to writing scripts using AML functions. Topics will include: Basics of AML such as starting Script Macros in AML; AML Directives; AML Functions; Making a Script File in the Text Editor; and Making Menus with AML. Instructor: Dr. Shivaji Prasad, Sir Sanford Fleming College. Maximum enrollment: 30.

Fundamentals of COGO: ARC/INFO. [$100]
College of Technology, Room 116, 8:00 AM to 4:00 PM.
This seven-hour workshop will provide new or novice users of coordinate geometry (COGO) technology the opportunity to use Arc/Info and the COGO module to convert warranty deeds, certificates of survey, and subdivision plats from hard copy to digital format. This is designed to be a "hands-on" experience, and attendees must bring a deed, COS, or subdivision plat to the workshop. Instructor: Jackson K. Beighle, Benchmark GIS. Maximum enrollment: 10.

Scholarship Awarded to MSU Student

by Richard Aspinal, Montana State University, Geographic Information Analysis Center

The Montana GIS Users' Group began to establish endowments at the University of Montana (UM) and Montana State University (MSU) in 1995. These endowments will allow the Users' Group to award a $500 scholarship to a student every year. The first endowment was established at MSU after the 1997 GIS Conference and the first recipient of the MSU scholarship is Deborah Kurtz.

Debbie is a first year graduate student in the Geographic Information and Analysis Center (GIAC) and the Department of Earth Sciences at MSU. She is also working to receive certification in interdisciplinary science through the Mountain Research Center at MSU.

The subject of Debbie's MS thesis is a "Geographic Analysis of the Distribution and Spread of Exotic Plant Species in Grand Teton National Park". The purpose of this research is to determine the geographic characteristics underlying the distribution of an exotic plant species and to predict the future spread of the plant species in Grand Teton National Park. Debbie's advisor is Richard Aspinall.

As an undergraduate, Debbie participated in an independent study using remote sensing and digital Landsat Thematic Mapper data to analyze the St. Charles, Missouri area during the summer drought of 1988 and the summer flood of 1993. This work determined the utility of unsupervised classification and the Normalized Difference Vegetation Index (NDVI) for detecting land use and environmental change. Debbie presented the work at the Middle States Division of the Association of American Geographers Annual Conference in 1995 as a poster entitled "Detecting Change with Digital Image Classification" and was awarded the Most Outstanding Poster Award. During the Summer of 1997 Debbie worked as a field assistant collecting Global Positioning System (GPS) readings, soil moisture and leaf area index readings and biomass clippings of sixty montane meadow sites in Grand Teton National Park and Gallatin National Forest.

K-12 Education Update

by Margie Lubinski, Lolo National Forest

For several years now, the Montana GIS Users' Group Education Subcommittee has been working to assist teachers statewide in bringing GIS into the K-12 classroom. Months before the Users' Group Conference, GIS professionals volunteer to work with local area schools on a GIS project that the students present at Public Night. It has been extremely successful so far, but it has required a tremendous commitment on the part of these volunteers. The education subcommittee, as a result, has been looking into ways to provide the necessary tools so that teachers can apply this technology with only minor assistance from a GIS professional.

Last year the Users' Group awarded a grant to develop a website to provide teachers with a place to find information on what GIS is, software available to do simple GIS projects, and examples of projects that other teachers have worked on. This was the start of a "virtual" toolbox that can now be updated as more sites are found and the technology grows and changes. The next step for the subcommittee was to develop a "physical" toolbox that could actually help bring the technology into the classroom. The major component of this box would have to be tied to the state's present curriculum in order to allow teachers the ability to use it.

This past January, the Montana GIS Users' Group awarded a grant to develop a K-12 curriculum to bring Geographic Information Systems technology into the classroom and tie it to existing statewide curriculum. We are pleased to announce that a group of Billings Public School educators have received the grant and are pursuing a proposal to plot the Lewis and Clark Expedition. Marlene Zentz, Brian Overfelt, Dan DeBar and Hunter Jones will work on a curriculum to provide an opportunity for middle level social studies teachers to apply GIS to the study of Montana geography and history via mapping activities pertaining to the Lewis and Clark expedition. It is a very exciting proposal and the finished product will be demonstrated at this year's MT/ID GIS Conference in Butte.

What is the GYADC?

by Patty Scarrah, MSU Mountain Research Center

The Greater Yellowstone Area Data Clearinghouse (GYADC) went online in July 1997 in an effort to help land managers discover existing spatial data of the Greater Yellowstone Area (GYA). It is one of several nodes registered by the National Geospatial Clearinghouse that can be queried for data. Public and private organizations as well as individuals can utilize the GYADC to find data that can be used in a number of different applications and/or decision support systems.

The query is accomplished by accessing the information contained in the metadata document and returning a list of data that meet the condition of your query. If you haven't heard about Metadata by now, please call the GYADC and we will get you the information you need to get started.

- Several services are offered through the GYADC including: searching one or more nodes (the search page at our site suggests nodes in the GYA region)
- a data inventory from participating agencies;
- a metadata input tool to use as a minimum documentation set required by the query function of GYADC;
- an online Bulletin Board for users to post a question, concern or make an announcement about a meeting or workshop;
- information about the Federal Geographic Data Committee, the National Spatial Data Infrastructure and the funding responsible for creating the GYADC; and
- related GIS links

The GYADC started with an initial inventory of four data sets and through the efforts of agencies working together the inventory has grown substantially. Please join the GYADC and let others know of the valuable data that you may have to offer. The GYADC can be accessed online at: http://www.mrc.montana.edu/gyadc or feel free to call, (406) 994-7723.

Metadata in Montana

by Kris Larson, Montana State Library

The Montana State Library hired the state's first Metadata Coordinator on October 24, 1997. Kris Larson has eight years of GIS experience, and is now available to help Montanans with their metadata needs.

The initial focus of the position is public outreach. The Coordinator will work with people at the administrative level to ensure that there is support for the Federal Geographic Data Committee (FGDC) Metadata Standard. She will address groups of GIS users to explain the conceptual design of the Metadata Standard and the tools that are available to implement it. Larson is also available for one-on-one support to assist in entering metadata.

There will be several training opportunities at the Montana-Idaho GIS Conference in Butte, at the Copper King Inn, April 27-30. Doug Nebert, from the FGDC offices in Washington DC, will be in Montana to talk about the latest developments with the FGDC Metadata Standard. Hal Anderson, from Idaho s Department of Water Resources, will talk about metadata developments in our neighboring state. Eric Meyer, of Enabling Technologies in Seattle, will show GIS users a tool that he has developed for capturing metadata. Larson will give a presentation on the resources that are available in Montana.

A metadata web site is planned for the Spring of 1998. The web site will have links to national sites, pointers to other metadata websites in Montana, and updates on local events. The Metadata Coordinator can help people transfer their documentation to Internet servers and other distribution mechanisms where appropriate audiences may access them. For more information contact Kris Larson at kris@nris.mt.gov or 406-444-5691.

GPS Base Stations

by John Hinshaw, Natural Resource Information System Heritage Program

There are two types of base stations in Montana with downloadable data. Number one, and the easiest to use if you have web access, are the Forest Service and Montana Department of Transportation Web sites. Second, are the community bulletin boards. The community bulletin
boards are a little more involved and one should contact them before collecting data so that you don't gather a lot of data and then find that it is not correctable. For the best results, try to use a base station that is within 150 miles of your project. The Web sites post base files within 3.5 hours which makes them very efficient. Most of the base stations post 30 to 60 days worth of files and two to six months on backup. Below is a list of most of the base stations found in or near Montana.

WEB Access

www.fs.fed.us/database/gps/kettle.htm ; Kettle Falls, WA.; Colville National Forest, contact Mike Picard (509)738-7700.
www.fs.fed.us/database/gps/missoula.htm ; Missoula MT; Northern Region Forest Service, contact Don Patterson (406)329-3347.
www.mdt.mt.gov/isb/gps.htm ; Helena MT; Montana Department of Transportation, contact John O'Mara (406)444-6307.
www.fs.fed.us/database/gps/inelcbs.htm; Idaho Falls ID; contact Randy Lee (208)526-0120

Bulletin Board

Missoula (406)523-4897, Jim Philipee is the contact person (406)721-5700.
Lewistown (406)538-2514, Randy Matchett is the contact person (406)538-8706.
Jackson, WY (307)739-5802, Bradley Bridges is the contact person (307)739-5588.
Custer, SD (605)673-2924, Matt Reece is the contact person (605)673-2288.

Montana GIS Users' Group
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