

Wetland Inventory adopts new technology

Helps produce an improved product

by Ted Koch

The mapping of Wisconsin's wetlands reaches all the way back into the 19th century. All along the way, technology has had a large impact on how the mapping could be done, and now in the early years of the 21st century another new approach is being implemented.

The earliest mapping comes from the original government land surveys begun in the 1830s and completed in the 1860s. The survey crews mapped about 5 million acres of wetland. Although the survey gave a good distribution and extent of Wisconsin's original wetlands, it did not yield very accurate statistics.

Survey methods and mapping were primitive and different surveyors had different interpretations of what constituted a wetland. Some of the work was done in the winter when wetlands were covered by ice and snow. The wetland boundaries were mapped more accurately along the Public Land Survey System (PLSS) section lines than in the interiors of the sections since the surveyors only walked the section lines. When the survey maps were drawn, the land cover between the section lines was estimated.

Subsequent WI Department of Natural Resources (DNR) comparisons of the original government land survey with the Wisconsin Department of Agriculture's Land Inventory ("Bordner Survey") done in the 1930's and USGS topographic maps indicate that wetlands were frequently drawn too small on the original survey maps and some types of wetlands were overlooked.

The extent of wet soils provides a more accurate picture of the state's original wetland acreage. Soil scientists estimate that Wisconsin has approximately 10 million acres of wet soils (somewhat poorly, poorly, and very poorly drained) which is a much more accurate count of Wisconsin's pre-settlement wetland acreage.

Acreage monitored through Wetland Inventory

Since 1978 the state's wetlands have been mapped by the DNR under the Wisconsin Wetland Inventory (WWI) program. Wetlands mapping was initially completed statewide in 1985, based on aerial photography flown in 1978-79. At that time it showed approximately 5.3 million acres of wetlands remaining in the state, a loss of about 47% of original acreage.

The state legislature authorized the DNR to update the WWI on a 10-year cycle. Subsequent budget constraints and lack of staff have

The Digital Wisconsin Wetland Inventory



Digital WWI Status
as of March, 2003

slowed this process to a much longer cycle. Currently, three to four of the state's 72 counties are mapped annually.

The primary source information for wetlands identification is spring (leaf-off) black-and-white infrared aerial photography flown at a scale of 1:20,000 (1"=1667'). Using this imagery, expert photo interpreters are able to delineate the extent of many categories of wetland features. Infrared images provide a much clearer indication of water than does the more standard black-and-white photography.

continued on page 3...

Highlights of this issue....

Doyle proposes WLIB extension	5
Find control points through web map.....	8
Bulletin will become digital	13

WLIB News

by Ted Koch

The Wisconsin Land Information Board's most recent meetings were held on December 12 in Madison, a conference call on January 3, and on April 3 in Madison. The Board's next meeting will be in June, at a date to be determined.

State agency designees change

With the recent election of Jim Doyle as Governor, and the resultant changes in state department secretaries, agency representation on the Board has changed in several instances. The new designee from the Department of Administration is the Deputy Secretary, Laura Engan. She was formerly the City of Milwaukee's budget director. Representing the Department of Natural Resources will be Brenda Hagman, the department's Chief Information Officer. Jason Helgeson, Executive Assistant, will be representing the Department of Revenue. Nick Neher, Dept. of Ag Trade and Consumer Protection, and Tanace Matthiesen, Dept. of

Transportation, will continue to represent those agencies.

Board accelerates access to funds

At its December 12 meeting the Board discussed the possibility of an earlier system of awarding grants funded from fees collected in Fiscal Year 2003—prior to June 30, rather than after the end of the year as has been the rule over the past years. The board explored this option in light of the possibility that it may cease to function after September 1 due to the current legislatively specified sunset. The Board directed its Executive Committee to investigate extending the application period for the current 2002 grant cycle, and to assure that all provisions of the statutes and grant administrative rule are met.

During its January 3 conference call the Board approved an extension to the 2002 grant period to spend those funds collected in Fiscal Year 2003. This extension had been recommended by the Executive Committee. In this action the Board made available an ad-

ditional \$1,746,539, allocating the following: \$21,600 for Education and Training grants, \$269,556 for the Base-Budget grant component, and an additional \$855,383 for the Contribution-Based grant category. In making these funds available the Board in effect doubled the amount available in each of these three grant categories. In the fourth grant category, Strategic Initiative, the Board made available \$600,000 for digital parcel mapping provided use of the money leads to 100% parcel mapping completion in the priority ranked areas of: 1) a complete county, 2) unincorporated areas of a county, and 3) 100% of the parcels in a town, city and/or village.

In this action, the Board authorized no funds for floodplain mapping, or for the development of distributed nodes of the Internet-based Wisconsin Land Information System (WLIS). These two categories are part of the original 2002 grant program.

At the April 3 meeting, issues of addressing and elevation data were considered by no action was taken. Elections were deferred.

State Cartographer's Commentary

Let's complete the soil mapping

by Ted Koch

If the state budget is enacted as introduced, the State of Wisconsin will renege on the soil mapping contract—a six-year agreement begun four years ago to complete digital soil mapping statewide. In my view such an outcome would send the wrong message about inter-governmental cooperation and cause an awkward interruption to a valuable project that is ahead of schedule and close to completion.

The state's annual financial commitment to this pact has been \$700,000. The Land Information Program has funded \$415,000, while the Departments of Transportation and Natural Resources have each added \$132,600, and the Board of Commissioners of Public Lands has provided the remainder (\$19,800).

Project began with questions

When the Land Information Board voted four years ago to commit \$2.5 million of its funds to soil mapping, controversy erupted in reaction to the decision. Many in the state's land information community

felt the Board had exceeded its authority in committing funds to a statewide effort. Also, much doubt surfaced about the ability of the NRCS (USDA-Natural Resources Conservation Service) to deliver the digital map products within the promised six-year time frame.

Let's take a look at this project's accomplishments over four years, and what remains to be done. The goal is to complete the initial soil surveys for ten counties located in north-west Wisconsin, and to convert to digital form existing soil surveys of 28 additional counties. Of those 28 counties, fourteen have the digital product complete and certified, two are in final certification review, eight are being digitized; only four counties remain to be started. In the northwest counties, half of the 3.5 million acres is mapped; the remainder is in various stages of work.

Evolving mapping techniques

Soil mapping relies on skilled scientists and technicians to do field work, digital conversion, and certification. To meet

this need NRCS hired and trained six additional permanent staff, and to accelerate the process adopted new computer-based techniques in field data collection, and added new software in the mapping process. This activity has made Wisconsin a leader in soil mapping approaches, and if completed in two more years as scheduled, the state will rank in the top three nationally for complete availability of digital soil data.

Soil mapping is a Land Information Program Foundational Element and a critical resource for comprehensive planning, farmland protection, proper use of land for conservation and development, and more..

For every state dollar in this project, the federal contribution is \$3.5—an excellent ratio. Work is ahead of schedule, the end is in sight, NRCS has the skilled human infrastructure in place, and the Land Information Program has the money to fund the project to completion. Let's adjust the budget and get this job done.

Wetland Inventory adopts new technology, continued from page 1

New approaches

Recently, the DNR has adopted some modernized technology to improve the mapping process, not only to speed up the actual mapping, but to improve the accuracy of the final product. The new technology involves transferring the wetland areas as delineated on the aerial photo to a scale-corrected image (orthophoto) that then yields far more accurate wetland acreage measurements. The orthophoto process also eliminates several former data transfer steps in the compilation process, which in turn speeds up the overall production process.

DNR wetlands mapping staffers Lois Simon and Calvin Lawrence are still in the process of ironing out some of the kinks in the new process, working on mapping data for Outagamie and Waupaca Counties as test areas. They create the orthophoto photo base images from the infrared imagery using OrthoMapper, a software program created by Professor Frank Scarpace of UW-Madison.

Over the past decade DNR staff has been electronically digitizing the existing WWI maps which are in the form of an uncorrected aerial

photograph, film-based sheets covering a 36-square mile township at a scale of 1:24,000 (1"=2000'). Although, the wetland data is in digital form, the fact that it has been plotted on an uncorrected (non-orthophoto) base means that the digital data does not edge match well from township to township and is therefore not a seamless product over an entire county or large area. The new mapping process corrects this problem, allowing the data to be more accurately integrated with other data layers and GIS applications.

Wetland Inventory maps are available from the WIDNR in paper form for \$5 a township, or \$15 in digital format. See the DNR website under Wetlands Mapping for more information:

www.dnr.state.wi.us/org/water/fhp/wetlands/index.shtml.

Surprisingly, the Wisconsin Wetlands Inventory is not part of the National Wetlands Inventory (NWI) maintained by the U.S. Fish and Wildlife Service. The NWI covers all of the lower 48 states except Wisconsin, with approximately 44% of that area in digital form.. For more information on the NWI, visit: wetlands.fws.gov/.



Portion of 1993 WI Wetland Inventory Map of Town of Dayton, Waupaca County, (scale: 1" = 2000'), showing delineated wetland areas and classification codes. Code example: T3K is wetsoil, forested with broad-leaf deciduous trees.

State task force makes recommendations

Directions proposed for elevation data

by Bob Gurda

Wisconsin needs better elevation data and can make strides toward achieving that goal, according to the Wisconsin Land Information Board's Elevation Data Task Force (EDTF). The task force, led by NGS State Geodetic Advisor D. David Moyer, finished its work recently and reported its findings and recommendations to the board. The task force began meeting in the Spring of 2001.

In a nutshell, the report calls for actions by a variety of organizations to more effectively monitor, encourage, and coordinate development of more robust elevation data across the state. Due to the variety of applications using elevation data, the range of necessary accuracy, the continuing evolution of data capture technology, and the significant costs involved, the task force did not settle on a single approach or accuracy level.

Who should do what?

The various needs for elevation data arise in a wide variety of program areas and levels of government and business. Similarly, responsibility for developing, maintaining, and distributing elevation data can be embedded in several places within the affected institutions.

The task force recommended that several organizations take on key roles. What follows is an excerpted list:

Wisconsin Land Information Board

- Educate regarding needs and opportunities
- Support Wis. Dept. of Natural Resources floodplain mapping efforts
- Encourage local governments to cooperate with state and federal agencies, and to support the Height Modernization Project.
- Develop DEM specification
- Establish a Geodetic Standards and Specifications Work Group
- Adopt "hydro enforcing" (a technique to reconcile elevation data with mapped streams and lakes).
- Determine host agency and distribution processes.
- Encourage use of in-state contractors.

State Cartographer's Office

Maintain and make available elevation metadata free of charge, integrating DEM and floodplain mapping project footprints when available, and integrate similar tracking for orthophotos and aerial photography projects.

Wis. Dept. of Natural Resources

Lead efforts at improving floodplain mapping by seeking cost-share funds, coordinating floodplain and elevation aspects of the state's I-Team Plan, gaining higher-level partnership with FEMA, developing MOAs with municipalities in flood prone areas, and making digital data and tools web-accessible.

Wis. Dept. of Transportation

Accelerate the Height Modernization Program (HMP) including federal funding, share bridge and culvert capacity data with DNR, encourage and facilitate county support of the HMP, and encourage the use of Wis. contractors that are technically qualified and economically competitive.

Full report available

The full report is expected to be available for download from the Office of Land Information Services' web site:

www.doa.state.wi.us/dhir/index.asp.

Questions arise on conversion details

County coordinate system to be analyzed

by Ted Koch

The Wisconsin County Coordinate System (WCCS) has come to be widely used by county, regional, and some state agencies as the foundation for storing, displaying, and mapping geographic data. Since other coordinate systems are also widely used, converting coordinate values between the various systems has become a routine activity.

The WCCS, which was designed and developed by the WI Dept. of Transportation a decade ago, minimizes differences between measurements on the ground and corresponding distances calculated on the WCCS. The WCCS is mathematically based and related to the National Geodetic Reference System. Currently, well over three quarters of the state's 72 counties use the WCCS as the basis for storing and displaying their GIS data.

Concerns over implementation and standards

Recently, a number of people have contacted the State Cartographer's Office with concerns about how some users of the WCCS have implemented county coordinates within their software environment, and how effectively different software products convert data in multiple formats into and out of the local coordinates. Ultimately, the question has arisen about whether there is truly a standard method for transforming data into and out of the WCCS.

Beginning the discussion

To begin to answer this and related questions, the State Cartographer's Office in February invited fifteen "GIS experts" to discuss WCCS-related issues. The purpose of the meeting was to better identify current problems with WCCS use and to propose potential paths for resolution of these problems. Action items identified at this meeting include investigations on more formally defining parameters needed to use the WCCS, building valid test data, and forming a task force attached to a recognizable body, such as the WI Land Information Board, to continue WCCS work.

The issue of forming a task force was not taken up at the WLIB's most recent meeting in early April, being postponed until the next meeting date. Look for updates in future *Bulletin* issues.

September 1, 2005 would be new sunset

Governor proposes extending the WLIP

by Ted Koch

Wisconsin Governor Jim Doyle's proposed budget for the State of Wisconsin's next two fiscal years (July, 2003-June, 2004) contains a provision for rescheduling the sunset date for the Wisconsin Land Information Board (WLIP) from September 1, this year to September 1, 2005. A similar extension is also proposed for the Wisconsin Land Council (WLC). The governor's budget was delivered to the legislature in late February.

Currently, the legislature's Joint Committee on Finance is analyzing the budget and traveling around the state holding hearings to gather public comments. In Spring and early summer, the committee will make their changes to the budget before returning the amended version to the governor for his signature. The governor has the authority to selectively veto or alter legislative changes.

Huge budget deficit may force funding shifts

This budget is unlike any other in recent memory since the state is facing a huge deficit estimated to be well over \$3 billion. A deficit of that magnitude has forced the administration to take a very close look at the funding of all state programs—those funded through general revenues as well as those reliant on specific program revenue such as the Land Information Program (which gets its funds from a real estate recording fee collected by counties).

Besides the sunset extension, the governor's budget alters WLIP funding. Most notable of these changes is a complete elimination, by the second year of the budget, of state funding for soil mapping. The state, through a combination of WLIP funds and allocations from three state agencies, has been contributing \$700,000 annually to soil mapping and digital conversion of existing paper soil maps. This work has been ongoing over the past four years under a contract with the Natural Resources Conservation Service, a federal agricultural agency.

In addition to the soil mapping reduction, the proposed budget reduces significantly funds for the Dept of Administration's Office of Land Information Services (OLIS) which administers the business activities for both the WLIP and WLC. This reduction, if it stays as part of the final budget, will eliminate six positions in OLIS, and stop funding for the continued development of a recently begun project (WLIS) to integrate and display land information data on the Internet.

Comprehensive planning grant funding remains

Another provision of the governor's budget calls for WLIP-collected revenue to be used as a replacement for general purpose revenue in funding comprehensive land use planning grants. In the last budget, \$1.5 million GPR and \$500,000 of WLIP funds supported comprehensive planning. Under the new budget, GPR funding is eliminated and replaced with \$1.5 million in WLIP funds, thus maintaining the current funding levels for comprehensive planning.

National Research Council weighs in

"The National Map" critiqued

by Bob Gurda

The National Map, the key idea behind the reinvention of mapping within the U.S. Geological Survey (USGS), has been studied by a panel of the National Research Council. We have covered the evolution of The National Map in several previous articles.

The panel's primary conclusion appears to be that the goals are laudable and critical to the country, but that achieving success will require major organizational change, coordination with similar federal initiatives, and a huge effort in building partnerships.

The panel goes by the name of The Committee to Review the U.S. Geological Survey concept of *The National Map*. Appointed solely for the purpose of this review, it operated under the auspices of the permanent Mapping Science Committee, beginning its work in July, 2002.

Input was solicited from a wide range of stakeholders. A two-day workshop was held

in September. The report is available as a printed publication from the National Academies Press (www.nap.edu/catalog/10606.html) for approximately \$30. At press time a PDF was viewable on line. The document runs 140 pages and is titled *Weaving a National Map: A Review of the U.S. Geological Survey Concept of The National Map*.

Observations by the committee

Based on the report's Executive Summary, the panel clearly understood the nation's needs for digital geographic information that is current, accurate, and standardized. The committee also was aware that recommendations had been provided to the USGS over the last decade and had they been implemented much of the idea of The National Map would already be in place. Further, the panel appreciated that other federal programs are active in the area of geographic information.

From this background, the committee concluded that The National Map is a large, ambitious project that is more an institutional than technical or scientific challenge. Success depends on some factors outside the control of the USGS. Enhanced coordination that uses a two-way street approach is essential.

Recommendations

The committee advised the USGS to make a priority of building partnerships for an integrated spatial database, and at the same time use small steps and pilot projects to gain experience in revision, integration, and updating.

The panel also identified a role for the existing digital *National Atlas*, being a less-detailed source of information (contributed from and maintained by various organizations), while more-detailed information is being assembled at a slower pace.

In total, the recommendations lay out a major shift for the USGS in reformulating its staff and processes to rise to the challenges of the 21st century.

Imaging and Imagining the Future

Jane Licht has just concluded her one-year term as president of the Wisconsin Land Information Association. She is a charter member of WLIA, and has been Register of Deeds in Dane County for the last fourteen years, and served on the county board prior to that.



Sixteen years ago you were one of the people who formed the Wisconsin Land Information Association. What have been the key accomplishments of the WLIA over that time?

Many of us charter WLIA members were active in the Wisconsin Land Records Committee, and forming the WLIA to push forward the recommendations of that committee was foremost in our minds. So, I would say that convincing the legislature and governor to establish and fund the Land Information Program was the first goal of the association, and in retrospect the most essential accomplishment.

As the success stories began to pile up some doubters became the strongest supporters

The strongest evidence of the program's value is that all 72 counties have long been participating.

A decade and a half later, what has changed the most in terms of acceptance of the program?

Initially, there were plenty of doubters sprinkled throughout government staff and county boards. After all, GIS and related approaches like GPS and document imaging were new technologies, require investment up front, and require new ways of working between offices. Yet, as the success stories began to pile up most of the resistance faded and some doubters became the strongest supporters.

A new wave of county staff and board members has also brought with them a higher comfort level with information technology — in some cases even very high expectations.

What we didn't anticipate early on was the cool treatment that emanated from some places high in state government for a long time. We are hopeful that our ideas will be embraced more warmly by the new administration. It is clear that the value of land information systems is appreciated more than ever across the political spectrum within the legislature.

As a Register of Deeds, you have been a strong proponent of document imaging. Was this a focus for you from your earliest awareness of land records?

No, it wasn't. As member of the county board first and then as a graduate student, I became keenly aware of the opportunities that land records modernization presented. But document im-

aging wasn't a practical technology at the time. If it had been, I expect the Land Information Program might have steered resources first toward imaging systems for all counties since they greatly help in achieving other program goals such as parcel mapping.

In the early period of my tenure as Register of Deeds, though, I made a visit to Lexington, Kentucky where the local government had started doing imaging. Then my colleague Helen Schutten in Racine County started her system in 1994. These examples made it clear that my county and others would benefit greatly.

We are hopeful that our ideas will be embraced more warmly by the new administration

I'm happy that 60 of our state's 72 counties now have these systems which make our offices more efficient, provide better access for the public and other county offices, and enable Internet access for professional users.

Beyond its work in establishing the state land information program, how has the WLIA been particularly effective?

There are so many things to consider here. We have a newsletter and web site and great educational content at our meetings around the state. We have developed standards through a group process. However, I believe that the single most important aspect of the WLIA is that as a community it represents a storehouse of ideas, experience, and support that any one of us can draw on at any time. It's great to be part of this family.

In recent years GIS-savvy staff have joined almost all of the organizations represented in the WLIA. These mostly younger people have different training and experience than many of their predecessors, and some have been thrust into roles as coordinators. How might WLIA help these people through such a transition?

I'm happy that 60 of our state's 72 counties now have document imaging systems

Partly this goes back to the idea of WLIA as family. We have lots of members with experience in bringing an organization's parts together to implement a land information system. In a more organized sense, we could consider a mentoring approach and even some workshops on topics such as conflict resolution. We can all improve our skills and WLIA could be the perfect vehicle to rise to this challenge.

Our members from educational institutions could also consider altering some course content so that students receiving technical GIS training are exposed more fully to organizational and implementation issues.

Q: *I want to preserve 35mm color slides of farm fields by scanning but don't necessarily need to have the images adjusted like an orthophoto. What guidelines, such as resolution and file naming, would you suggest I follow?*



A: Presumably you're talking about the aerial transparencies that were taken annually for the Farm Service Agency for many years. That program is in the process of being phased out as we explained in an article on the new National Aerial Imagery Program in our Fall 2003 issue.

The color slides each depict the farm fields in a section (square mile, essentially) of land during the growing season. The slides over a series of years represent the only continuous annual record of rural land use. It's good to see your interest in preserving this record.

Equipment to accomplish high-resolution scanning of color slides is expensive so it probably doesn't make sense for you to purchase the hardware and do your own scanning. A service bureau would be a better choice. A contractor in Minocqua has scanned FSA slides for a number of Wisconsin counties.

As for resolution, a target for a 1.0 x 1.5 inch 35mm slide might be 2000 x 3000 pixels. A somewhat lower resolution might provide acceptable image quality; higher resolutions will require more storage space. Some scanning systems automatically create multiple lower resolutions to speed up viewing at various zoom levels.

It is common to compress image scans to save computer storage space. Make sure that the compression ratio isn't set so high that you see a noticeable decrease in image quality. Compressed files also tend to take longer to display on your computer screen since the decompression step uses processor time.

Regardless whether you decide to employ compression or not, it's always a good idea to ask for copies of the original scans for your archives. A superior compression process may emerge in future years and then you'd want to go back to the original scans.

Scanning and/or CD-ROM mastering software may not provide an easy way to give image scans file names that are meaningful. It's likely that you would need to construct a look-up table with scanned file names and the aliases you prefer to use. These aliases would most sensibly be based on the PLSS town/range/section direction/section nomenclature.

Q: *I own rural property that is on a county line. Who do I contact for the coordinates of a nearby section corner so that I can check the accuracy of my hand-held GPS receiver?*

A: There are several parts to your question. We'll look at each of them separately.

A section corner is one of the places on the land where the Public Land Survey System (PLSS) is marked—often these days with sturdy modern monuments. A section corner may or may not have been surveyed to gather high-accuracy coordinate values. Such coordinates are what you would need to be able to compare your GPS receiver's readings with those for the monument.

The county surveyor or county land information office would be the place to contact for information on whether the PLSS corner in question has been remonumented and if so, whether high-accuracy coordinate values are available.

For a remonumented PLSS point that's on a county line you may be able to tell from the monument cap or nearby witness post which county has been doing the field work. Start with one county and ask to be referred to another if necessary.

If there are no high-accuracy coordinates available for PLSS points close to your property you'll have to expand your horizons and search for a horizontal geodetic control point. Start this process by visiting our website's ControlFinder application (see story on page 8). Remember that some points that were set years ago may be in locations where dense forest cover makes GPS signal reception difficult today.

If that search turns up nothing within a few miles of your location, then contact the county (or counties) to see if they have information on control points that aren't yet searchable through ControlFinder.

It is possible for there to be more than one set of latitude/longitude values for a point on a county line. That could occur as a result of separate horizontal control network observations and adjustments done by the individual counties. However, the expected differences, if any, would likely be small fractions of a foot.

Finally, once you have coordinates for a control point, you'll want to do GPS observations there and compare the results with the high-accuracy values. You might want to make a series of readings to build up a sample.

Remember that any apparent difference between what your receiver collects and what the high-accuracy values are can be a result of a variety of factors: the type of receiver that you have, the number and positions of GPS satellites in the sky at the time, obstructions and nearby surfaces that might reflect GPS signals, and reliance on the predicted (rather than known) orbit of each satellite. Surveyors can deal with many of these factors while you will have to accept a larger degree of uncertainty due to limitations of your hand-held GPS unit.

SCO enables searching by web map

ControlFinder: Internet Accessible

Brenda Hemstead

The SCO is pleased to announce a new service through our web site: locating information about geodetic control points through a web-based map interface. This service is called "ControlFinder," and is part of a strategy to evolve toward similar tools that provide a range of cartographic-related information through intuitive web maps.

In the case of ControlFinder, the available information comes from a variety of sources. In some cases we link you directly to other web sites to access the most current information. This aspect of the service will be constantly evolving as more and more data providers establish cooperative arrangements with our office.

Search thousands of points through one portal

When planning or working on projects, do you need to know where to find control monuments to establish an elevation or position? If so, where do you easily find this information? Wisconsin has well over 20,000 control points placed by numerous agencies over many decades, so the options for finding information are varied.

Our office has been the key point of contact for federal U.S. Geological Survey (USGS) and National Geodetic Survey (NGS) control for over 20 years, providing information on horizontal and vertical control for the state. With ControlFinder we are branching out to make control information from state and local offices similarly accessible through a single point of entry on the Internet.

About ControlFinder

ControlFinder is designed to help you quickly find information on various groups of geodetic control points in Wisconsin. It includes information about geodetic control points set by the NGS, the USGS, and some local contributors (with more to come).

This web-based tool uses map displays to facilitate searching for points, then provides detailed information on the point(s) you select.

Figure 1: Map tab



Essentially, there are three components to ControlFinder; a *Map tab* for defining your area of interest, an *Identify tab* for choosing particular points, and a *Results tab* for listing your results in tabular form (with options for printing and saving).

Map

In map view (Figure 1) you use your computer's mouse to zoom or navigate through a dynamic map of the state. The control point and reference layers may be turned on and off at your option.

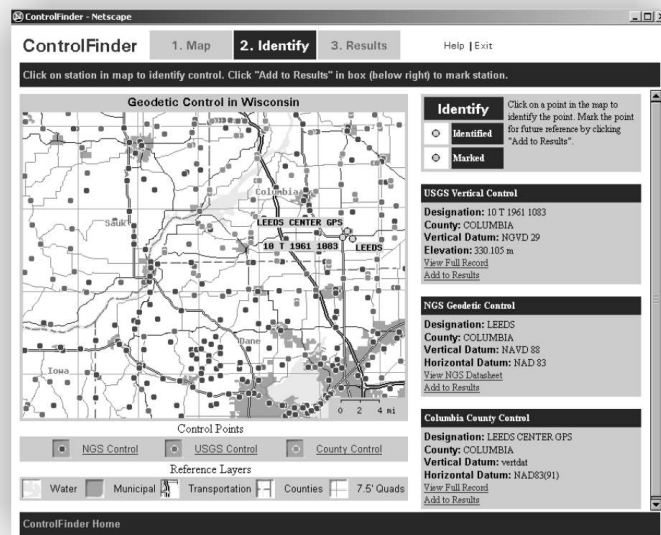
Also available from the Map tab are links to the metadata files for the various control point and reference layers.

Identify

Step two in the process uses the Identify tab (Figure 2). Here you position your mouse cursor and click on a point. Brief information about the selected point(s) will then appear alongside the map window.

continued on next page...

Figure 2: Identify tab



Point Attributes

Designation: 10 t 1961 1083
 Location: Columbia County, morrisonville nw quarter quad
 Source: usgs
 Type: bench
 Date Established: 1961
 Orthometric Height: 330.105 m
 Vertical Datum: ngvd 29
 Vertical Accuracy: 1
 Remarks:
 To Reach: ARLINGTON, 0.25 MI S. AND 2.75 MI E. OF, AT NORTH LEEDS, NEARQUARTER COR. SECS. 16 AND 17, T. 10 N., R. 10 E., 659 FT S., 55 FTE, AND 5.9 FT HIGHER THAN CROSSROADS, (STATE HWY. 22 N.-S. AND STATE HWY. 60 E.-W.) 55 FT E. OF CENTER OF STATE HIGHWAY 22, 2 FTN. AND 15 FT E. OF NW. COR. NORTH LEEDS CEMETERY, IN CONCRETEPOST, STANDARD TABLET STAMPED "10 T 1961 1083"

Dataset Metadata

Originator: Wisconsin State Cartographer's Office
 Publication Date: 2003
 Title: Wisconsin USGS 3rd Order Vertical Geodetic Control Online
 Online Linkage: <http://www.geography.wisc.edu/sco/geoco/index.html>
 Contact Organization: Wisconsin State Cartographer's Office
 Address: 160 Science Hall, UW-Madison 530 N. Park St., Madison, WI 53706
 Phone: 608/262-3065
 Fax: 608/262-5205
 E-Mail Address: arhco@geography.wisc.edu
 Hours of Service: 8am-4pm
 View Full Metadata File

Figure 3: View full record

Below the point characteristics are two hyperlinks; the first, *View Full Record*, leads to more detailed point and dataset information displayed in a new window (Figure 3). The second, *Add to Results*, adds the point to a user-defined list that is maintained for your current session with ControlFinder. Points in this list are symbolized on the interactive map and remain selected until you leave the application.

Results

The final step, the Results tab, is where you view, print, or save point characteristics in tabular form. Only the points you have selected earlier in step 2, by clicking on *Add to Results*, will appear in the results collection (Figure 4).

Contents

At this point in its evolution, ControlFinder displays graphically the statewide USGS 3rd order vertical control and NGS vertical/horizontal control, as well as control points from several counties. USGS control information is static, but we provide transparent access directly to the latest versions of the NGS datasheets. We can build live links into

other Internet sites for true distributed access from multiple sites, all through the ControlFinder portal.

Easy to use

ControlFinder supports the majority of current browsers at 1024 X 768 resolution or better and is accessible 24/7. The display has an uncluttered look and currently uses minimal reference features as a trade-off for peak performance. Visit ControlFinder at www.geography.wisc.edu/sco.

Saving time & money

Our primary goal behind ControlFinder is to provide a free, easy-to-use, Internet-accessible application that delivers useful information about geodetic control points from distributed sources statewide.

Organizations that arrange with us to have their control accessible through ControlFinder should also see a time savings from fewer inquiries from users seeking information.

Data stewardship

We have designed ControlFinder to integrate distributed map information services as well as data exports to our server from our contributors. In either case, the contributing agency maintains complete authority, stewardship, and responsibility for their data. All questions regarding control point information should be directed to the contact identified in the catalog as the original source.

Future

In building ControlFinder, we created an expandable catalog that is easily adapted to other point information. For instance, Public Land Survey corners are another theme we are planning to make searchable through this mechanism.

As with locally managed geodetic control, data on PLSS corners can either be contributed periodically to ControlFinder's central repository, or be made accessible directly from the source through ControlFinder's interface.

ControlFinder will provide you with access to needed information more quickly and easily than before. With data contributions from a variety of organizations and feedback from our users it will only improve over time.

ControlFinder 1. Map 2. Identify **3. Results** Help | Exit

Your Results - Use buttons on right to print or clear results. Print Results Save Results Clear Results

NGS Control [Retrieve all datasheets from NGS]

Designation: leeds	Point ID: am1113	V. Datum: navd 88	H. Datum: nad 83
Latitude: 43.32775422	Longitude: -89.30539428	County: Columbia	

Retrieve Datasheet from NGS

USGS 3rd Order Vertical Control

Designation: 10 t 1961 1083	Point ID: us1139	V. Datum: ngvd 29	
Elevation: 330.105		County: Columbia	Quad: morrisonville nw

ARLINGTON, 0.25 MI S. AND 2.75 MI E. OF, AT NORTH LEEDS, NEARQUARTER COR. SECS. 16 AND 17, T. 10 N., R. 10 E., 659 FT S., 55 FTE, AND 5.9 FT HIGHER THAN CROSSROADS, (STATE HWY. 22 N.-S. AND STATE HWY. 60 E.-W.) 55 FT E. OF CENTER OF STATE HIGHWAY 22, 2 FTN. AND 15 FT E. OF NW. COR. NORTH LEEDS CEMETERY, IN CONCRETEPOST, STANDARD TABLET STAMPED "10 T 1961 1083"

County Control - Columbia

Designation: leeds center gps		V. Datum:	H. Datum: nad83(91)
Elevation: 1022.872 ft	Easting: 575658.34 m	Northing: 321170.6339 m	View Full Record

displaying records 1 to 3

Figure 4: Results tab

Metadata...data...webmap...application

DNR ATRI program expands visibility

by AJ Wortley and Bonner Karger

For an organization, getting a handle on enterprise data holdings is no small task. Similarly, devising a framework for integrating those data in a context built for decision-makers is a major challenge.

But that is precisely the intent of the Aquatic and Terrestrial Resource Inventory (ATRI) program at the Wisconsin Department of Natural Resources. From concept to application, for several years the DNR has been constructing this important part of their departmental information infrastructure.

In the beginning...

Conceptually, the ATRI is a public and private partnership initiative spurred by decision-makers' need to easily access and integrate environmental information. Statutorily, the DNR was directed to, "develop an information system to acquire, integrate, and disseminate information concerning inventories and data on aquatic and terrestrial natural resources."

As part of the program, DNR staff organized in 2000 a Data Standards Initiative which generated a dynamic document of standards dealing with data collection, metadata, and locational data. Steps were taken to inventory and document internal data holdings, resulting in a metadata database of relevant spatial and tabular data sources. Now, after an extensive program review over the last year, and expanded outreach and application efforts, ATRI has emerged visibly in the form of a web-mapping partnership, an on-line metadata explorer, and initial on-line tools that support decision-making.

Revolving around data

From its initial stages, ATRI has been cast as a data-centric program, focusing on relevant data for aquatic and terrestrial resource analysis by the department, its partners, and the general public. The intent is essentially to create a middle-tier information framework on top of the distributed raw data holdings. This framework will facilitate identification, inventory, intermediate storage, and distribution of these data.

Central to such a framework is a metadata repository, as described in the introduction to the 2000 Data Standards document. A metadata repository provides lightweight descriptions, constraints, and access routes to data sources, all housed in a searchable, sortable, and spatially-indexed database. The result is the ability to analyze the information framework itself for data gaps and overlaps, aging or obsolete resources, and monitoring user demand on the holdings. The DNR designed an interface to the metadata repository to provide benefits inside the department as well as to outside users through a public ATRI Inventory Explorer (www.dnr.state.wi.us/atri/) interface.

Inventory Explorer

Although metadata is a fairly simple (yet very important) concept, great organization and clarity in presentation are neces-

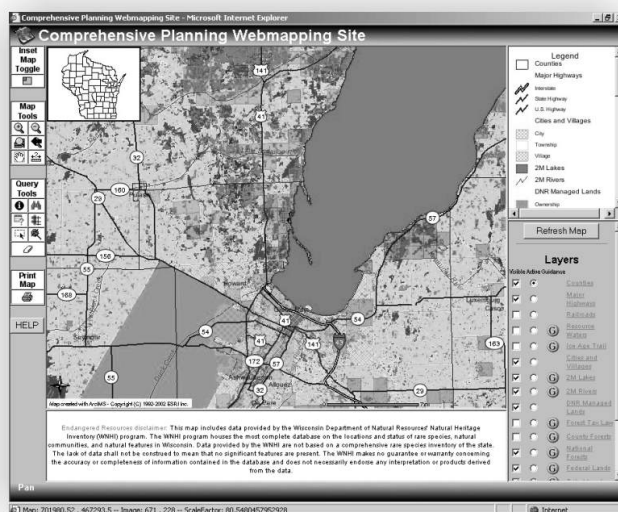


Figure 1: a map display over Green Bay showing land-use related themes on the ATRI Comprehensive Planning Webmapping site.

sary when attempting to make this information easily understood. The ATRI Inventory Explorer does just that.

You need not be an expert to navigate through and find the information you seek. Search the database by theme, or by your own keyword or topic of choice. You can also browse the repository by alphabetical listing or by pre-selected lists of associated layers. And you can add data set references to a bookmark list, making it easy to find previously viewed metadata results when returning to the site.

On-line mapping

Aside from the metadata Inventory Explorer, ATRI has embarked on a webmapping partnership with the Wisconsin State Herbarium on the University of Wisconsin-Madison campus. As a result the two entities share an ESRI ArcIMS map server to map and query inventory data sets inside targeted applications. At this time, there is a general ATRI demonstration map site and a Comprehensive Planning webmapping interface available to the public.

The Comprehensive Planning map interface is built on a pre-selected list of map layers useful for land use-related visualization and analysis. Ultimately, the application has the potential to allow land use decision makers balance land development trends with environmental preservation and biodiversity concerns.

In all of the map applications, map tools function like and resemble those of other ESRI applications (including zoom, select, query, and find tools) and most users will find them easy to operate. Handy guidance features include a map layer list showing the scale thresholds for viewing various layers and summary metadata links in the layer legend allowing you to investigate and better understand the underlying data being displayed.

The number of layers available for viewing and query is impressive and reflects of the depth of resources targeted by the ATRI project for

continued on next page...

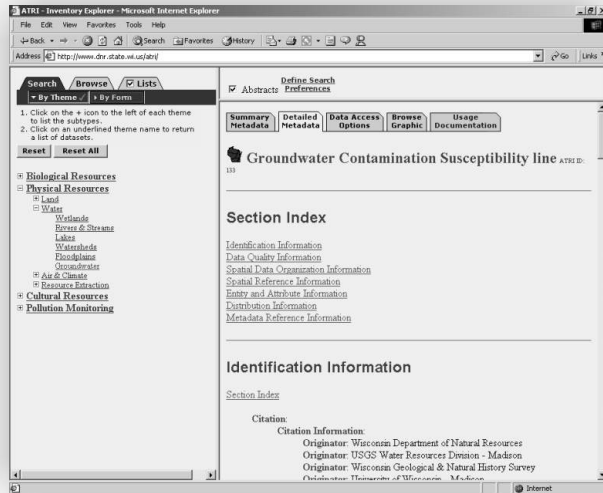


Figure 2: a typical view of metadata from within the ATRI Inventory Explorer.

access. Of particular interest are layers like “Endangered Resources”, “WISCLAND” (land-cover classification), and “Air Photos.”

While the Comprehensive Planning application focuses on land-use decisions, a final webmapping demonstration developed under the ATRI partnership (maps.botany.wisc.edu/atri/) aims to provide nearer

to real-time species information for forestry management activities, namely Goshawk Management. The concept is to protect and increase the numbers of the rare Northern Goshawk through the availability of up-to-date spatially-referenced inventory information delivered through the mapping system.

The system is updated frequently and could help inform Forestry Division staff of specific nesting locations of these birds. Based on their locations, the habitat may be spared, while forest management projects can be completed successfully. At this time, the species-specific mapper is for demonstration purposes only, and is accessible to those with prior arrangements made through the Natural Heritage Inventory.

Next phases

In addition to the efforts of monitoring endangered and threatened species, the DNR is developing a state-wide mammal inventory. According to the ATRI website, a complete inventory of all mammal species in the state has not been done in more than 50 years. In the near future, this inventory will likely become available to the general public in the form of an online mapping system, much like the one introduced above. On a continuous quest to improve wildlife knowledge in the state, the organization considers these interactive mapping services to be important in the distribution of otherwise closeted information.

UW-Madison project first of its kind

Lake clarity mapped on the web

by Bob Gurda

A new web-based map service offers insight into lake clarity across the state. Measured from satellite with calibration provided by hundreds of citizen volunteers, categorized results are viewable through the University of Wisconsin-Madison’s Environmental Remote Sensing Center’s “LakeSat” service.

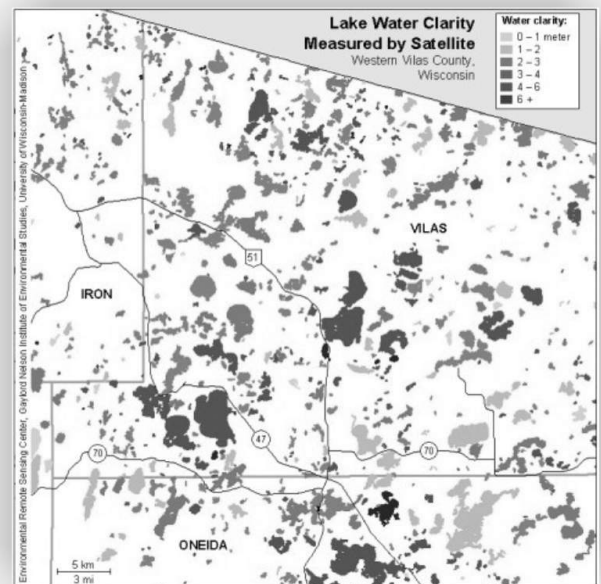
The site lets you compare lake clarity across a region or zoom into a particular lake. Due to the limitations of satellite imagery resolution, the smallest lakes are not included. However, the largest 8,000 lakes are all categorized and displayed. It is the first such site to appear on the web and researchers at ERSC have been fielding inquiries from other states who would like to replicate the service.

The site also provides extensive background on the technical aspects of the imagery and analysis that lie behind the map and links to an overview of the Self-help Citizen

Lake Monitoring Project coordinated by the Wis. Dept. of Natural Resources.

In addition to viewing the interactive map, you can also download a large-format poster (in PDF) of the entire state for printing. Another feature is a satellite image gallery that helps tell the stories of selected lakes, seasonal conditions, and image processing methods.

Start your lake clarity searching at www.lakesat.org/



Lake clarity map centered on western Vilas County. Original image is in color.

Nominal scale is 1:1 million

Global/continental GIS data offered

by Bob Gurda

A product called the Global GIS Database is now available. You can choose from CD-ROM sets covering individual continents (except Antarctica) or a super set of all continents

Essentially a digital atlas, the datasets are designed to be used with ArcView 3.0 (or higher), or the included free ArcView Data Publisher. ArcView tools to facilitate viewing and analysis are included.

Although technically scaleless due to being in digital form, this product is intended to be used at scales of 1:1,000,000 or smaller. At that scale a map of Wisconsin fills a square approximately 20 inches on a side.

As a result, this data is best used for regional-scale reference and analysis.

Extensive contents

Compiled from U.S. Geological Survey and other sources, a wide variety of thematic layers make up each dataset. For instance, the North American CD-ROM set contains the following:

- Country political boundaries
- Digital shaded relief map
- Elevation
- Slope
- Hydrology (rivers, streams, springs, wells)
- Locations of cities and towns
- Airfields
- Roads
- Railroads
- Utility lines
- Population density
- Geology
- Ecological Regions
- Historical seismicity (epicenter locations)
- Volcanoes
- Ore Deposits

For additional background on the data and analytical tools, look at webgis.wr.usgs.gov/globalgis/.

Ordering information

The Global GIS Database is available under a cooperative agreement between USGS and the American Geological Institute (AGI), through the AGI on-line bookstore: www.agiweb.org/pubs/pubindex.html. Each continental set of CD-ROMs is priced at \$29.95, and the worldwide product is \$180. AGI members receive a discount.

(Source: USGS)

One of many platforms for imaging from space

Shuttle disaster to affect mapping?

by Bob Gurda

Much has been written about the significance of the loss of the Space Shuttle Columbia on February 1. Little of that attention has been paid, however, to the role of the space shuttle program in mapping.

In general, the shuttles have been used only modestly for projects that involve earth mapping. The highest profile activity was the February 2000 Shuttle Radar Topography Mission (srtm.usgs.gov/index.html) that collected earth surface data over almost the entire planet. In some parts of the world that data, which is still only partly released, is the highest accuracy and most detailed information about elevations and terrain that has ever been collected.

Over the U.S. and other developed parts of the world, however, better elevation data had been available for some years prior to that radar mission, and recently even better data has been coming on line through both traditional aerial mapping as well as new approaches such as IFSAR and LIDAR.

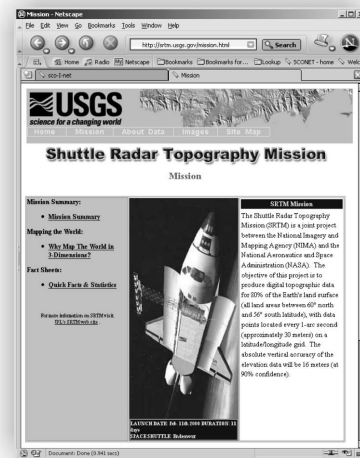
The shuttles orbit too low to service most remote sensing satellites (if one were to need repairs), and GPS and geosynchronous (e.g., weather) satellites orbit many times higher.

As a result, we aren't expecting the uncertainties surrounding the shuttle program to have much effect on earth mapping. When considering the view from earth out into space, however, it is hard to overstate the value of the shuttle in placing the Hubble Space Telescope into orbit and then upgrading it.

Mapping key to study of Columbia disaster

It was only hours after the news of the Columbia's re-entry problems that locating debris on the ground became a focus. We heard about teams using GPS units to document field positions. We saw maps from GIS systems showing the debris field across Texas.

And, in one of the most novel stories of all, historical elevation data and aerial photographs over an area now flooded by an impounded river were used to filter sonar data so that investigators would have a better chance of identifying possible debris submerged in murky water. The method was designed to focus on bottom characteristics and tree stumps that might otherwise look like potential shuttle debris.



Easy starting spot for simple Wis. maps

New Outline Maps Available from the SCO

by Fred Harris

We have re-engineered our set of digital state/county outline maps designed as illustration templates. This update provides a wider variety of choices, but has the same purpose as before: easy-to-use outlines of major state features that you can use to make simple maps for illustration purposes. As previously, our outline maps are available for free download from the SCO web site at www.geography.wisc.edu/sco/pubs/outlinemaps.html.

These files can be downloaded in (ZIP versions of) compressed TIFF, PNG, BMP, Adobe Illustrator (AI), and Corel Draw (CDR) formats.

For illustrating, but not GIS

These outline maps are not directly usable in a GIS since they are not referenced to a standard ground coordinate system. However, using illustration software, you can, for instance, “fill” a county to illustrate a theme, add your own features or



annotation, or clip out a portion of the state rather than using the entire image.

The maps currently available were derived from several layers of GIS data referenced to the Wisconsin Transverse Mercator coordinate system. The next time you need a simple image of Wisconsin, be it state or county, these new outline maps may be just the ticket.

Going...going...going...digital!!

Bulletin will become electronic

by Bob Gurda

Don't start looking for the next issue of this newsletter in your e-mail “in” box quite yet, but we are beginning the process of scoping out the move to fully digital publication.

This means that within a few issues we intend to dispense with printed publication and delivery. The replacement—the digital *Wisconsin Mapping Bulletin*—will let us produce materials in color, will save costs currently supporting paper, printing, and mailing, and will open some new avenues for getting information to you more quickly and effectively.

Exactly what we will generating once the digital product reaches fruition hasn't been determined yet. A range of choices will be under consideration. We welcome your ideas about what information you prefer, at what frequency, and in what format.

Another aspect of this conversion project involves collecting e-mail addresses to be used for distributing the new product—whether that product is a simple e-mail announcement of news on our web site or a full-blown digital newsletter attached to the e-mail. Once we have built a system to collect those addresses we will announce that on our web site and through other means.

“Going digital” is one way that the SCO is responding to budget cuts we will be absorbing as part of the state's (and university's) well-publicized financial crisis. However, this is also an opportunity for us to reconsider our overall information and publication strategy, taking advantage of the increasing power of the Internet and related technologies.



10, 25 years in retrospect

Looking back...

by Bob Gurda

In our continuing review of mapping and GIS events in Wisconsin, it's always interesting to note that while some developments move quickly and are even eclipsed less than 10 years later, other issues linger with us for a long time.

1993

Copies of photographs from the state's first NAPP mission become available. Federal agencies are negotiating to cooperate in a National Digital Orthophoto Program.

NASA and the Defense Department were directed to jointly form a Landsat Program Management Office.

The constellation of GPS satellites grew to 19, assuring sufficient coverage to support XYZ positioning anywhere on the earth.

The second book of *The History of Cartography* series, covering traditional Islamic and South Asian societies, was published.

1978

U.S.G.S. topographic maps were priced at \$1.50. As part of production work in 1977, 86 new 1:24,000-scale quadrangle maps became available.

Modern published soil surveys were available for 27 counties.

Finalized standards for Farmland Preservation mapping, planning, and zoning were distributed to county offices.

Seminars and more

UW-Madison gets together on GIS

by Bob Gurda

Dozens of people gathered weekly during Fall semester at the University of Wisconsin-Madison to hear presentations in the broad field of Geographic Information Science. A similar series of talks are going on this Spring. These seminars, which are open to the public, are one example of the revitalization of campus-wide GIS activities undertaken in 2002.

Speakers in this Fall's series were all faculty or staff from a variety of departments at UW-Madison. This Spring we invited several speakers from off campus, and beginning Feb. 12 are having a series of student presentations. Schedules are posted on the web site of SIAC, the Spatial Information and Analysis Consortium — www.geography.wisc.edu/sco/siac/.

A variety of seminar topics

The Fall topics were varied, including:

- GIS mapping of animal functions on real landscapes;
- Measuring and modeling global land-use and land-cover change;
- Satellite monitoring of large lakes with NASA's EOS;
- On-line tools for helping non-experts select good color schemes;
- Back-casting and forecasting residential housing density through attribute clustering;
- Canopy transpiration models & global classification systems as related to landscape water flux;
- Potential and problems for querying land-use data over the web;
- Developing the history of 20th century cartography; and
- Geographic visualization using Vis5D and VisAD.

This Spring's fare is even more diverse, including BioMapper, GIS in Health, organization issues in local government enterprise GIS, Wis DOT's GIS organization, methods for connecting occluded roads from imagery, Atrazine exposure patterns and cancer, design of riparian buffer strips, regression and wavelet approaches to predicting traffic patterns, ontology mapping of categorical information, scale in distributed hydrological modeling, and spatial data mining of soil maps.

Public lecture on April 28

We are especially pleased to announce plans to host a visit to Madison by alumnus who has received attention in the mainstream media for his role in helping New York City respond to the 9/11 attacks. Sean Ahearn received his PhD from our Environmental Monitoring Program and is a professor at Hunter College in New York City. His GIS lab was instrumental in getting the city's GIS system back up and running quickly, and in acquiring daily imagery over the World Trade Center site. Sean's public lecture, scheduled for 4 p.m. in Room 3650 of the Humanities Building on April 28, will also cover his work on tracking West Nile Virus as well as analyzing factors related to Bengal Tiger habitat in Nepal.

Quality continues to improve

WLIA map contest a winner for all

by Bob Gurda

At February's annual conference of the Wisconsin Land Information Association, dozens of members entered their maps in competition. Having served as a judge for the last several years, I can say that the average level of map-making skills is on the rise. The winning maps are excellent examples of what is possible when attention is given to the principles of map design.

WLIA has several categories in the competition in order to cover the variety of maps that people may produce. The judging is carried out with a team for each category. Plus the membership votes for its favorite map regardless of category, and the president selects one map for an additional award.

The envelope, please

The big winner for 2003 is Dan Seidensticker of the Madison Metropolitan Planning Organization. Three of his maps earned prizes: a First Place in the Thematic Map category, a Second Place in Orthophoto-based Maps, and the President's Choice award. Jim Landwehr of Waukesha County came away with the People's Choice Award, and Andy Faust earned both a First and Second Place Award. (for Ortho-based Map, and Map Poster, respectively).

Other winners were Bill Shockley (Clark County) and Jason Krueger (Continental Mapping) in the Base Map category; Lisa Olson-MacDonald (Wis. Dept. of Admin.) and JoAnn Parks (W. Central Wis. RPC) in the Small-Format category; Denis Wiese (Wis. DNR) in the Thematic Map category; Sam Batzli, Jonathan Chipman, Tom Lillesand, and Tim Olsen (UW-Madison ERSC) in the Map Poster category; and Trish Nau (E. Central Wis. RPC) and Matt Guptail (N. Central Wis. RPC) in the Black-and-White category.

Raising the bar

The size and quality of color printers has had an obvious affect on the potential for producing great maps for this competition. However, that affect is not always positive, as in maps that overuse saturated colors (while using up expensive ink cartridges). The tried and true guidelines of solid map design apply regardless of the printing technology!

More generally, the maps have improved in recent years with more care given to clear and appropriate titles, more complete metadata, improved use of figure-ground, and more sophisticated selection of symbols and graphic hierarchy.

Some people are probably planning already for their next year entries. There are hints, too, that WLIA may institute some new categories (e.g., Internet-based maps).

Steps toward improvement

There will be opportunities to sharpen your map-making skills over the upcoming months. Watch for announcements of workshops, critique sessions, and on-line tutorials.

2003

May 1, **Wisconsin GITA Chapter** will sponsor a seminar on "*GIS Technology Enabling Public Works and Municipal Utilities*" to be held at the Comfort Inn, Madison, WI. Contact Thomas Tym at ttym@ruekert-mielke.com or call 262/542-5733.

May 3-9, **ASPRS Annual Conference** will be held at the Anchorage Convention Center, Anchorage, AK. Visit www.asprs.org/alaska2003.

May 19-21, **GeoSpatial World** will be held in New Orleans, LA. Contact www.geospatialworld.com/.

June 15-20, **The International Conference on the History of Cartography** will be held in Cambridge, MA (first 3 days) continuing in Portland, ME (last 3 days). Visit www.ichc2003.org or phone 207/780-5951.

June 19-20, **Wisconsin Land Information Association** membership meeting will be held at the Holiday Inn in Manitowoc, WI. Contact WLIA at 800/344-0421 or visit www.wlia.org.

June 30-July 2, **Iowa's GIS Conference** will be held at the Scheman Center - Iowa State University, Ames, IA. Visit: <http://igic.gis.iastate.edu/2003conf/2003IGIC.htm>.

July 7-11, **ESRI International User Conference** will be held in San Diego, CA. Visit www.esri.com/events/index.html.

July 24, **Wisconsin Land Information Association** will sponsor a summer workshop on *Remote Sensing: Basics and Applications* that will be held at the Hotel Mead & Conference Center, Wisconsin Rapids, WI. Contact WLIA at 800/344-0421 or visit www.wlia.org.

August 10-16, **International Cartographic Conference** and 12th General Assembly of the International Cartographic Association will be held in Durban, South Africa. Visit www.icc2003.gov.za/

October 11-16, **URISA 2003 Annual Conference** will be held in Atlanta, GA. Contact 847/824-6300 or visit www.urisa.org.

October 16-17, **Wisconsin Land Information Association** membership meeting will be held at the House on the Rock Resort in Spring Green, WI. Contact WLIA at 800/344-0421 or visit www.wlia.org.

October 28-30, **Digital Terrain Data and 3D Visualization**, sponsored by ASPRS and MAPPS will be held in the Charleston Convention Center, Charleston, SC. Visit www.asprs.org or www.mapps.org.

To see a more extensive calendar of regional events, and to use hot links to other calendars, visit the SCO website.

Milwaukee conference is springboard

WLIA looks to next year

by Bob Gurda

Following its February annual conference, the Wisconsin Land Information Association is focusing on the upcoming months which will culminate in the 17th annual conference in Wisconsin Dells next March 2-5.

In the interim there will be regional meetings in Manitowoc (June 19-20) and Spring Green (October 16-17), at least one summer workshop (July 24 in Wis. Rapids), and activity through various committees and task forces.

Also of great concern to the WLIA is the September sunset facing the Wis. Land Information Board and affects of the state's major budget reductions expected in the 2003-2005 biennium.

Awards

At each annual conference the WLIA honors people who have made exemplary contributions to the organization and to land records modernization more generally. This year the key awards went to:

D. David Moyer, State NGS Advisor: Alan H. Miller Sustained Service

David Fodroczi, St. Croix County Planning Director: Presidential Honor

Brown County, City of New Berlin, and Iowa County: Local Government Achievement

Ted Brenson, Sauk County: Outstanding Contribution

Franc Fennessy, Tom Ourada, Tom Solberg, and Tom Krauskopf: Friend of Land Records (all being outgoing members of the Wis. Land Information Board, representing state agencies)

Elections

WLIA members chose members to serve on the Board of Directors (two-year terms) and as officers as follows:

President-elect: Alissa Bails (R.A Smith & Associates, Inc.)

Directors: Ken Pabich (Calumet County), Joyce Fiacco (Dodge County), Scott Galetka (Lincoln County), Alan Lulloff (Wis. DNR), and Jeff DuMez (Brown County).

Six additional board members elected a year ago will continue through Spring 2004. Jeff Bluske (La Crosse County) moved up from President-elect to President at the annual meeting.

Keep in touch

For further news of WLIA events and initiatives, visit www.wlia.org.

About the SCO...

The State Cartographer's Office (SCO), established in 1973, is a unit of the University of Wisconsin-Madison. The SCO is located on the 1st Floor of Science Hall.

Our permanent staff consists of five people—Ted Koch, State Cartographer (608/262-6852), Bob Gurda, Assistant State Cartographer (608/262-6850), A.J. Wortley, Outreach Specialist (608/265-8106), Brenda Hemstead, IS Resource Support Technician (608/263-4371), and Ana Rumm, Financial Specialist (608/265-9368). We also employ several part-time graduate and undergraduate students.

The State Cartographer's position and mission are described in Wis. Statute 32.25 (12m). In addressing this role, the SCO functions in a number of ways.

- publishes the Wisconsin Mapping Bulletin, catalogs, guides, brochures, and other documents and maintains a web site to inform the mapping community.

- inventories mapping practices, methods, accomplishments, experience, and expertise, and further acts as a clearinghouse by providing information and advice in support of sound mapping practices and map use.

- participates on committees, task forces, boards, etc. The State Cartographer is one of the 13 voting members of the Wisconsin Land Information Board and one of 16 voting members on the Wisconsin Land Council.

- develops experimental and prototype products.

- serves as the state's affiliate for cartographic information in the U.S. Geological Survey's Earth Science Information Center (ESIC) network.

About our Web site...

Here you will find links mentioned in *Bulletin* articles, information on a wide range of mapping topics, news items, functions and activities of the SCO, our on-line aerial photography catalog, a calendar of events, and links to related web sites.

www.geography.wisc.edu/sco

About WISCLINC Web site...

On the Wisconsin Land INformation Clearinghouse (WISCLINC) site, you can search and read metadata files, download certain data files, learn about our continuing work in this area, and link to other state clearinghouses.

www.wisclinc.state.wi.us

Wisconsin Mapping Bulletin

Published quarterly by the Wisconsin State Cartographer's Office. A University of Wisconsin-Madison outreach publication distributed free upon request.

News is welcome on completed or ongoing projects, published maps or reports, or conferences/workshops. Local and regional information is especially encouraged. The editor makes all decisions on content. Deadline for the next issue is May 15, 2003.

Editor: Bob Gurda

Illustrations: Brenda Hemstead, Bonner Karger, Kevin White, and Adam Simcock

Desktop publishing: Brenda Hemstead

Printing: UW-Printing Services

Mailing: UW-Extension Bulk Mail

Please send all comments, corrections, and news items to:

State Cartographer's Office

Room 160 Science Hall

550 N. Park Street

Madison, WI 53706-1491

phone: 608/262-3065

fax: 608/262-5205

email: sco@facstaff.wisc.edu

State Cartographer's Office
Univ. of Wisconsin-Madison
Rm. 160 Science Hall
550 N. Park Street
Madison, WI 53706-1491

ADDRESS SERVICE REQUESTED

**Nonprofit Organization
U. S. POSTAGE
PAID
Madison, Wisconsin
Permit No. 658**