



Wisconsin MAPPING BULLETIN

State Budget Causes Shifts

Land Information Program faces changes

Governor Scott McCallum recently signed the state's budget which sets Wisconsin's spending and policy directions for the two years starting in July, 2001. In signing the budget, the governor issued 315 vetoes, some of which directly affect the state's Land Information Program (WLIP).

Budget undergoes many alterations

In the Winter, 2001 issue of the *Bulletin* we reported on significant changes to the state's Land Information Program included in the governor's proposed budget as sent to the legislature. In our most recent issue (Spring, 2001) we reported on the changes made to the budget's land information provisions by the Legislature's Joint Committee on Finance.

In July, following the Finance Committee's actions, additional budget alterations were made by Democratic and Republican Party caucuses, with final adjustments agreed to by a joint conference committee which resulted in the legislature's final version of the budget. This is the document that went to the governor for his signature and potential line-item vetoes.

Governor signed mixed package

In signing the budget, the governor made impacts on the WLIP not only by items vetoed, but by items left in the budget as well. In his vetoes, McCallum took the following actions:

- deleted extension of the sunset date by four years (to September 2007) for both the Land Information Board and the Wisconsin Land Council.
- eliminated the requirement that the WLIP establish rules for the creation of the Internet-based Wisconsin Land Information System (WLIS), and that the Dept. of Administration contract for the maintenance and operation of WLIS.
- struck the requirement that the WLIP by May 2002 make accessible state agency information needed by local governments to complete comprehensive land use plans.

The governor left stand these provisions that:

- add \$1 to the locally collected document filing fee, changing from \$10 to \$11 the fee collected for the recording of the first page of a document. The additional funds raised from this increase will remain within the county where they are collected, but their use will be restricted to providing better public access to housing-related data.

- eliminate \$200,000 including 2 full-time positions from the Dept of Administration's Office of Land Information Services.
- transfer \$400,000 of WLIP funds to the state's General Purpose Revenue fund to help balance the overall budget.
- transfer \$500,000 of WLIP funds to the Comprehensive Planning Grants Program administered by the Wisconsin Land Council.

What happens now?

The budget signed by the governor means that the WLIP and the Wisconsin Land Information Board will continue to exist in their current structure for at least another two years. However, following a budget provision created several years ago, the WLIP and the WLC will each have to submit to the legislature and the governor by September next year a report that evaluates its activities and functions, and recommends whether it should continue to

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WLIB News

by Ted Koch

The Wisconsin Land Information Board last met on July 26 in Madison. The Board's next meeting will be held in early October. For agendas and minutes, go to www.doa.state.wi.us/olis/wlip/index.asp.

Board postpones grant decision

At its July 26 meeting, the Board postponed action on creating a Strategic Initiative Grant category for the 2001 grant cycle. At the time, due to the fact that the state budget had not yet been signed, and the budget's potential impact on the Land Information Program was unknown, the Board voted to defer until its next meeting any actions on current year grants. The Board will consider Strategic Initiative Grant themes and funding amounts for all grant categories at its next meeting in early October. Strategic Initiative Grants are designed to foster regional or statewide activities by counties that are consistent with the standards and requirements of the state program.

State Cartographer's Commentary

by Ted Koch

It's now September, Governor McCallum has just signed the State Budget, and as a result we have a sense of the direction for the Wisconsin Land Information Program (WLIP) — at least for the next two years. (See related story on page 1 of this issue).

In the governor's initial budget presented to the Wis. Legislature last February, he proposed to abolish the Land Information Board (WLIB) and merge its duties into the WI Land Council. That provision was subsequently changed by the legislature to preserve the board and extend its sunset by four years. However, in signing the budget, the governor vetoed the sunset extension. Thus, the WLIB has a minimum of two years to tackle a number of significant issues, some of which are presented in this budget for the first time.

Shifts in the distribution of money

The funding dynamics of the WLIP will be changing. On one side of the ledger each county will be taking in and retaining more

WLC News

The Wisconsin Land Council last met on August 16 in Madison. The Council's next meeting is scheduled for October 9 in Madison. For minutes and agendas, visit www.doa.state.wi.us/olis/wlc/land_council.asp.

Planning grant rule advances

Under legislation passed in 1999, The WLC is authorized to issue grants to local units of government for developing comprehensive land use plans. The WLC adopted emergency rules last year in order to make grant awards during the first year of the program. Now, the WLC has had time to develop a permanent rule which the WLC has approved. It also has been reviewed by the Legislative Rules Clearinghouse.

The purpose of the rule is to establish the criteria for grant application, evaluation and the award process used by the WLC and the WI Dept. of Administration. The next step in the approval process is a series of public hearings around the state during September. Following a WLC review of the public hearings, the rule will be sent to the Legislature

for final approval. Following this schedule, it is anticipated that the rule will become effective on March 1, 2002.

State land use goals drafted

At its August 16 meeting, the WLC continued to consider and discuss state land use goals. By state statute, the WLC is charged with identifying state land use goals and recommending legislation to implement these priorities. The purpose of the goals is to encourage consistent state, county, and municipal land use-related policies and practices through a statewide framework.

In November last year, the WLC asked its State Agency Resource Working Group (SARWG) to identify and develop state land use goals as part of its work program. The SARWG presented its first draft of a goals statement to the WLC at its May meeting. A revised draft was further discussed at the August meeting. A final draft will be presented to the WLC at its October meeting.

money with a \$1 increase in the filling fees collected at its Register of Deeds office. On the other side of the ledger, the Program will lose \$900,000 at the state level: \$400,000 transferred to "general purpose revenue" fund, plus \$500,000 to be devoted to increasing the funds available for local comprehensive land use planning grants.

The additional \$1 must be spent on developing, maintaining and ensuring public access to records related to housing, and more specifically including the housing and land use element of the locally developed comprehensive land use plan. For counties to comply with this requirement the WLIB will have to quickly establish spending guidelines, most likely in the form of requiring counties to amend their land records modernization plan for approval by the board.

A newly created grant category, Housing Assessments Grants to Counties, will also require board-defined guidelines. The legislature's Joint Finance Committee originally allocated \$564,000 for these grants; however, this

amount was reduced to \$364,000 in the final budget.

WLIS in question

The budget leaves the future of the long-studied and anticipated Wisconsin Land Information System (WLIS) in limbo. Responsibility for action, and funding, are unclear. Perhaps WLIS will receive some incubation through a new state agency, the Dept. of Electronic Government, which was also a part of the signed budget.

WLIS is an entity that needs to get underway now. Several other states are prototyping WLIS-like services, and Wisconsin should not further extend our slow, deliberate approach now. As a state we have too much invested to do anything other than proceed with WLIS rapidly.

As we head into autumn, the state's Land Information Program faces a number of new hurdles, and the Board and land information community have less than two years to make substantial progress on those challenges.

State-based I-Team plans in progress

Federally inspired GIS initiative moves forward

by Ted Koch

At the recent annual conference of the National States Geographic Information Council in St. Louis, several sessions were centered around discussion of a relatively new federally sponsored initiative called I-Teams. There seemed to be quite a bit of interest and a number of states have begun active participation in the I-Team process.

Office of Management and Budget sets the tone

The initial seeds for the concept of I-Teams began about two years ago at a meeting sponsored by the federal Office of Management and Budget (OMB), traditionally an unlikely place for the nurturing of ideas related to geographic information. According to the OMB, it developed this initiative to examine how government can improve the quality of the information it collects while minimizing the collection burden, and maximizing the benefits of information technology. Spatial information is a key component of the initiative.

In developing the purpose for the I-Team initiative, the OMB analyzed the current condition of the nation's spatial data infrastructure. In this analysis, it developed several interesting conclusions of which the following are highlights:

- Historically, **government has budgeted for spatial data and its support on a year-to-year basis** and usually within a single department. However, as applications expand, they cut across organization lines, and exceed the capacities of single department missions and budgets.
- Nationally, spatial information has become an essential part of the nation's capital infrastructure. Despite this, **no capital financing model for GIS has been developed**. The spatial infrastructure continues to be funded by annual appropriations. The mismatch between the need for long-term capital financing and the current reliance on annual appropriations remains a chief obstacle to the creation of a national spatial data system.

- Given that **spatial data** is an important part of the nation's infrastructure, **it should be constructed, maintained, renewed and budgeted for over its long-term life cycle** as is done with any other critical capital asset.

In the past year, the center of activity for the I-Team initiative has shifted from the OMB to the Federal Geographic Data Committee (FGDC) which is cooperating with a variety of partners.

The major tenets of the I-Team initiative include creating public-private partnerships, developing direction from the bottom-up, aligning investments, sharing data, and capturing economies of scale.

Teams form organizational structure

The overriding strategy to carry out the goals of this initiative includes the creation of four "teams" with the following names and responsibilities:

Implementation Teams (I-Teams) are formed in states or regions. The focus of each team is to prepare a comprehensive plan for compiling, maintaining, and financing the spatial data infrastructure in its defined area. The I-Team is to be made up of participants from the various governmental sectors (federal, state, regional, local), tribal organizations, and the private sector. The I-Team plan is to analyze the current status and condition of framework or foundation data, analyze partners needs and resources, responsibilities, and set some projected milestones.

Federal Partners Team will focus on federal agencies and help coordinate with I-Teams. The Federal Team, which deals with the entire nation, will be composed of

senior officials from OMB, FGDC, and a variety of other federal agencies.

Finance Solutions Team (FS Team) will identify and recommend inter-governmental and public-private financing alternatives to support I-Team plans. The FS Team will have three tasks: to build a business case and financing options for the I-Teams and federal partners; explore better use of the current appropriations structure including cash flows and return on investment; and suggest new funding mechanisms such as infrastructure bonds or revolving funds. The FS Team is scheduled to form and have its initial meeting this fall.

Technology Advisory Group (TAG) will keep I-Teams and federal partners informed about technology innovations and challenges. The TAG will be led by the OpenGIS Consortium (see www.ogc.org) as an advisory group to develop strategies on standards and procurement.

I-Teams start up in states

Currently, I-Teams have been formed in a number of states including, Arkansas, Delaware, New Jersey, North Carolina, Maryland, Montana, Nebraska, Oregon, Texas, Utah, and the metro New York City area. Wisconsin has not yet formed an I-Team, although the structure and scope of the WLIP fits well within the scope of the I-Team requirements. Forming an I-Team is a completely voluntary action on the part of a state or region, there is no requirement that any organization participate in the work.

More information on the I-Team Initiative can be found at the FGDC Web-site: www.fgdc.gov/I-Team.html.

(sources: FGDC Newsletters, Spring, Summer 2001; OMB)

Governor Signs Budget, continued from page 1

exist past the current sunset date of September, 2003.

With the loss of a total of \$900,000 to Comprehensive Planning Grants and to reducing the state's budget deficit, the level of funds available for the start of WLIS, and for several categories of local WLIP grants remains a question. In early October the WLIP will meet to determine, in response to changes implemented by the new budget, what amounts of funds can be allocated to various WLIP grant categories, and to discuss with the Dept. of Administration the future direction of WLIS.

SCO scheduling workshops around the state

Custom metadata training coming

by AJ Wortley

In July, the State Cartographer's Office was announced to be among 52 recipients of the latest round of Federal Geographic Data Committee CAP grants for 2001. Our grant this year supports metadata development training throughout the state by funding travel and workshop preparation. This means that our office will be offering an extensive round of metadata workshops over the next year.

Where and When?

We are in the midst of planning and preparing for a slate of workshops, and one will be coming to an area near you. So far, three dates have been planned in October and November. These will be in the western and north-central parts of the state, with several more to follow. Set dates for these workshops are:

- Fri, October 12 in LaCrosse
- Thu, October 18 in Stevens Point
- Fri, November 9 in Hayward

We intend to disperse the training geographically to provide a convenient opportunity for all those who seek training in metadata development and/or management.

Why more training

You may have heard of or attended an FGDC-sponsored metadata workshop in late 1999 or early 2000, and may now be asking how the current workshops differ and/or why we chose to offer more training in metadata development. There are at least three reasons.

- The WLIB offered and recently awarded strategic initiative grants for metadata development to roughly three-fourths of the counties in the state. This provides a demand for workshop training to put these funds to good use.
- Next, the biennial budget is in place, implying that construction of some incarnation of a Wisconsin Land Information System (WLIS) may be on the horizon. The WLIS Project Team report identified metadata as a primary building block for regional and state nodes of information.
- Finally, in the wake of heightened awareness of disaster management and the implications of a slower and thriftier economy, more demand will inevitably be placed on getting the most value out of information investment. That is, use of high quality land records information will be in high demand for a host of new applications. But in some cases where data quality is unverifiable and interoperability is low, a commercial or larger-scale source of information will be used. In order to protect your investment in your spatial data and to ensure its use in appropriate decision-making, you must provide some minimal level of specification or documentation; that's metadata.

Above are just a few of many reasons you might want to brush up on documentation skills or check out the latest status of software tools for the job. If you are interested in coordinating to have a workshop in your area, please contact me at the SCO.

OrthoFinder: from prototype to production

Expanded ortho catalog planned

by AJ Wortley

Did you ever wonder where and how to obtain an orthophoto over an area in Wisconsin? ...and how much it might cost?

Or, have you had an orthophoto and wondered what date the imagery was acquired, to what map projection the image was registered, or who produced the image?

Our office has fielded many such inquiries over the last several years. Now we are moving toward making the answers to these questions available on-line.

Several other states now provide a web site through which you can obtain orthophotos directly, or at least ordering information. In most of these cases, the orthophotos all originate from the national program led by federal agencies and which produces DOQQs with a standard tile and production format.

Wisconsin's situation is complex

In contrast, Wisconsin poses a unique challenge in combining metadata from the DOQQs available plus the many other arising from county or municipal projects. This **challenge will only grow** as orthophotos are re-projected, compressed, re-tiled, partially updated, created from historical sources or otherwise modified.

Over the last year, under an FGDC Framework grant, we worked on a prototype for a digital orthophoto catalog. The result of our efforts is operational as the "OrthoFinder" (www.geography.wisc.edu/sco/orthocat), initially covering just Dane County. Our goal is to not only document orthophoto projects so that they can be searched, but also to link to other sites where orthophotos might be accessed for viewing or download.

Next: spread out to cover the state

While our prototype work on OrthoFinder is not completely finished, the next step is obvious: collect metadata on more orthophoto projects to populate the catalog. We would like to have this search service reflect **all of the projects and derivative products in Wisconsin**.

We want your orthophoto project metadata, and can help you determine how to develop that metadata if you don't already have a plan.

As we collect orthophoto metadata and footprint information from across the state, we are also studying how best to track data holdings that are spread across various locations in the state, and how to make updates as automatic as possible.



Q: *I saw a web site advertising some government map data files that have had errors removed. What kinds of errors can be eliminated?*

A: Error is such a simple word but can be used in many ways. Some errors can be essentially eliminated. By contrast, other types of errors simply cannot be completely addressed because they are a normal part of data collection.

That a map (or digital data file) includes **error is not necessarily of serious concern.**

What you want to know is what kinds of errors (may) exist, and to what degree. Then you'll know whether the data is likely to support what you need to accomplish.

Before starting your investigation, remember that an error is different than a blunder. For instance, if when collecting information on the elevation of high points in Wisconsin you record 19,924 feet for Rib Mountain, you have made a big blunder. The actual number is 1924 and somehow you let an extra "9" slip in there. If you were to test your results against some common sense (e.g., knowing that Wisconsin elevations range roughly between 590 and 1960 feet), the blunder would be obvious.

On the other hand, if you measure the horizontal distance between the top of Rib Mountain and the top of Timms Hill (the state's highest point), there will be some amount of error in the distance you record no matter how good the equipment and techniques you use. If you measure the distance ten times, **each answer will be slightly different.** This error is natural part of the measuring process. You may be able to describe the error with a statistic, and you may be able to predict the error prior to doing the measuring. It's important in this regard to use equipment that has been calibrated.

If your measurements have more error than you can tolerate for the purpose at hand, you'll have to start over and use a more accurate method.

The government map data file you read about may be an example of errors creeping in during computer geo-processing step. Blunders can crop up, such as a code for state being switched to "WA" (Washington) from the correct "WI", or a coordinate conversion

based on incorrect parameters. At least these types of problems are usually fairly easy to detect and fix.

But there are **other types of error beyond those relating to geometry.** Consider a digital file that contains information on a series of drinking water wells in a particular area. The information might include the depth of the well, the type of casing, the date of drilling, the position (e.g., latitude/longitude), the capacity in gallons/minute, whether the well serves residential, commercial, industrial, or agricultural use, et al.

For any particular well, how was the capacity measured? Was its position determined by using a certain grade of GPS, or is it an approximation based on the center of the PLSS quarter-quarter section in which the well is located? Or, is the location, derived from a mailing address (which might in fact be a completely different location such as the permanent address of the person who owns the land where the well is located?)

How current is the information, considering that a well originally drilled for agricultural use might now be used for residential purposes, or might have been capped? Was the capacity measured under sustained pumping conditions, or in a year of high water table, and might the pump have been downsized recently?

Looking at the entire set of data — that is, the whole set of wells — how do you know that all the wells in that area are indeed captured in the data set? Conversely, are all the wells in the data set truly located in the area of the data set? And, do all the wells represented in the data set actually exist?

Short of collecting all of the data a second time, you can run some tests to evaluate how much error might be embedded in the data set. Test a sample of the points. Look for other sources of information to compare with this data.

Perhaps easiest of all, just **read the metadata report prepared by the people who collected the data** in the first place. If they have done their job, most of these questions will be answered for you. If some types of potential error haven't been tested, at least then you know where to start, and after you finish your evaluation you can contribute your results to be incorporated into the metadata so that others can benefit from your work.

Q: *At the county courthouse I saw a map that showed two parcels of land as having the same amount of area. It's supposed to be a very accurate map. However, I know that the land of one of the parcels is very hilly while the other's is flat. Doesn't the hilly parcel have more acreage because it has more land surface, and thereby doesn't the owner have to pay more property taxes?*

A: You're really asking two questions. The acreage and the amount of taxes are only partly related.

First, the hilly land certainly has more *surface* area. However, as acreage is typically measured, the two parcels have the same area. That's because **maps usually are constructed as flat representations regardless of the terrain** in the area.

When a surveyor measures distances and bearings (horizontal angles) around the perimeter of a land parcel, the effects of terrain on the measurements are removed through one of several processes. This results in horizontal values for the boundary, and acreage is then calculated as though the land had no hills.

More precisely, both a map of the parcel boundary as well as the calculation of acreage are produced from distance and angle values that have been adjusted to fit a mapping plane. That mapping plane is defined mathematically, so it doesn't physically exist. The two most commonly used mapping planes are (1) close to sea level (such as when State Plane Coordinates are used) and (2) close to the local ground surface (such as with the Wisconsin County Coordinate Systems).

As to the question of property taxes, **each parcel's tax bill depends on a variety of factors** including the assessed value. The assessments of the two parcels may be different for reasons beyond the raw acreage. The effect of hilliness may be either positive or negative depending on market demands, just as standing timber or other elements of a parcel and its environs may (or may not) generate market appeal.

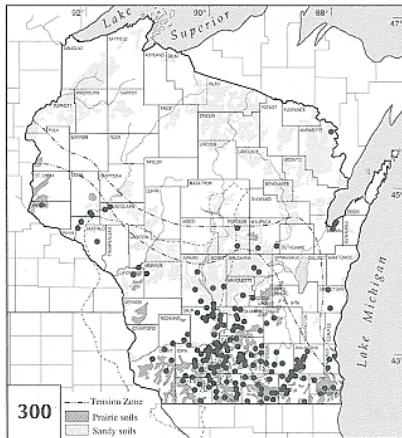
Even if two parcels have the same assessed value, the tax bills may still vary. For instance, if the two parcels are in different school districts, each district sets its own tax rate.

maps over 400 plants

Atlas covers state prairie & savannah flora

by Bob Gurda

Wisconsin's native vegetation is particularly complex because the state lies in a transition zone between the great provinces of forest and grassland. The prairie and savannah components of those grasslands are today a mere shadow of their former selves since, beginning almost 200 years ago, people have converted almost all of those areas to agriculture or urban uses, or have allowed forest to flourish.



Locations of Early Buttercup (Ranunculus fascicularis) from herbarium records. The "Tension Zone" and areas of sandy and prairie soils are shown for reference.

As a result, trying to map the natural distribution of prairie and savannah plant species is problematic. These native plant communities were severely diminished and disturbed far before any systematic state mapping program was developed, and even before the widespread use of photography, either from ground level or from the air.

The most reliable way to reconstruct the geographic distribution of the hundreds of species of plants that together make up the prairie and savannah communities is to rely on specimens that have been collected at specific locations and then positively classified by trained botanists. Such a collection exists at the Univ. of Wisconsin-Madison Botany Department's Herbarium, and it is the source of information from which an atlas has recently been constructed.

The *Atlas of Wisconsin Prairie and Savannah Flora* was produced by Theodore Cochrane and Hugh Iltis of the university, and published in 2000 by the Wisconsin Department of Natural Resources. The atlas covers 341 species plus 73 additional sub-species, varieties, and hybrids. The 8 1/2" x 11" soft-cover book runs 226 pages including indexes, literature citations, and appendices, and is printed in a single ink color.

Maps, maps, maps

The geographic distribution of each of the species is depicted with a separate dot map (less than 3" x 3") of the state. Each dot simply represents a single specimen from the herbarium collection. Since the collection represents more recent years, rather than the era prior to widespread settlement of the land, the dot maps are our best evidence of where the many types of prairie and savannah plants existed in earlier years.

The distribution of one species or another is often aligned with or explained by one or more environmental or historical factors. The atlas uses 40 pages including 65 additional maps to lay out the physical geography and natural history of the state as a backdrop to its native vegetation. These maps' coverage range from global, to North America, to contiguous 48-states, to Midwest, and Wisconsin. Themes include extent of glaciation, average snowfall, sandy soil types, and extent of original tall grass prairie.

The atlas is available free upon request from the Dept. of Natural Resources. Contact the Bureau of Integrated Science Services Research Center, 1350 Femrite Drive, Monona, WI 53716. Or call them at 608/221-6320. Ask for *Technical Bulletin 191*.

Includes stories of early mapping

Book looks at upper Miss. River heritage

by Bob Gurda

A recently published book brings together many stories of the early mapping and surveying of southwestern Wisconsin. William J. Burke's *The Upper Mississippi Valley: How the Landscape Shaped Our Heritage*, published last year, is almost 300 pages covering the relationship between the physical landscape and its settlement. The geographic focus is within an area approximately 300 miles surrounding the mouth of the Wisconsin River (although concentrating on the unglaciated area of Wisconsin, Iowa, Minnesota, and Illinois).

Maps and surveys to the fore

Burke covers a wide range of topics from geology, to early exploration, to trading posts and military roads, to Indian treaties, to establishment of railroads, and to contemporary topics related to land use and environment. He uses photographs and maps, many of them historical, to help explain how the landscape influenced these and other developments in the region.

Particularly relevant to mapping, Burke covers early military mapping, the establishment of the Public Land Survey System in the region, the installation of geodetic control, and the platting of settlements.

How to order

The book's author is a retired community and regional planner now living along the Mississippi River in Lansing, Iowa (roughly half way between La Crosse and Prairie du Chien). You can order the book from Mississippi Valley Press, P.O. Box 286, Waukon, IA 52172 (phone 563/568-3431, web www.waukonstandard.com). Price is \$25.00 plus tax and \$4.50 shipping and handling.

Using GIS to see the forest and the trees

For this issue we talked with David Lee of Bayfield County. He is the county's land information officer and by that position holds the distinction of being the most northerly situated LIO in the state. He has been with the county for 24 years, the first 17 as zoning administrator.



You have been promoting mapping and GIS “up north” for a long time now. How have things evolved in your county?

It's been a slow process, but step by step we have made some significant progress. All the while I served as zoning administrator I knew I wanted to use any computer tools I could to make that job easier, so we started with parcel mapping using AutoCad. Art Ziegler (the first state cartographer) made a special trip all the way up here from Madison to convince the county board that our plan was a good idea. In those days, I could point to few similar counties as examples.

The state's land information program has brought resources, but also has focused attention that validates our goals

How has your local situation been affected by the state land information program?

The program has been a godsend. Not only has it brought some needed financial resources, but it has focused attention on the kind of work I had always wanted to carry out here. That support and validation is important. Eventually our county created a land records staff position and now I administer the Land Records Department.

Your county has developed GIS support for forestry operations. Could you explain how that came about?

This has been a very satisfying project, both in benefits produced for forest management and because it all happened in less than two years.

For a number of years prior, groups such as county and DNR staff, and forestry consultants were aware that GIS could be an extremely useful tool in the management of our county forest—about 170,000 acres in 202 compartments. Gradually we had been building up countywide GIS data layers, and obtained a digital orthophoto layer. With those resources in hand, we had a ripe opportunity to move in the direc-

tion of creating a GIS targeted to augment forestry management. In May of 1999 we switched from discussion to action.

I prepared an RFP that was sent to a number of consultants. It included a CD of actual Bayfield County GIS data and images. We asked that each consultant use this information and prepare a demonstration for our evaluation committee. Our interview process went quickly and by the end of July the committee recommended to the county forestry department that a particular vendor be awarded the contract.

What features made the successful vendor's proposal the most attractive?

In addition to satisfying our basic requirements — the need to support routine functions of the forestry department including links to DNR databases and the RAVE II program—we liked the additional solutions and custom tools. But what made the biggest difference was a major training component for local county and DNR staff. We agreed that without in-depth training, the GIS tools and data can't be translated into a valuable management and analysis resource.

How has the forestry GIS progressed?

After about 18 months of project development, the training took place this spring, and our consultant did an outstanding job. Staff began using the new tools immediately and has reported many success stories. Not only are they able to get rapid access to their data for daily use, but have also developed some new data layers. Through this process, the accuracy of their maps and databases has improved and will continue to improve over time.

Without in-depth staff training, GIS tools and data can't be translated into valuable resources

Have there been any notable difficulties?

The primary one has been that support of the RAVE II ArcView Extension waned after the person who developed it left the DNR. This problem is being addressed, but that kind of challenge can crop up in any of our organizations. We need to be careful in our technology planning to be aware of these kinds of potential issues.

Has the forestry department embraced these new tools?

Yes, they have. Of course, they don't believe any more than I do that the technology in and of itself

is a panacea, but the forest administrator and his staff have integrated the GIS approach into their daily work.

Our forestry staff uses GIS daily

It has helped greatly that they were instrumental in the planning process. Another factor is that we have had good support by our county board. Additionally, the fact one supportive supervisor, as well as our current forest administrator are both retired U.S. Forest Service employees strengthened the understanding and advocacy of the potential benefits of GIS.

You have significant acreage of the Chequamegon National Forest in your county. How have you cooperated with that entity's staff in the land information arena?

We have a good relationship with the Forest Service as well as other federal offices. In addition to data sharing, we are currently partnering with Forest Service, Park Service, and NRCS to produce new orthophotography for our county.

What other mapping projects have you been working on recently?

Like my peers across the state, I have been very involved in the process of drawing up new county board voting-district boundaries. Here, GIS has been put on display right in front of both elected officials and the public, and it's been well received.

We also finished up our rural addressing and road centerline project recently, and reached our goal of eliminating duplicate road names; previously, there were some names used over and over across the county. A common one was "Town Dump Road". We did try to retain as many unique names as possible to preserve history. One notable name still in use is "Looseasagoose Road".

Finally, we are working with the state Dept. of Administration's Coastal Management Program to evaluate natural hazards along the Lake Superior shore.

What does the future hold?

The best is yet to come. It's been a winding road, but we remain committed to the implementation of many of the concepts, like modernization, information sharing, and reduction of redundancy, identified in the 1987 Land Records Committee Report. As the benefits accrue, it's source of great satisfaction.

Open and ready for visits

SCO's website receives facelift

by Jacki Mullen

Over a year ago the idea to reformat the SCO's website began to circulate around the office. Several meetings and numerous general designs later a layout was agreed upon that would eventually evolve to become our new site.

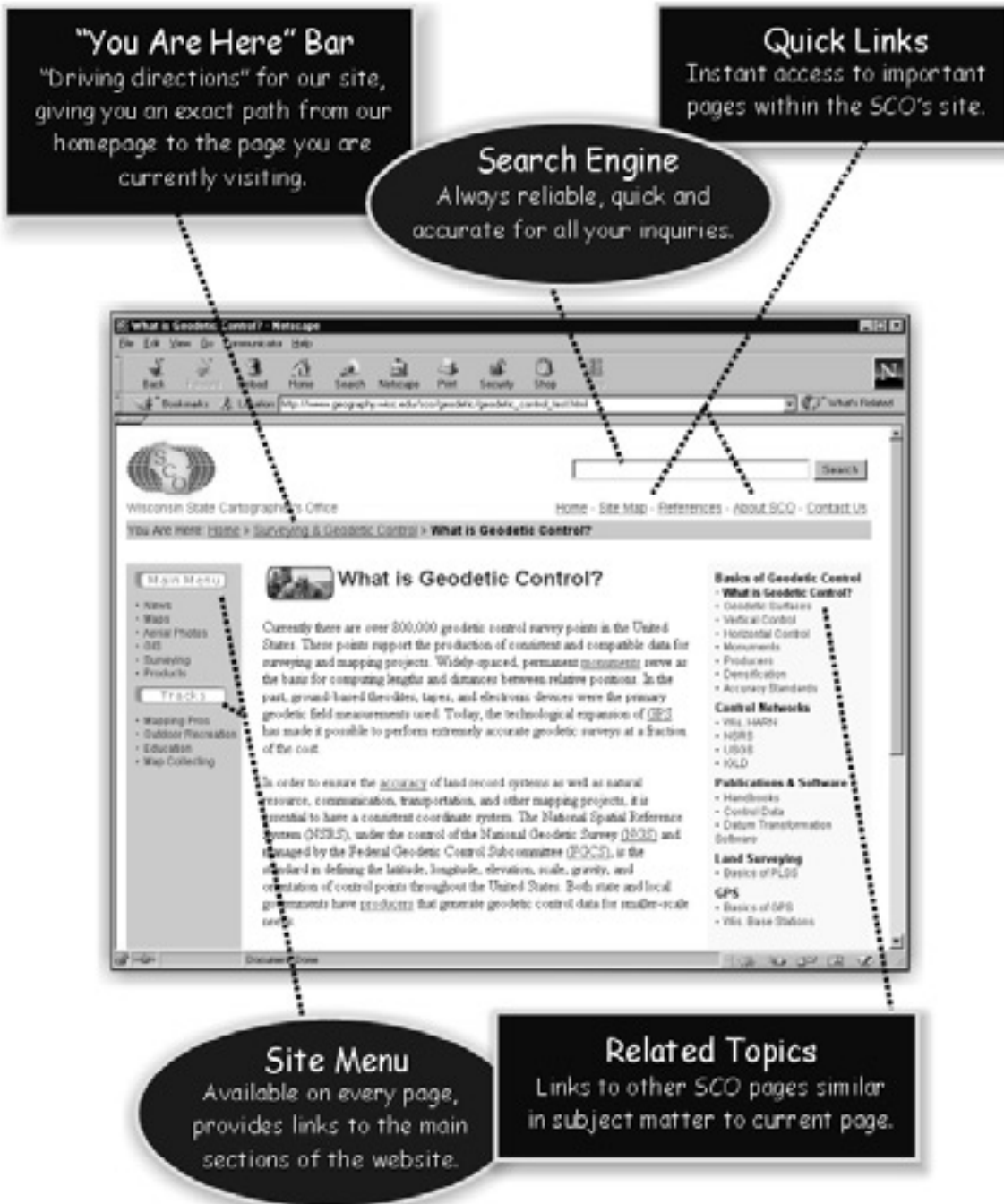


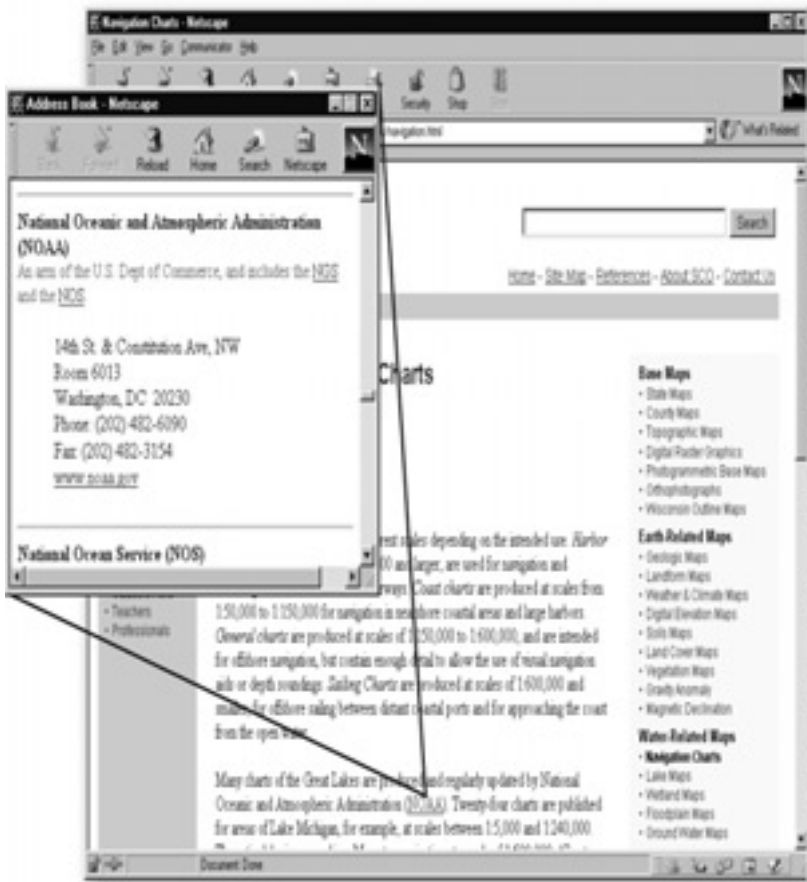
Then followed many weeks of work to produce the final design, develop individual pages, and perform test drives. Virtually all of this work was done by students. The new site went live about mid-summer.

Navigation, navigation, navigation

Our primary goal was to make the site easier to navigate, especially since it is made up of over 900 separate pages! We have

continued, next page...





Our Address Book now pops up in a separate window (as do the Acronyms List and Glossary).

attempted to make your maneuvering around the site effortless and fluent by using built-in menus and site guides on every page.

External links pop up in a new window rather than taking you away from the SCO's site. Similarly, links to our handy Address Book, List of Acronyms, and Glossary now appear in a small pop-up window, leaving you never far from where you want to be.

Follow tracks to favorite topics

Another new feature of our site is a group of Audience Tracks. A track provides quick web links tailored to a certain group that often looks to the SCO for answers to specific queries. We hope, in time, this feature will act as a quick reference guide for all our viewers. The tracks are still a work in progress, but skeletal outlines with useful links are available on the respective pages now.

We have attempted to create this new website with the viewer's need in mind. This includes both refurbishing and omitting out-of-date site features and creating all new databases to better suit your needs. Take time to visit our site and let us know what you think of the changes.

Here are just a few examples on what you will find within our "Tracks" section:

Mapping Pros: Information for land surveyors, land records, and training.

Outdoor Recreation: Resources for trails, sites, outdoor sports, and weather.

Education: Links to teaching material, state map series, & learning opportunities.

Map Collectors: USGS topo map dealers, depository libraries, and historical maps.



SCO staffing news

Hemstead moves into new position

by Bob Gurda

Brenda Hemstead is the office's new Senior Information Systems Resources Support Technician. Over the last several months, the SCO created this new position by converting a previous title, and then proceeded to advertise, interview, and finally make a selection.

People familiar with the SCO know Brenda well. She is our longest-tenured employee, having joined the office in 1979. Over the intervening years, Brenda has built up an array of knowledge and skills that help us deliver almost all of our services.

In her new position, Brenda will be more deeply involved in collecting, organizing, and presenting information. These days, we rely heavily on the web as a delivery mechanism. As a recent example of Brenda's work in this area, see the story on page 11 about 3rd order vertical control information now available through our web site.

Student positions update

We have bid adieu to Matt Massel who worked on background material for the OrthoFinder web site (www.geography.wisc.edu/sco/orthocat/). Matt graduated with his degree in Civil and Environmental Engineering.

GIS skills in high demand

Search job openings via SCO web site

by Bob Gurda

Job openings requiring GIS skills show no signs of diminishing worldwide. Here in Wisconsin and beyond, employers continue to advertise job openings that either have GIS at their core or have it as a major component.

For a number of years, observers of the GIS "industry" have believed that a growing demand for skilled employees in the face of fairly steady output of trained people from educational programs is a fact—and further is likely to persist for some time. This translates into stiff competition for skilled people.

Check out our listings and links

In our state, the SCO serves as a clearinghouse of job opportunities through the "Jobs" section on our web site. We invite employers to send us announcements for specific Wisconsin openings which we then post. These jobs can be any type that relate to mapping, GIS, or land information systems in their broadest sense.

The same section of our web site has links to a number of national or international sites that maintain job listings. Whether within Wisconsin or beyond, this provides a quick way for potential employers and employees to make connections.



SCO Web Watch: a look ahead

Databases, content updates in the works

by Woody Wallace

Frequent visitors to the SCO web site may have noticed many changes in the past few months. Not only have we rolled out a new design with navigation aids, but additional improvements are in the works.

In an ongoing effort to modernize the site, SCO staff will continue to update content, migrate catalogue-type information to databases, and implement search tools to make the site more dynamic and keep it current. Here is a look at some of the new and future developments.

Topics and tracks

In the process of redesigning the web site, we recognized that several sections needed major revisions to their content and organization. Look for sections on historical maps, topographic maps, land cover maps and geographic information systems to be updated this quarter. Additionally, the staff will flesh out a feature that is new to the web site, called audience tracks. These are collections of shortcuts of particular interest to various audiences.

Databases to tailor information delivery

This year the SCO will take a look at moving much of their catalogue-like content into databases. Using lessons learned in the creation of OrthoFinder, a database-driven prototype catalog of orthophotography, other catalogs such as the aerial photo catalogue and the WI county catalogue, from WISCLINC, will be placed in their own databases.

These databases will allow site visitors to search and sort results more easily. Behind the scenes, database technology promises to allow staff to update the information contained in the catalogues easily and more frequently.

Users will scarcely notice, but our news page will soon present stories retrieved from a database as well. In a few months, expect to see more, current news briefs and better tools for accessing them.

Farther down the road, we hope to implement a variety of tools using databases and interactive mapping to make locating data on our web site even easier. One such tool on the drawing board will be designed to locate places in Wisconsin and identify on which USGS topographic map they fall.

3rd order USGS vertical control data on the web

by Brenda Hemstead

What used to cost \$50 and came packaged in a booklet with two 3½” disks containing statewide 3rd order USGS vertical control data for Wisconsin and a topographic quadrangle index map is now available “free” on our website.

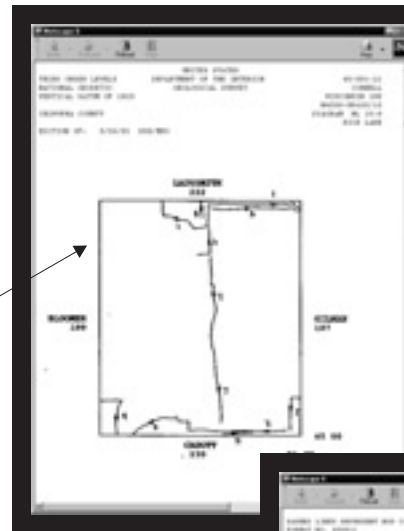
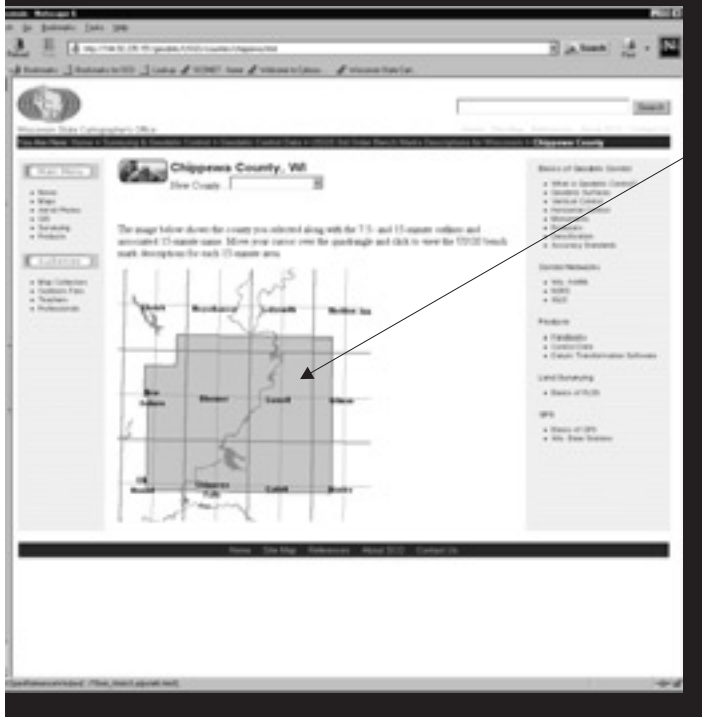
Simply select the county of your choice (see graphic at right), then select the 15’ block (see graphic below). Then the level line descriptions and elevations for that 15’ area will appear in a separate window (see graphics at lower right).

For those of you interested, go into the “Surveying & Geodetic Control” section on our website.

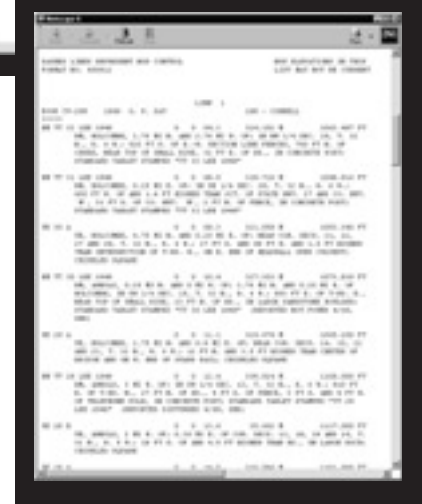


First, select a county from the state map or from the pull-down box below the map

- 7.5' & 15' outlines & associated 15' names
- then, select a 15' block, using the 7.5' grid for guidance



The 3rd order level line diagram appears in a separate window; scroll down to read descriptions of individual benchmarks



City system has many functions

Milwaukee excels at online GIS

by David Handley

In our previous issue, we looked at the first online county GIS in Wisconsin, the Clark county GIS. This time we turn our focus to the premier online GIS system for an urban area in the state, developed by the City of Milwaukee.

The many complexities of a city present a very different set of challenges for GIS development than in a rural area. Land use can vary widely over small distances, and the parcel density is much greater. *Map Milwaukee* not only overcomes these issues, but also presents a very easy-to-use interface for the GIS.

Upon entering the site, a map of the city is displayed, along with various tools. The lower set of tools control the map view, while the top set of tools control the data being displayed. Of the first three data tools, 'Find Taxkey' and 'Find Address' allow the user to input either of these pieces of information, returning a portion of the assessment information and the location of the parcel highlighted on the map. 'Find In-

tersection' simply zooms in to the vicinity of a particular street intersection.

The next data tool, 'Show Map List', displays a list of map layers; this is where the bulk of the site's content lies. There are 50 layers of data available to view on the map, including various point, line and area data. Parcels constitute one layer, as do school districts, census tracts, and even garbage collection routes. The resolution of the individual parcels is quite impressive, and the ability to display building footprints is an important feature. Another noteworthy accomplishment is the mapping and categorizing of land use.

Thematic maps are powerful

The final data tool, 'Dot Map', is one of the most useful features of *Map Milwaukee*. It gives the user the ability to create a dot map of parcels, based on specified search parameters. For instance, when one searches in Aldermanic District 4 for all

buildings constructed between 1851 and 1875, valued between \$500,000 and \$1,000,000, and on the National Register of Historic Places, three results are returned, and shows the parcels involved. Other search parameters include parcel size, building area, land use type, and number of units.

While the amount and quality of data presented for the city of Milwaukee in this system is certainly superb, it is abruptly cut off at the irregular city boundary. In the future, it would be nice to see an integrated Milwaukee County GIS, or perhaps even a multi-county metropolitan area GIS. But in the meantime, *Map Milwaukee* presents an exceptional example for other municipalities to emulate.

To visit *Map Milwaukee*, surf your web browser over to www.gis.ci.mil.wi.us/isa/Map_Milwaukee.



Old map would be "crown jewel"

Will America come home?

by Bob Gurda

Maps can have power. The simple placement of a particular name on a map can change history. That is how the New World became known as "America", many historians say.

The map that first showed the word "America" pertaining to lands in the New World has been purchased by the Library of Congress from European owners. It is the only known remaining copy of the "Waldseemüller Map", a group of 12 woodcut print sections together covering 8 by 4½ feet.

The map was produced in Europe in 1507 by a group including Martin Waldseemüller. This was only 15 years after Columbus' first voyage to middle America. It also relied on information from subsequent voyages by John Cabot and Amerigo Vespucci to North and South America, respectively.

In addition to the word "America" prominently placed in South America, this world map was the first one to show a large ocean between the Americas and Asia, even if that depiction was likely based more on conjecture than direct observation. Balboa had not yet crossed Panama to see the Pacific Ocean (1513) and Magellan's voyage to reach the Pacific by rounding the southern tip of South America did not begin until 1519.

Purchase and display plans

The Library of Congress in Washington, D.C. has made a down payment to purchase the map from a German family that has kept the map in its castle for the last 350 years. Fund raising to complete the \$10 million purchase is underway.

Reportedly, the map is in excellent condition. Display of the map in Washington was expected to begin this fall. Look in www.loc.gov for a schedule.

(source: *New York Times*, Sept. 4, 2001)

Shows all rural parcels

Bayfield County's new plat book shines

by Bob Gurda

A trend in plat book production is afoot. Bayfield County's *2001 Land Atlas and Plat Book* is a good example.

Recent trends

More counties have been producing their own plat books by drawing on their computerized real property parcel maps. This is in contrast to the traditional model where a private company accesses local records to compile, design, and print a fresh document every few years.

Multi-color printing has also been on the increase. For example, one county coded parcels with colors keyed to different types of forest ownership: federal, DNR, BCPL, county, and private (Managed Forest Program et al). This treatment allows people to determine which lands are most likely open to hunting.

However, a classic cartographic problem has, until now, remained unaddressed. That is, how to depict land parcels too small to see when a single-page map covers a survey township (6 by 6 miles). Traditionally, a cluster of small parcels is mapped simply as single polygon labeled "Small Tracts".

Showing the small parcels

Every rural parcel, even the smallest lots, are shown and indexed in Bayfield County's latest plat book. One approach uses larger-scale maps on separate pages; for instance, parcels along the shore of a lake are mapped on a page adjacent to the map of the full 6-mile by 6-mile area. A second method uses a letter code (e.g., "A", "B") to identify the owner of a small parcel; the index in the back of the plat book identifies the owner by Town-Range-Section-Letter Code.

One group of small parcels aren't (yet) shown in this plat book: those within the cities of Washburn and Bayfield.

Moving toward an atlas

Bayfield County's book has another attractive feature. It devotes nine pages to vari-

ous reference material including geographic statistics, advice on understanding land descriptions, and maps of fire, ambulance, and school jurisdictions. In essence, these additions begin to turn the plat book into a county atlas.

For more information, contact the County Clerk at 715/373-6100

Web maps track the spread

West Nile Virus comes to Wis.

by Bob Gurda

Sales of insect repellent have probably been rising in Wisconsin lately. News of the detection of the West Nile Virus hit the media late this summer and people have reason to be concerned. To make things worse, rains in some part of the state this summer have spawned clouds of mosquitoes, the insect that transmits the disease.

While the virus seriously affects only a small percentage of people who are exposed, the effects are potentially life-threatening. There is also concern for wild bird populations, some farm animals, and pets.

Primarily a wild bird disease, West Nile Virus has been confirmed in 10 humans in 2001, including an Atlanta woman who died. It has been found in about 80 bird species and 9 mammal species since its arrival in this country in 1999. This summer, the virus has also been identified in horses in Florida, Georgia, Kentucky, Louisiana, and Pennsylvania and in hundreds of birds in eastern states.

The U.S. Geological Survey has been tracking the spread of the virus: in birds, from human infection reports, and in other modes. Since last summer, the virus appears to have spread rapidly from the northeastern states, and now as far west as Wisconsin in bird samples.

You can monitor recent status via static maps on a web site:

cindi.usgs.gov/hazard/event/west_nile/west_nile.html.

For more general information, visit www.nwbc.usgs.gov/research/west_nile/west_nile.html.

(source: USGS)

November 14

GIS Day set for 2001

by Bob Gurda

GIS Day has become a predictable annual event. As before, it occurs this year during Geography Awareness Week, on Wednesday, November 14.

This year the focus of GIS Day will be the health of our nation's rivers. There will also be events more general in nature. In Wisconsin, several events are already being planned with more expected.

For background information or to learn about registered events in any particular area, surf over to www.gisday.com.

Reduces cycle from 4 to 3 annually

WLIA changes meeting schedule

by Ted Koch

At its early September quarterly membership meeting held in New Richmond, the Wisconsin Land Information Association's Board of Directors voted to reduce the number of statewide membership meetings it sponsors each year.

Since shortly after its beginnings in 1987, the WLIA has sponsored four meetings annually at different locations across the state. One of these, spread over four days usually in the February/March time period, serves as a statewide GIS conference with over 600 attendees. The remaining three meetings annually (June, September, December) have been of shorter duration, usually 1-2 days, with an attendance of 80-100.

The revised meeting plan

Beginning in 2002, the WLIA will replace its three smaller meetings with two meetings to be held in May and October. In adopting this schedule, the WLIA hopes to avoid overlap with other organizations' meetings, and eliminate conflicts with the beginning and end of the public school year.

The resultant schedule for upcoming WLIA meetings is:

2001

- Quarterly meeting, Dec. 6-7, Wisconsin Dells

2002

- Annual Conference, March 12-15, Green Bay
- Spring Meeting, May 2-3, Racine
- Fall Meeting, October 3-4, Wausau

2003

- Annual Conference, February 11-14, Milwaukee
- Spring and Fall Meetings, TBA

2004

- Annual Conference, March 1-5, Wisconsin Dells
- Spring and Fall Meetings, TBA

WLIA hosts workshop

Public access to land information examined

by Ted Koch

Our society expects convenient and fair public access to government information and data. It also wants to protect individuals' right-to-privacy for personally identifiable information. At times these public policies conflict, existing laws are unclear, and confusion results. The GIS community is not immune to this problem.

To illuminate these issues, the Wisconsin Land Information Association (WLIA) in July sponsored a one-day workshop on public access and privacy issues in Wisconsin. The workshop attracted approximately 55 people and featured two participants heavily involved in public access and privacy issues: Sen. Jon Erpenbach, WI State Legislature, and Anne O'Connor, the State of Indiana Public Access Counselor.

Erpenbach, a Democrat from the Madison area, spoke about legislation he is sponsoring to restrict the access telemarketers will have to home telephone numbers. He also advanced the argument that personal information is owned by the individual, and its use should be strictly controlled by the individual. O'Connor spoke on the services her office provides to citizens and government agencies in Indiana.

The workshop concluded with an afternoon panel discussion on a broad range of privacy and access issues. The WLIA task force which organized the workshop intends to produce a short handbook that captures the essence of this session and other issues dealing with public access and privacy.

Bush administration reappoints director

Groat to continue to head USGS

by Bob Gurda

Dr. Charles "Chip" Groat will continue to serve as director of the U.S. Geological Survey. Interior Secretary Gail Norton said "The President has accepted my recommendation that Dr. Groat continue to serve as USGS director. Chip has an outstanding science management background and is the perfect director for USGS and for this Administration".

Groat has served as director of USGS since November 1998. He has more than 25 years experience in geological studies and has been directly involved in energy and minerals resource assessment, groundwater occurrence and protection, geomorphic processes and landform evolution in desert areas, and coastal studies

Prior to joining USGS, Groat had a academic and administrative career at the University of Texas and Louisiana State University. He served as State Geologist for Louisiana and administered the Coastal Management Program.

(source: USGS press release)

.....Selected Regional Conferences and Technical Meetings.....

October 3-6, 2001, **NACIS Annual Meeting** will be held in Portland, OR. For more information visit their website at: www.nacis.org

October 9, 2001, **Wisconsin Land Council** will meet in Madison, WI. Contact OLIS at 608/267-2707.

October 10-12, 2001, **Minnesota GIS/LIS Consortium 11th Annual Conference & Workshops** will be held at the Duluth Entertainment Convention Center, Duluth, MN. Visit www.mngislis.org.

October 12, 2001, **Wisconsin Metadata Development Workshop** will be held at UW-LaCrosse, WI. Contact the State Cartographer's Office at 608/262-3065.

October 17-19, 2001, **League of Wisconsin Municipalities 103rd Annual Conference** will be held at The Regency, Green Bay, WI. Visit www.lwm-info.org.

October 18, 2001, **Wisconsin Metadata Development Workshop** will be held at UW-Stevens Point, WI. Contact the State Cartographer's Office at 608/262-3065.

October 18-20, 2001, **ACSM Annual Convention** will be held in Galveston, TX. Call: 301/493-0200 or visit www.acsm.net

October 20-24, 2001, **URISA 2001 Annual Conference and Exposition Convention Center** will be held at the Hyatt, Long Beach, CA. Contact: 847/824-6300, or visit www.urisa.org

October 21-24, 2001, **Wisconsin Town Association 54th Annual Convention** will be held at the Madison Marriott Hotel & Convention Center, Middleton, WI. Call 715/526-3157.

October 22, 2001, **Northwoods Wisconsin GIS User's Group** will meet at the Northern Great Lakes Visitor Center in Ashland, WI. Contact David Lee at 715/373-6156 or email dlee@bayfieldcounty.org.

November 1-2, 2001, **2001 ESRI Wisconsin User Group Conference** will be held at the Alliant Energy Center, Madison, WI.

November 5-6, 2001, **Illinois GIS Association (ILGISA) Fall Conference** will be held at the Radisson Hotel, Lisle, IL. Contact: Ruth Anne Tobias at 815/753-0922 or email at rtobias@niu.edu.

November 9, 2001, **Wisconsin Metadata Development Workshop** will be held at Lac Court Oreilles Ojibwa Community College, Hayward, WI. Contact the State Cartographer's Office at 608/262-3065.

November 14, 2001, **GIS Day 2001**. Visit www.gisday.com for registration and information.

Dec. 6-7, 2001, **Wisconsin Land Information Association Quarterly Meeting** will be held in Wisconsin Dells, WI. Contact: WLIA at 800/344-0421 or visit www.co.ozaukee.wi.us/WLLA/.

2002

January 23-25, 2002, **Wisconsin Society of Land Surveyors Annual Institute** will be held at the Holiday Inn in Stevens Point, WI. Call 414/549-1533.

March 12-15, 2002, **Wisconsin Land Information Association Annual Conference** will be held at the KI Convention Center in Green Bay, WI. Visit www.wlia.org.

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

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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), plus several part-time graduate and undergraduate students.

**Wisconsin
Mapping Bulletin**

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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 October 22, 2001.

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About our Internet 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. We encourage those of you with Internet access check out the SCO's homepage at

www.geography.wisc.edu/sco

About the WISCLINC Web site...

A second Internet resource is the on-line Wisconsin Land Information Clearinghouse (WISCLINC). Its address is:

www.wisclinc.state.wi.us

At this 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.

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