

WISCONSIN STATE CARTOGRAPHER'S OFFICE  
**ANNUAL REPORT**  
*and Travel Guide*



**2022-23**

# Welcome!

Welcome! I want to invite you to discover what the State Cartographer's Office has to offer, whether you are a GIS professional seeking the most up-to-date LiDAR data, a landowner looking for historic maps and air photos of your property, or an educator trying to find information on the state's coordinate reference systems. Whatever your specific needs might be, the State Cartographer's Office (or "SCO") is a great place to start your journey of discovery. Our website provides several free online apps to help you find the data you need, articles and publications on important aspects of GIS and cartography, and resources to allow you to explore even further. Can't find what you need? Our Help Desk is only a few clicks away, giving you personalized advice to help direct your search.

Please use this guide to learn more about what we do and the services we offer. Whether you are visiting us for work or pleasure, I hope we can help you find what you need ... and even spark some unexpected discoveries.

Howard Veregin, PhD  
Wisconsin State Cartographer



Science Hall. Our home on the University of Wisconsin-Madison campus.

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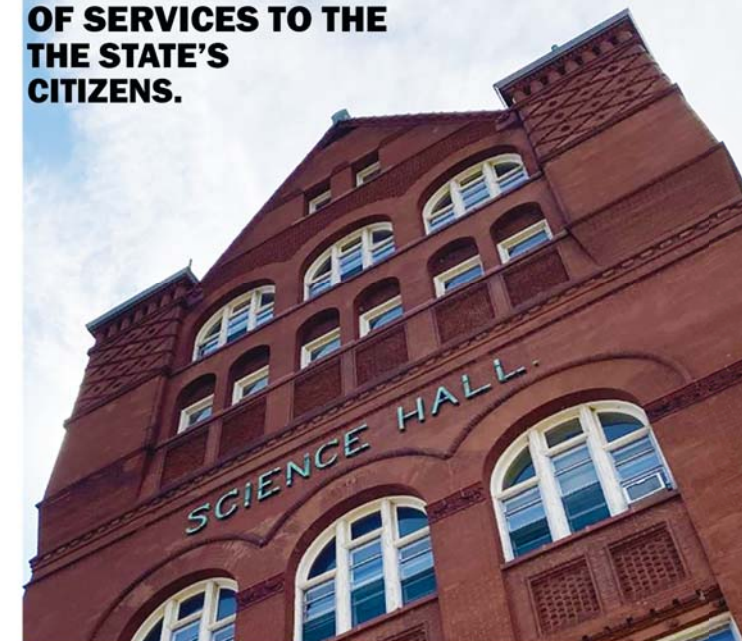
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**www.sco.wisc.edu**

**608-262-3065 :: help@sco.wisc.edu**

# About Us

**OUR MISSION IS TO FOSTER THE DEVELOPMENT OF WISCONSIN'S GEOSPATIAL COMMUNITY BY FACILITATING THE CREATION AND EXCHANGE OF GEOSPATIAL DATA, SERVICES AND INFORMATION, AND PROMOTING THEIR USE IN SUPPORT OF EDUCATION, INNOVATION AND DELIVERY OF SERVICES TO THE STATE'S CITIZENS.**



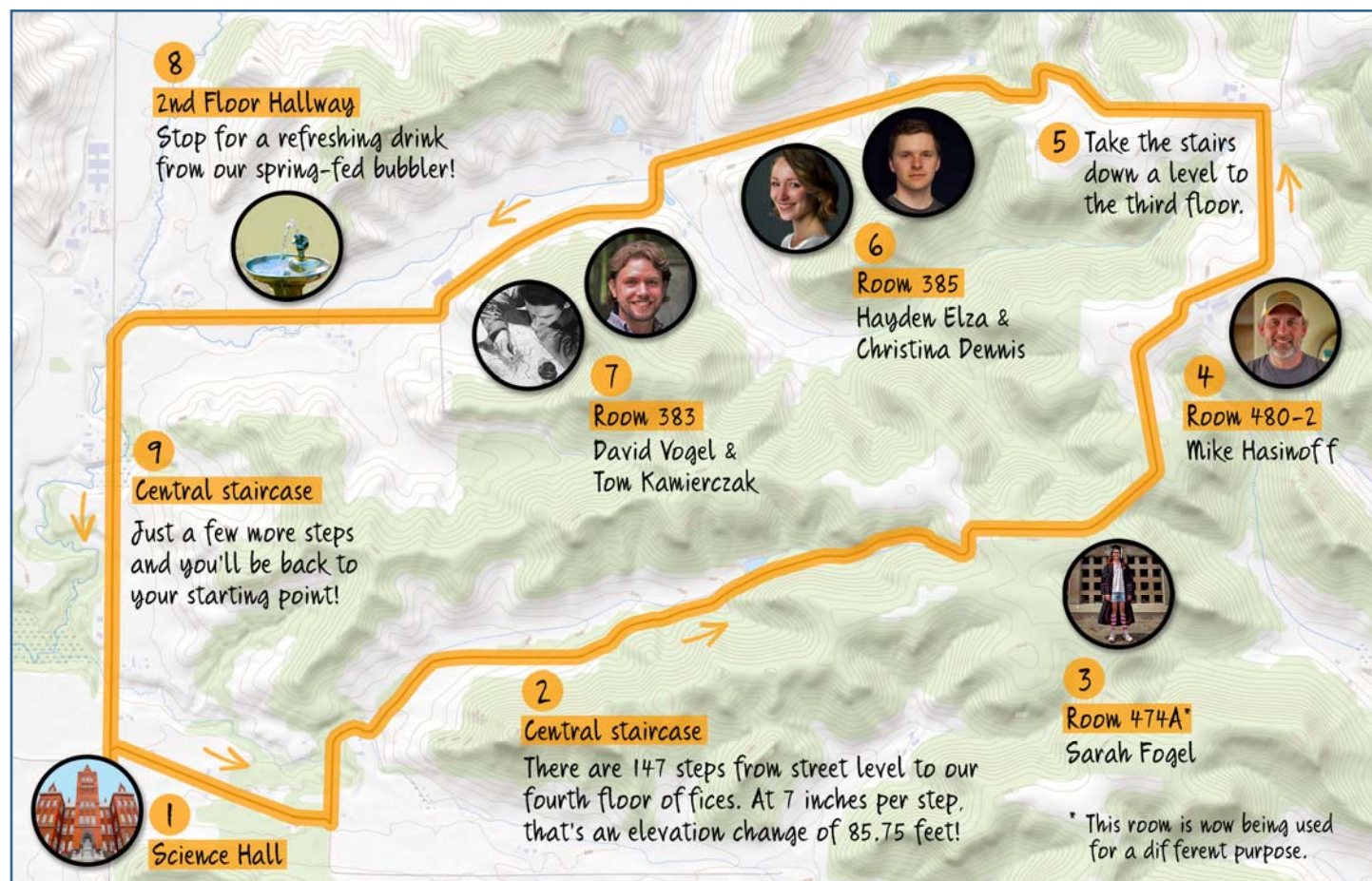
**WISCONSIN STATE  
CARTOGRAPHER'S OFFICE  
384 SCIENCE HALL  
550 N. PARK ST.  
MADISON, WI  
53706-1491**

The **State Cartographer's Office** is a special program at the University of Wisconsin-Madison housed within the Department of Geography. Staff and students of the State Cartographer's Office engage in outreach, research and education to support Wisconsin's geospatial community and the state's citizens. We support the **Wisconsin Idea** through our efforts to apply the knowledge and expertise of the university to enhance the quality of life for all citizens of the state.



# Our Staff

Take a tour of our building and meet our exceptional team!



Guess the county! Does this map depict a portion of (a) Door County, (b) Buffalo County or (c) Westchester County? Answer on final page.

## Tour #1. Hike to the Summit

Science Hall has been home to the State Cartographer's Office (SCO) since its creation in 1974. To start your tour, take the stairs to the 4th floor, then turn right and follow the hallway to the end.

Rm. 474A was Sarah Fogel's office from July 2022 to June 2023. Sarah, a 2022 graduate of UW-Madison's Geography Dept., worked on a grant-funded project developing hydrographic data for the Red Cliff Band's Water Resources Program. Sarah is currently a grad student at the University of Kentucky and Rm. 474a has a new tenant.

A few short steps down the hall is Rm. 480, our student intern lab and the office of Mike Hasinoff. Mike is working for us as a GIS Research Analyst after completing an MS in Cartography/GIS from UW-Madison in December 2022. Mike's time is split amongst a variety of projects, including an inventory of heritage oaks and a method to identify cartographic phantoms on official maps.

Now it's time to descend one level. Take the stairway in the south tower and exit on the third floor.

The first office you will encounter is shared by Hayden Elza and Christina Dennis. Hayden is a GIS Developer supporting new geospatial technologies and providing project coordination and technical support for the student intern lab. He has a BS in Forest Science and a GIS Capstone Certificate, both from UW-Madison. Before the SCO Hayden worked in UW-Madison's Forest Ecosystem and Landscape Ecology Lab where he managed a large database derived from the original General Land Office survey.

Christina is a GIS Research Analyst with the SCO and another UW-Madison Geography alum with a 2022 BS in Cartography/GIS. Christina has spent the last year working at the SCO, most recently on a collaboration with the Lake Superior National Estuarine Research Reserve to develop a habi-

tat map. Christina will be starting grad school in Geography at UW-Madison in the fall of 2023.

Just a little further down the hall is the office of David Vogel and Tom Kazmierczak. David is a GIS Data Engineer. He received his BS in Forest Management and Conservation Biology from UW-Stevens Point in May 2008 and completed the UW-Madison GIS Certificate Program in 2014. He joined the SCO in 2012. David has worked every statewide parcel project (all 9 of them!) and is our liaison to the surveying community.

Tom's background includes a bachelor's in GIS from Michigan State and a master's in Geography from Northern Illinois. He joined the SCO as a GIS Research Analyst in 2020 to work on the statewide parcel project. Before the SCO he worked as a as a Research Associate for almost a decade at Northern Illinois University's Center for Governmental Studies.



Guess the county! Does this map depict a portion of (a) Vilas County, (b) Waukesha County or (c) Rhineland County? Answer on final page.

## Tour #2. Lake Loop

To start this tour, take the stairs to the 3rd floor, then turn right and follow the signs to the State Cartographer's Office. If you're feeling fatigued, consider taking the elevator instead. Installed in the 1920s, it required a human operator until 1974, when it was automated.

Rm. 381 is the office of Jim Lacy, Associate State Cartographer since 2004. Jim provides technical and managerial leadership for projects, responds to public inquiries about GIS and mapping, and serves as the primary coach for our student interns. He also supports a wide range of geospatial organizations through active leadership and service. Jim has a BS in Geography and Information/Computing Science from UW-Green Bay and a MS in Cartography/GIS from UW-Madison.

Across the hall is Rm. 384, the SCO conference room. To the right you will find Rm. 384B, the office of Howard Veregin, who was appointed State Cartographer in 2009. Howard's previous positions include Director of Geographic Information Services at Rand McNally & Co., Associate Professor of Geography at the University of Min-

nesota, and Assistant Professor of Geography at Kent State University. Howard received his PhD in Geography from the University of California, Santa Barbara. He directs the activities of the SCO, supervises most staff, serves as PI or co-PI on our grant-funded projects, and represents the SCO on the Wisconsin Geographic Names Council and Land Information Council.

Next door is Rm. 384A, home in 2022-23 to four SCO staff members: Ana Wells, Ann Buschhaus, Genevieve Burgess and Param Bhandare. Ana, who joined the SCO in 2018, is a GIS Data Engineer. She works with the statewide parcel team, supports a variety of projects with her wide-ranging skillset, and trains geospatial professionals in the use of LiDAR technology. Ana has a PhD in Soil Science and a Graduate Certificate in GIS, both from UW-Madison. She has worked for numerous campus departments.

Ann joined the SCO in 2020 as a GIS Researcher. Her background is as a water resources engineer, but she now works with GIS. She has worked on a variety of projects at the SCO, most recently

leading the effort to develop hydrographic data for the Red Cliff Band's Water Resources Program. Ann has a bachelor's degree in physics and a master's in engineering.

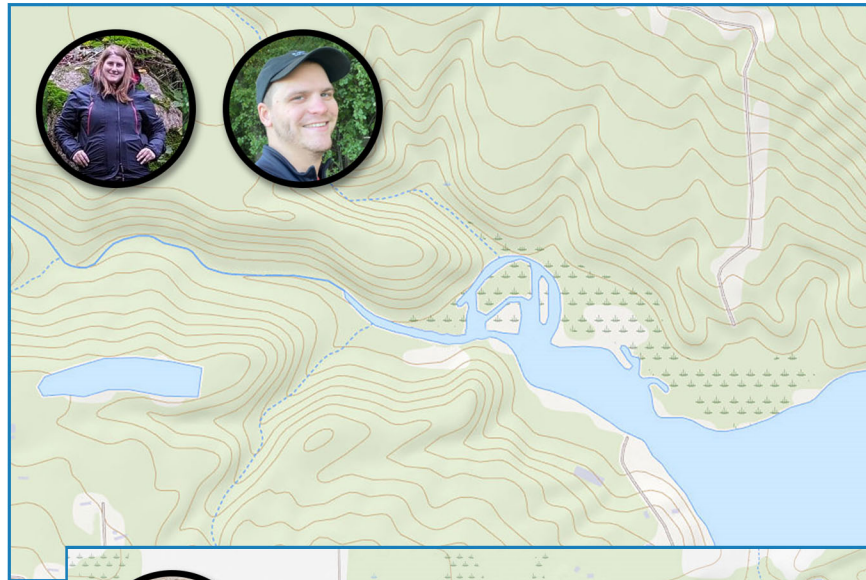
Genevieve worked for the SCO from 2019 until 2023, primarily on the Wisconsin Coastal-Management Data Infrastructure project where she helped develop a statewide inventory of geospatial culvert data used for hydrologic modeling. Genevieve earned a BS in Cartography/GIS and a certificate in Environmental Sciences from UW-Madison. She now works in the private sector.

Param worked for the SCO in a temporary position after graduating with a BS in Computer Sciences from UW-Madison. As a SCO staff member, Param helped develop a new application for the statewide parcel project and a model to assess the flood vulnerability of culverts. He is now furthering his studies in preparation for grad school.

You've finished the tour! It's time to head back down the stairs and treat yourself to a coffee and pastry in Memorial Union, just across the street.

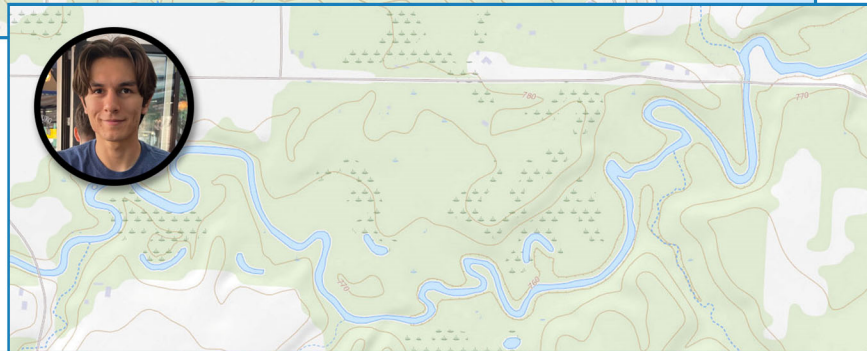
# Our Students

If you want to navigate the river of knowledge, Wisconsin delivers! Here are some of the rivers our students have traveled down.



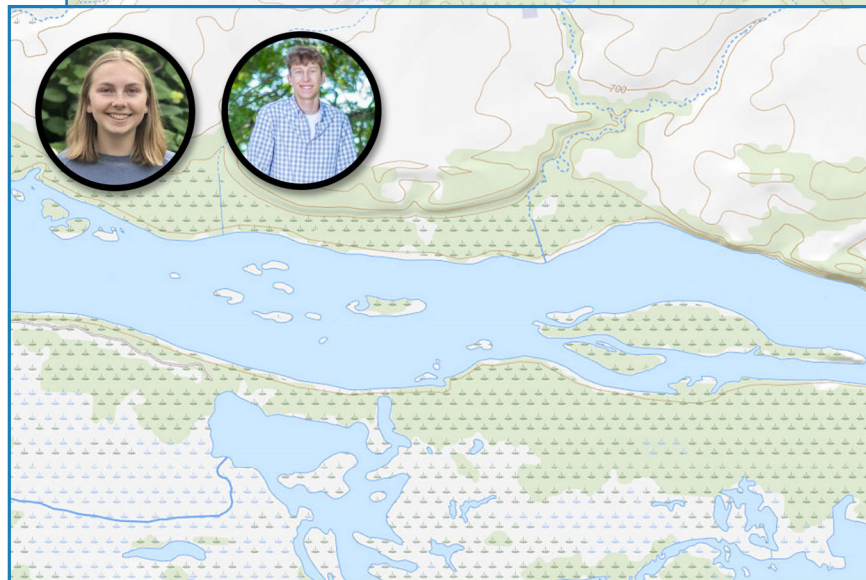
Some rivers cut deep canyons, providing opportunities for detailed exploration. **Mallory Johnson** and **Duncan McFarlane** worked with the Red Cliff Band's Water Resources Program to develop hydrographic data layers for Red Cliff's GIS inventory. Mallory also produced a BASINS (Better Assessment Science Integrating Point and Non-point Sources) model and Duncan developed a PLET (Pollution Load Estimation Tool). Both students provided training to Red Cliff staff on these tools.

Mallory and Duncan were both pursuing accelerated MS degrees in GIS from UW-Madison while with the SCO. Mallory is now employed at the Wisconsin Dept. of Natural Resources in Madison. Duncan is employed at Cyclomedia in Madison.



A river might seem tame but then quickly turn into a raging torrent of data. **Nikko Siegfried** created a critical structures layer for northern Ashland County to contribute to a GIS database on flood exposure and vulnerability. He pulled data from numerous sources in an effort to characterize every building in the study area.

Nikko graduated in 2023 with a major in Cart/GIS and Physical Geography from UW-Madison



Some rivers are iconic symbols known far and wide. **Jean Traudt** and **Ray Wiegand** recently started working in collaboration with the Wisconsin Dept. of Transportation to produce a hydrologic feature layer for the next edition of the state highway map. This will mark the first time GIS has been used to produce this map. Jean and Ray are developing database rules that will allow DOT cartographers to select an appropriate level of content for the 1:800,000-scale map.

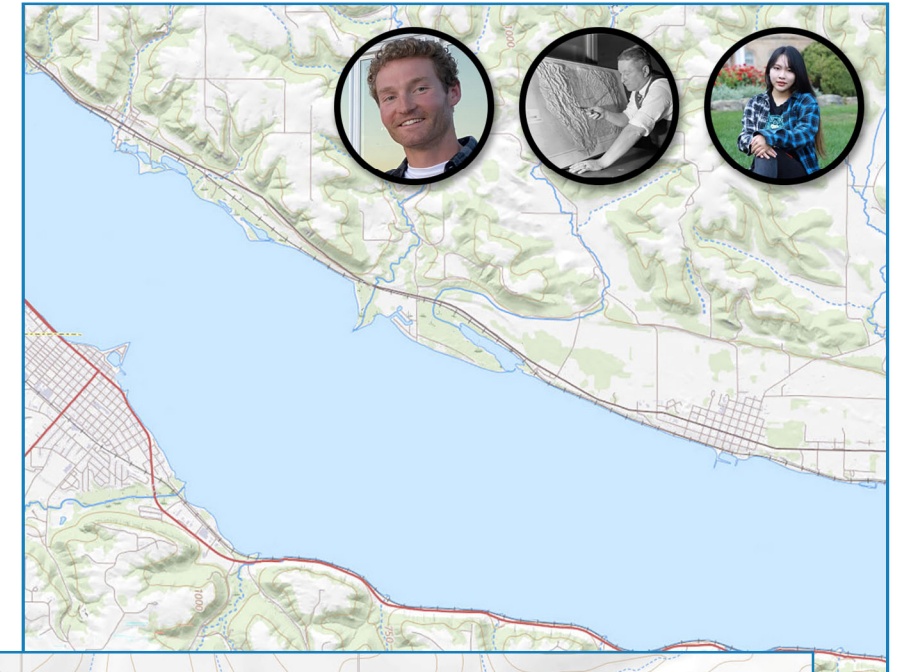
Jean is an undergrad at UW-Madison studying Cartography and GIS, as well as Conservation Biology. Ray is an undergrad at Augustana College in Illinois, where he is majoring in Geography and Finance with a GIS minor.

Can you name any of these Wisconsin rivers? Answers on final page.

Big rivers can be explored from many different directions. **Drew ten Bensel**, **Branton Kunz** and **Rachel Ren** spent their time at the SCO working on a variety of activities, including developing data and tools to support the statewide parcel project, enhancing the Geodata@Wisconsin geospatial data portal, and exploring methods to efficiently index digitized historic air photos. Rachel also helped build a regional atlas for the Wisconsin Dept. of Corrections Division of Community Corrections.

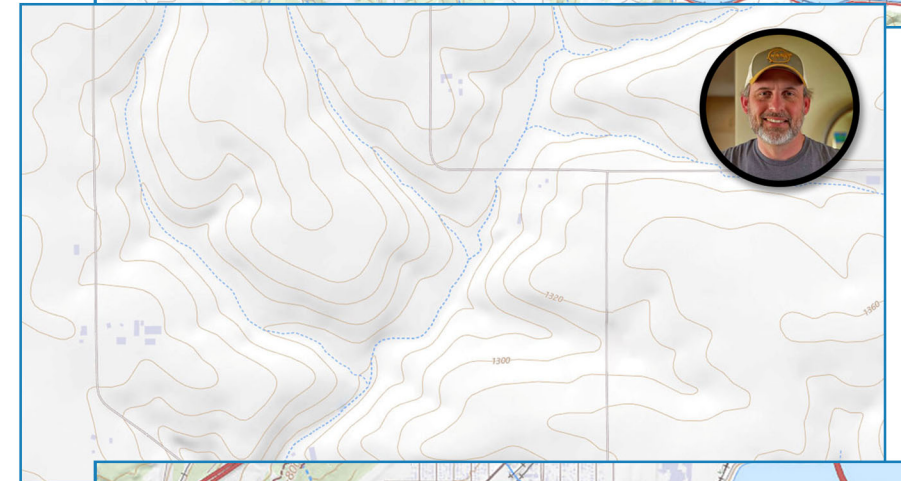
While employed by the SCO, Rachel was an undergraduate majoring in Cart/GIS and Computer Sciences, while both Branton and Drew were pursuing graduate degrees.

Drew and Branton both have GIS positions while Rachel is now a grad student at the University of Pennsylvania.



Some rivers have an existence that is more hypothetical than factual. While working for the SCO, **Mike Hasinoff** developed a GIS tool to find "cartographic phantoms" ... places that appear on maps but do not actually exist on the ground. His results are being used to update official maps and databases maintained by federal and state mapping agencies.

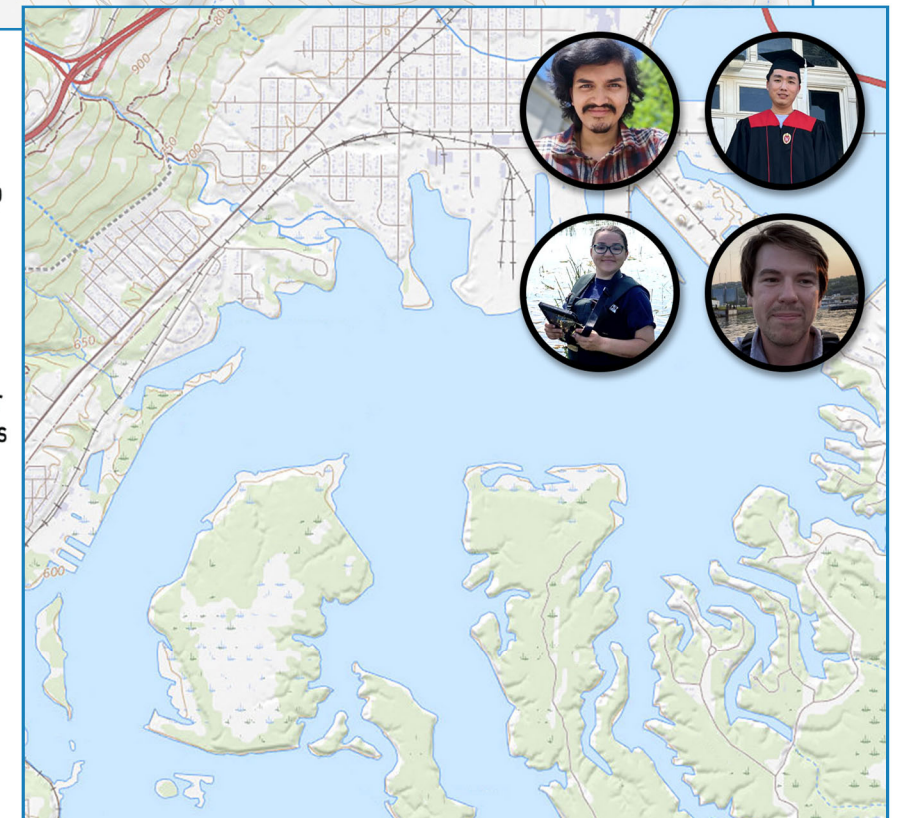
Mike completed an MS degree in Cart/GIS from UW-Madison in December 2022. He is currently employed by the SCO, where he works on a variety of projects.



So many rivers to cross. Fortunately, GIS can help you find your way over! The SCO's collaboration with the National Estuarine Research Reserve in Superior, Wisconsin, is now in its second year. In 2022, **Param Bhandare** and **Chang Li** helped develop a remote sensing workflow and prototype field collection tools to create a habitat map of the Reserve. In 2023, **Emily Lockling** and **Chris Susnik** collected over 1000 training site polygons to facilitate image classification.

Param completed an undergrad degree in Computer Sciences from UW-Madison in December 2022. He is currently furthering his studies in preparation for grad school. Chang completed his BA in Cartography/GIS and Geography from UW-Madison in 2022 and is now a PhD student at the University of Nebraska-Lincoln.

Emily has an AS in Environmental Sciences from Fond du Lac Tribal and Community College in Minnesota and is currently working on her BS in GIS at the University of Minnesota-Duluth. Chris is a student at UW-Superior majoring in Environmental Science with a minor in GIS.



# Our Grants

A rustic cabin is a Wisconsin icon ... and a great place to get some thinking done! Here's where we've been doing our thinking this year.

**A**

**Lake Superior National Estuarine Research Reserve Habitat Map Workflow**  
**Sponsor:** UW-Madison Division of Extension Innovation Funding Initiative  
**Dates:** Summer 2022  
**Amount:** Approx \$9,000

**Synopsis:** Collaboration with Lake Superior National Estuarine Research Reserve (NERR) to develop remote sensing workflow for a high-resolution habitat map.  
**SCO staff:** Veregin (co-PI)  
**SCO students:** Bhandare, Li  
**NERR partner:** Kirsten Rhude, Stewardship Coordinator (co-PI)  
**Fond du Lac Tribal and Community College partners:** Carl Sack, GIS faculty & Zack Johnson, student

**B**

**Lake Superior National Estuarine Research Reserve Habitat Map**  
**Sponsor:** Wisconsin Idea Collaboration Grant, Office of the Vice Chancellor for Research & Graduate Education, UW-Madison Division of Extension & WARF  
**Dates:** Feb to Dec 2023  
**Amount:** Approx \$49,000

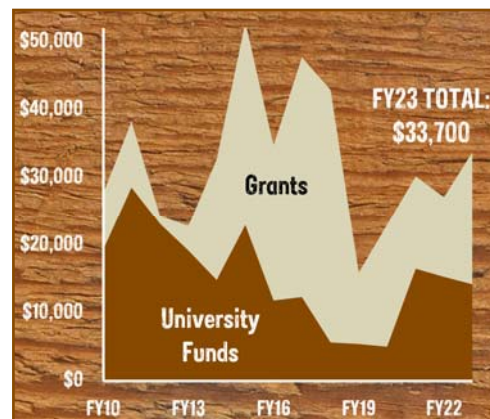
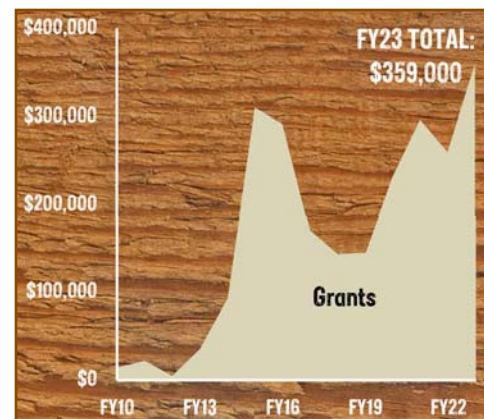
**Synopsis:** Collect training data to support development of NERR habitat map using image classification methods.  
**SCO staff:** Dennis, Veregin (co-PI)  
**NERR partner:** Kirsten Rhude, Stewardship Coordinator (co-PI)  
**SCO students:** Lockling, Susnik  
**Consultants:** Carol Reschke & Kelly Beaster

**C**

**Transferring Lake Superior NERR Habitat Mapping Tools and Methods to the Wisconsin-Minnesota St. Louis River Estuary**  
**Sponsor:** NERRS Science Collaborative  
**Dates:** Oct 2023 to Sept 2024  
**Amount:** Approx \$139,000

**Synopsis:** Transfer habitat mapping methods for Lake Superior NERR to entire St. Louis River estuary.  
**SCO staff:** Buschhaus, Veregin (co-PI)  
**NERR partner:** Kirsten Rhude, Stewardship Coord. (co-PI)  
**UM U-Spatial partners:** Jeffrey Thompson & Olena Boiko  
**UM-Duluth NERRI partner:** Kristi Nixon  
**Consultants:** Carol Reschke & Kelly Beaster

Guess the lake! Is the lake shown on this map a portion of (a) Lake Kegonsa, (b) Appleton Lake or (c) Lake Winnebago? Answer on final page.  
 Please Note: There's no connection between the lake and the location(s) of a given research project, for any of the lake maps in this section of the document.



**A**

**Statewide Parcel & Public Land Survey System Project (Ver. 8)**  
**Sponsor:** Wisconsin Land Information Program  
**Dates:** Jan 2022 to Dec 2022  
**Amount:** Approx \$129,000

**Synopsis:** Produce 8<sup>th</sup> version of the statewide parcel and Public Land Survey System databases using county data sources. The project is a collaboration with the Wisconsin Land Information Program and the state's 72 county Land Information Offices.  
**SCO staff:** Vogel, Wells, Kazmierczak, Elza, Veregin (PI)  
**SCO students:** Bhandare, Dennis, Kunz, Ren, Ten Benschel  
**WLIP partners:** Peter Herreid & Davita Veselenak

**B**

**Statewide Parcel & Public Land Survey System Project (Ver. 9)**  
**Sponsor:** Wisconsin Land Information Program  
**Dates:** Jan 2023 to Dec 2023  
**Amount:** Approx \$139,000

**Synopsis:** Produce 9<sup>th</sup> version of the statewide parcel and Public Land Survey System databases using county data sources. The project is a collaboration with the Wisconsin Land Information Program and the state's 72 county Land Information Offices.  
**SCO staff:** Vogel, Wells, Kazmierczak, Bhandare, Veregin (PI)  
**WLIP partners:** Peter Herreid & Davita Veselenak

Details for Statewide Parcel & Public Land Survey System Project (Ver. 10) unavailable at this time


Guess the lake! Is the lake shown on the map above a portion of (a) Lake Como, (b) Lake Poygan or (c) Lake Michigan? Answer on final page.

**A**

**Advancing the Water Resource Goals of the Red Cliff Environmental Department**  
**Sponsor:** Baldwin Wisconsin Idea Endowment  
**Dates:** July 2022 to June 2023  
**Amount:** Approx \$108,000

**Synopsis:** Cooperative project with Red Cliff Environmental Department's Water Resource Program (WRP). The project assisted WRP to augment its hydrologic GIS database and apply GIS-based models to derive new data and evaluate surface water concerns.  
**SCO staff:** Buschhaus, Vogel, Veregin (co-PI)  
**UW-Madison partner:** Anita Thompson, biological Systems Engineering (co-PI)  
**SCO students:** Johnson, McFarlane  
**Red Cliff partners:** Linda Nguyen, Environmental Director; Allison Rakowski, Water Resources Manager; Jessica Jacobson.

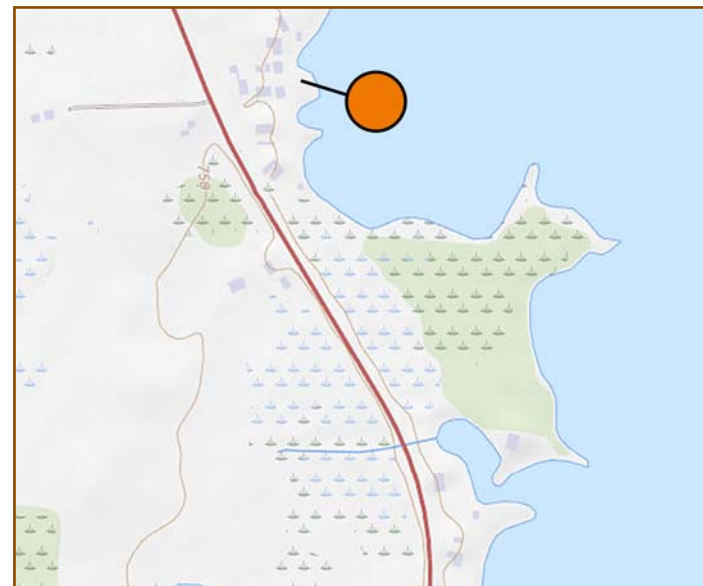
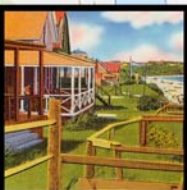
Guess the lake! Is the lake shown on the map above a portion of (a) Lake Winnebago, (b) Phantom Lake (Bayfield County) or (c) Minocqua Lake? Answer on final page.

**Division of Community Corrections Regional Atlas**  
 Sponsor: Wisconsin Dept. of Corrections  
 Dates: Fall 2021 to Summer 2022  
 Amount: Approx \$7000

**Synopsis:** A 40+ page atlas was created to help Division of Community Corrections managers visualize the locations of approximately 50,000 clients.  
 SCO staff: Lacy SCO students: Hasinoff, Ren

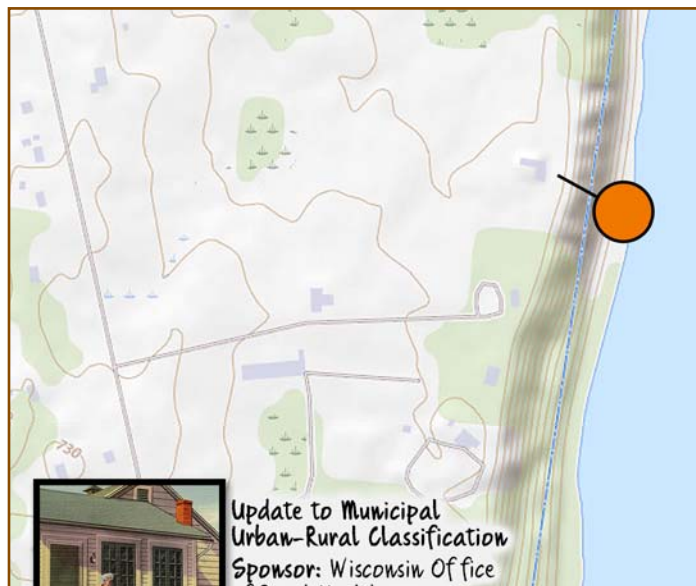

Guess the lake! Is the lake shown above a portion of (a) Lake Mendota, (b) Green Bay or (c) Lake Michigan? Answer on final page.

**Wisconsin Highway Map GIS Layers**  
 Sponsor: Wisconsin Dept. of Transportation  
 Dates: Jan 2023 to June 2024  
 Amount: Approx \$10,000

**Synopsis:** Help WisDOT convert the official state highway map to a GIS environment by preparing generalized data layers for hydrography and administrative boundaries.  
 SCO staff: Veregin, Vogel SCO students: Traudt, Wiegand

Guess the lake! Is the lake shown above a portion of (a) Lake Winnebago, (b) Lake Koshkonong or (c) Lake Michigan? Answer on final page.

**Update to Municipal Urban-Rural Classification**  
 Sponsor: Wisconsin Office of Rural Health  
 Date: Summer 2023  
 Amount: Approx \$5000

**Synopsis:** Update Wisconsin Office of Rural Health's Municipal Urban-Rural Classification with new data and document improvements to workflow.  
 SCO staff: Buschhaus, Veregin

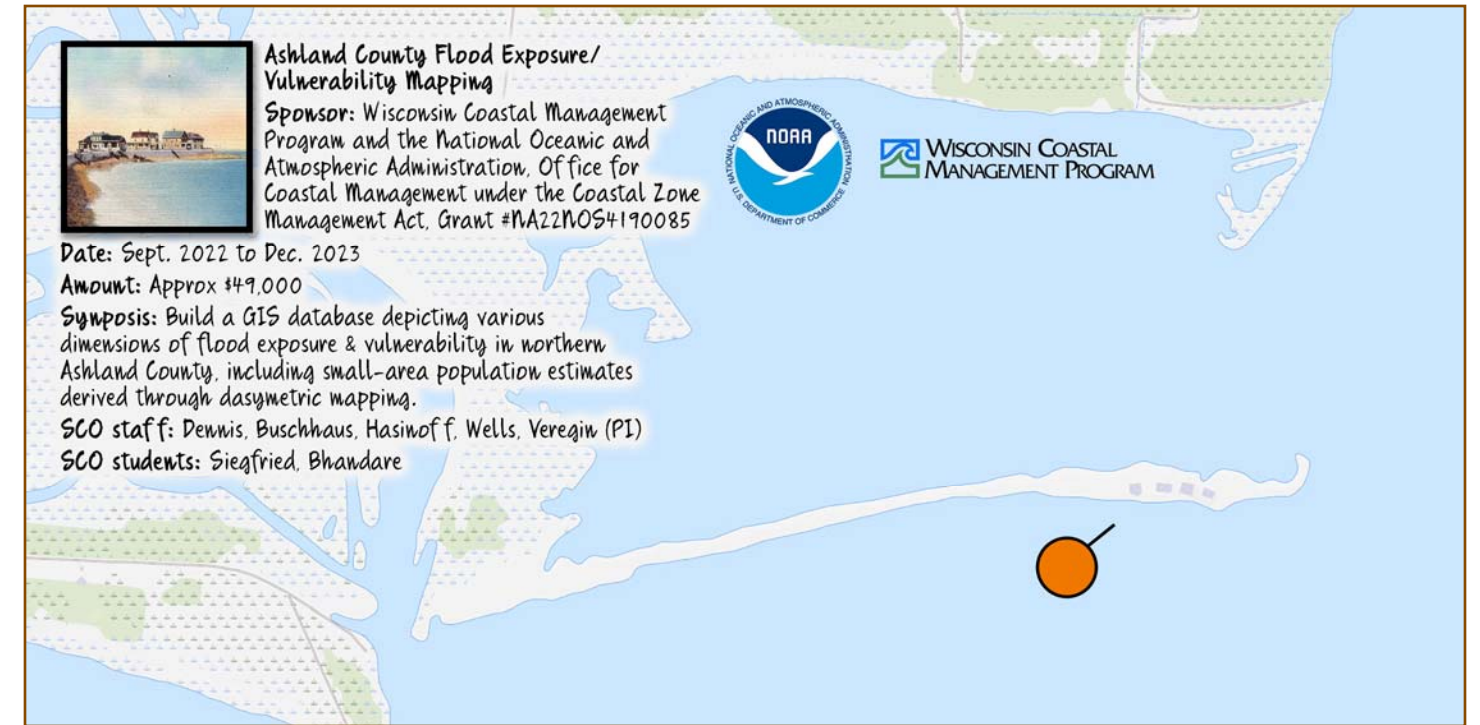

Guess the lake! Is the lake shown above a portion of (a) Nagawicka Lake, (b) Lake Michigan or (c) Petenwell Lake? Answer on final page.




**Dane County Heritage Oaks**  
 Sponsor: Dane County Tree Board  
 Dates: Summer 2023  
 Amount: Approx \$1700

**Synopsis:** Assist Dane County Tree Board complete an inventory of oak trees estimated to be over 200 years old.  
 SCO staff: Hasinoff, Veregin  
 Partner: Matt Noone, Capital Area Regional Planning Comm.

Guess the lake! Is the lake shown above a portion of (a) Lake Winnebago, (b) Lake Superior or (c) Shawano Lake? Answer on final page.





**Ashland County Flood Exposure/Vulnerability Mapping**  
 Sponsor: Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office for Coastal Management under the Coastal Zone Management Act, Grant #NA22NOS4190085

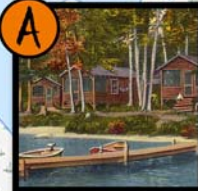
**Date:** Sept. 2022 to Dec. 2023  
**Amount:** Approx \$49,000  
**Synopsis:** Build a GIS database depicting various dimensions of flood exposure & vulnerability in northern Ashland County, including small-area population estimates derived through dasymetric mapping.  
 SCO staff: Dennis, Buschhaus, Hasinoff, Wells, Veregin (PI)  
 SCO students: Siegfried, Bhandare

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE  
 WISCONSIN COASTAL MANAGEMENT PROGRAM

Guess the lake! Is the lake shown above a portion of (a) Lake Butte des Morts, (b) Lac Courte Oreilles or (c) Lake Michigan? Answer on final page.




**WICDI (Wisconsin Coastal-Management Data Infrastructure)**



**Sponsor:** National Oceanic and Atmospheric Administration Project of Special Merit funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office for Coastal Management under the Coastal Zone Management Act, Grant #NA20NOS4190105.  
**Dates:** Oct 2020 to June 2023  
**Amount:** Approx \$245,000  
**Synopsis:** Assist in flood mitigation planning with an emphasis on culvert mapping along the Lake Superior coast. WICDI is a partnership with the Wisconsin Coastal Management Program and State Geographic Information Office in the Wisconsin Department of Administration.  
 SCO staff: (FY23 only) Burgess, Buschhaus, Lacy, Bhandare, Hasinoff, Kazmierczak, Wells, Veregin (UW-Madison PI)  
 SCO students: Siegfried, Bhandare  
 UW-Madison Partners: Anita Thompson  
 Department of Administration Staff: Kate Angel, Todd Brieby, Jim Giglierano

**CALM (Collaborative Action for Lake Michigan)**



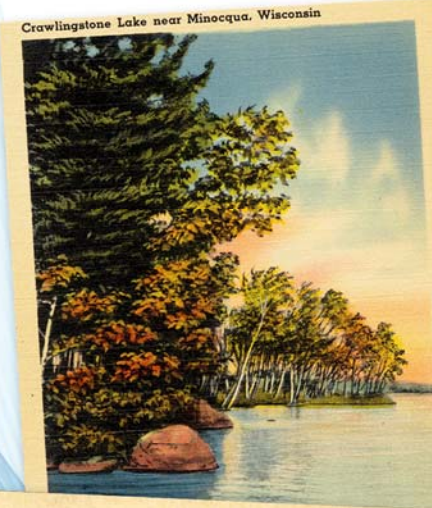
**Sponsor:** National Oceanic and Atmospheric Administration Project of Special Merit funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office for Coastal Management under the Coastal Zone Management Act, Grant #NA21NOS4190032  
**Dates:** Oct 2021 to June 2023  
**Amount:** Approx \$92,000  
**Synopsis:** Increase coastal resilience in the Lake Michigan region by assisting communities develop and revise coastal hazard policies. Project led by Wisconsin Sea Grant.  
 SCO Staff: (FY23 only) Burgess, Veregin  
 Wisconsin Sea Grant Staff: Adam Bechle, David Hart  
 Department of Administration Staff: Lydia Salus, Kate Angel, Todd Brieby, Jim Giglierano

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE  
 WISCONSIN COASTAL MANAGEMENT PROGRAM

Guess the lake! Is the lake shown above a portion of (a) Lake Superior, (b) Lake Geneva or (c) Lake Pontchartrain? Answer on final page.

# Featured Projects

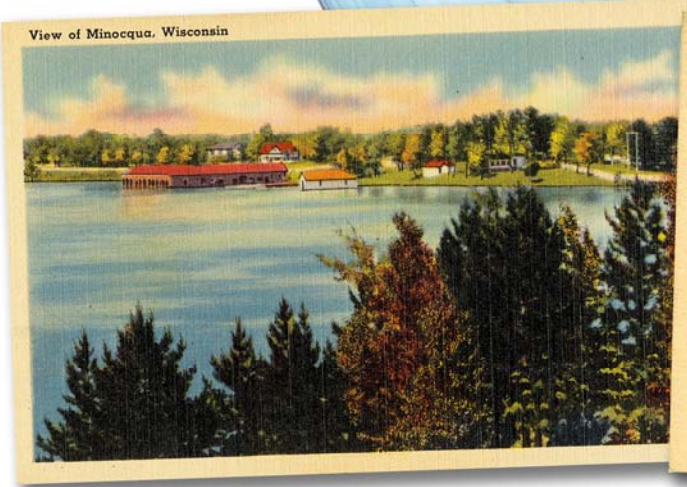
So exciting we just had to write home about them.



**Culvert Inventory**  
 SCD staff and students developed this interactive mapping application that displays the WICDI (Wisconsin Coastal-Management Data Infrastructure) culvert database. Users can browse to any location in the state and view detailed culvert information provided by nearly 30 partner agencies.  
 Hayden Elza, Jim Lacy, Genevieve Burgess, Mallory Johnson, Duncan McFarlane



**POST CARD**  
**LIDAR Data Inventory Map**  
 The LIDAR Data Inventory is an interactive status map showing the patchwork of LIDAR datasets available throughout Wisconsin. In FY23 we made considerable behind-the-scenes updates to the tool. Users are now directed to GeoDataeWisconsin to discover and download specific Wisconsin elevation datasets.  
 Hayden Elza, Jim Lacy & Ana Wells



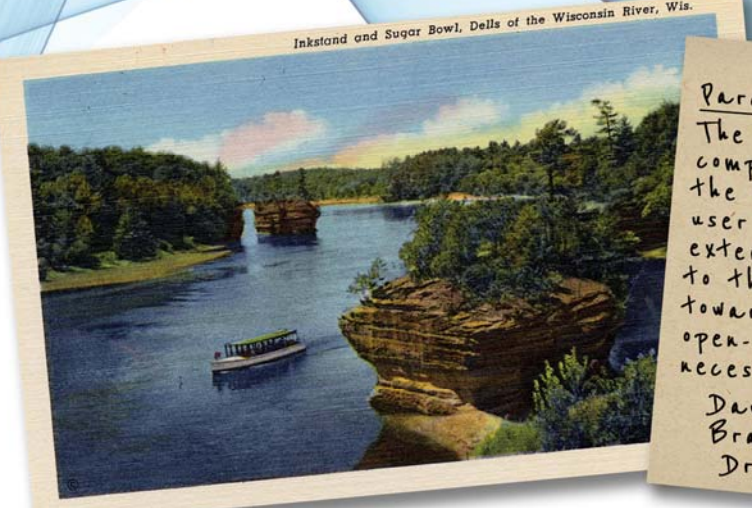
**Statewide Parcel Map Application**  
 The Statewide Parcel Map app underwent a significant overhaul with the release of the latest parcel layer. This redesign integrated up-to-date JavaScript libraries and utilized ESRI's latest version of Experience Builder - Developer Edition. These updates will facilitate a more streamlined application management workflow for future Parcel Project iterations.  
 Hayden Elza & David Vogel

**PRIVATE MAILING CARD**  
**Historic Aerial Imagery Access**  
 In collaboration with the UW-Madison Robinson Map Library, we are working to expand the availability of downloadable historic aerial imagery. This work builds on the success of our WHAIFinder application. Current efforts are focused on acquiring and processing imagery from the 1950s through 1980s, developing a database to track individual images, and designing an updated WHAIFinder app.  
 Jim Lacy, Hayden Elza, Rachel Ren, Drew ten Bensel & Jaime Martindale (Robinson Map Library)



**POST CARD**  
**Survey Control Finder**  
 The Survey Control Finder application has been updated to integrate feedback from the Wisconsin County Surveyors Association (WCSA). These improvements include the introduction of horizontal accuracy color-coding and the implementation of display coordinate precision constraints.  
 Hayden Elza, David Vogel

**POST CARD**  
**SCO Web Updates**  
 Our website is one of the main outreach mechanisms we use to support both professional and general public map & GIS users. We continue to work on maintaining content, as well as updating the software and other infrastructure needed to keep the site up and running.  
 Hayden Elza, Mike Hasinoff, Jim Lacy & David Vogel



**Parcel Validation Tool POST CARD**  
 The Parcel Validation Tool underwent a comprehensive redesign, which included the development of a new graphical user interface (GUI), the removal of external component dependencies, and updates to the back-end. This was a substantial move towards transitioning the tool to a fully open-source platform, eliminating the necessity for ESRI license validation.  
 David Vogel, Ana Wells, Tom Kazmierczak, Branton Kunz, Param Bhandare, Drew ten Bensel, Rachel Ren



Wisconsin State Capitol, Madison, Wisconsin

PRIVATE MAILING CARD. — AUTHORIZED BY ACT OF CONGRESS OF MAY, 19 1909  
 (POSTAL CARD — CARTE POSTALE.)

PLACE STAMP HERE  
 Domestic: ONE CENT.  
 Foreign: TWO CENTS.

**GeoData@Wisconsin**  
 GeoData@WI is a statewide geospatial data discovery geoportal maintained cooperatively with the UW-Madison Robinson Map Library. We continually add new collections of data to the geoportal and maintain the technical infrastructure required to ensure the tool is reliable and easy to use.

Jim Lacy, Hayden Elza, Rachel Ren,  
 Drew ten Benschel, Jaime Martindale (Robinson Library)

THIS SIDE IS FOR THE ADDRESS.

POST CARD

**CARTOGRAPHIC PHANTOMS**

WE EXTENDED OUR EXISTING WORK ON UNINCORPORATED PLACES TO THE IDENTIFICATION OF "CARTOGRAPHIC PHANTOMS" -- COMMUNITIES THAT APPEAR ON MAPS BUT DO NOT ACTUALLY EXIST ON THE GROUND. CARTOGRAPHIC PHANTOMS CAN OCCUR WHEN SMALL RURAL COMMUNITIES DISAPPEAR BUT MAPS ARE NOT UPDATED. OUR RESULTS ARE BEING USED AT BOTH THE STATE AND FEDERAL LEVELS TO IMPROVE THE SELECTION OF UNINCORPORATED COMMUNITIES ON MAPS.

MIKE HASINOFF & HOWARD VEREGIN

Place the Stamp Here  
 One Cent for United States, and  
 Island Possessions  
 Cuba, Canada and  
 Mexico  
 Two Cents For Foreign.

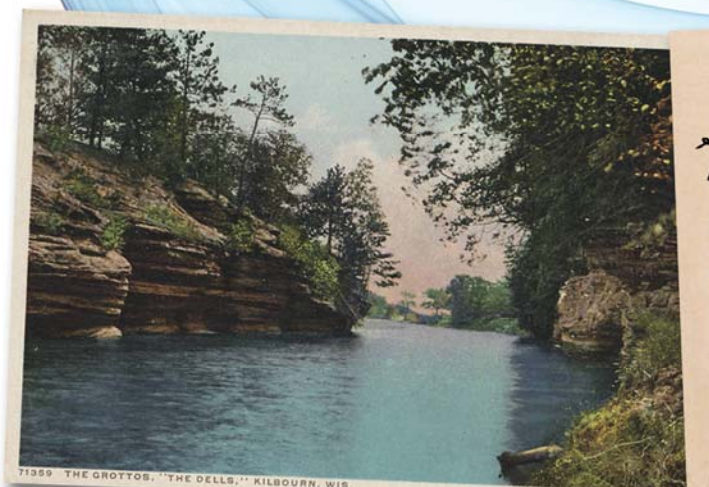


Gunlock Lake near Minocqua, Wisconsin

**Culvert Vulnerability**

We are developing a culvert vulnerability model using the US Geological Survey's StreamStats spatial analytical tool to determine the ability of a given culvert to accommodate stream discharge during flood events. This model is being used to provide a planning-level evaluation of culvert vulnerability associated with various annual exceedance probability events.

Bram Bhandare, Ana Wells, Ann Buschhaus,  
 Howard Veregin & Anita Thompson (Biological Systems Engineering)



POST CARD

**SCO Application Infrastructure**

We continue to innovate in our web application development and update efforts, using the newest technologies to provide more efficient application management while also providing our students with opportunities to fine-tune their skillsets.

Hayden Elza, David Vogel & Jim Lacy

PLACE STAMP HERE

THIS SPACE MAY BE USED FOR MESSAGE

THIS SPACE FOR THE ADDRESS

# Organizations

Feeling a little peckish? These organizations will give you plenty of food for thought.

**COUNCILS, COMMITTEES AND ORGANIZATIONS**

**STATE AGENCY GEOSPATIAL INFORMATION COMMITTEE (SAGIC)**  
 Jim Lacy SAGIC Committee Chair :: Communication Committee

**WISCONSIN LAND INFORMATION COUNCIL**  
 Howard Veregin Ex Officio member

**WISCONSIN GEOGRAPHIC NAMES COUNCIL**  
 Howard Veregin Ex Officio member

**WISCONSIN SPATIAL REFERENCE SYSTEM (WSRS2022) TASK FORCE**  
 Howard Veregin Task Force Co-Chair (with Richard Kleinmann, Ayres Associates)  
 Hayden Elza Software/Hardware Focus Group

**WISCONSIN PUBLIC LAND SURVEY SYSTEM (PLSS) WORK GROUP**  
 David Vogel & Howard Veregin SCO Representatives

**WISCONSIN LAND INFORMATION ASSOCIATION (WLIA) COMMITTEE**  
 Hayden Elza Education Committee :: Annual Conference Committee

**WISCONSIN COUNTY SURVEYORS ASSOCIATION (WCSA)**  
 David Vogel SCO Representative

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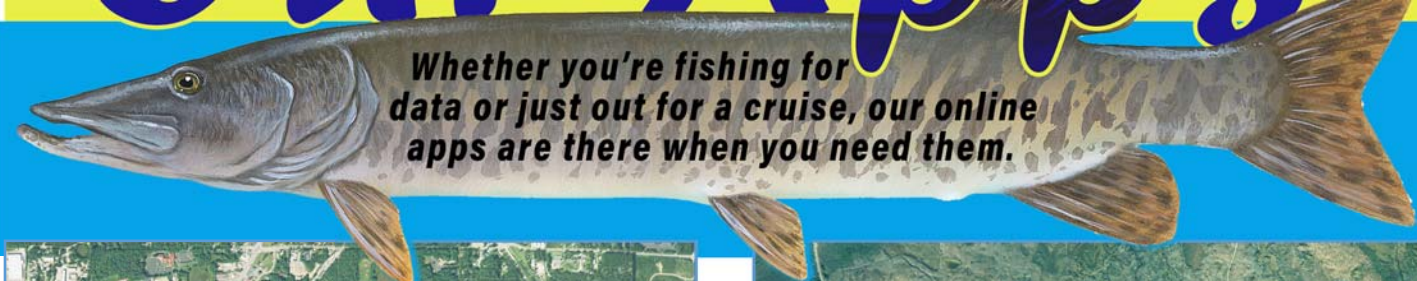
**DEPARTMENT OF GEOGRAPHY, UW-MADISON**  
 Ann Buschhaus Co-Chair, Diversity, Equity, Inclusion and (Work) Climate Committee  
 Hayden Elza Geocomputing Committee  
 Jim Lacy Finance Committee :: Staff Compensation Committee :: Search Committee for Cartography Lab Director  
 Howard Veregin Staff/Faculty Development Committee :: Space Committee

**COLLEGE OF LETTERS & SCIENCE, UW-MADISON**  
 Jim Lacy Chair, Committee on Academic Staff Issues :: Professional Development and Recognition Committee

**UW-MADISON**  
 Jim Lacy Wisconsin Initiative on Climate Change Impacts (WICCI) Geospatial Working Group :: Search Committee for UW Department of Soils GIS Specialist  
 David Vogel Search Committee for Arboretum GIS Specialist



# Our Apps



Whether you're fishing for data or just out for a cruise, our online apps are there when you need them.

**GEODATA@WISCONSIN**  
geodata.wisc.edu

With thousands of geospatial datasets to choose from, there's always something new to explore.

In collaboration with:  
THE ARTHUR H. ROBINSON  
MAP LIBRARY  
University of Wisconsin-Madison

(Above) This lake surrounds one of the state's largest unincorporated communities. What lake is it? Answer on final page.

**WHAIFINDER**  
maps.sco.wisc.edu/WHAIFinder

With access to thousands of historic air photos of Wisconsin, you can see your favorite fishing spots in a new light.

In collaboration with:  
THE ARTHUR H. ROBINSON  
MAP LIBRARY  
University of Wisconsin-Madison

(Above) This reservoir used to be known as Totagatic Flowage. What name does it go by now? Answer on final page.

**STATEWIDE PARCEL MAP VIEWER**  
maps.sco.wisc.edu/parcels

3.5 million parcel records all in one place, making your voyage a breeze.

(Above) This well-known lake is surrounded by steep quartzite bluffs. What lake is it? Answer on final page.

**SURVEY CONTROL FINDER**  
maps.sco.wisc.edu/surveycontrolfinder

It's like a fish finder for geodetic control points, the Public Land Survey System, and the CORS network!

(Above) This lake is associated with a motor-sports racecourse considered by some to be one of the best in the US. What lake is it? Answer on final page.

**AERIAL PHOTOGRAPHY CATALOG**  
maps.sco.wisc.edu/apcat

Hook all the air photos you want. No bait required!

In collaboration with:  
THE ARTHUR H. ROBINSON  
MAP LIBRARY  
University of Wisconsin-Madison

(Above) This reservoir is one of the largest artificial lakes in the state. What is its name? Answer on final page.

**FIND LIDAR DATA**  
sco.wisc.edu/data/elevationlidar

Landing one of these big LiDAR datasets can be a challenge ... this app gives you a leg up.

(Above) This lake shares a name with a marsupial. What is the name of the marsupial? Answer on final page.

**PRONOUNCE WISCONSIN**  
maps.sco.wisc.edu/pronouncewi

Sound like you're from Wisconsin ... even if you're not.

(Above) Before dam-building in the 1850s, this lake was a marsh densely packed with wild rice. What lake is it? Answer on final page.


**WISCONSIN CULVERT INVENTORY**  
Our newest app @ sco.wisc.edu

Culverts not only let water pass under the road, but can also be designed to let fish migrate upstream.

Funded by the Wisconsin Coastal Management Program and the National Oceanic and Atmospheric Administration, Office for Coastal Management under the Coastal Zone Management Act. Grant # NA18NOS4190087, Grant # NA20NOS4190105 and Grant #NA21NOS4190032

(Above) This lake shares a name with the lake in Switzerland where, in 1816, Mary Shelley began writing "Frankenstein." What is the lake's name? Answer on final page.

**COASTAL BORDER SURVEY EXPLORER**  
[maps.sco.wisc.edu/BorderCoastal](https://maps.sco.wisc.edu/BorderCoastal)



Explore the coastal areas of Wisconsin as they appeared in the 1930s.

(Above) The name of this large lake reflects its elevated location. What is its name? Answer on final page.

**PLSS LOCATOR**  
[maps.sco.wisc.edu/plss-locator](https://maps.sco.wisc.edu/plss-locator)

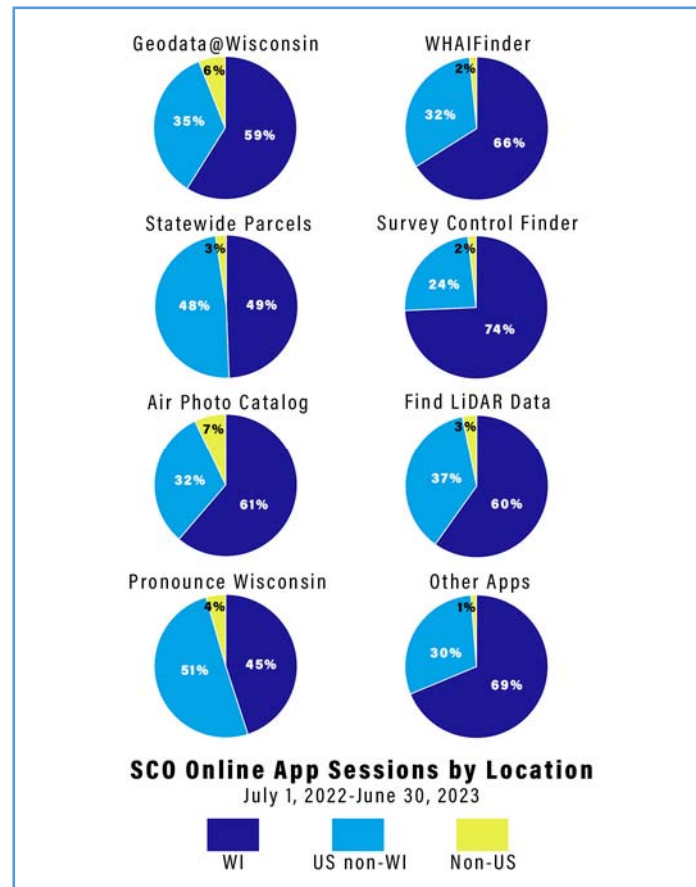
It's wherever. Navigate to where you need to be.

(Above) This lake is one of the deepest in the "Lake Country" region of a certain southeastern Wisconsin county. What lake is it? Answer on final page.

**WISCONSIN BEARING TREES**  
[maps.sco.wisc.edu/bearingtrees](https://maps.sco.wisc.edu/bearingtrees)

These are the trees that put Wisconsin on the map. Help us find more of them.


(Above) The name of this lake is also the name of the city situated on its northwestern shore. What is the name of the lake? Answer on final page.



(Above) Who's visiting? Some of our apps pull visitors from all over, while others are more Wisconsin-centric.

# Can We Help?

We're here to answer your questions and provide advice.  
 Call 608-262-3065 or email us at [help@sco.wisc.edu](mailto:help@sco.wisc.edu)



**SCo HELP DESK STATISTICS**

Job Posting...105	Lake and Bathymetric Maps...5
Parcel Submission Support...44	Snowmobile and ATV Maps...4
Aerial Photography...29	Public Land Survey System...4
Elevation and LiDAR...28	Plat Books...3
Surveying...11	School Districts...3
Find Maps...10	Geographic Names...1
Parcels...10	Zoning...1
Topographic Maps...9	Miscellaneous...41
Geospatial Data...8	<b>TOTAL...323</b>
Coordinate Reference Systems...7	

Requests for information or assistance submitted to our Help Desk system, July 2022 thru June 2023

# Events

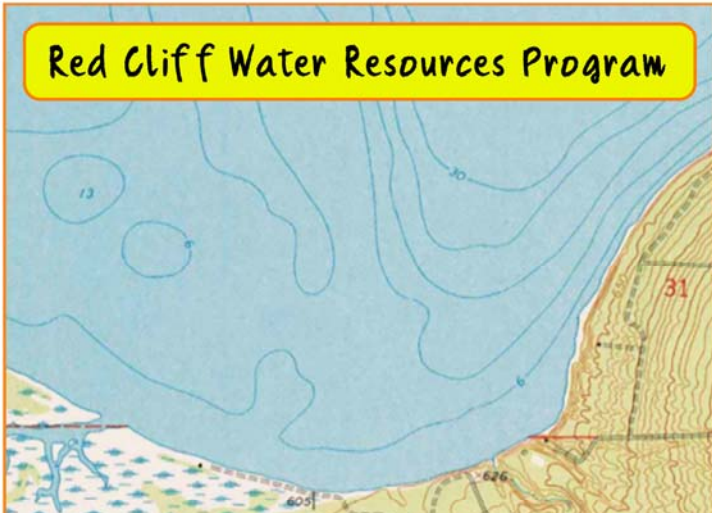
**Presentations, workshops, webinars and other outreach activities ... here's our list for the year.**

## Wisconsin Land Information Association Annual Conference



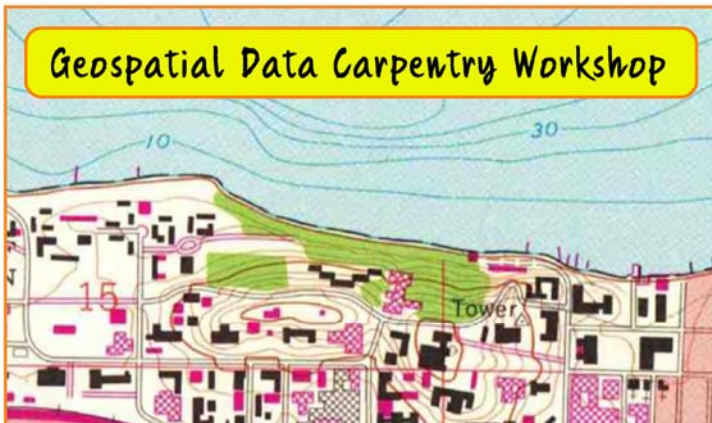
**February 2023**  
**Presentations:** ① H. Elza, *Improving the Accessibility of Your Web Maps* ② J. Martindale & J. Lacy, *Wisconsin Historical Aerial Imagery Finder 3.0 & Beyond* ③ J. Martell & H. Veregin, *Menominee Place Names*  
**Panel:** N. Rihn, M. Dennis, H. Veregin, J. Erickson, C. Hughes & R. Kleinmann, *We Need to Talk—About Your GIS Data!*  
**Outreach:** D. Vogel, A. Wells & T. Kamierczak, *Parcel Project Help Desk Hours*

## Red Cliff Water Resources Program



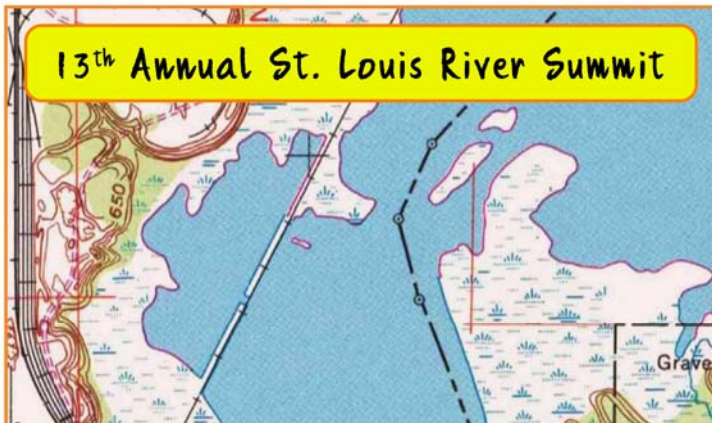
**October 2022; May 2023**  
**What:** On-site visits to present data, conduct training and perform fieldwork with Red Cliff Water Resource and Environmental staff.  
**Who:** Ann Buschhaus, Sarah Fogel  
**Remote:** Duncan McFarlane, Mallory Johnson, Anita Thompson (Biological Systems Engineering)

## Geospatial Data Carpentry Workshop



**June 2023**  
**Workshop Instructors:** ① H. Elza, *Introduction to Geospatial Concepts* ② A. Wells, *Importing csv Point Data and Extracting Raster Values in R*

## 13<sup>th</sup> Annual St. Louis River Summit



**March 2023**  
**Presentation:** K. Rhude, C. Sack & H. Veregin, *Progress on Habitat Mapping in the Lake Superior Reserve*

*Our editor forgot to include the locations for these events, so you'll have to infer them from the clues on the maps — which are all classic US Geological Survey 1:24,000 topo maps from the 1950s through 1970s. Answers are on the final page in case you need help.*

## Wisconsin Land Information Association Fall Conference



**October 2022**  
**Presentation:** J. Martindale & J. Lacy, *Wisconsin Historical Aerial Imagery: Past, Present, and Future*

## Wisconsin Wetlands Association Coffee Break



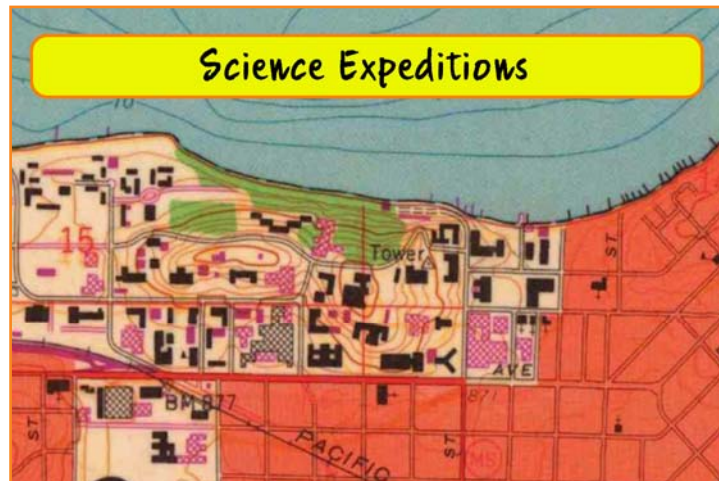
**May 2023**  
**Online Presentation:** H. Veregin, *Discovering Historic Wisconsin Geospatial Data*

## 74<sup>th</sup> Annual Surveyor's Institute, Wisconsin Society of Land Surveyors



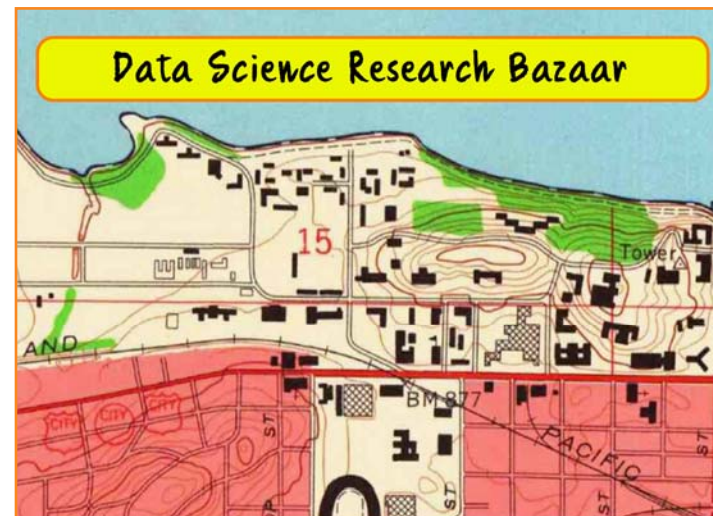
**January 2023**  
**Presentation:** R. Kleinmann, H. Veregin & J. Heck, *Dealing With Coordinate "Drift" on a Multi-Year Corridor Project.*

## Science Expeditions



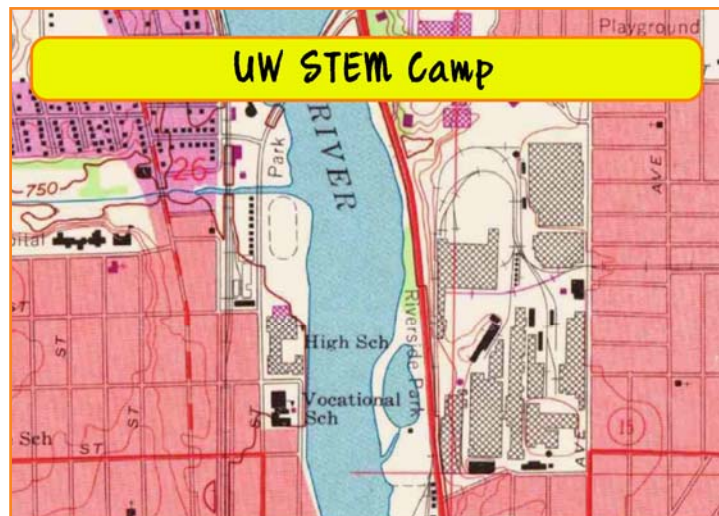
**April 2023**  
**Event Organized:** J. Lacy, *Science Expeditions - Science Hall Open House*

## Data Science Research Bazaar



**February 2023**  
**Event Co-Organized:** J. Lacy, *Geospatial Session*

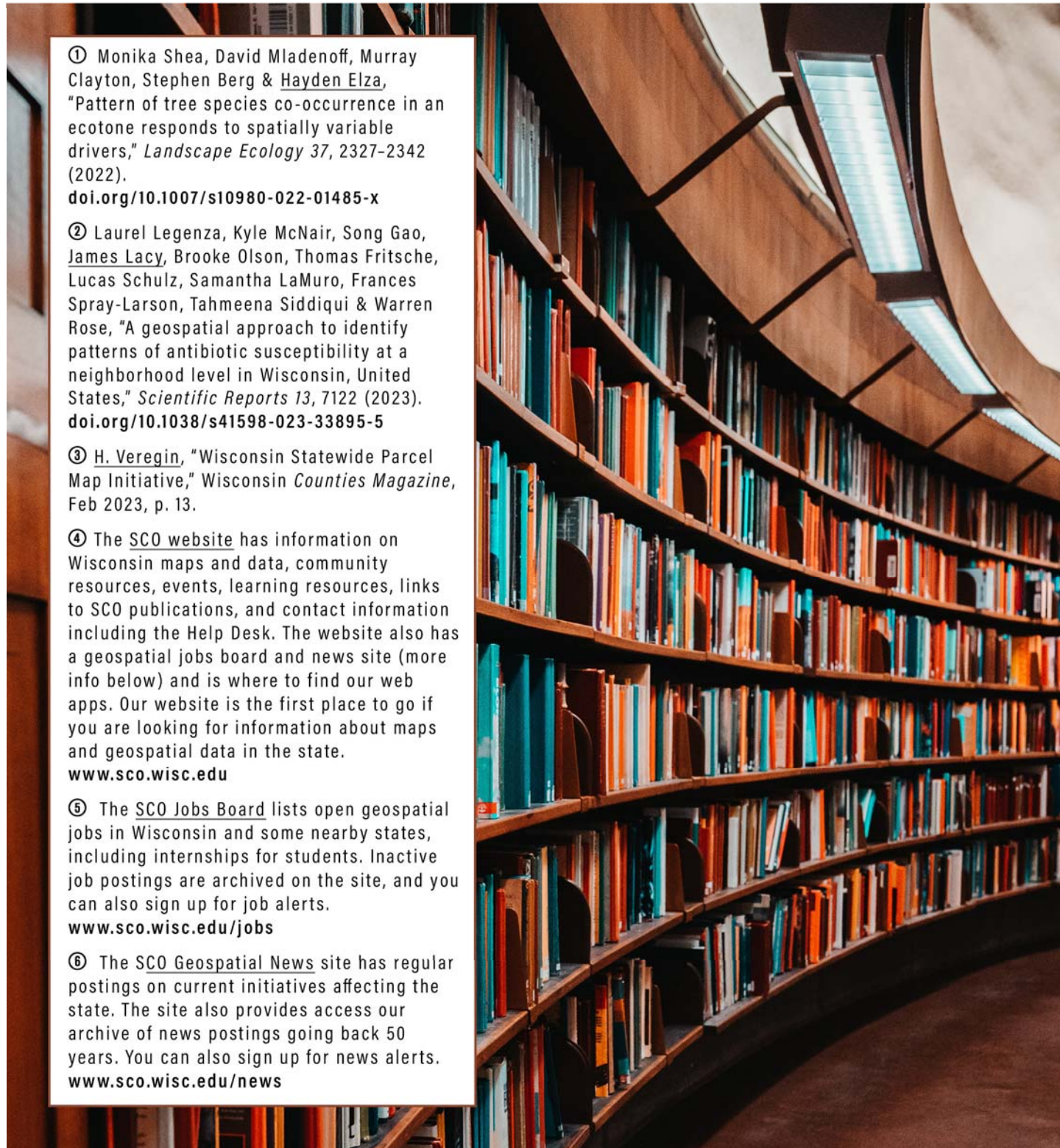
## UW STEM Camp



**June 2023**  
**Event Organized:** J. Lacy, *Taking Autism to the Skies*

# Resources

Explore these digital resources ... you might discover something unexpected!



① Monika Shea, David Mladenoff, Murray Clayton, Stephen Berg & Hayden Elza, "Pattern of tree species co-occurrence in an ecotone responds to spatially variable drivers," *Landscape Ecology* 37, 2327-2342 (2022).  
[doi.org/10.1007/s10980-022-01485-x](https://doi.org/10.1007/s10980-022-01485-x)

② Laurel Legenza, Kyle McNair, Song Gao, James Lacy, Brooke Olson, Thomas Fritsche, Lucas Schulz, Samantha LaMuro, Frances Spray-Larson, Tahmeena Siddiqui & Warren Rose, "A geospatial approach to identify patterns of antibiotic susceptibility at a neighborhood level in Wisconsin, United States," *Scientific Reports* 13, 7122 (2023).  
[doi.org/10.1038/s41598-023-33895-5](https://doi.org/10.1038/s41598-023-33895-5)

③ H. Veregin, "Wisconsin Statewide Parcel Map Initiative," *Wisconsin Counties Magazine*, Feb 2023, p. 13.

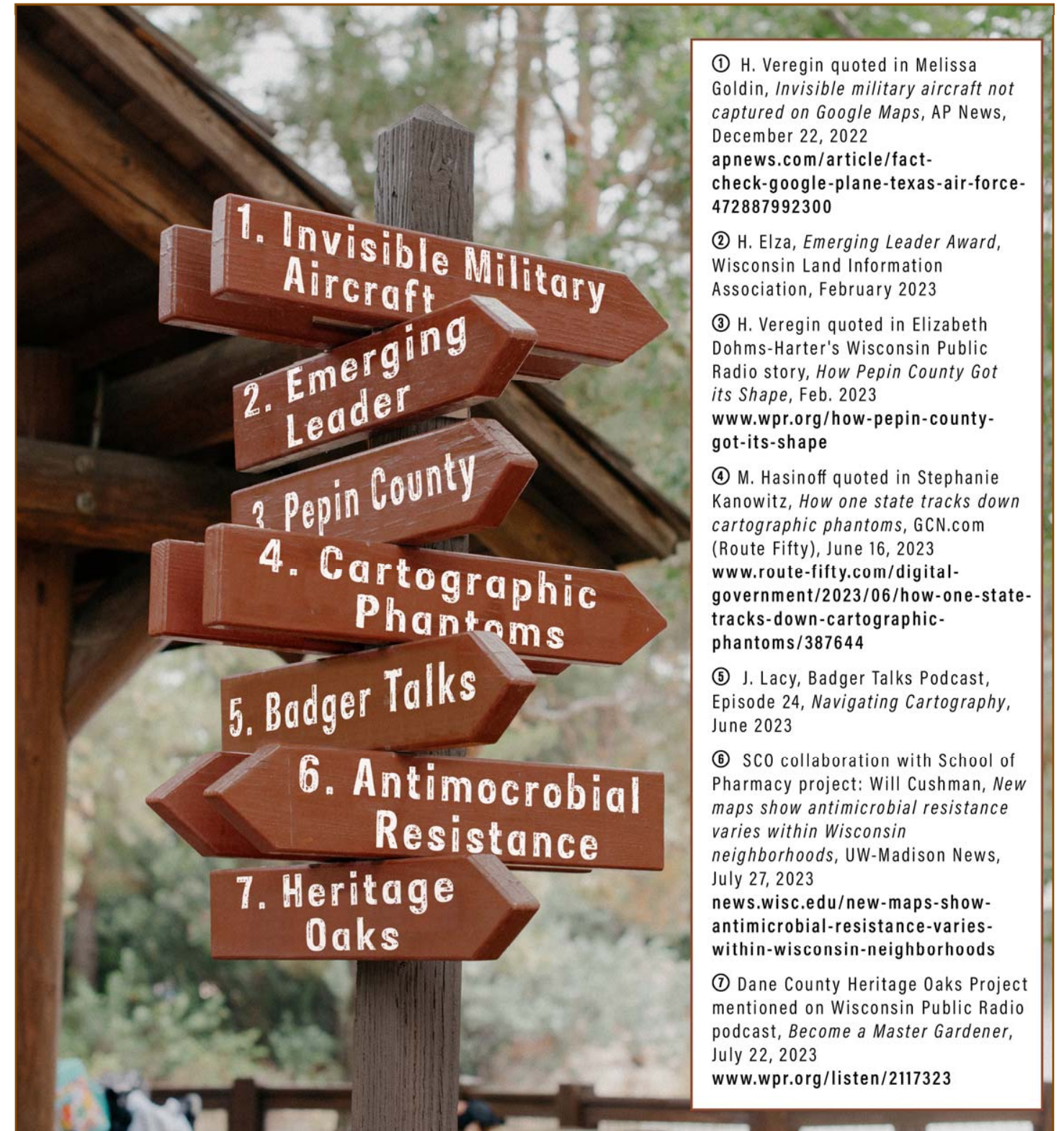
④ The [SCO website](http://www.sco.wisc.edu) has information on Wisconsin maps and data, community resources, events, learning resources, links to SCO publications, and contact information including the Help Desk. The website also has a geospatial jobs board and news site (more info below) and is where to find our web apps. Our website is the first place to go if you are looking for information about maps and geospatial data in the state.  
[www.sco.wisc.edu](http://www.sco.wisc.edu)

⑤ The [SCO Jobs Board](http://www.sco.wisc.edu/jobs) lists open geospatial jobs in Wisconsin and some nearby states, including internships for students. Inactive job postings are archived on the site, and you can also sign up for job alerts.  
[www.sco.wisc.edu/jobs](http://www.sco.wisc.edu/jobs)

⑥ The [SCO Geospatial News](http://www.sco.wisc.edu/news) site has regular postings on current initiatives affecting the state. The site also provides access our archive of news postings going back 50 years. You can also sign up for news alerts.  
[www.sco.wisc.edu/news](http://www.sco.wisc.edu/news)

# Media Mentions

Our uniquely cartographic roadside attractions.



① H. Veregin quoted in Melissa Goldin, *Invisible military aircraft not captured on Google Maps*, AP News, December 22, 2022  
[apnews.com/article/fact-check-google-plane-texas-air-force-472887992300](https://apnews.com/article/fact-check-google-plane-texas-air-force-472887992300)

② H. Elza, *Emerging Leader Award*, Wisconsin Land Information Association, February 2023

③ H. Veregin quoted in Elizabeth Dohms-Harter's Wisconsin Public Radio story, *How Pepin County Got its Shape*, Feb. 2023  
[www.wpr.org/how-pepin-county-got-its-shape](http://www.wpr.org/how-pepin-county-got-its-shape)

④ M. Hasinoff quoted in Stephanie Kanowitz, *How one state tracks down cartographic phantoms*, GCN.com (Route Fifty), June 16, 2023  
[www.route-fifty.com/digital-government/2023/06/how-one-state-tracks-down-cartographic-phantoms/387644](http://www.route-fifty.com/digital-government/2023/06/how-one-state-tracks-down-cartographic-phantoms/387644)

⑤ J. Lacy, *Badger Talks Podcast*, Episode 24, *Navigating Cartography*, June 2023

⑥ SCO collaboration with School of Pharmacy project: Will Cushman, *New maps show antimicrobial resistance varies within Wisconsin neighborhoods*, UW-Madison News, July 27, 2023  
[news.wisc.edu/new-maps-show-antimicrobial-resistance-varies-within-wisconsin-neighborhoods](http://news.wisc.edu/new-maps-show-antimicrobial-resistance-varies-within-wisconsin-neighborhoods)

⑦ Dane County Heritage Oaks Project mentioned on Wisconsin Public Radio podcast, *Become a Master Gardener*, July 22, 2023  
[www.wpr.org/listen/2117323](http://www.wpr.org/listen/2117323)





DEPARTMENT OF  
**GEOGRAPHY**  
University of Wisconsin-Madison



**WISCONSIN**  
UNIVERSITY OF WISCONSIN-MADISON