Wisconsin Geological & Natural History Survey

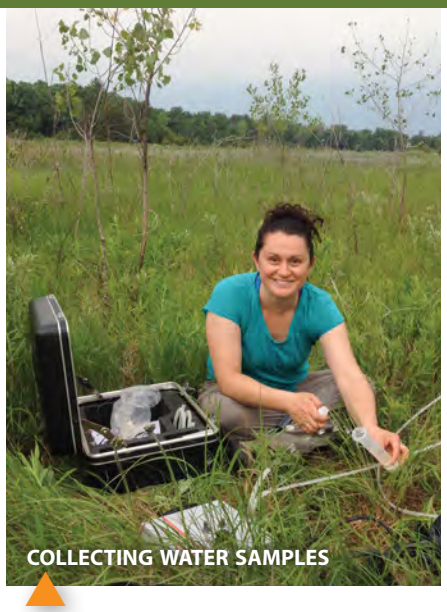
2016

year in review

UW Extension

University of Wisconsin-Extension

We provide **objective scientific information** *about the* **geology, mineral resources, and water resources** *of* **Wisconsin**


COLLECTING WATER SAMPLES

WATER IN THE CENTRAL SANDS (PORTAGE CO.) Wisconsin's Central Sands region is home to abundant streams, rivers, and lakes as well as a thriving agricultural industry. The Wisconsin DNR funded a project to construct a groundwater flow model for the Little Plover River basin to help answer questions involving management of water use or land-use changes.

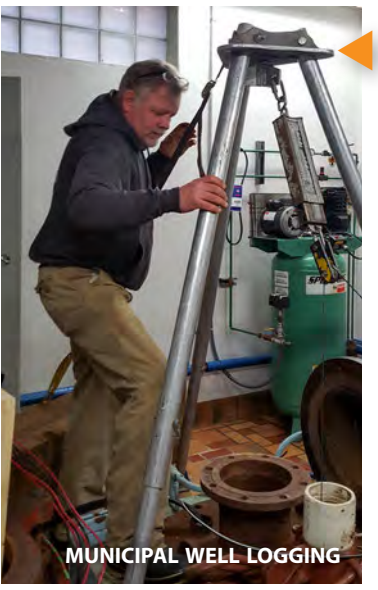

GEOPROBE CORING

MAPPING IN THE DRIFTLESS AREA. With support from USGS, we continue to map the geology of southwest Wisconsin and build on our knowledge of its geologic history as we document landscape changes over time-scales ranging from decades to millenia. *Counties:* Crawford, Iowa, Monroe, Richland, Vernon.


EXAMINING CORE

BEDROCK MAPPING (DODGE CO.) In this 4-year mapping project with USGS matching funds, we are learning how geology controls the county's groundwater and mineral resources.

GEOLOGY OF THE BARABOO HILLS AREA (SAUK, COLUMBIA CO.) Precambrian rock and buried bedrock structures in Dodge County extend to the Baraboo Hills area. Connecting the geologic map in both areas, using new and re-discovered archived documents, is telling the story of south-central Wisconsin's ancient geologic history.


MUNICIPAL WELL LOGGING

MADISON WATER UTILITY

BOREHOLE IMAGING. WGNHS uses state-of-the-art equipment to collect high-resolution digital images inside of wells and boreholes. We can get a great view of the subsurface at lower cost and with better results than ever before using optical borehole imaging (or OBI). Municipalities, consultants, DNR, homeowners, and researchers all benefited from this service in 2016.

RADIUM IN GROUNDWATER. More than 95 of Wisconsin's public water systems need to reduce natural radium concentrations; we are trying to understand its geologic source. This understanding can provide significant cost savings when compared to water treatment and it can bring some systems back into productive use.

DOOR COUNTY'S GLACIAL DEPOSITS. This and other maps and publications are available at **wgnhs.org**.

I had, and continue to have, success as a geologist in Wisconsin in large part because of the support and cooperation of WGNHS staff.

DAVID MICKELSON
GEOLOGIST

GEOPROBE CORING

MAPPING DEPTH TO BEDROCK (KEWAUNEE CO.) We are producing maps related to bedrock and groundwater to give the Town of Lincoln tools for land-use planning and management. Assessing new technologies for determining bedrock depth is an important part of this work.

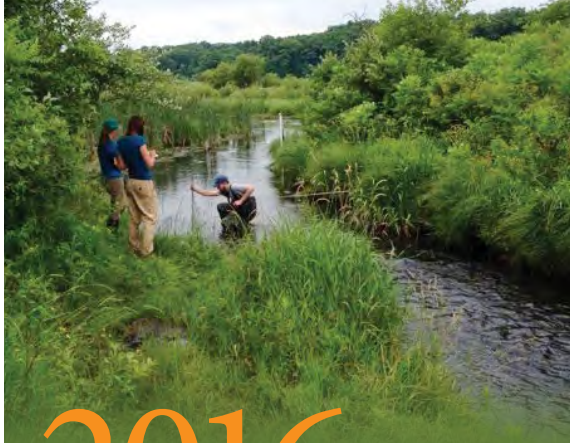
LAKE MICHIGAN SHORELINE

STUDYING BLUFF FAILURE (RACINE, OZAUKEE CO.) The Lake Michigan shoreline has been affected by fluctuating lake levels for thousands of years. To better predict bluff failure, WGNHS is measuring the slope before, during, and after it fails using an instrument called the BADGER—Bluff Assessment Data Generating Experiment Recorder.

CORE REPOSITORY. We have over 650,000 feet of core, much of it unique and irreplaceable. Our collection is used to answer a variety of geological questions.

TREMPEALEAU COUNTY

BEDROCK MAPPING (TREMPEALEAU CO.) We began the first year of a 2-year bedrock mapping project in Trempealeau County, the center of Wisconsin's frac sand resources. Besides mapping the rock that contains frac sand, we are tracking the source of natural toxins—such as lead and arsenic—in groundwater in these rocks.



2016
by the numbers

Core repository
MAINTAINING A ROCK LIBRARY

650,000 feet of rock core
17,100 rock thin sections
14,300 rock hand specimens
11,000 water well cuttings

Field work
WORKING ON PROJECTS IN 64 COUNTIES

2,202 feet of core drilled
2,375 feet of geoprobe drilled
139 groundwater monitoring wells
47 municipal wells logged

Geologic data
MAKING OUR DATA AVAILABLE

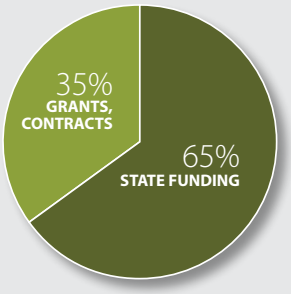
31,000 thin section photographs
4,000 pages of field notes scanned
3,945 feet of geoprobe core photographed

Education and outreach
ANSWERING YOUR QUESTIONS

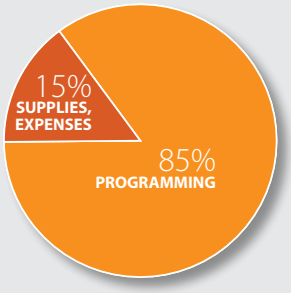
17,200 educational contacts
2,400 Facebook likes
1,500 Twitter followers
142 talks and professional papers

2016 TOTAL REVENUE $2.3 MILLION

FISCAL YEAR



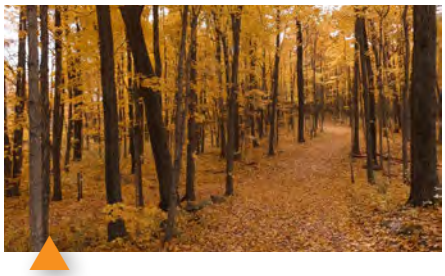
Where our money came from



How the money was used


MUKWONAGO RIVER

MODELING A WETLAND (WAUKESHA CO.) The Mukwonago River watershed is one of the most ecologically diverse river systems in southern Wisconsin. We are developing a groundwater flow model to help area planners strike a balance between the water needs of people and natural systems in this important watershed.



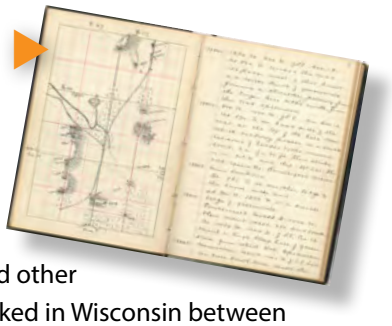
GROUNDWATER IN THE NATIONAL FORESTS. When the National Forest Service needed help managing the water resources of the Chequamegon-Nicolet National Forest, WGNHS stepped in. We began a 5-year project to develop a comprehensive hydrogeology report, database, and model. Now the Forest Service has the tools they need to better manage the forest ecology. *Counties:* Ashland, Bayfield, Florence, Forest, Langlade, Oconto, Oneida, Price, Sawyer, Taylor, Vilas.


CRAWFORD COUNTY

INVENTORYING SPRINGS. We continued our statewide springs inventory work this year, surveying 213 springs in 24 counties.

The Survey is an invaluable resource for hydrologists and engineers involved in the protection, restoration, and development of Wisconsin's natural resources.

JOHN RICE
CONSULTANT



DATA PRESERVATION. WGNHS is completing work on the historic notebooks produced by Charles Van Hise and other geologists who worked in Wisconsin between 1882 and 1922. Their work laid the groundwork for all later investigations of the Precambrian rocks of the Upper Midwest. WGNHS is making this information available online.

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