



# Wisconsin State Cartographer's Office



Your resource for mapping and geographic information in the state of Wisconsin

January 2016

## Statewide Land Cover Mapping

### Project Background

The University of Wisconsin-Madison and Wisconsin Department of Natural Resources (DNR) are partnering on a project to map the current vegetation, water, and urban patterns ("land cover") of Wisconsin. The resulting digital database will replace a statewide land cover map created by DNR using 1991-1993 data. Funding for the project was provided by the U.S. Fish & Wildlife Service through the Pittman-Robertson Wildlife Restoration Act, grant #W-160-P-25.

One of the main drivers behind the land cover mapping project is DNR's desire to improve whitetail deer habitat monitoring. The need for an improved statewide land cover database was specifically cited in a 2012 report by Deer Trustee Dr. James Kroll. [See http://tinyurl.com/wi-dtr](http://tinyurl.com/wi-dtr).

In addition, an accurate and up-to-date statewide land cover map will allow the DNR forestry division to map the distribution of tree types important to Wisconsin's economy.

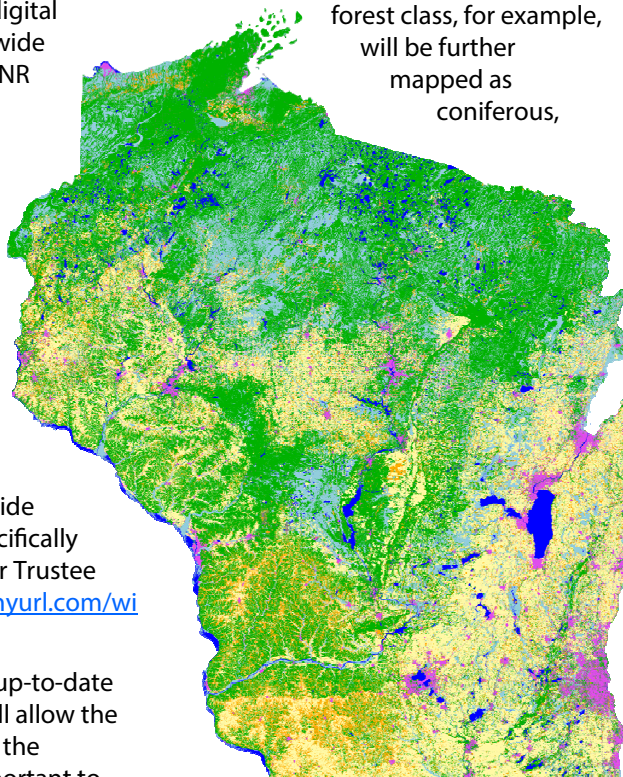
More generally, land cover maps are used to monitor biodiversity, habitat loss, effects of climate change, and track land management decisions over time.

The "Wisland 2" project started May 1, 2014, and is expected to be complete by mid-August, 2016.

### Mapping from Satellites

Using data from the U.S. Government's Landsat series of satellites, the project team is mapping the occurrence of 50+ types of land cover commonly found in

Wisconsin. The state will be divided into broad "level 1" land cover classes such as agriculture, forest, wetland, and open water. Each of these broad classes will be further subdivided into more detailed "level 2" sub-classes. The forest class, for example, will be further mapped as coniferous,



deciduous, and mixed forests. To the extent possible, the project team will also map certain species-level vegetation types such as Jack Pine, White Spruce, Sugar Maple, and Red Oak. The satellite mapping is supported by extensive field work to gather training data and obtain accuracy assessment information.

### Relationship to Other Land Cover Products

While other land cover products exist, they do not provide the extent, accuracy, or classes needed by many land managers in Wisconsin. The National

Land Cover Database (NLCD) provides an excellent snapshot of land cover across the nation every five years, but that product necessarily must be simplified in order to portray the diversity of vegetation types present in the United States. The 16 classes used by NLCD are generally not viewed as adequate for many detailed land management applications in Wisconsin.

### UW Research Expected to Improve Results

UW-Madison scientists will use the latest techniques to obtain the most accurate results possible for a satellite-derived land cover map. Methods developed at UW-Madison are expected to allow accurate mapping down to the species-level for many forest types, for example. The science team expects to exceed the industry-standard 85% accuracy benchmark for level 1 and 2 classes in the final product.

### Project Team

The State Cartographer's Office (SCO) is coordinating the overall effort, and leading outreach activities. A science team of experts from the UW-Madison Department of Forest and Wildlife Ecology is managing the technical implementation, with input from an external science advisory committee. Finally, the DNR is represented by a guidance committee of DNR specialists.

### More Information

For more information, visit the SCO Web site at [www.sco.wisc.edu](http://www.sco.wisc.edu), and click on the "Projects" link near the top of the page. Interested stakeholders can contact the SCO at (608) 262-3065 or [sco@wisc.edu](mailto:sco@wisc.edu).

