



IOWA DEPARTMENT OF NATURAL RESOURCES

Iowa DNR News

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Initial statewide mapping of conservation practices now complete

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DES MOINES – A statewide effort to identify and map six types of conservation practices (terraces, ponds, grassed waterways, water and sediment control basins, contour strip cropping and contour buffer strips/prairie strips) has been completed and provides the most comprehensive inventory of conservation practices in the nation.

An analysis of the results shows the value of this public and private investment in conservation would be \$6.2 billion in today's dollars. Additional analysis work is underway to utilize the science of the Iowa Nutrient Reduction Strategy to quantify the water quality impact these practices are having in terms of reduced sediment and phosphorus loads to Iowa streams.

“This mapping effort shows the scale and investment made by farmers, landowners, state and federal agencies, conservation partners and many others over several decades to reduce erosion and protect our natural resources. While the practices identified are focused on reducing soil erosion and phosphorus loss, seeing the progress that has been made illustrates how we can make similar progress with a long-term focus and investment in proven conservation practices targeted at reducing nitrogen loss,” said Iowa Secretary of Agriculture Mike Naig.

Iowa is the first state to analyze every watershed within its borders using LiDAR and aerial imagery to create a detailed assessment of conservation practice implementation. This data allows for a much more detailed and accurate analysis of soil conservation efforts focused on phosphorus reduction because it includes all practices implemented by farmers, including those done without government cost share.

Iowa DNR and researchers at Iowa State University lead the 3-year effort to use LiDAR derived elevation data and aerial imagery to identify and inventory the conservation practices present on the landscape. The analysis is based on LiDAR data and imagery that was taken from 2007 to 2010.

With this inventory completed, it provides a benchmark for measuring progress. Additional efforts are already underway to assess the status of these practices going back to the 1980's and also to assess the recent status of practices from 2016-2018. Once completed, Iowa will have a robust timeline to show the progress that has been made over time.

Maps and additional information about the project can be found at <https://www.gis.iastate.edu/gisf/projects/conservation-practices>. Not all of the information is available online yet as the Iowa DNR is still finalizing the process of quality assurance/quality control. That process is scheduled to be completed by next spring.

“This demonstrates that the consistent and persistent effort, year after year, of all the Iowans needed to educate, inform, fund, design, build, and maintain these practices can, practice by practice, change the landscape for the better. I'm excited and encouraged to see what we can do as we continue to scale up our collective efforts in support of the Iowa Nutrient Reduction Strategy”, said DNR Director Bruce Trautman.

Potential benefits of the project and uses of the information include:

- Targeting resources where they are needed most by comparing conservation potential with actual implementation
- Accurately benchmarking efforts to quantify nutrient reductions and compare with past and future progress
- Creating a consistent, scientifically sound dataset vetted by both Iowa State University and the Department of Natural Resources
- Detailed picture of all conservation structures regardless of whether or not cost share was utilized

“The ability to provide an accurate accounting of the progress being made under the Nutrient Reduction Strategy is a key mission of the Iowa Nutrient Research & Education Council (INREC). Coupling thorough assessments like this mapping project with the known science of conservation practices allows us to clearly show the impact of farmer efforts on a statewide scale,” said Shawn Richmond, INREC Director of Environmental Technology.

Practices mapped as part of the project include grassed waterways, contour strip cropping, contour buffer strips/prairie strips, terraces, ponds, and water and sediment control basins in 1,711 watersheds.

The initial number of practices identified by the mapping project include:

- 114,400 pond dams
- 327,900 acres of grassed waterways
- 506,100 terraces stretching 88,874 miles
- 246,100 water and sediment control basins stretching 12,555 miles
- 557,700 acres of contour buffer strips
- 109,800 acres of strip cropping

The project has garnered significant interest outside of Iowa as well. ISU was recently awarded a grant from a national remote sensing consortium to develop a handbook of the processes used for the project so other states can conduct a similar inventory of conservation practices. “Other states continue to look to Iowa as we set the standard for implementation of conservation practices and science-based progress measurement,” Naig added.

Iowa Department of Natural Resources, Iowa State University GIS Facility, Iowa Nutrient Research & Education Council, Iowa Department of Agriculture and Land Stewardship, Iowa Nutrient Research Center, and the National Laboratory for Agriculture and the Environment provided the resources to complete the project.