

Conservation Notes

USDA - Natural Resources Conservation Service - Michigan

November/December 2020

Cover Crops: Improving Soil & Feeding Cattle

What does a long-time no-till farmer do after his fall harvest is completed? If your Tuscola County farmer Nate Rupprecht, you plant cover crops.

Rupprecht farms a rotation of corn, soybeans, dry beans and wheat on 350 acres near Vassar. The land he works includes a farm that has been in his family for about 150 years as well as some rental ground. For nearly 20 years Rupprecht has been planting no-till, starting with soybeans and now nearly all of his planting. With financial assistance from the NRCS Environmental Quality Incentives Program and Conservation Stewardship program, he is now heavy into cover crops which compliment his use of no-till.

“It’s been a progression, using more mixes and finding ways to get them on more acres,” said Rupprecht of incorporating cover crops into his operation.

Eventually Rupprecht started seeing a relationship of how cover crops and no-till worked well together. Since he was already practicing no-till, cover crops were not a way to hold onto the soil but a way to hold on to nutrients and improve the soil structure. Cover crops help the soil keep more of the nitrogen from manure applications and as a result he has been able to apply substantially less nitrogen with no loss in yields, he said.

At the end of August Rupprecht had a cover crop mix flown onto a field of soybeans. Planting before harvest allowed him to apply a mix including barley, rye, radish and mustard that wouldn’t have time to germinate in the fall. He was impressed with the uniform coverage of the planting.

Rupprecht likes to have living roots in the soil to increase organic matter and diversify the soil



Tuscola County farmer Nate Rupprecht standing in a field planted with a cover crop mix by air on a standing soybean crop last August.

biology. Having dry beans and winter wheat in his rotation allow him more flexibility in what type of cover crops he can plant. He uses mixes that other farmers have had good results with or whatever is available. He started planting a flowering cover crop after wheat including dwarf sunflowers, “the public likes it.”

Cereal rye grass provides flexibility because it can germinate in cold temperatures. Rupprecht was planting rye grass in the third week of November following harvest when some farmers were doing

-continued on page 3-

USDA - Natural Resources Conservation Service

Michigan State Office
3001 Coolidge Road, Suite 250
East Lansing, MI 48823
Phone: 517/324-5270
www.mi.nrcs.usda.gov



State Conservationist’s Message	Page 2
Sanford Dam Cleanup	3
Mucky Depressions Survey	4
Native Bee Monitoring	5
Forrest Songbird Habitat	6
State Biologist	7
Online Events Calendar	8

State Conservationist's Message

While many of us are eager to put the year 2020 behind us, I'd like to briefly reflect on what NRCS-Michigan managed to accomplish in a very challenging year.

Since March of last year most of us have worked at least partially, if not entirely from home. This, along with Service Centers being mostly closed to the public, and social distancing protocols, made customer service a challenge. And yet, despite all of this, NRCS-Michigan obligated nearly \$35.7 million in conservation financial assistance and conservation easements during fiscal year 2020. Statewide, producers entered into 1,543 program contracts. Most importantly, as a result of the work put in by NRCS and conservation district employees, our state will have better soil, cleaner water, more wildlife habitat and healthier forests.

A detailed report on NRCS-Michigan's program accomplishments during fiscal year 2020 will be available by the end of January.

~

Since shortly after a historic May flooding event in Mid-Michigan, NRCS staff have been on the ground evaluating the damage and prioritizing the work needed to prevent additional environmental damage. NRCS field staff and engineers visited over 350 properties for damage assessments and identified over 100 sites eligible for financial assistance through the Emergency Watershed Protection Program.

In October, work began on perhaps the most visible project, the removal of debris deposited at the floodgates of the Sanford Dam in Midland

County. The Sanford Dam was one of two dams on the Tittabawassee River that failed after a storm event that included heavy rains of up to 7-inches over a large area of northern Mid-Michigan. The nearby village of Sanford including its downtown and surrounding areas was submerged by flooding.



State Conservationist
Garry Lee



NRCS Civil Engineer Todd Zielinski stands in front of debris removed from the floodgates of the Sanford Dam, which was breached by floodwaters in May 2020.

The huge pile of debris, including nearly every conceivable object associated with a lakeside community, was a constant reminder of what the village and entire region went through. Once work began, the debris was removed in about 10 days. Residents were allowed to reclaim items which included boats, propane tanks and a host of other objects.

~

Finally, with distribution of the Covid vaccine underway there is reason for optimism entering 2021. Unfortunately, it will be at least several months before enough people are vaccinated to

greatly reduce or eliminate the risk of contracting the virus. It is important that we remain vigilant until health officials tell us that life can go back to normal. That cannot happen soon enough. Happy New Year!



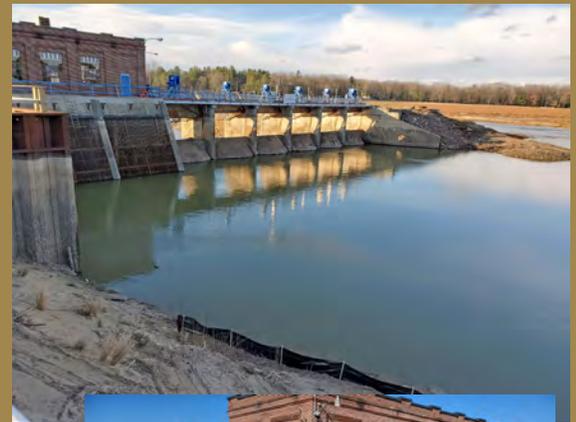
EWP: Debris Removal at Sanford Dam Completed

The first major project to repair damage caused by a May flooding event in Mid-Michigan was completed. The project involved clearing debris from the floodgates of the Sanford Dam in Midland County which was breached by floodwaters. The work was partially funded by the Emergency Watershed Protection Program.



(above) A May flood that breached the Sanford Dam left a mountain of debris in front of the dam floodgates.

(right) The floodgates after debris removal
(below) A crane was moved onto a barge to collect debris from in front of the floodgates.



(above) Some objects collected from the debris

-continued from page 1 -

Cover Crops: Improving Soil & Feeding Cattle

tillage. “Annual rye puts in a deep root system, kind of like a guy’s chisel plow,” said Rupprecht. The channels created by the rye create space for his crops to grow in the spring.

How Rupprecht manages his cover crops in the spring is unique. He is one of the relatively few farmers who plants directly into his standing cover crops in the spring, sometimes referred to as planting green. Planting directly into his cover crops instead of terminating them first was not a difficult transition to make according to Rupprecht. He’d done enough research beforehand, including online discussions with farmers, that creating a good seed bed through standing cover crops with his no-till drill was not a concern. He terminates his cover crop after planting by which time the rye may be standing over 2-feet-high.

Rupprecht has found another use for cover crops in addition to improving his soil. His son Drew re-started the family’s dairy operation in 2016.

The family had a long-time dairy operation until 2004, when Rupprecht decided to concentrate on crops. They now feed a portion of the cover crops to Drew’s heifers and dry cows. In 2018, Rupprecht hosted a cover crop field day that included test strips of different cover crop mixes that were analyzed for their forage value. The cover crops were planted after wheat harvest in early August and harvested in early October.

Rupprecht’s expanding conservation efforts, including utilizing more cover crop mixes and planting green, helped earn him the Tuscola Conservation District’s Conservationist of the Year award. He continues to look at ways to make more conservation improvements but doesn’t jump into every new trend.

“I’m not a sucker guy who tries something new all the time,” said Rupprecht. “You can tell when someone has something.”

Mucky Depressions Contain Diverse Vegetation

By Greg Schmidt (Ecologist, Grand Rapids) and Nels Barrett (Regional Ecologist, Amherst, MA)

Mucky Depressions are the most recent ecological site description completed by the Grand Rapids, Michigan, soil survey office staff covering Major Land Resource Area 98, Southern Michigan and Northern Indiana Drift Plains. Wet, mostly decomposed, organic soils of intermediate and higher pH—Mucky Depressions—are extensive, ranging across formerly glaciated lake beds and outwash flats wherever the land surface intersects the groundwater.

Most remarkable is the highly varied mix of plant communities that Mucky Depressions can support. As a contribution to the national dynamic soils properties initiative (DSP), field staff collected vegetation plot data from three samples replicated

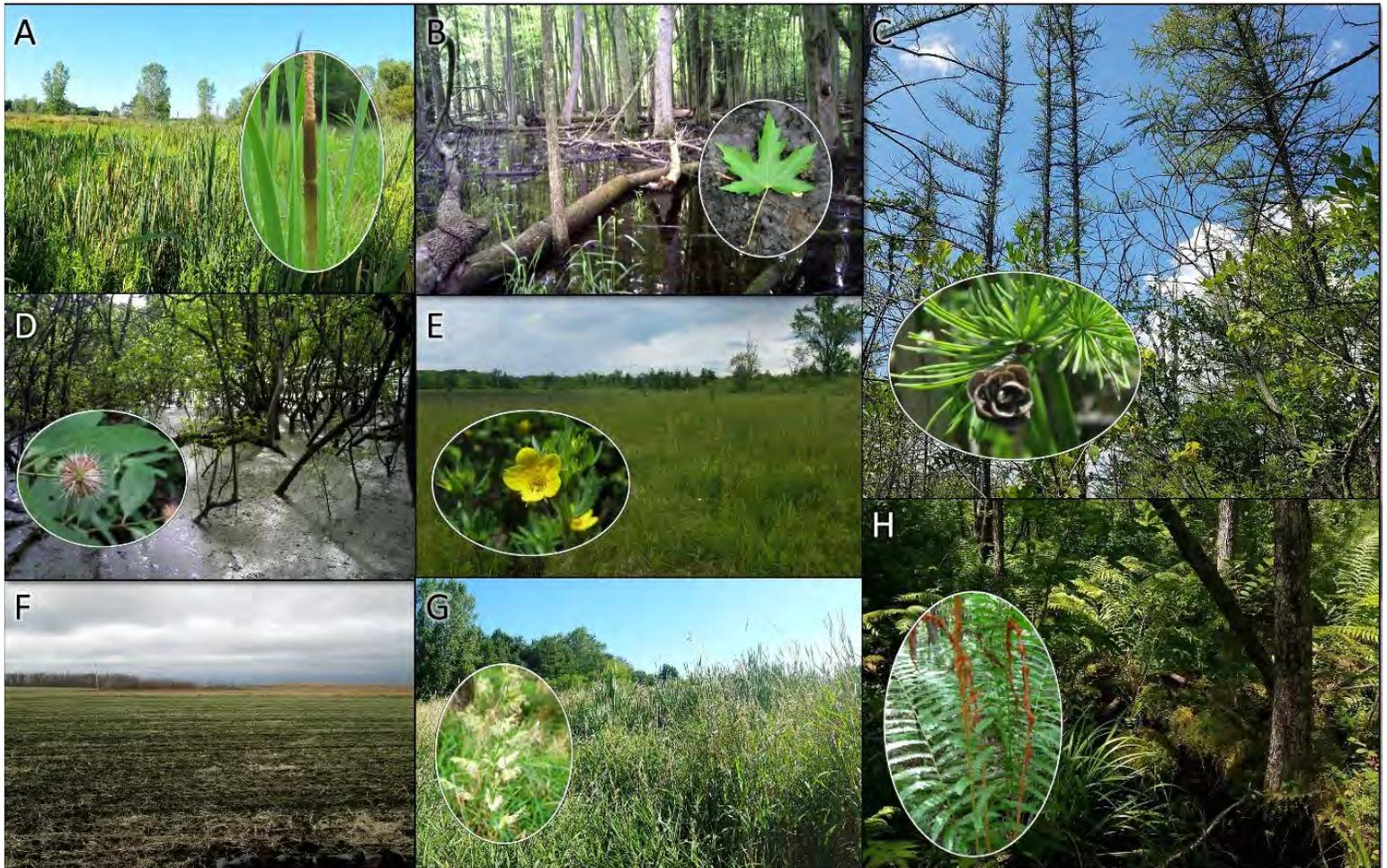
across four land use conditions:

- minimally managed swamp forest (reference site),
- actively managed (farmed),
- recently reconstructed wet meadows,
- and established reconstructed wet meadows.

Field staff inventoried over 40 additional plots based on either targeting known reference sites or as sites incidental to technical soil services. Given the inherent variability in the vegetation, cluster analysis using the complete inventory of species was essential to identifying membership in recognizable community phases, comparable to established United States National Vegetation Classification associations. Successional status and underlying variation in chemistry and hydrology were inferred,

-continued on page 5-

Below Mucky Depression Vegetation diversity—A. Cattail Marsh; B. Silver Maple Swamp; C. Tamarack Swamp; D. Buttonbush Swamp; E. Prairie Fen; F. Cropland; G. Reed Canary Grass Ruderal Meadow; H. Red Maple Swamp



USDA-Funded Effort will Monitor Native Bees

from the US National Native Bee Monitoring [Website](#)

There are more than 4,000 native bee species in the United States, with many species yet to be described. These native bees pollinate our native plants and agricultural crops, add beauty to our world, and are deserving of protection. The US National Native Bee Monitoring Research Coordination Network (RCN) is a USDA-funded effort to coordinate and support efforts to monitor native bee populations in the US, with the broader goal of conserving our nation's native bee fauna.

From 2020-2023, native bee biologists from across the US will work together to develop a national



plan for native bee monitoring. The plan will include components such as monitoring protocols and the designation of priority areas for monitoring.

The RCN will also develop new educational and training opportunities in areas that are fundamental to native bee monitoring.

Our website is currently in progress; please visit it over the coming months as we add content and highlight progress of the group. First up, we will be releasing a national survey to assess the needs and

aims of native bee monitoring programs across the country. We will also be releasing a schedule for upcoming meetings and other events.

-continued from page 4-

Mucky Depressions Contain Diverse Vegetation

in part, based on the ecological indicator status of individual species, properties that pedon field descriptions alone may not reveal. More generalized, plant community-types ranged in character from open wet meadows, marshes, and fens, to shrub swamps and catts and hardwood and tamarack swamp forests.

The initial goal of an ecological site inventory is to establish the fundamental

ecological context for conservation. After that, an ecological site description (ESD) can provide interpretations not previously available in traditional soil survey manuscripts. The ESD can be used for native habitat restoration and small patch



Above: A. Four-toed Salamander (*Hemidactylium scutatum*) is representative of wildlife observed within the reference site of the Mucky Depressions ESD; B. Greg setting up the standard ESD 20-by-20-meter vegetation relevé among the skunk cabbage (*Symplocarpus foetidus*); C. Peat-sampler tool was essential to observe the deeper strata

conservation plantings on working lands with a narrower focus (i.e., pollinators or filtering runoff water).

The primary strength of an ESD is guiding sound ecological management and restoration—establishing the right species in the right place and the right amounts. As in the case of Mucky Depressions, the wide dynamics also suggest that a typological focus of only a single reference condition is not enough to represent the range of biota potentially found at a site. Representing the variability within a multiple-phased

reference condition in the state-and-transition model, ESDs can guide the conservation actions of American landowners in helping sustain both ecological integrity and biodiversity.

Golden Opportunity to Help Woodland Songbirds

by Betty Perkis

submitted by Kayla Knoll, American Bird Conservancy

Bill and Betty Perkis own 40 acres in the western end of Michigan's Upper Peninsula. It consists of 25 acres of a northern white cedar swamp and 15 acres of dense overgrown tag alder. This tag alder was a great impediment to enjoying the property.

Over the last several summers they have taken extensive multi week camping excursions through various national parks and have thoroughly enjoyed viewing the scenery and wildlife. When the opportunity arose to enhance the wildlife habitat of their property back home they said: "Why not?" They are now beginning to manage their forests to yield top-notch wildlife habitat.

The Perkis family home lies in a patchwork of northern hardwood forest, abandoned farmland and swamps. Across the Upper Peninsula of Michigan, many of the forests are all about the same age. At the turn of the 20th Century, widespread logging and mining has provided a landscape of climax forests communities all about the same age. Nowadays, development, fire suppression, pests and either a lack of management or poor management have impacted the health of forests across the region.

Landowners like the Perkis family are bringing active management back to the forest. They are using a variety of sustainable forestry practices to manage that forest to meet the golden-winged warbler's needs for nesting, all while putting their land on track to be a healthier, higher quality forest. This at-risk songbird spends its spring and summers in the northern hardwoods of the Upper Great Lakes Region, where it seeks patches of young forest for breeding and nesting. Its presence gives an idea of the 'health and diversity' of an environment.

Bill and Betty are working with foresters, scientists, government agencies and loggers to control non-native and invasive plants and to remove less desirable trees. Larger mast producing trees are retained for the long-term. These residual trees provide food like berries, seeds and buds for turkeys, ruffed grouse and other wildlife, and song perches and places to forage for birds like the golden-winged warbler. Snags and coarse woody debris are retained for dens and drumming as well



Landowners Bill and Betty Perkis in a forest clearing after debris was chipped.

- photo by Kayla Knoll, ABC

as homes for amphibian and insects.

The Perkis' contracted Bill Reynolds and his crew from Reyco Forestry Management LLC of Eagle River, Wisc. Bill's crew chipped an area of about 15 acres of tag alder. "With the majority of trees removed, more sunlight reaches the ground, spurring lots of new growth. This will improve the habitat for golden-winged warbler and attract species that rely on young forest habitat," says American Bird Conservancy Biologist Kayla Knoll. "It's not just the golden-winged warbler that prospers. Many game and non-game species flourish in young forest habitat, including American woodcock, white-tailed deer, ruffed grouse and wild turkey."

"Families, hunting clubs and other private forest landowners managing for wildlife habitat and

-continued on page 7-

NRCS-Michigan Selects State Biologist

Barb Scott has joined the Michigan NRCS as our State Biologist. She has worked in a variety of natural resource fields, most recently with the Detroit District of the U.S. Army Corps of Engineers, Regulatory Program, where she conducted wetland and coastal waters permit reviews, wetland delineations, and enforcement actions in northern Michigan at the Sault Sainte Marie field office.

Prior to joining the Corps, Barb developed and implemented the Kentucky Division of Water's ambient wetland monitoring program, which included choosing and developing methods to determine condition by conducting a suite of vegetative, soil, hydrological, avian, and amphibian assessments. In that position she led the state's two National Wetland Condition Assessment team efforts, including a state-wide intensification study that ranged from the cypress swamps of the Mississippi River to the vernal pools of the Appalachian Mountains. Barb also worked with the U.S. Forest Service to map and assess created wetlands in the Daniel Boone National Forest and continued to refine KY-WRAM, a wetland rapid assessment method. Earlier she initiated and led the development of KY-WRAM while working in

the Section 401 Water Quality Certification regulatory program.

Other experiences include working as an environmental chemist and risk assessment analyst after getting her M.S. in Environmental Science from the State University of New York, College of Environmental Science and Forestry, and her B.S. in Biology from Aquinas College in Grand Rapids.



NRCS-Michigan State Biologist Barb Scott

Barb took breaks from working in science to thru-hike the Appalachian Trail and start a gardening business. Backpacking and gardening continue to be current hobbies, along with maintaining a section of the North Country Trail with her husband Will and leading outings for the Sault Naturalists. She is currently living and teleworking in Sault Sainte Marie until she can move to the Lansing area, in early 2021.

Barb can be contacted by phone at 517-324-5265 or by email at Barbara.J.Scott@usda.gov.

-continued from page 6-

Golden Opportunity to Help Woodland Songbirds

timber production can benefit from sustainably managed forests," said Knoll. Knoll helped Bill and Betty plan and carry out their forestry practices.

In addition to the American Bird Conservancy, they are working with the local Gogebic County Conservation District, tNRCS, as well as several other conservation partners to plan and implement sustainable forestry practices.

They are part of a regional conservation effort to manage habitat for the Golden-winged Warbler, called Improving Forest Health for Wildlife. As



Golden-winged warbler
-photo by DJ McNeil

part of the effort, NRCS covers part of the cost for implementing practices, such as early successional habitat development and management, forest stand improvement and brush management. "The focus of this effort is to create habitat for these at-risk songbirds while also encouraging sustainable forestry and diversity, which in turn also benefits other wildlife species," said Tom Berndt, NRCS District Conservationist in Kingsford MI.

The impenetrable tag alder stand has been transformed into area that's a pleasure to visit and transit. Bill and Betty plan to use this project for education projects for schools and the public. They look forward to spotting Golden-winged Warblers. Next project - continued development of Betty's pollinator gardens.

Upcoming Events - Upcoming Events

January

- 7 Virtual Pest and Crop Management Update - Central Michigan, 9 a.m., for more information and to register go to www.canr.msu.edu/events/
- 12-15 National No-Till Conference, Indianapolis, for more information and to register go to www.no-tillfarmer.com/nntc
- 13 Virtual Pest and Crop Management Update - Thumb A 9 a.m., for more information and to register go to www.canr.msu.edu/events/
- 14 Hemlock Woolly Adelgid Webinar, 6 p.m., for more information and to register go to www.habitatmatters.org/hwa-webinar.html
- 15 Virtual Pest and Crop Management Update UP/ Northern Michigan, 9 a.m., for more information and to register go to www.canr.msu.edu/events/
- 26 Virtual Pest and Crop Management Update - SE Michigan, 9 a.m., for more information and to register go to www.canr.msu.edu/events/
- 29 Virtual Pest and Crop Management Update - SW Michigan, 9 a.m., for more information and to register go to www.canr.msu.edu/events/

February

- 2 Virtual Pest and Crop Management Update - Thumb B, 9 a.m., for more information and to register go to www.canr.msu.edu/events/
- 17-21 Northern Michigan Small Farm Conference (online), for more information go to www.smallfarmconference.com

Happy New Year from NRCS-Michigan

2020 AIAN Heritage Poster Released

The title of this year's American Indian-Alaska Native Heritage Month Poster is "Common Value, Common Ground" and the theme is *preserving, protecting, and celebrating our people, traditions, and culture*. It represents everything it means to be Indigenous.

The passing of our traditions and culture to future generations. Teaching them not only our traditional arts, but the art of our language and growing our own food. The tree is symbolic of how our roots run deep and we will not be shaken. We are here, and we will continue to celebrate who we are.

- Cherokee Artist Traci Rabbit.



In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.