



2018 ANNUAL REPORT

CARLTON COUNTY SOIL & WATER CONSERVATION DISTRICT

*Assisting landowners in protecting and
enhancing the natural resources of Carlton County*

Carlton SWCD

Office Personnel

Brad Matlack, Manager

Kelly Smith, Conservation Technician

Melanie Bomier, Water Resources Technician

Julie Radovich, Administrative Assistant

Ryan Clark, Area Ag Water Quality Specialist

Laura Christensen, Conservation Technician

Board of Supervisors

District 1 Barb Dahl

District 2 James Nynas

District 3 Joe Lambert

District 4 Kim Samuelson

District 5 Mark Thell

PERSONNEL NEWS

December 2018 was the last board meeting for 3 board members. The Carlton SWCD would like to thank Jim Nynas, Joe Lambert and Mark Thell for their service and wish them well on their future endeavors.

Jim Nynas, District 2, served on the Carlton SWCD Board from 2010 - 2018.

Joe Lambert, District 3, served on the Carlton SWCD Board from 2017 - 2018.

Mark Thell, District 5, served on the Carlton SWCD Board from 1998 - 2018



Jim Nynas



Joe Lambert



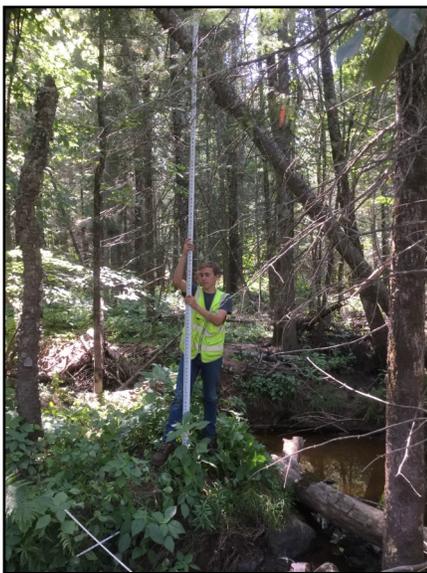
Mark Thell

Thank you!

Apprentice and Intern Programs

Conservation Apprenticeship Academy

The Conservation Apprenticeship Academy is a program of Conservation Corps Minnesota, in partnership with BWSR, MASWCD and AmeriCorps. This opportunity is funded through the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative-Citizen Commission on Minnesota Resources, to train and mentor future conservation professionals by providing apprenticeship service opportunities to Soil and Water Conservation Districts in Minnesota. Eimy Quispe from Connecticut spent the summer with us, assisting with culvert inventory, stream surveys and water monitoring. She was especially helpful with several outreach events, giving us innovative ideas to reach more people. Thank you Eimy!



NE Minnesota Office of Job Training

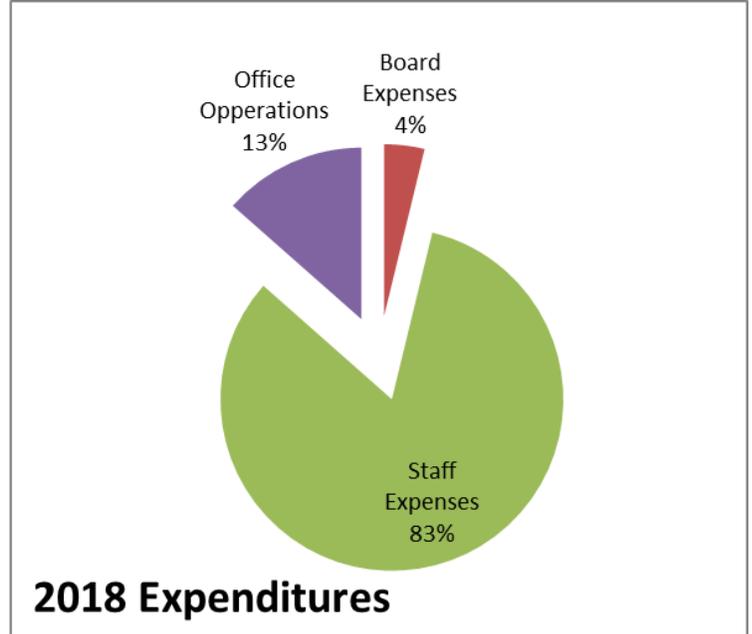
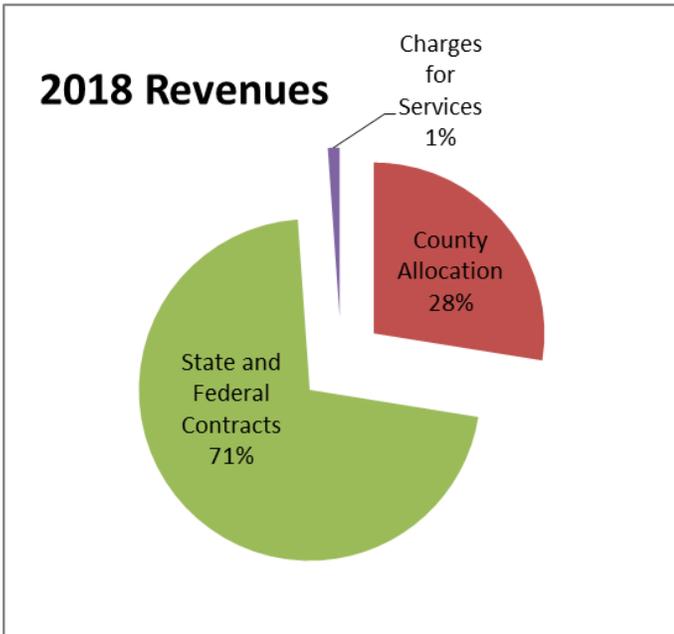
Tyler Hey joined us for the summer through a Northeast Minnesota Office of Job Training Internship. Tyler is a student and Carlton High School, and he is interested in a career in natural resources. Over the summer, he worked to complete stream surveys to help us determine replacement culvert sizes. He also assisted with water quality and biological monitoring, and was never afraid to get his feet wet. He helped manage a summer's worth of data, keeping us organized. Thank you Tyler!



MN GreenCorps, a program hosted by the MPCA through partnership with Americorps, serves as an avenue to train entering environmental professionals while addressing the statewide need of environmental protection. The program pairs members with host sites looking for assistance in pollution, waste, and storm water reduction alongside community education. Chris Gass, a St. Cloud native and UMD graduate, will be serving with us for 11 months (Oct. '18 - Sep. '19) and helping expand our engagement with city residents and topics particularly concerning stormwater and urban forestry. His service will heighten our efforts in relation to chloride pollution, forest and tree invasives, stormwater management, and educational events. Specifically, he will be assessing road clearing practices, creating informational handouts, establishing an adopt a drain program, and assisting cities in tree management plans. Welcome Chris!

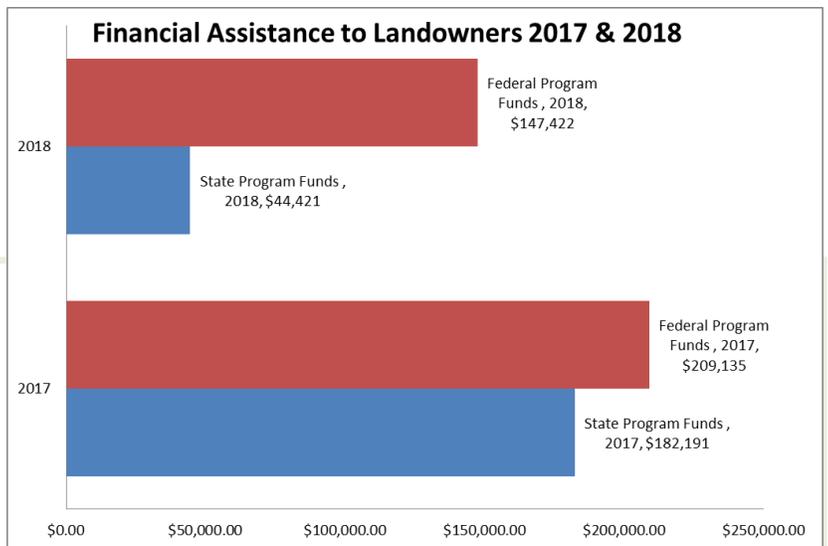


2018 SWCD Revenues and Expenditures



The two primary sources of Revenues are the allocation received from Carlton County and funds from various state and federal partners that contract with the SWCD for services like watershed management, buffer law and wetland conservation act compliance, and ag certification for county farmers. With these funding streams the SWCD can minimize fees to landowners for the services we provide.

The majority of funding the SWCD receives is used to maintain the expert staff for implementing the multitude of programs the SWCD manages.

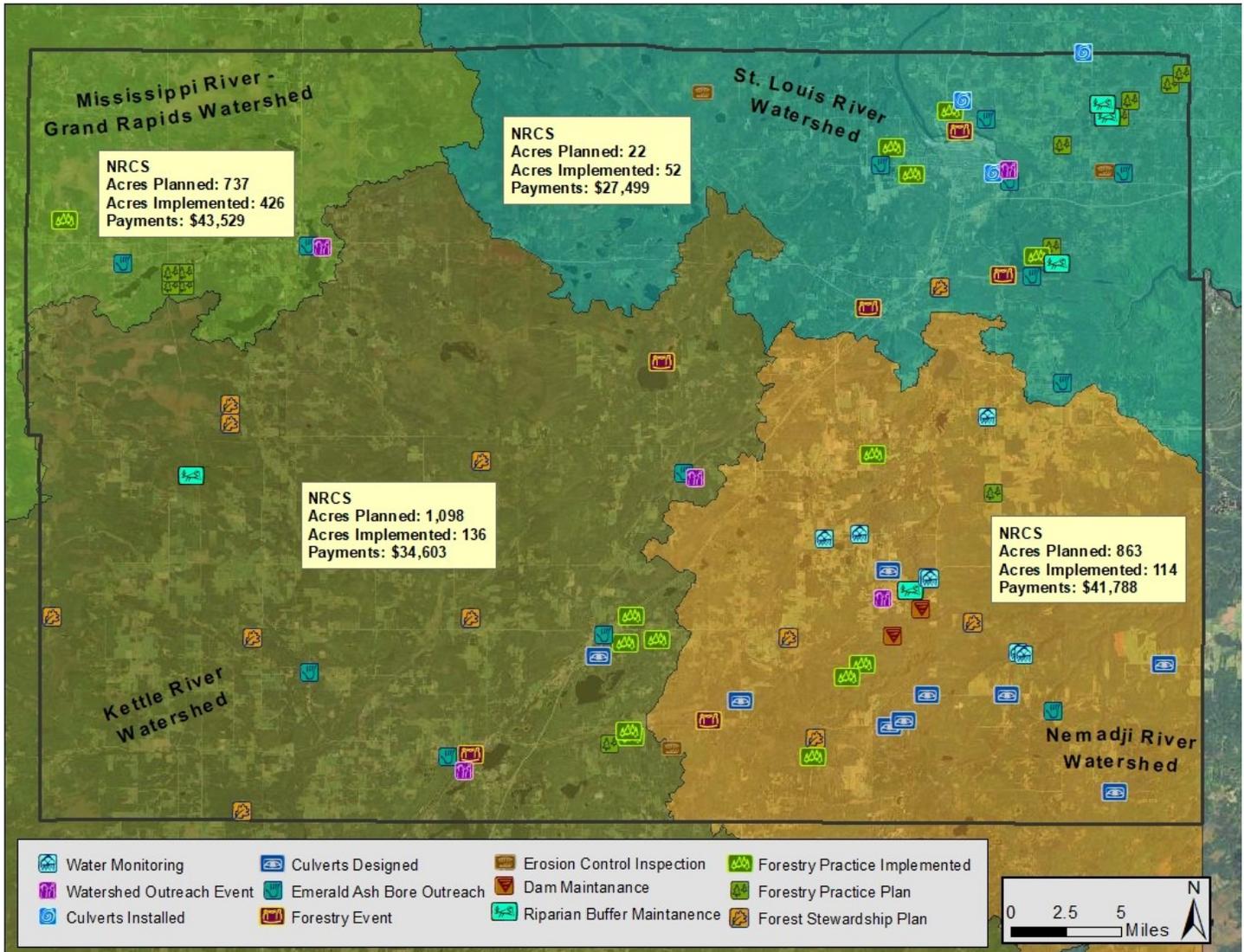


The Economic Impact of Conservation

The mission of the Carlton SWCD is “Assist landowners in protecting and enhancing the natural resources of Carlton County”. To accomplish this mission, the SWCD offers technical and financial assistance to landowners to help them design and pay for conservation practice implementation. These are practices like: grazing management, forest stand improvement, stabilizing gully erosion, and stream restorations. In 2018 the SWCD directly funded \$44,421 (the blue bar in the table) in projects with Carlton County landowners. In addition, the SWCD’s federal partners funded an additional \$147,422 (the red bar) in projects for a total of \$191,843 dollars in conservation implementation. These are funds that buy fencing supplies, seed and fertilizer, and pay local contractors for their time in constructing the conservation practices installed in the county.

SWCD Conservation Projects

This map indicates types of conservation practices and where they were implemented in the county.



Results of this project work include:

- Prevented over 11,000 tons of sediment from eroding.
- Over 10,000 pounds of phosphorus saved from reaching waters of the county.
- 2.3 miles of forest riparian buffer established to protect priority trout streams.

The designs the SWCD develops for conservation projects don't always become a constructed project. The SWCD does planning work that may result in conservation practice implementation in future years, such as culvert designs and forestry practice plans.

Likewise, outreach and information does not directly save soil or improve water quality. Such as Emerald Ash Borer (EAB) outreach. The affects EAB will have on ash stands and particularly ash swamps will alter the hydrology of those watersheds. Although there is no quantifiable measure of the results of EAB outreach, our SWCD provides this information to inform management decisions to minimize what is likely an inevitable resource concern.

Forest Riparian Buffer Planning

Warming waters are an issue around the world and Carlton County is no exception. Trout streams in the lower St. Louis River watershed in the northeastern portion of the county have been showing disturbing trends towards warming water. The occurrence of lethal summer water temps for Brook Trout have increased to the point where fisheries managers are concerned for the longevity of these fisheries. There are multiple factors that can influence stream temperatures. One factor is how much the stream is shaded by riparian area vegetation.



The goal of the Riparian Buffer Planning project funded by the MN DNR Lake Superior Coastal Program was two fold.

1. Generate a list of private landowners with parcels in the riparian zone of the targeted streams. Mail a fact sheet on riparian buffers and conservation easements and track private landowner interest.
2. Meet with public land managers to discuss riparian forest buffer planning on select parcel within their ownership. Each interested entity will produce several planting plans with cost estimates for these buffers.



Results

From a list of 86 landowners, a total of 38 landowners replied to the targeted mailings (44%). Out of the 38 respondents, 28 (73%) were interested in the idea of doing riparian conservation work. A sample riparian buffer plan and conservation easement plan was developed for 4 of these interested landowners. Funding these projects will be a goal for future grant writing.

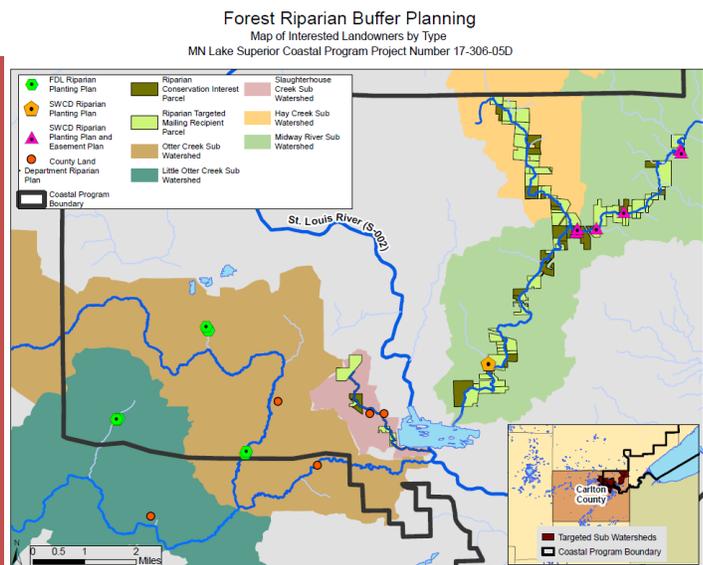
On the public land side, Fond Du Lac Tribal Forestry and the Carlton County Land Department both participated in the project. FDL prioritized 3 sites for forest riparian buffer planning within their ownership and the Land Department planned 4. These separate entities developed plans based on their experiences in tree establishment. The planning differences provided a side outcome of several ideas on how to tackle a sometimes difficult project of establishing tall trees in challenging riparian areas.

What is "Woody Debris?"

A stream is only as healthy as the variety of aquatic insects that can live there. An important factor for those insects is **woody debris** (leaves and twigs from stream side trees). Woody debris drops to the water supplying larva stage insects with shell building material. When these insect hatch into their flying stage, they lift off the water and land in streamside trees to dry their wings. The insects then live for a few days and return to the stream to lay their eggs starting the cycle over again. These aquatic insects in all their stages are vital food to stream trout.



Mayfly from a June hatch



This information was prepared by Carlton SWCD using Federal funds under award NA17N054190052 from the Coastal Zone Management Act of 1972, as amended, administered by the Office for Coastal Management, National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce provided to the Minnesota Department of Natural Resources (DNR) for Minnesota's Lake Superior Coastal Program. The statements, findings, conclusions, and recommendations are those of the author and do not necessarily reflect the views of NOAA's Office of Coastal Management, the U.S. Department of Commerce, or the Minnesota DNR.



Forest Riparian Buffer Projects

While the SWCD works with forestry professionals in the county to plan better forest buffers, work also continues with Carlton county landowners on implementing forest buffers. The SWCD's forestry technician provided extended establishment services at 5 sites in 2018 to ensure a successful high functioning buffer. The 5 sites encompass 14.2 acres protecting 2.3 miles of stream. These buffer tree plantings face a myriad of challenges in the first few years following the planting.

Deer, rabbits and even mice can kill a tree by feeding on the tender new growth shoots or the young bark under the snow. Tree tubes, and cages help protect young seedlings from these browsing animals.

Weeds, grass and brush can compete with a new seedlings for sun, water and soil nutrients needed to grow. Tree mats around the seedling choke out weeds and grass while letting rain filter through for the tree to use.

Help from Conservation Corps. Cutting back brush and tall grass is also a tool in providing the new trees some space and sunlight for the first few years of growth. This can be hard time consuming work that some landowners have a tough time with so the SWCD contracts with the Conservation Corp of MN for labor to provide this critically important work to help the trees survive their first few years.



Even with weed mats and tree protectors, and open access to sunlight, trees along the banks of streams and rivers are vulnerable to spring ice flows that can devastate these protections and shear off new seedlings. Some replanting is often needed to fill in trees wiped out by natural causes and replace lost tree protections.

The End Result: A high functioning forest riparian buffer that provides critical conservation benefits to the streams that flow beside them.

Forest Riparian Buffers:

1. Keep the water shaded, maintaining cool temperatures for cold water fish species like brook trout.
2. Hold shoreline in place with extensive root systems preventing erosion
3. Slow flood waters
4. Provide habitat for insects that fish feed on.



Watershed News

Water Monitoring: In 2018, we continued to collect water samples in the Nemadji Watershed. We collected E. coli samples on the Blackhoof and South Fork Nemadji rivers to try and better understand where bacteria is originating from. Our results were inconclusive, and we hope to have better success in 2019. In addition, we collected water samples of Lac La Belle, and we are happy to report continued improvement in Total Phosphorous and Chlorophyll a levels.



One Watershed One Plan: The Nemadji Watershed was selected for a One Watershed One Plan Planning Grant in 2018, allowing Carlton SWCD to begin transitioning from county water planning to watershed wide planning. Although watershed wide planning presents new challenges working over county lines, it will help us better manage our natural resources. The Nemadji 1W1P will start in 2019.

From the BWSR Website: **“BWSR’s vision for One Watershed, One Plan** is to align local water planning on major watershed boundaries with state strategies towards prioritized, targeted and measurable implementation plans – the next logical step in the evolution of water planning in Minnesota.”

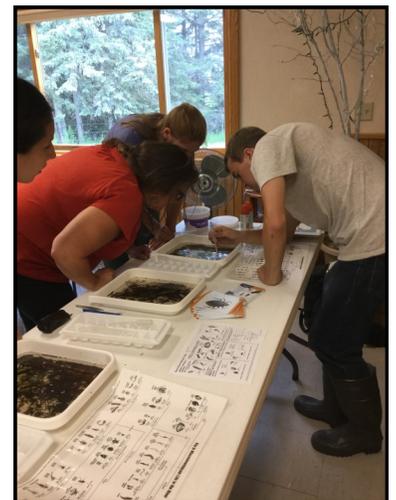
Kettle River Tour: On a sunny day in late June, Kettle River Watershed residents and resource professionals participated in a bus tour of the watershed. They followed the Kettle and Moose Horn Rivers from their headwaters near Cromwell to where they join together in Pine County. A variety of topics were discussed including the importance of forest resources for water quality, shoreline management on lakes, the role of culverts in stream connectivity, restoring streams and wild rice protection. This tour was funded by a MPCA Civic Engagement grant.



“We really enjoyed this tour-- it was very informative and gave us access to people who can help us with shoreline erosion etc. that we hadn't even thought about. The speakers were great and very pertinent to what we wanted and needed to know. Great job! “

Elim Creek Bioblitz - On July 19th, a dedicated group of volunteers helped us collect and identify macroinvertebrates or “bugs” in Elim Creek, a stream in Blackhoof, MN. In 2014, a series of three dams were removed and Elim Creek was restored to a flowing channel. Four years later, we wanted to learn how the stream was recovering. The “bugs” in a stream can tell us a lot about a stream’s health. Many bugs, like Stoneflies and Caddisflies, are sensitive to pollution and warm water temperature, while others like leeches and snails can live in warm, polluted waters. Our volunteers and guest expert Courtney Kowalczak sorted and identified 91 macroinvertebrates from Elim Creek. The bugs we found suggest the stream is currently in fair to good condition.

We plan to follow up our monitoring to see how the stream changes over time.



Culvert Inventory

Carlton SWCD and Carlton County Transportation Department Culvert Focused Partnership

In 2016, Carlton SWCD applied for a grant to fund a culvert inventory. The SWCD was interested in culverts due to the role culverts play in water quality, especially in the more challenging red-clay areas. Past inventories, although useful in many ways, were flawed because they were immediately out of date as soon as they were completed. We wanted an inventory that would stay relevant, but in order to do that, we needed the support and buy-in of the road authority. That is how this partnership was started. The Transportation Department saw the value in an online inventory to help prioritize projects.

In 2017, the Carlton County Transportation Department and Carlton SWCD piloted a culvert inventory on all county maintained roads. The goal of this project was to evaluate the location, condition and biological/water quality impact of every culvert.

In 2018, the inventory was used after a 500 year flood washed away many culverts in the southern portion of the county. Pre-storm measurements were used to replace culverts that better matched the stream where possible. It was noted that culverts sized to the stream survived the flood with little damage and prevented the waters from overtopping the road. This saved money in costly repairs and allowed county residents to continue using the roads after the flood.

At the end of the project, 1911 culverts were inventoried by Carlton SWCD staff, Carlton County Transportation staff, Conservation Corps of Minnesota Apprentices, Carlton County Transportation Department Engineering summer interns and the Carlton SWCD's Northeast Minnesota Office of Job Training Youth summer intern. In addition, interns helped survey, run hydraulic analysis and initiated designs of 11 culvert crossings. Once these culverts are replaced in the next few years, connectivity will be improved for over 11 miles of stream.



Culvert inventory Statistics

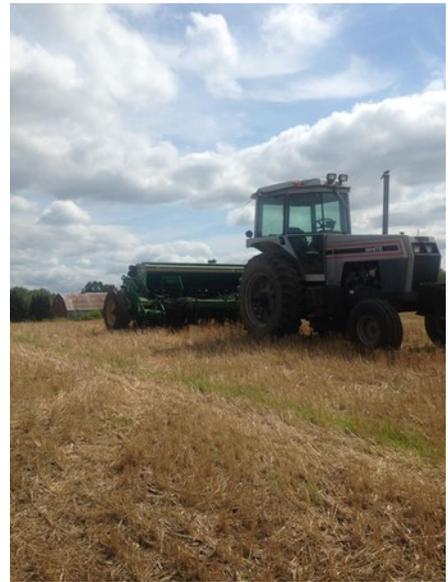
| Number of Culverts Evaluated | Percent of Under-sized Culverts | Number of Culverts with Erosion Issues | Number of Culverts in Poor Condition | Number of Perched Culverts |
|------------------------------|---------------------------------|--|--------------------------------------|----------------------------|
| 1911 | 75% | 118 | 310 | 64 |

Regional Agriculture Water Quality Certification Program Specialist

2018 was a busy year with MAWQCP in NE MN with a lot of time focused on outreach and partnering with SWCDs across the area doing farmer workshops. Soil health remains a popular topic in the conservation world and MAWQCP has helped many farmers in the area fund practices like cover crops and prescribed grazing. 12 new farms were added to the MAWQCP club in NE MN this year. This brings the total to 52 since the program began in 2016. In total MAWQCP funded \$16,201.36 in new conservation practices across NE Area in 2018



Water Quality Certified farmer in Pine County no-till drilling winter rye and radish cover crop.

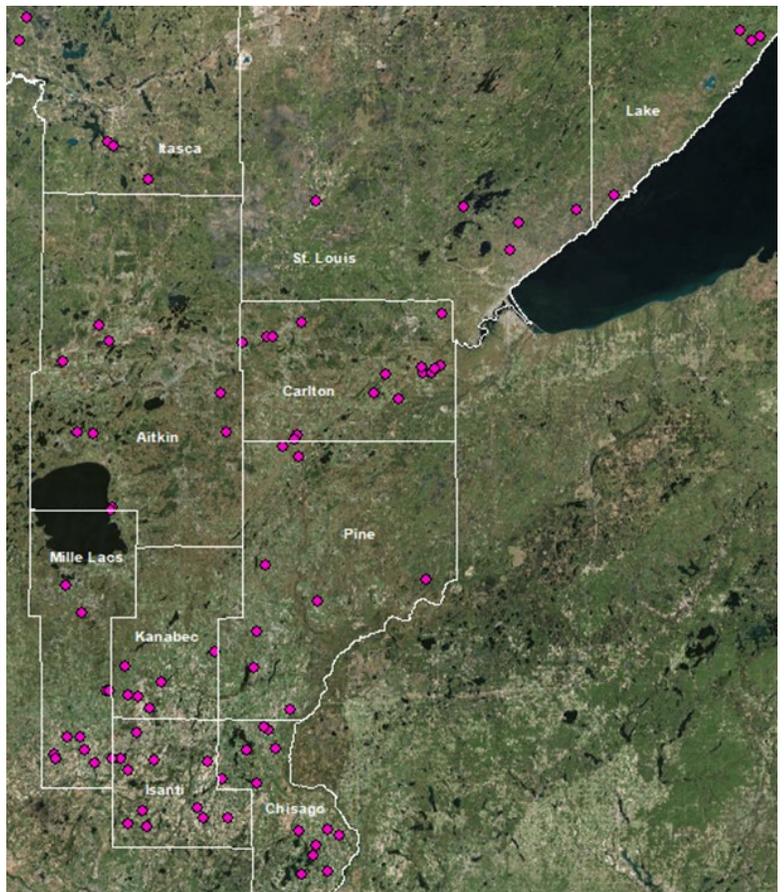


Statewide Stats:

- 692 producers
- 450,696 acres
- 1,331 new practices
- 25,111 tons of sediment per year (50,222,360 lbs)
- 63,525 tons of soil per year (127,049,593 lbs)
- 29,649 lbs of P per year



Carlton County dairy farmer utilizing MAWQCP to try new soil health practices.



Brushland Habitat Management and Enhancement

Through a joint venture with Pheasants Forever, and supported by various state and federal conservation agencies, Carlton and Aitkin SWCDs host a joint technician position that works on conservation easements and wildlife habitat projects, especially sharp-tailed grouse. Jacob Granfors holds that position and is doing great work in both programs. Below is a map of a brushland management complex that shows habitat projects across 5,000 acres of public and private land. In 2018, EQIP has helped enhance 600 acres of private brushland in this area, while the MN DNR Wildlife has managed the remaining acres.

Habitat has been enhanced through tree removal, prescribed fire, conservation grazing, brush mowing, and shearing. The purpose of these activities is to improve and maintain high quality brushland habitat that will support a self sustaining population of sharp-tails. These open landscapes are also critical habitat for a great variety of other wildlife species such as bobolink, yellow rail (state special concern), sharp-tailed sparrow, short-eared owl (state special concern), sandhill crane, and northern harrier. Management also improves these habitats for waterfowl and white-tailed deer by stimulating early herbaceous green up.

Cromwell Area Brushland Complex

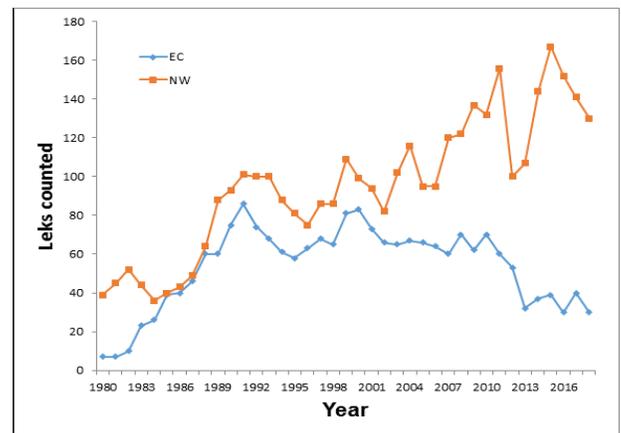
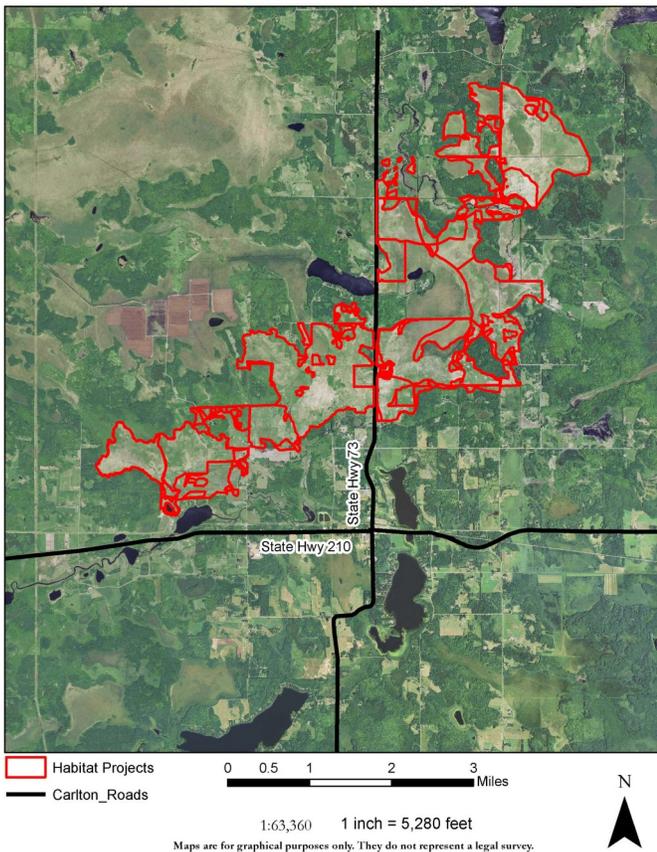


Figure 2. Graph depicts the decline of the Sharp-tailed grouse leks counted in the East Central Region. 25% fewer leks were detected in the EC region this year.

The goal of our habitat management efforts are to improve open landscape habitats that will benefit sharp-tailed grouse and other wildlife.



Total Acres enhanced in Carlton County in 2018:

- **881 Acres mowed across 6 projects**

Outreach and Education

The Carlton SWCD coordinates various conservation educational events in Carlton County.

Kettle River Woodland Council & Walk in the Woods

SWCD staff serve as secretary and treasurer for this local chapter of the MN Forestry Association, a private forestland owner group working towards good stewardship of woodlands. This year the council assisted with the annual Arbor Day Tree Planting event for 4th graders. The council held a Forestry Management Day for Timber and Wildlife. 75 private landowners learned from forestry professionals how to achieve their forest management goals.

The council held 3 Walk in the Woods events for 58 landowners in private woodlands. Participants observed and learned about how to achieve their forestry goals, while networking with forestry professionals and other woodland owners.

Topics included patch cutting, single tree selection, affects of time of year and method of harvest on forest, Red Pine management, Early Successional Habitat harvests, riparian forest buffers, buckthorn control, income from timber sales, combining harvests across prop lines, and getting your family involved.



Arbor Day The SWCD, County Extension, County Land Department, and Kettle River Woodland Council helped 247 Carlton County 4th graders from 4 schools plant trees and learn about forests.

Envirothon - held each May at the Cloquet Forestry Center and sponsored by the Area III SWCDs. The Envirothon is an outdoor learning event where high school students test their knowledge of the environment in the areas of forestry, wildlife, water quality, soils and environmental current events. Area natural resource professionals volunteer their time to educate students about their field while students work together as a team to complete a test on each station's topic. The 2018 Envirothon had 190 students from 10 school districts making up 38 teams.



Stream Table The SWCD provides a stream table to area elementary schools for hands on learning about watersheds, streams, erosion, sediment control and conservation. The table allows students to enjoy 3-D real-time demonstrations on how their Earth works.

Media Releases The SWCD provides several articles to local newspapers about conservation issues and happenings in the County. This outreach greatly increases citizen understanding of what is happening in the county and what they can do to improve natural resources.

A Culvert Success Story!

Working with our partners on Scanlon Creek and 28th Street

In 2017, the City of Scanlon approached the Carlton County Transportation Department for assistance with the crossing at Scanlon Creek under 28th Street. The road above the culvert was deteriorating, and local residents were concerned that the undersized culverts could be a problem for the trout in this cold, spring-fed stream. The Carlton SWCD and their summer Conservation Corps Apprentice worked to collect the survey data needed to determine proper culvert sizing. An 87 inch imbedded culvert with installed substrate replaced the previous 48 inch structure, nearly doubling the culvert size and providing improved connectivity to over one mile of trout stream. Carlton County Transportation assisted with permitting and construction inspection, and the City of Scanlon funded construction. The cost of construction was \$20,527.



Above Left: The Scanlon Creek and 28th Street crossing prior to construction. Above Right: A Carlton County Transportation Department employee assisting with in-stream structure placement. Below Left: City of Scanlon employee rescuing trout prior to construction. Below Right: The crossing a few days post construction.

2018 Conservation Awards

Each year the Carlton SWCD recognizes conservation efforts across Carlton County with an awards program.

Outstanding Conservationist, Alan & Sharon Finifrock



Alan and Sharon Finifrock of Cloquet have planted a pine forest, created wildlife habitat and protected lakeshore on their properties. They have shared their knowledge and conservation ethics with family, youth and other forest landowners.

Soil Health Conservationist, Steve Risacher



Steve Risacher of Wright raises beef cattle and farms corn and hay in rotation using cover crops and conservation tillage methods. Much of his pasture is managed under a prescribed grazing plan. In 2016, Steve was recognized for his conservation efforts and completed certification under MN Ag Water Quality Certification Program.

Pollinator Conservationist, Vicki & Terry Anderson



Vicki and Terry Anderson of Cloquet have been developing pollinator habitat 1976 at their home and on Zion Lutheran Church grounds. They have established native plants for beauty and function.

Urban Forestry Conservationist, Bob Nelson



Bob Nelson of Cloquet has improved his red pine forest stand by thinning trees. Thinning will lead to healthier trees, better wildlife habitat and more timber produced.

Congratulations to all our award recipients!

MASWCD Finalist

State Outstanding Conservationist

Alan Finifrock was named one of eight finalist for the state's 2018 Outstanding Conservationist Award. Below is the information that was in the awards program highlighting the Finifrocks. Congratulations to Alan and Sharon!

Northeast Area 3

Alan Finifrock, Cloquet MN

Background on Alan Finifrock:

Alan and Sharon Finifrock have cared for their forest lands for decades by planting trees, creating wildlife habitat, growing timber and controlling buckthorn. They have shared experiences, knowledge and their stewardship ethics with family and other landowners through forest management activities, and by leading and assisting with forestry field days and workshops. They are the 2018 MN Tree Farmers of the year.

Alan and Sharon take a long and broad view of forest stewardship. They are shining examples of good forest managers.



Pictured to the left are Carlton SWCD Board Chair Barb Dahl, Alan Finifrock and SWCD Forestry Technician Kelly Smith at the MASWCD Annual Convention. Smith has worked with Alan Finifrock for many years and states that "Alan promotes woodland management. He realizes that it not only provides environmental benefits, but also provides income, brings family members together, gives rich experiences and leaves a conservation legacy." The Finifrock family have a strong conservation and community ethic and have been sharing their appreciation for the forest for a long time with family, friends and community.

"Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest."

Aldo Leopold, *Conservation Economics*, *The River of the Mother of God*.

Carlton SWCD Staff



Back Row: Jake Granfors, Kelly Smith, Brad Matlack, Ryan Clark

Front Row: Melanie Bomier, Julie Radovich, Laura Christensen

Private Landowner Testimonials

Thanks for the wonderful advice and organizing you gave me in regards to a tree planting project on my property. I was treated with respect and patience throughout the project. Special thanks to Kelly Smith who did on-site visits to determine what was best for my property for habitat, erosion and wildlife. It is nice to work with an organization that sincerely cares for not only the landowner but the forest as well. Keep up the good work. ~ Ralph