

# The Current

Official publication of the Manitoba Conservation Districts Association  
2019 Edition

## Putting the Conservation Trust into Action

### Building Flood & Drought Resilience

### Partnering with First Nations on Watershed Health



Manitoba  
Conservation Districts  
Association

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Manitoba  
Conservation Districts  
Association

The Current is published annually as the official publication of Manitoba Conservation Districts Association. It features editorials from many of the 18 Conservation Districts within Manitoba. Edited by Sean Goertzen, Executive Director

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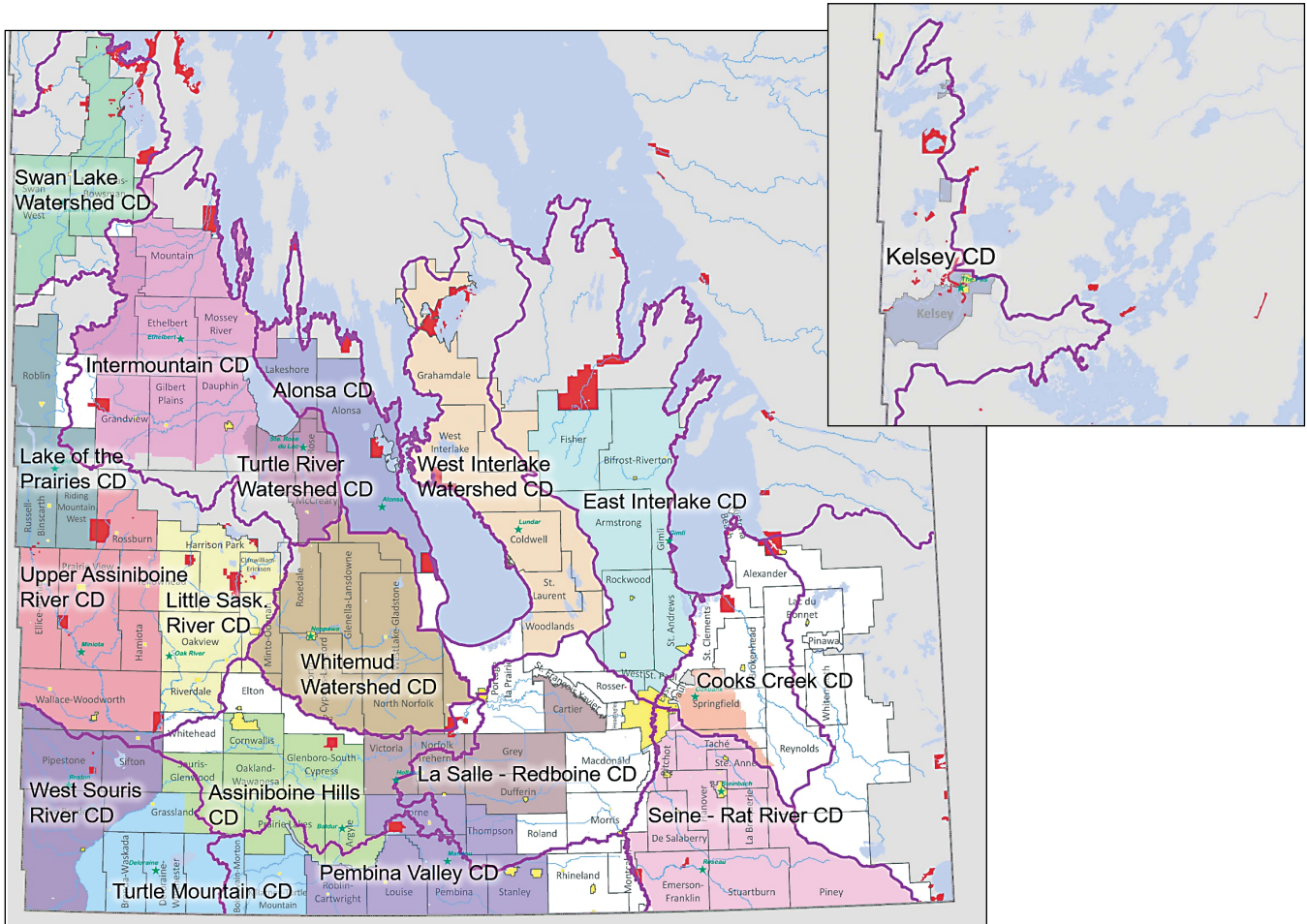


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# Manitoba Conservation Districts



Conservation District	Office Number
Alonsa	(204) 767-2101
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Cooks Creek	(204) 777-2223
East Interlake	(204) 642-7578
Intermountain	(204) 742-3764
Kelsey	(204) 623-3353
La Salle Redboine	(204) 526-2578
Lake of the Prairies	(204) 564-2388
Little Saskatchewan River	(204) 566-2270
Pembina Valley	(204) 242-3267
Seine-Rat River	(204) 326-1030
Swan Lake Watershed	(204) 734-9550
Turtle Mountain	(204) 747-2530
Turtle River Watershed	(204) 447-2139
Upper Assiniboine River	(204) 567-3554
West Interlake Watershed	(204) 762-5850
West Souris River	(204) 877-3020
Whitemud Watershed	(204) 476-5019

## PROPOSED WATERSHED DISTRICTS

- ★ CD Offices
- ✚ Urban Areas
- ▭ Provincial Boundary
- ✚ First Nation Lands
- ▭ Proposed Watershed Districts
- ▭ Municipal Boundaries

It is anticipated that the current 18 conservation districts (the coloured areas) will evolve into 14 future watershed districts (purple boundaries) in 2020.

Also shown here are the municipalities who are key partners with our districts.

Thank you to our member municipalities for your continued support!

# From the Minister of Sustainable Development



For more than four decades, Manitoba's conservation districts have contributed to maintaining healthy and sustainable watersheds on behalf of all Manitobans. With the unwavering support of the Manitoba Conservation Districts Association, conservation districts have matured and expanded across most of southern Manitoba and I want to thank the Manitoba Conservation Districts Association for their continued partnership on this important program.



In August 2017, the Manitoba government released a discussion document outlining exciting plans to modernize the Conservation Districts Program. The proposed changes included: 1) aligning conservation districts boundaries to watersheds, 2) refreshing the program mandate, 3) amending legislation, 4) modernizing funding models, and 5) enhancing watershed management planning.

Aligning conservation district boundaries to watershed boundaries is a key initial step to watershed-based management and I am encouraged by the positive engagement and discussion we've had with districts over the past year as we've worked together on a new watershed-based model. With the support of municipal partners and conservation district members we have finalized a new framework for the program that will see our 18 existing conservation districts transition to

14 watershed-based districts. I want to take this opportunity to thank all of our municipal and conservation district partners for their honest feedback and commitment during this time of transition.

In December 2018, the Manitoba government announced the establishment of a new Conservation Trust through a \$102 million investment in partnership with the Winnipeg Foundation and Manitoba Habitat Heritage Corporation. When we launched the Conservation Trust, we envisioned a partnership

that would support projects aimed at preserving nature and adapting to our changing climate. Locally-based organizations like conservation districts are well positioned to play an important role in enhancing our resilience through natural infrastructure and we are proud to have created a legacy for this type of work through the establishment of the Trust.

The Manitoba government is proud to have supported the Conservation Districts Program and I look forward to continuing our partnership through an enhanced watershed-based model.

Highest Regards,  
Rochelle Squires, Minister

# From the Chair of the Manitoba Conservation Districts Association



Manitoba  
Conservation Districts  
Association

**W**ith the pressures on our soil, water, habitat, and climate, the work of Manitoba's Conservation Districts has never been more important.



As a result, it has never been more important for Manitoba Conservation Districts Association to support our districts. MCDA has been working hard to fulfill this mandate, in partnership with the district boards, staff and funding partners.

We have continued building relationships with six departments across two levels of government (environment, agriculture, and infrastructure, both provincial and federal). Topics have included the transition to Watershed Districts, the Water Rights Regulation, natural infrastructure funding, and more. Our main message is always that Conservation Districts can help break down silos between departments and effectively deliver conservation programming and more.

In February, for example, MCDA and Upper Assiniboine River CD gave input on a proposal created by Sustainable Development to help achieve the carbon savings targets in Manitoba's Climate and Green Plan. The proposal would increase funding to Conservation Districts for the carbon sequestration and soil health work they are already doing. We

were pleased to find out in June that the proposal made it into the Expert Advisory Council's recommendations to Minister Squires. It is not yet guaranteed to be funded, but we are one step closer to our districts playing a larger role in addressing climate change.

15 speakers, 31 exhibitors and over 400 people attended our 43rd Conservation Districts Conference in December. The conference continues to serve as an important hub for our districts to learn from one another and from the entire conservation community.

Over the past year, MCDA has secured \$700,000 (over four years) for our districts to build water retention,

collaborate with First Nations, study sustainable grazing practices, and develop a small dam optimization tool. Funders know that our districts deliver high value for money, and they see that MCDA can effectively manage projects involving multiple districts and partners.

In closing, you can expect more from MCDA as we promote our districts as key players in protecting Manitoba's watersheds. Enjoy reading through *The Current* and seeing what Manitoba's Conservation Districts have achieved through grassroots conservation.

Ray Frey,  
MCDA Chair

# A Tribute to Conservation District Members Passed

This page is dedicated to the many passionate members from our Conservation Districts who have passed away in 2018 and 2019. We honour these individuals for their vision, leadership and as integral contributors to the very foundation of the Conservation Districts.

## Members Passed 2018-19



**LSRCD**

**Roy Greer  
Russell (Bud) McKague  
Leonard Prawdzik**



**SRRCD**

**Larry Bugera  
Luc Nadeau**



**TRWCD**

**Richard Kutcher**



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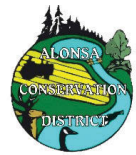
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If you're new to the conference and interested in attending, sponsoring, or reserving a booth, contact us at 204-570-0164 or [info@mcda.ca](mailto:info@mcda.ca). Past participants, you'll hear from us in the fall!



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# Working to improve and educate on the environment

By Kim Grant, Technician



Over the past several years, Alonsa Conservation District has embarked on a mission to not only fulfill our mandate, but also to explore new avenues of conservation. In the process, the District has completed many long-standing and new projects: a natural stream restoration using groundbreaking new technology, a large scale walleye habitat rehabilitation project, and a community park and gardens for seniors.

## Bluff Creek Stream Restoration

In a project completed in summer 2018, our district used a UAV (drone) equipped with real-time kinematics to analyze 13 km of Bluff Creek in the Northeast section of the Rural Municipality of Alonsa. The creek was degraded due to agriculture activity. In places, the stream bed had faded into the landscape entirely. We set out to restore its original function to improve annual overland flooding for local landowners.

This is the first time work of this type has been done using drones to collect the highly accurate and detailed data required. The approval process for a project of this size normally takes years. Because the data collected was accurate and detailed, Bluff Creek achieved licensing in a few months. Our district considers it a big success.

Most of the reconstruction was completed on regular funding and in record time. Because of the precision and scope of the data collected, the project capitalized on the original geology. Local knowledge confirms the creek restoration follows the path of the original channel.

The project was a collaboration between Alonsa Conservation District, landowners, the Rural Municipality of Alonsa, Crown Lands, Manitoba Infrastructure, and the Forestry and Peatlands Branch within Manitoba Sustainable Development.

## Garrioch Creek Walleye Spawning Project

With significant funding from the Fisheries Enhancement Fund supported by Fisheries and Oceans Canada and Manitoba Sustainable Development, Alonsa Conservation District has just completed a large project along the northern portion of Garrioch Creek. The goal: improve water quality and encourage spawning of Lake Manitoba's recreational fish species.

Garrioch Creek is one of the largest and oldest infrastructure drains in our district and has historically been used by walleye

and other local fish species as a spawning location. With help from our funding partners, we were able to clean sediment build up out of the drain, remove obstacles for improved fish passage, install spawning shoals at 12 sites chosen by an aquatic biologist, fence off the engineered portion of the drain for 14 miles, and plant riparian vegetation at the shoal sites.

The project has excluded an estimated 600 cattle from the drain, producing increased water quality, less maintenance and improved habitat. The spawning shoals will improve walleye populations in Lake Manitoba, while the riparian vegetation will provide shade to the shoal sites, bank stability, and reduction of suspended solids.

## Community Park and Gardens

Funded by the federal government's New Horizons for Seniors and Manitoba's Healthy Together Now grants, our district constructed a community gardens and park project with accessibility for seniors.



The park consists of an accessible footpath that winds through 150 planted fruit and shade trees in honour of Canada's 150th birthday. It boasts two picnic tables alongside a fire pit provided for community use. The official grand opening of Sam and Anne Zdan Memorial Park was held in August 2018. It was named after two influential residents of Alonsa to honour their contributions to the town.

Beside the park are the community gardens. The gardens consist of 14 hügelkultur (a sustainable horticulture technique) senior-friendly raised garden beds and a free to use greenhouse. With a goal to educate youth about sustainable agriculture and the environment, Alonsa Conservation District hopes that the park and gardens will offer a space where seniors and young people can engage with each other and nature.

# Supporting drought resilience, nutrient capture, and geothermal energy

*Neil Zalluski, Manager*



The Assiniboine Hills Conservation District, through years of public consultation, has identified areas of importance for water management and watershed health. One of those sites involves Green Acres Colony, south west of Wawanesa within the Lower Souris Watershed #69.

The colony has a ravine that runs to the north that currently has a dam on it which doubles as a road in and out of the colony. The water that is impounded is used to run geotherm. The geotherm heats and cools sheds on the colony which cuts down reliance on hydroelectricity. (Hydroelectricity, while cleaner than fossil fuels, still impacts the environment.) Water supply in the summer months is an issue, so our district built another structure upstream to provide water to the reservoir in times of shortage.

The two structures will also reduce downstream flooding and keep nutrients out of the Lake Winnipeg Basin.

This project was made possible in part by funding from the federal Lake Winnipeg Basin Program which is working to reduce nutrient loading into Lake Winnipeg. Thank you as well to Green Acres Colony for their productive partnership with Assiniboine Hills Conservation District.



**LARRY MAGUIRE, MP**  
**BRANDON – SOURIS**

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# Advancing Water Diversion, Retention and Drainage

*Colin Gluting, Manager*

The Cooks Creek Conservation District is undertaking three very significant surface water management projects in 2019.

The Cooks Creek Diversion has serviced the watershed for several years and provided relief in high water conditions to the Lower Cooks Creek Sub Watershed. The diversion was constructed in the early 1980s. In recent years, many local landowners and farmers have questioned if the diversion is underutilized. The District engaged in a survey and hydraulic analysis of the diversion to see if it was being used to its capacity. The District found the local eye test to be true; we could make better use of the existing infrastructure with a few upgrades. The District will raise the inlet weir structure and upgrade a downstream culvert crossing to accommodate additional flows to the diversion. This project will reduce one-third of the flows to the often-overwhelmed Lower Cooks Creek. This project was highlighted as a priority in the Cooks-Devils Creek Integrated Watershed Management Plan.

The Cooks Creek Conservation District is also happy to start construction on the Ste. Genevieve Water Retention area. The District has acquired funding from the Conservation Trust, Manitoba Hydro, Lake Winnipeg Foundation and the rural municipalities of Springfield, Tache, and Ste. Anne. The site will temporarily store up to 110 acre-feet of water each year and provide habitat to a variety of wildlife. The district purchased the quarter section many years ago with the intent of retaining water along the main stem of the Upper Cooks Creek. This was another priority highlighted by the Cooks-Devils Integrated Watershed Management Plan.

The Prairie Grove Drain is an 11 mile, third-order drain that borders between the municipalities of Springfield and Taché. The flat land there makes drain maintenance critical to the rural residents and farms. The drain is within prime agricultural land and provides drainage to approximately 33 km<sup>2</sup>. Over several years the drain has been overwhelmed with silt and vegetation, causing water to pond and create problems to adjacent farmland. The District is beginning a phased cleanout of the entire drain in 2019 as funding becomes available.

Through these and other projects, Cooks Creek Conservation District is looking forward to taking the next steps for the health of our watersheds, farmland, and communities.



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## East Interlake Conservation District

# Fire Brings Renewal for Tall Grass Prairie



By Armand Bélanger, Manager

In 2014, East Interlake Conservation District worked with John Morgan of Prairie Habitats Inc. to plant over 30 species of native grasses and flowers on 3.5 acres next to the new Gaynor Family Regional Library in Selkirk.

In spring 2019, John and our district conducted a controlled burn on these acres. It may seem counter intuitive, but the burn will increase the growth and diversity of this native tall grass prairie.

Prairie plants are very flammable, and they rely on fire to re-fertilize the ground and grow back stronger. “We’re just trying to recreate the ecosystem that would have happened a hundred years ago” John told the Selkirk Record in an on-site interview April 25th . “If it was a hundred years ago, maybe it would get hit by lightning, and everything would burn, and then it would start growing again.”

This project has a long list of benefits: it has aided water runoff treatment from the parking lot and rooftop, reduced



maintenance costs, increased wildlife and habitat, allowed for enhanced public use, dampened city noise, improved air quality, and increased carbon sequestration.

Most importantly, re-establishing tall grass prairie has helped preserve one of the world’s most endangered ecosystems.



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Manitoba Liberal Leader



# Divorce, Courtship, Marriage along the North-West Escarpment

*From "History to Future with Intermountain Watershed District",  
John Towle, board member, Intermountain Conservation District*

**W**e have all heard that history repeats itself. Well, we in the west-central region of Manitoba believe that is true. The North-West Escarpment of Manitoba has been a focus of water management for the last one hundred twenty years.

Near the turn of the century, European settlers began to arrive in the Manitoba Parkland area. The Escarpment and the lowlands supplied the settlers with an abundance of building materials as well as rich, fertile agricultural soil. The pioneers cleared the land and broke up the prairie meadows. The alluvial fans at the base of the escarpment were drained and drainage channels were constructed. But before we continue with the agricultural development history, a brief description of the North-West Escarpment is needed. Watershed features such as topography and soils are a direct result of the geological history of the Canadian Prairies.

The Manitoba Escarpment is a pre-glacial feature. Before the period of glaciation, the shales in Manitoba were eroded back to the Manitoba Escarpment by ancient rivers millions of years ago, and the eastward-flowing streams from the Rocky Mountains carved deep valleys, producing the lowlands in the escarpment that are now occupied by the Assiniboine, the Valley River, and the Swan River.

The Manitoba Escarpment was not significantly eroded by glaciation because of the erosion-resistant nature of the hard grey Odanah shale on top of the sandstone. This resistant shale on the Manitoba Escarpment prevented it from being reduced to the level of central and eastern Manitoba. Bedrock is exposed along the escarpment face, but on the plateaus, it is covered by great thicknesses of glacial deposits, reaching 250 metres on Duck Mountain. These plateaus on the Escarpment form the western edge of the Saskatchewan Plains. The surface of these mountains, the Duck Mountain and Riding Mountain, which at their highest rise 500 metres above the Manitoba Lowlands, is a relatively flat plateau.

Ten to fifteen thousand years ago, glacial Lake Agassiz, a large body of glacial meltwater, which accumulated in the flat basin of the Manitoba Lowlands, influenced surficial (upper) geology throughout much of southern Manitoba.



The Manitoba Escarpment formed the western shoreline of glacial Lake Agassiz. Geological features such as beach ridge deposits, glacial till deposits, alluvial fans and clay and ground moraine deposits are all a result of glaciation. Today's Dauphin Lake is a remnant of glacial Lake Agassiz.

Now back to the agricultural development history along the North-West Escarpment and the water management struggles. As the agricultural activities grew and spread out beneath the escarpment from McCreary to Cowan, the climate dictated change for the region. During the "dirty thirties", water development, land use and cultural methods were the focus of the federal government. The Prairie Farm Rehabilitation Administration (PFRA) was established in 1935 to deliver programs that would ease the hardships of the prairie citizens.

As we all know the drought conditions changed into flood conditions. Extreme rain and snowmelt events in the late 40s created severe flooding and soil erosion beneath the North-West Escarpment. At the request of Manitoba, following the severe 1947 summer flood, PFRA staff began work in July 1948 on surveys in the Riding Mountain, Duck Mountain and Lake Dauphin area. This was the beginning of what was called "The Northwest Escarpment Agreement". It was

negotiated between the federal (PFRA), provincial, and municipal governments. This cost sharing of the drainage and channelization projects continued until 1959.

The first construction of flood control works began in 1949. The Edwards Creek Diversion Channel and the Mink Creek Drain were completed in 1952. Under this agreement, surveys, studies and various construction projects were conducted on the Pine, Garland, Mossy, Fishing, Fork, Valley, Wilson, Ochre and Turtle rivers as well as various tributaries of these rivers. Headwater storage reservoirs in the Duck Mountain on the Valley, Pine and Fork rivers were also considered during this agreement.

Another flood year in 1953 spurred on the flood protection activity in the western region. A flood damage survey carried out from farm to farm revealed that 3.4 million dollars were reported lost in farm productivity alone.

As history would repeat, a dry time happened again in 1960 and the Province asked PFRA to look at water management on Dauphin Lake. The original water level control structure (1.5 miles downstream of the lake) was built on the Mossy River in 1931 by the Province, but it was beyond repair and needed replacing. The studies were completed by PFRA and a site was selected at the outlet of Dauphin Lake at Terin's Crossing. Construction began in 1962 and was completed in 1964.

Near the end of the Northwest Escarpment Agreement, it became apparent that we needed to learn more about the runoff and erosion control on streams that rise on the steep Manitoba escarpment. In 1957, a Federal-Provincial Committee on Headwater Flood and Erosion Control was established. An experimental watershed, typical of the over 60 streams that rise on the Riding Mountain escarpment, was selected near the village of McCreary at Wilson Creek (a tributary of the Turtle River).

During the 25-year study, meteorological and hydrological data were gathered and the watershed was studied to determine the runoff characteristics of an escarpmental headwater basin. Two headwater reservoirs and numerous channel protection works were constructed. In 1980, two experimental rockfall energy dissipation dams were built in the alluvial fan channel to control sediment erosion from entering the agricultural drainage network below the escarpment. When the "Wilson Creek Experimental Watershed Study" was terminated in 1982, it became the most widely known and utilized long-term research site in Manitoba.

During this study, the largest recorded rainfall event occurred on September 17, 1975. Reportedly, over 12 inches of rain fell on the Riding Mountain area in 24 hours. Will history repeat itself?

As we review the history of the North-West Escarpment of Manitoba, we realize that the federal government played the lead role in surveys, studies and various construction projects. In recent decades however, they have faded to the background, or in other words, become divorced from the Escarpment. We noticed that change coming with the Manitoba Water Commission becoming involved in the region. The Province of Manitoba had this group complete three reports on the water management of Dauphin Lake (1968, 1972, 1982).

The last report recommended the formation of a Basin Advisory Board. In 1989, the Manitoba Department of Natural Resources published the "Opportunities for Restoration" document, which was prepared by a 20-member multi-agency Technical Advisory Group (TAG). This initiated the Dauphin Lake Basin Enhancement Program and established the Dauphin Lake Basin Advisory Board. This Board prepared the first ever watershed plan for the Dauphin Lake Basin. It was approved by the Province in January 1993. The Dauphin Lake Basin Enhancement Program was successful in bringing "order" to the watershed's integrated resource management from the chaotic state of the past 50 years.

On January 1, 2020, the Inter Mountain Conservation District (established in 1997) will be merged with the Turtle River Watershed Conservation District (established in 1975) and become known as the "Inter-Mountain Watershed District". The new district will now be the Water Planning Authority for the East Duck Mountain-Sagemace Bay Integrated Watershed Management Plan and the Dauphin Lake Integrated Watershed Management Plan. With the new district, the entire Manitoba Escarpment from Cowan to McCreary will be managed under one Board. That includes all the water runoff from the east side of the Duck Mountain and the north and east side of the Riding Mountain.

From one Authority in 1948 to one Authority in 2020, I believe that history has repeated itself. The climate history certainly repeats and now we will see how the future along the North-West Escarpment will make history. I firmly believe that if all of us pull together in the same direction, the future will be better than ever before with the marriage of two Conservation Districts.

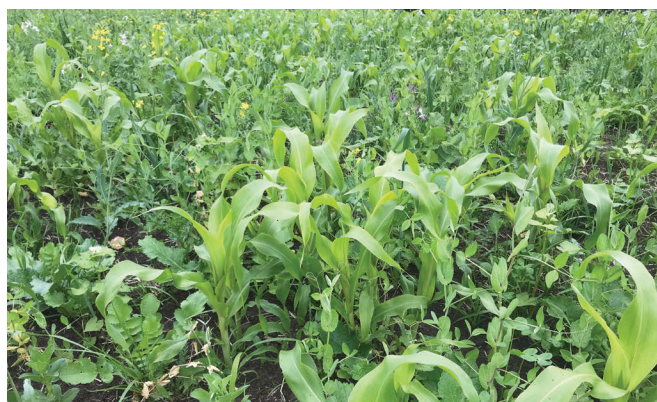


## Experimenting with Polycrops

Adam Kerkowich, Manager



Soil is a topic often overlooked by many; Conservation Districts included. We know it grows grasses, grains, vegetables, and flowers among other things. It also assists with excess moisture and drought when managed properly. Soil is complex and unique. It needs organic matter, nitrogen, carbon, insects, bacteria, fungi, just to name a few. Without certain plants growing in the soil, none of this is achievable naturally. Each plant provides benefits and draws nutrients it requires. Legumes add nitrogen, tubers/root vegetables help break up compaction, grasses help prevent erosion. Diversity in our soils creates all around healthy soils and reduces unwanted weeds.



In 2018, after hearing a regenerative agriculture talk at the Assiniboine River Basin Initiative Conference, Lake of the Prairies Conservation District decided to attempt a polycrop plot.

Soils across most of Manitoba have been depleted. Regions that once carried as much as 10% organic matter are now left with 4-5%. Farmland which should be capable of absorbing an inch of rain in under a minute is averaging an hour. Input costs are at an all-time high, averaging roughly \$250 an acre for seed, fertilizer and chemicals. All these issues and more led us to this project.

We were fortunate to connect with a landowner who donated an 8-acre plot for a 3-year span. Given a short window, we planted a forage-based plot of 17 forbs, tubers, legumes, and grasses.

While this 17-seed blend did not turn a profit (to no one's surprise), it has jumpstarted the soil. We took this approach to

speed up soil health improvements, but there are other options for producers looking to get into polycrop farming.

We currently have a mix of Winter Wheat and Hairy Vetch which was planted in the fall of 2018. To date, our input costs are \$150 an acre. We will be interested to see how this crop produces financially, as we have not applied any fertilizer or chemical to this field.

The two key ingredients to building soil health are: (1) always be growing something green, and (2) grow more than one type of plant. When the soil is bare, it's not benefiting. Always grow something during the growing season.

We, the staff and members of Lake of the Prairies Conservation District, believe that regenerative agriculture can be both beneficial to the soil and profitable. We're working to build local evidence to verify this belief, and we're excited to report back soon.

# Putting the Conservation Trust into Action

By Justin Reid, Manager

**L**a Salle-Redboine Conservation District is excited to put the new Conservation Trust into action with three projects for which we've received \$115,000 and we have matched with \$270,000 from other sources.

First is the Mill Creek Retention Project. In partnership with the Rural Municipality of Cartier, we are constructing a series of water retention structures along the Mill Creek using municipal roads and modified culverts to hold back the flow.

This project will produce valuable ecological goods and services. Peak flow reduction will strengthen flood resilience. By slowing down the flows, these structures will allow nutrients to settle and be absorbed by the vegetation instead of flowing into our lakes and contributing to algae blooms. The slower flows will ease pressure on municipal infrastructure and reduce bank erosion. The stored water will be available to producers for irrigation, improving drought resilience and reducing reliance on water pumped from the Assiniboine River.

For our second project, we are working with the Rural Municipality of Victoria on the Cypress River Wetland Trail Enhancement.

We are adding hiking trails and replacing the decaying boardwalk to improve accessibility for people with restricted mobility. Interpretive signs and a widened portion of the boardwalk will provide space for

a "wetland classroom" where students can get up close and personal with the wetland via critter dipping.

Our third project is a trail restoration at the Pinkerton Lakes Wildlife Refuge south of Treherne. We are building boardwalks, bridges, and raised bed pathways across the wet sections of the trail to enable year-round use, greater accessibility and more efficient maintenance.

This renewal will set the stage for more ecological education through school hikes, scout campouts, and water festivals, and greater use by bird watchers, ski clubs, snowmobile clubs and the general public.

The April 2020 Manitoba Envirothon South Regional event will mark the grand reopening of the trail. This will be an opportune time to extend our thanks to the Municipality of Norfolk-Treherne, the Manitoba Forestry Association and Envirothon volunteers.

These sites and events are key to teaching the next generation about the role our wetlands play in supporting biodiversity, nutrient reduction, and flood and drought resilience.

Thank you to the Province of Manitoba, Winnipeg Foundation, Manitoba Habitat Heritage Corporation, and our municipal and landowner partners for your contributions. La Salle-Redboine Conservation District is eager to put the Conservation Trust into action by retaining water and connecting people to nature.

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# Protecting Water Together

**Colleen Cuvelier, Manager**

The picture is the reward of a completed jigsaw puzzle. What would your reaction be, however, if after assembling the puzzle, you discover a piece is missing? The Little Saskatchewan River Conservation District (LSRCD) recognized that key pieces were missing from the watershed picture. Unlike a missing piece from the jigsaw puzzle, we knew what piece was missing: the voice of local Indigenous communities. Within our watersheds, local planning and decision-making guide the actions of the people. People are the stewards of the land, water and all the life found within our watersheds.

Two initiatives are underway at the Little Saskatchewan River Conservation District to partner with Indigenous communities.

The year 2020 will see conservation districts transition to watershed districts through boundary alignment to watershed boundaries.

“Finally, the Manitoba government changed our mandate to manage by watershed. First Nations are in the watershed and need to be part of the water management team. It just makes sense. Their passion and cultural interest in protecting water will serve all Manitobans very well.” - Don Huisman, LSRCD Board Member

In advance of the transition to the new Assiniboine West Watershed District, the LSRCD Board invited a member of Rolling River First Nation to join the board. The invitation was accepted. Band Manager Elvin Hunting Hawk brings his perspective to the organization.

“Rolling River First Nation is very happy to be part of the Little Saskatchewan River Conservation District. We look forward to the future and in moving this process further to the benefit of all our respective communities and members.” - Elvin Hunting Hawk, RRFN Band Manager

The second initiative is a project supported by Environment and Climate Change Canada’s Lake Winnipeg Basin Program. During the summer of 2019, Rolling River First Nation and the Little Saskatchewan River Conservation District will come together for a water protection workshop.

On the Internet, you can read that Rolling River First Nation is a signatory to Treaty 4 and is part of the Ojibway Nation. One of the workshop goals is to hear the stories of the people. In other words, the information that is not found on the Internet.

The Assiniboine West Watershed District will be strengthened by the efforts of the Little Saskatchewan River Conservation District to foster a relationship with Rolling River First Nation.



**Back row (left to right): Dennis Pedersen, John Spaller, Don Huisman, Dave Falkevitch, Keith Syslak  
Front row (left to right): Cindy Murray, Ray Frey, Elvin Hunting Hawk, Kaye Wolstenholme**

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# New Water Retention Structure for Local Landowner

**Angie Smith, Assistant Administrator**

The Pembina Valley Conservation District (PVCD) has had a productive construction season! Work was completed throughout the district that included Water Retention and Runoff Management projects and Riparian Area Enhancements. The benefits of these projects are protecting against flooding, erosion, drought and the impacts of climate changes, as well as improving surface water quality by capturing sediments, nutrients and pesticides. Providing a water supply for agriculture and the environment is also a priority, as it benefits agricultural production and increases wildlife habitat and a greater ecosystem resilience.

One such project is the R & D McLean Farm Water Retention structure. The landowner had an existing dam that was constructed over 20 years ago. While serving its purpose for that period, the landowner was needing a larger capacity dam with a temporary water component. According to Don McLean, “Through the Environmental Farm Plan process,

water conservation was an important issue. With this project, I can address that by holding back water and helping with flood mitigation, and I also have water storage for times of drought. We will be utilizing this water for irrigation purposes on 100 acres of land.”

This dam means better surface water management for the farm and neighboring properties and will reduce downstream flood peaks. It will hold 73.68 acre feet of temporary storage, and 39.6 acre feet of permanent storage, which will pay dividends in wet and dry years. The Lizard Lake Sub-District Chairman, Walter McTavish, comments, “We are partnering with the McLean Farm and the Ag Action Manitoba Program to do this work. Having both willing landowners and project funding is key.”

For more information on what the Pembina Valley Conservation District could do for you, please contact the office at 204-242-3267.



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# Expanding Shelterbelts, Visuals, and Opportunities for Students

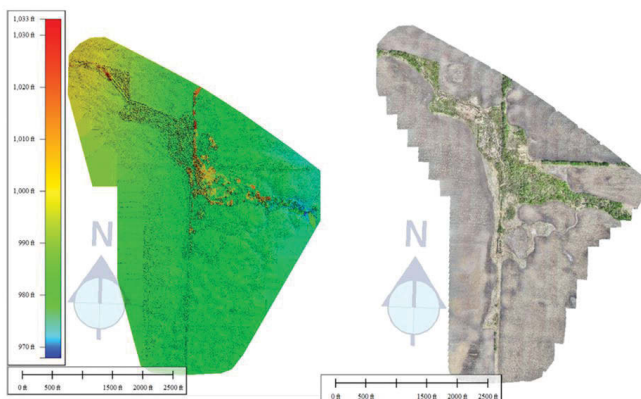
*Stephanie Reid, Manager*

Since I joined the Swan Lake Watershed Conservation District team a little over two years ago, I have found the district to be welcoming of fresh ideas and building relationships with locals throughout the watershed. With the help of the staff and board, our watershed has been moving forward by implementing greener, eco-friendly ideas and using technology for efficiency and accuracy on projects.

Our decisions on projects of any type and size require forethought on reducing the impacts we make to the environment, so we have made adjustments to use materials like native grass species and biodegradable stakes for erosion control.

To help turn the tide against deforestation in the Valley, our tree/shelterbelt program is in its second year with 15,000 species sold to date. Trees provide key benefits for wildlife and people including soil health improvements, livestock protection, habitat, and overall aesthetics.

We have improved the greenspace adjacent to our office in Swan River by adding nest boxes, edible plants and flowering plants to help pollinators and produce a multiuse area for the public. This mentality for change and improvement positions Swan Lake Watershed Conservation District as a role model for the community and sets the stage for future progress.



We are making our projects more visually accessible and efficiently planned and executed thanks to technology. Added to our equipment roster this year is a Phantom 4 Pro drone that captures areas which would otherwise go unseen or be difficult to access. This follows suit with other Conservation Districts.



This equipment, along with user-friendly geographic information system (GIS) technology, allows us to survey and map sites with ease and improves communication with contractors, the board, and landowners. As our districts' workload increases thanks to external funding, these tools help us stay organized from start to finish, giving us the freedom to allocate time to additional initiatives in our Integrated Watershed Management Plan.

In addition to these modern, environmentally friendly improvements, our district helped create a new scholarship for high school graduates and soon-to-be-graduates who choose post-secondary education in an environmental field. The scholarship is sponsored by a local, environmentally driven family and administered by our district.

All of this and more, including expansion of a newly developed nature walking trail, has produced a new dynamic in our watershed. We are enhancing and better communicating our services to local residents while upholding the goals of our watershed plan. These efforts are putting Swan Lake Watershed Conservation District on a path to a strong and progressive future.

# Penner Water Retention: Building Retention Capacity from the Ground Up

By Alan Wiebe, Watershed Assistant



Aerial photo of Penner Water Retention Project

The Penner Water Retention Project is an 800-metre-long dyke, located south of Steinbach, Manitoba in the Manning Canal sub-watershed district. It was completed in November 2018 in partnership with Seine-Rat River Conservation District (SRRCD) and local cattle producer Marvin Penner. The project was designed to manage surface water runoff, as well as to mitigate downstream flooding of rural homes and agricultural land in the area.

We built the dyke to make use of a low-lying area of wet cattle pasture. It has a water storage capacity of 17 acre feet with a four to seven day drawdown period. We used on-site sub-soil fill material and formed a ditch alongside the dyke.

The 15-metre-wide spillway handles excess surface water flows. It is reinforced with a deep cellular confinement grid and synthetic geotextile matting. The reinforced materials were then anchored securely to the soil below. SRRCD staff assisted with the installation of the cell grid and matting on the spillway. Two 300 millimetre drawdown culverts were installed next to the spillway to allow water to slowly release over the drawdown period. We placed surface soil from the excavation on the top and sides of the dyke before leveling. Mr. Penner plans to seed and install a gated fence on the dyke next spring.

The SRRCD used Light Detection and Ranging (LiDAR) data to identify potential water retention project sites in the Manning Canal sub-watershed district. Mr. Penner expressed interest in getting involved for the sustainability of his livestock operation. He also completed an Environmental Farm Plan as part of the project agreement. The projects at SRRCD are custom designed in-house to benefit the unique needs of local producers, communities, and the health of our watershed.



SRRCD staff assisting contractors with the installation of cell grid and geotextile matting



Penner Water Retention spillway construction

# Redefining Infrastructure

Submitted by Ducks Unlimited Canada

**N**ew conservation concepts, and new funding, may allow Ducks Unlimited Canada (DUC), municipalities and conservation districts to work even more closely together.

Green infrastructure programs now include natural infrastructure that restore ecosystems on the landscape with the same objective of traditional concrete and steel solutions to water management.

Natural infrastructure can be defined as strategically planned and managed networks of natural lands including wetlands, forests and grasslands that can reduce flood damage and risk, and purify and store water.

While green infrastructure includes clean transportation, energy efficiency and renewable energy programs, natural infrastructure is about restoring or conserving natural landscape features under the green umbrella.

The floods of 2011 and 2014 illustrated the devastating and costly effect that floods can have on infrastructure and agriculture. At approximately \$1 billion per event, the impacts were felt well beyond the actual floods. And yet recent hydrologic modeling within one Saskatchewan watershed conducted by the University of Saskatchewan (Pomeroy et al, 2014) showed that if historic wetlands had been in place the peak flow during the 2011 flood could have been reduced by 29 per cent and total runoff by 32 per cent. This would have reduced road and culvert damage, and meant fewer crop losses and unseeded acres.

Recent announcements on Investing in Canada and other programs have opened the door for potential funding of natural infrastructure in support of green initiatives in Canada. Federal and provincial governments have recognized the value in restoring and

conserving natural habitats that can reduce the impacts of flooding and drought, especially in a time of changing climate.

Municipalities and conservation districts can now apply for natural infrastructure projects in addition to standard infrastructure. The Investing in Canada Infrastructure Program (ICIP) and Disaster Mitigation and Adaptation Fund (DMAF) are but two programs accepting proposals for natural infrastructure.

We can achieve more through collaboration and partnerships. Natural infrastructure is a real alternative to traditional infrastructure for water management and treatment, reducing the impacts of floods, and providing multiple ecosystem goods and services.

Damage to roads and bridges, and decreasing water quality are impacts of an ongoing trend of wetland drainage and habitat losses on the prairies. Disaster mitigation costs are rising and predictions suggest water scarcity is also likely to manifest with greater frequency under a changing climate. Wetlands are a cost-effective way to address each of these challenges.

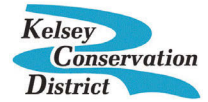
Research also shows that wetlands sequester and store nutrients and pesticides, and help purify water and reduce sediment transport downstream. These ecological goods and services can reduce the cost of water treatment plants or the need to upgrade. In these days of carbon pricing and tax, wetlands store large amounts of carbon and need to be maintained.

DUC looks forward to working with municipalities and conservation districts to explore funding opportunities and identify potential projects in their area.



# Reducing Soil Erosion and Nutrient Runoff on Northern Farmland

**Shawn Sexsmith**



In 2016, the local farmers association asked Kelsey Conservation District to help prevent sediment from entering into drains from field runoff. This is of significant concern for Kelsey Conservation District for two reasons. First, when sediment is being carried off a field by moving water, it can carry nutrients that degrade water quality. Second, when that sediment is deposited into a drain that is designed to serve the agricultural community, the drain can no longer move water effectively.

Most of the soil in The Pas agricultural zone is alluvial till and part of the Saskatchewan River Delta. This is the world's second largest freshwater delta. The soil that makes up a delta has floated in from upstream over the past 10,000 years. Because the soil arrived via annual floods over thousands of years, it is prone to moving or eroding when it is wet and there is flowing water. During spring melt and heavy rainfall events, this soil is susceptible to eroding when it is moving across a field or in a field drain.

The topography in this region is flat: six inches of rise to the mile. When the fields are flooded, as they are every spring, the water drains across them slowly and only speeds up as it nears the main drains. At this point, erosion can quickly cause gullies that can move up to 100 meters into the field. All of the eroded soil ends up in the drain, reducing its efficiency. Kelsey Conservation District is also concerned with the loss of soil and the movement of nutrients in the waterways.

In an effort to reduce or eliminate the sedimentation of drains, and in turn prevent field erosion, Kelsey Conservation District installed 15 culverts at the end of field drains as a pilot study in 2017. In 2018, thirty more culverts were installed. For the most part, this pilot proved that these culverts can prevent the gulling process.

These projects have not been without controversy among local producers. They do have a tendency to look a little strange, even to those that understand the rationale behind the concept. Nonetheless, we continue



to get requests from producers to have more installed on their land as they believe that the functionality outweighs the cosmetics.

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# Water Retention: A Landowner's Perspective

*Yasemin Keeler, Manager*

**D**amaged downstream infrastructure, dry wells and extreme climate are a few reasons why Kevin Archibald, a landowner near Killarney, sought support to build water retention on his land. Built in 2014 by the Turtle Mountain Conservation District, the structure stores up to eight acre-feet of water for livestock and protects the area against floods and droughts.

Downstream from Archibald, a culvert had washed out during peak flow events. “This water retention structure alone has slowed the water flow down to the point that the culvert and road infrastructure just isn’t impacted to the same degree. We haven’t seen it wash out since we’ve put the structure in,” said Archibald.

The structure also benefited a neighbour’s farm downstream and Archibald’s hayland further downstream. Slowing the flow from large rains has set the stage for better land management. “We thought the structure was a win-win. We could save water for the cattle and negate the amount of water going across my neighbour’s land and our hayland. Without slowing the water down, it would make that area hard to manage,” said Archibald.

Archibald’s livestock have benefited the most. Before the water retention structure was built, the stream would dry up, leaving the pasture without water later in the summer.

As well, the structure has boosted groundwater recharge among the area’s shallow wells. Enhancing the adjacent riparian zone has improved water quality and provided a sanctuary to wildlife that benefit the hayland.

“I farmed through the 80s and it was dry. The more surface water going across your land, the more recharge you have for those wells. Weather can be extreme, and drought is something that looms in our future. It’s important to mitigate some of the risks associated with climate and this is an important structure for that,” remarked Archibald.

“Water is a valuable resource. Farmers want to get it off their land, but there are times where water is in short supply. Having water on your property is of tremendous value. It’s your water and sending it downstream to someone else is never a good option. Keeping it on your own land for livestock, well recharge or even if it’s a wildlife area that you



and your family can enjoy are important things that water is vital for. Wanting to get rid of it completely is not the greatest option for the future.”

Water is often seen as a detriment on agricultural land. In our changing climate, we need to look at water differently. “Farmers need to look around their property and see if there are places where they could store some water; put it in a place where its not leaving your property” advised Archibald. “These structures can help control flooding and it will enhance the environment and your life. Water is a valuable resource; it’s not looked at that way currently but, in the future, it’s going to be very valuable.”





# Studying Fish Harvests with Treaty 2

*Jody Tucker, Manager*

The Turtle River is a popular stream for rights-based fishers in the spring. While there is lots of information on harvest yields during ice fishing and open water fishing season, there is a data gap in spring harvesting.

Turtle River Watershed Conservation District is working to close this gap and aid fisheries management decisions into the future for walleye stocks in Dauphin Lake. We are working on the Dauphin Lake Spring Harvest Biomass Study, which will help determine the amount of biomass (fish) extracted from the Turtle River during the spring spawning season.

The study is voluntary and straightforward. This past spring, rights-based fishers were invited to bring their fish to a station at the Turtle River in Ste. Rose where the fish were weighed and recorded. After the weights were recorded, the fishers were free to leave with their harvest.

With funding from the Fish and Wildlife Enhancement Fund and a partnership with the First Nations in Treaty 2 Territory,

we hired a manager and four resource technicians to take shifts running the weigh station during the spring run. Treaty 2 representatives at the station helped out the elders and young kids and were all around a good presence.

We are now tabulating the data and assessing the results. Once finished, we will share the study with local user groups and governments to aid their decision making.

This project has strengthened our district's relationship with Treaty 2 First Nations and we're excited to present the results to everyone who cares about our fisheries.



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# Improving Water Management with LIDAR

**Ryan Canart, Manager**

**L**IDAR (Light Detection and Ranging) produces accurate digital elevation models of the land surface. It's used for many things — some of our municipal partners have used it to choose locations for cell phone and Internet infrastructure, while others have used it for urban storm water planning. For Conservation Districts, it opens the doors to better understanding and management of surface water.

LIDAR is typically collected by fixed wing aircraft, but drones are becoming an increasingly popular option which make small parcel data collection more affordable.

Conservation Districts use LIDAR to design and budget for water retention projects. We can choose from a range of software to identify, analyze and compare potential sites based on the contour maps created.

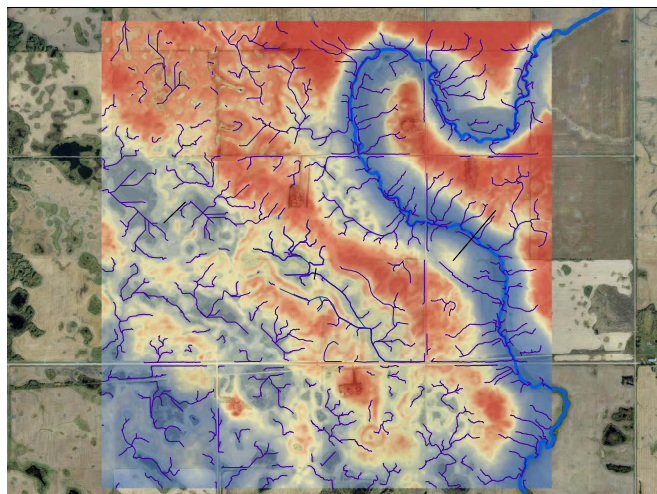
LIDAR saves our Districts boatloads of staff time by reducing the amount of ground truthing needed and empowering them to analyze their watersheds from their desk. It helps us find depressions and wetlands that we might have otherwise missed.

At Upper Assiniboine River Conservation District, we want to extend our use of LIDAR to planning drainage and estimating the impacts of proposed projects. With datasets for culverts and proposed projects, we could generate all kinds of predictive flow regimes for different precipitation events. Then we could assess the ability of the current infrastructure to handle these flows.

The Province of Manitoba has made good progress by investing in LIDAR for the Arrow-Oak Watershed and Assiniboine River valley. Now, these efforts need to continue on to include the entire soon-to-be-formed Assiniboine West Watershed District which will merge three Conservation Districts: Lake of the Prairies, Upper Assiniboine River, and Little Saskatchewan River.

We hope LIDAR will be established for all of rural Manitoba in the not-too-distant future, to empower better watershed conservation throughout the province.

SE 15-15-29W



0 250 500 750 1,000 Meters  
1:22,000

Area calculations obtained using Arc GIS software are approximate, and have not been ground-truthed.

**LIDAR flow routes — watershed and stream delineation as determined by global mapper software, using LIDAR data.**

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# Teach Today So We Can Relax Tomorrow

*Emily Weatherburn, Resource Technician*



For the past six years, the West Interlake Watershed Conservation District has been putting on a Water Festival in various locations around the Interlake. This year it was hosted at The Rubber Ducky Resort in Warren on June 11th.

The Water Festival brings early years and middle school students around the Interlake to learn about water and environmental conservation through hands-on activities. This year, over 250 students from four schools attended, with 12 educational stations to visit.

The topics ranged from trapping to recycling and a simulation that shows kids what happens when people pollute the water. This year, we took the amount of content up a notch since it has been such a big hit with the kids, with each station teaching an important lesson. This means we needed more volunteers, without whom this day would have been impossible. As well, the volunteers and organizers learn as much from the students as the students learn from the festival.

The Water Festival is important for the students to learn about the earth and why we need to protect it, on a local and global level. It is said often that children are the key to the future, and I think that is as true as ever today. Without the knowledge of what happens when you don't conserve the water, when you pollute or don't understand the water cycle, you wonder what the world is going to be like when they are older. You may think that one generation won't affect



the world, but that is not the case. What happens in 60 years when their grandchildren have no knowledge about Mother Nature? We need to teach them now so we can relax later knowing the earth is in good hands.

I can tell you that before I started working at the West Interlake Watershed Conservation District, I didn't know much about water conservation. I knew it was something we needed to do, but I didn't really understand why. The Water Festival is amazing not just because it teaches the kids about water conservation; it's about how we do it. Kids learn and remember more when they can see what is going on and why. By asking the students questions at each station, making them think, and letting them interact with the worms and the furs, it opens their minds.

# First Nation Partnerships in the West Souris River Conservation District

*Dean Brooker, Manager*



**I**n February, the West Souris River Conservation District hosted a Healthy Watersheds Workshop at Canupawakpa Dakota Nation. We highlighted the work we've done since 1995 and how we can work with Canupawakpa to improve surface water management and water quality. Our guests ordered over 500 seedling trees and shrubs which we offered as a straightforward next step to strengthen our partnership with Canupawakpa First Nation and Brandon-based Samson Engineering which helped with planning.

In the spring, our district delivered the 500 seedlings and planted triple row shelterbelts around four new residences in Canupawakpa Dakota Nation. The tree and bush species included paper birch, Manitoba maple, hybrid poplar, blue spruce, Scots pine, lilac and saskatoon. The residents are excited about the wind protection these trees will offer in the future and the fruit from the saskatoon bushes.

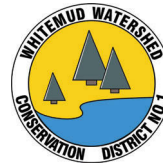
At the request of residents, we also secured funding to supply trees for two cemeteries in Canupawakpa Dakota Nation. Residents planted 30 trees in the cemeteries over two days, making a meaningful addition to these places of rest.

The next step in our partnership with Canupawakpa Dakota Nation is a source water protection assessment. In winter and spring 2019, staff collected GPS (global positioning system) data on all infrastructure within Canupawakpa Dakota Nation. The data will be used as part of the surface water management project and is ongoing at this time.

The federal Lake Winnipeg Basin Program funded the Healthy Watersheds Workshop and is supporting the source water protection assessment as well. West Souris River Conservation District is grateful for their support and for our ongoing partnership with Canupawakpa Dakota Nation. We're accomplishing good things together!

# Touring the Whitemud River Watershed

By Chris Reynolds, District Manager, and Sean Goertzen, MCDA Executive Director



This year on June 26, Whitemud Watershed Conservation District hosted the annual Conservation Districts Tour sponsored by MCDA.

We took our guests on a top-to-bottom journey of the Whitemud River watershed, from the north edge of our district around Riding Mountain to our outlet near Lake Manitoba and through the Escarpment and Sand Hills.

The tour put on display the wide-ranging topography and substantial changes in elevation in the Whitemud River watershed. We showcased parts of the 1,100-mile drainage system which we maintain as an infrastructure conservation district. And we visited many of our conservation projects, including small dams, shelterbelts, and bank stabilizations.

About 85 people attended — people who are passionate about environmental sustainability, agriculture, and flood and drought resilience. There was representation from several Conservation Districts (including our local members), staff and officials from the three levels of government, non-profits, consultants, and more.

Many of our tour guests came from Winnipeg. An important and perhaps overlooked benefit of the annual Conservation Districts Tour is its role in bridging the rural-urban divide. The tour gives urban people a chance to witness rural environmental problems and solutions firsthand and see the deep connections to urban issues.

The strong turnout for our tour suggests that interest in Manitoba's Conservation Districts is alive and well. Our districts are doing important work to benefit our infrastructure,

agriculture, and environment, and many people have a stake in our success. Thanks to all who participated on the tour and helped to make the day a success.

A screenshot of the South Central Eco Institute website. The header features the logo and a search bar. A navigation menu on the left includes links like HOME, ENTER COLLECTED DATA, REVIEW DATA, GRAPH DATA, OUR WATER SITES, WATERSHED MAP, MISSION, SUPPORT DOCUMENTS, KENT'S CALENDAR, and PARTNERS. The main content area is titled "OUR PARTNERS" and displays logos for various organizations including the Saskatchewan Conservation Districts, LaSalle Neillstone Association, Assiniboine Hills, West Souris River Conservation District, Turtle Mountain Conservation District, Seine-Rat River Conservation District, and Water Stewardship Manitoba. At the bottom, there is an ENBRIDGE logo with the tagline "Life Takes Energy" and a statement about supporting lifelong learning opportunities for students. The footer text reads "Working with our partners to provide hands on learning opportunities for students! scecoinstitute.com".

# River Watch

By Kent Lewarne

Students in water stewardship action! That is the motto of the South Central Eco Institute and the Enbridge River Watch program. SCEI is an umbrella organization of like minded partners with the primary focus on education and outreach pertaining to water stewardship. Thanks to funding from Enbridge Inc, SCEI is able to provide support to our partner conservations districts. Teachers and classes in these CDs typically can access equipment and expertise to plan and participate in a River Watch program. So what's a River Watch program, you ask? Well students collect and report on over 30 parameters about the site that they are visiting. Students use a variety of tools to find the depth of the river, the width, gather water samples, test for dissolved oxygen, pH, ammonia, phosphates, conductivity, transparency, turbidity and coliforms (bacteria) present. All this while recording that all important "data about the data" or the metadata! Students often come to a program not entirely sure of which river they are at, but leave with a better

understanding of the watershed, where the water they tested has been and where it is going. To date SCEI has partnered with nine of the 18 conservation districts and is hopeful that the new boundaries will all more schools to become involved in the program. The program, originally founded by the International Water Institute in Minnesota, came to Canada in the late 90s. In 2009, SCEI was formed and River Watch has expanded throughout much of Manitoba thanks to the support of local conservation districts. This year SCEI is excited to be the recipient of a Lake Winnipeg Basin Program grant! This grant will help SCEI continue with regular monitoring but expand to include new protocols for phosphorus testing. The support will also allow SCEI to do some much needed website updates to allow data to be entered in real time. There must be an "app for that"! And our biggest goal is to participate with our colleagues in the USA in a River Watch Forum. This will be an exciting year for River Watch and our partners. Get ready to be involved!



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