THE CURRENT

A Publication of the Manitoba Association of Watersheds ■ 2022 Edition

PRAIRIE WATERSHEDS CLIMATE PROGRAM

An opportunity to enhance agroecosystems and reduce emissions

Living Lab Eastern Prairies

Identifying beneficial management practices for agricultural producers

GROW Programming Realizes Economic and Environmental Benefits for Landowners

Manitoba Association of Watersheds

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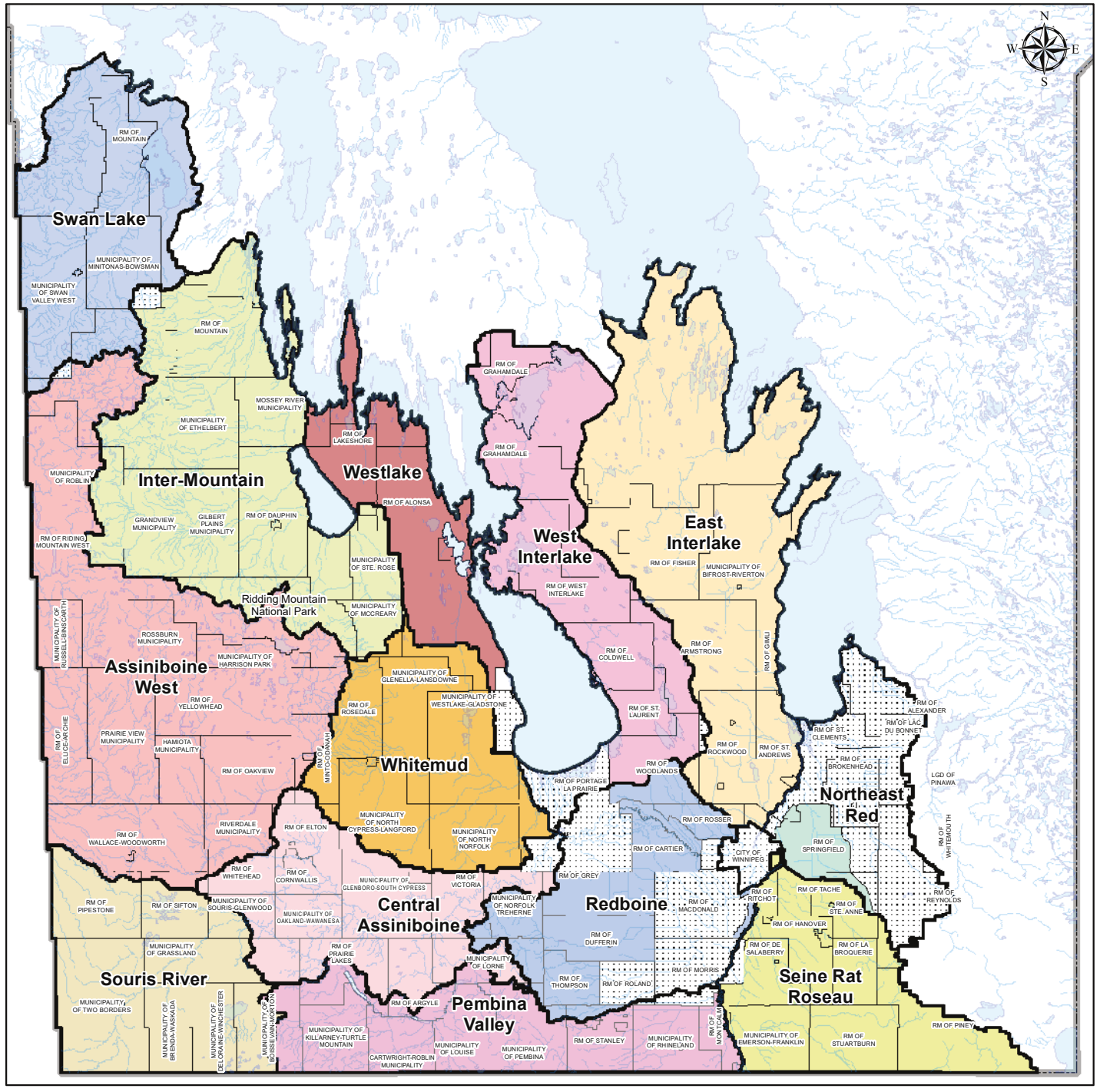

Legend

- Watercourses
- Waterbodies
- Manitoba Provincial Boundary
- Watershed Districts
- Municipal Boundaries
- Non-Member Municipalities

Watershed Districts

- Assiniboine West
- Central Assiniboine
- East Interlake
- Inter-Mountain
- Kelsey
- Northeast Red
- Pembina Valley
- Redboine
- Seine Rat Roseau
- Souris River
- Swan Lake
- West Interlake
- Westlake
- Whitemud

Manitoba Association of Watersheds

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THE CURRENT

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Celebrating the Watershed Districts Program

By the Honourable Jeff Wharton, Minister of Environment, Climate and Parks

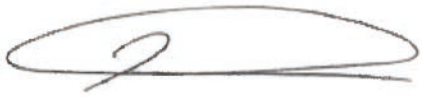
In 2022, we celebrate the golden anniversary of grassroots-led watershed management in Manitoba and mark the 50th year of programming in the Whitemud Watershed District. Since 1972, the Watershed Districts Program has grown to 14 watershed districts across Manitoba with 109 municipal members.

Manitoba's Watershed Districts Program is a voluntary partnership between the province and local municipalities to protect, restore and manage water resources on a watershed basis. With funding from the Manitoba government and municipalities, locally appointed watershed district boards make planning and management decisions to improve watershed health across most of municipal Manitoba. In 2022–23, Manitoba's funding to the program increased for the third year in a row, allowing further expansion to new areas of municipal Manitoba and more support for the four districts managing waterway infrastructure. We are also seeing the effect of enhanced resources available through Manitoba's investment of $204 million to establish the Conservation Trust, GROW Trust and Wetlands GROW Trust across the province, through the projects and programs you deliver.

Over the last 50 years, the Watershed Districts Program has grown and evolved with environmental, societal and economic needs. Programming has changed with increasing input from local, technical and, more recently, Indigenous perspectives. As we look to the future, Manitoba is committed to ensuring all Manitobans have a voice at their watershed table, including to advance reconciliation through partnerships with watershed districts in a way that is meaningful and respectful of all residents of the watershed.

I look forward to our continued partnership in this valuable program, especially as Manitoba moves forward with a new provincial water management strategy. It is my privilege to thank the Manitoba Association of Watersheds for the partnership, promotion and advocacy work they do on behalf of watershed districts throughout Manitoba. I look forward to seeing more good news and continued success. ■

Sincerely,



Honourable Jeff Wharton
Minister of Environment, Climate and Parks

"In 2022–23, Manitoba's funding to the program increased for the third year in a row, allowing further expansion to new areas of municipal Manitoba and more support for the four districts managing waterway infrastructure."

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WHAT CAN YOU DO TO IMPROVE YOUR WATERSHED?

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Identify an environmental concern in your local watershed. Come up with a realistic solution then submit your idea as a proposal including a budget, visuals and project timeline. Finalists **WIN CASH PRIZES** for themselves and their school or club, with additional funding available to implement any realistic solution.

All entries are also eligible for a participation reward and implementation funding.

FINALIST AWARDS

1st Place	2nd Place	3rd Place	4th Place	5th Place
$1,000	$900	$800	$700	$600
6th Place	**7th Place**	**8th Place**	**9th Place**	**10th Place**
$500	$450	$400	$350	$300

SCHOOL/CLUB AWARDS

$11,000 available

In each contest, all finalists win cash for themselves plus a matching cash prize for their school or registered non-profit club. Schools/clubs are also eligible for $100 for every 10 entries they submit to the contest.

PROJECT IMPLEMENTATION

$10,000 available

To share between realistic entries. Both finalists and non-finalists are welcome to apply.

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Contact Amanda Benson,
Program Coordinator

P: (204) 467-3401
E: a_benson@ducks.ca

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For more information on the contest and guidelines visit:

CaringForOurWatersheds.com

2022 Board Chair's Report

By Garry Wasylowski, Board Chair, Manitoba Association of Watersheds

What a province of extremes! Last year, we were dealing with one of the worst droughts ever, grasshoppers eating anything that grew. This year? Flooding – delaying seeding all over the province and fields continuing to be too wet for haying. The challenge that we face as watershed districts is planning for both extremes. We need to store water for drought, but we also must be able to move excess water off the land. With extremes like this, nature always wins. We still need to continue to plan for these events and be prepared for extreme weather.

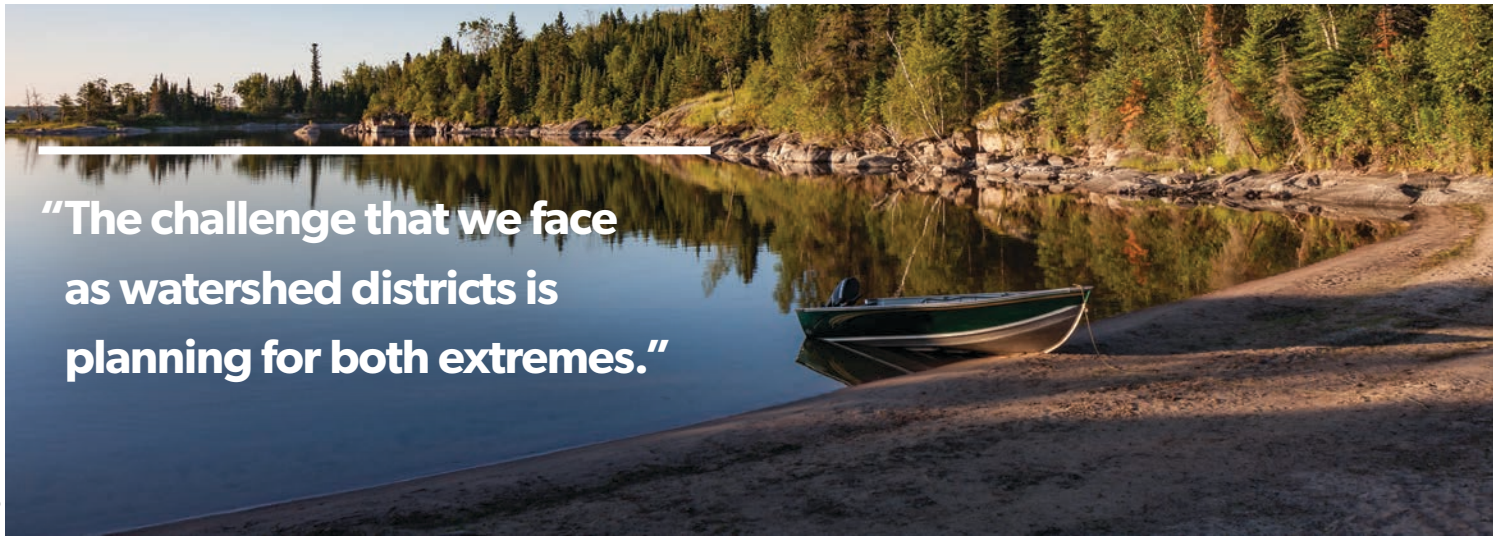
In saying that, one of the biggest successes of the year was developing the Prairie Watersheds Climate Program, funded by Agriculture Agri-Food Canada's On-Farm Climate Action Fund. I want to personally thank Lynda and Dan for all the hard work that they put into this project. This also required the cooperation of all the watershed districts, which shows us the kind of work we can do when we work together. We as watershed districts are one of the most knowledgeable regarding the intricacies between land and water use and management, which makes us a valuable asset to both the federal and provincial governments.

Manitoba Association of Watersheds (MAW) had the privilege of hosting the Honourable Marie-Claude Bibeau, Minister of Agriculture and Agri-Food in Canada, this past July, when she visited one of our Living Lab projects at the Kroeker farm within the Redboine Watershed District. The Minister witnessed the advancements that have been made thanks to the funding from her department, and listened to suggestions on how to improve the program and the efficacy of future field trials. The Kroeker Farms Living Labs site focuses on monitoring organic potato production over an extended period, and the scientific evidence shows the benefits of adopting such practices. On behalf of MAW, I'd like to extend our thanks to Minister Bibeau and her staff for taking the time to see the beneficial work that has been accomplished.

MAW also had the opportunity to meet with the Honourable Jeff Wharton, Minister of Environment, Climate and Parks for Manitoba, for a productive discussion. There are two topics I feel are of note: our involvement in the provincial water strategy and municipal involvement with the watershed districts. I appreciate how our feedback on the provincial water strategy was received and look forward to continuing to support the province in developing a long-term, sustainable and inclusive water strategy for all Manitobans. We were also very happy with the new municipal membership in the watershed district program this past year and are eager to see that more municipalities are applying to become members this year. We are delighted in the commitments that the province has made to the watershed districts and look forward to continuing our work to support continued expansion of the program.

It has been a very busy year and, once again, I want to thank the MAW staff for all the amazing work that they have done. I also extend that gratitude to the staff and boards of the 14 watershed districts for their continued support of the association and their incredible work year-round within their districts. ■

Thank you,
Garry Wasylowski



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A Tribute to Watershed District Members Passed

This page is dedicated to the passionate members and staff from Manitoba's watershed districts who passed away recently. We honour these people for their vision and leadership, and as integral contributors to the foundation of the watershed districts.

Assiniboine West Watershed District
Gary Stewart

Central Assiniboine Watershed District
Sam Phillips

East Interlake Watershed District
Frode Pur Andersen

Inter-Mountain Watershed District
David Buhler

Souris River Watershed District
W. (Bill) Tanguay

argument/123RF

LIVING LAB EASTERN PRAIRIES

A new approach to agricultural innovation in Manitoba

By Manitoba Association of Watersheds

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

The Living Lab Eastern Prairies (LLEP) program, funded by Agriculture and Agri-Food Canada (AAFC) and led by the Manitoba Association of Watersheds (MAW), launched four years ago with the objective to bring a new approach to agricultural innovation in Manitoba. This approach would bring farmers, scientists and other collaborators together to develop and test innovative practices and technologies. LLEP would focus on solutions to environmental issues such as climate change, soil health, water quality and biodiversity.

LLEP has entered its final year, with a project completion date of March 31, 2023. In the final year, the focus is on completion of projects across the four participating watershed districts, and the analysis of data collected over the past four years by AAFC researchers. The final year of LLEP will also see an increase in extension events such as webinars, workshops and conference presentations by LLEP participants and AAFC researchers.

Showcasing success

On July 18, 2022, the Honourable Marie-Claude Bibeau, Minister of Agriculture and Agri-Food, visited the Living Lab project at Kroeker Farms (www.kroekerfarms.com) within the Redboine Watershed District to learn more about the success that LLEP has achieved. The Kroeker Farms Living Lab project site assesses tile drainage management practices, zone management and spatially targeted conservation practices and other soil health and fertility research.

The Honourable Marie-Claude Bibeau visits Kroeker Farms in the Redboine Watershed District

Kroeker Farms, the largest producer of organic potatoes in Manitoba, clearly demonstrated the value of the Living Lab model to Minister Bibeau and all in attendance.

Research accomplishments

One of the research accomplishments of LLEP has been the development of a landowner survey to help understand the socio-economic factors affecting the adoption of agri-environmental BMPs. Led by the International Institute for Sustainable Development (IISD), in partnership with AAFC socio-economic researchers, the research project surveyed agricultural producers within the four LLEP watershed districts regarding a range of factors that influence their decisions around beneficial management practice (BMP) adoption, such as farm characteristics, local policies and relations with specialists.

Results show that, in essence, farmers have an increased likelihood to adopt BMPs if they:

- Are less than 55 years old
- Have a post-secondary education
- Have a farm size above 1,200 acres
- Have received financial assistance for BMP adoption
- Have a farm located in the Living Lab – Eastern Prairies watershed
- Hold memberships in agriculture associations

Barriers that hinder the probability for BMPs to be adopted were also identified. The most predominant factors for concerns were primarily economic concerns, most notably high upfront costs, lack of financial assistance, high maintenance costs, lack of time and uncertainty of economic benefits. The work done to identify why and why not producers adopt BMPs will be critical in furthering future ventures to further promote the benefits of BMPs.

The full report can be found at on the IISD website at www.iisd.org/publications/adoption-agri-environmental-practices-manitoba.

Agricultural Climate Solutions (ACS) program: Living Lab

Announced in 2021, ACS – Living Lab is a $185 million, 10-year program designed to accelerate co-development, testing, adoption, dissemination and monitoring of technologies and practices, including beneficial management practices that sequester carbon and/or mitigate greenhouse gas emissions. MAW is looking forward to working with the watershed districts in Manitoba and other likeminded agriculture groups in developing a Living Lab proposal for consideration under the new program. ■

Prairie Watersheds Climate Program

An opportunity to enhance agroecosystems and reduce greenhouse gas emissions

By Manitoba Association of Watersheds

Manitoba Association of Watersheds (MAW) officially launched the first phase of the Prairie Watersheds Climate Program (PWCP) – an up to $40 million project in Manitoba and Saskatchewan that focuses on beneficial management practices (BMPs) that store carbon and reduce greenhouse gas (GHG) emissions. Funding for PWCP has been provided by Agriculture and Agri-Food Canada through the Agricultural Climate Solutions – On-Farm Climate Action Fund. The BMPs that PWCP funds are nitrogen management, cover cropping and rotational grazing. These practices also provide other environmental benefits such as improved soil health, water quality and biodiversity.

In terms of agricultural benefits, all three practices have been broadly studied in detail and multiple studies have found that they improve crop yields under specific conditions.

What is cover cropping?

Cover crops are an effective strategy for increasing soil organic matter and crop yield, reducing soil erosion, fertilizers, salinization and GHG emissions. Some species like legumes are used in cover cropping since they have a remarkable ability to fix nitrogen through their roots. These roots have nodules containing bacteria from the genus Rhizobium. These bacteria have a symbiotic relationship with the plant to fix atmospheric and soil nitrogen into complex proteinic structures in the plant. As legumes are rich in nitrogen, they are used as green manure to benefit future crops.

Legumes do not just reduce GHG emissions, but also enhance soil composition and structure because of their extensive root systems. These roots also improve water filtration and reduce soil compaction during winter. Through the PWCP, MAW may provide funding for producers adopting cover crops as follows:

- Fall and spring cover crops
- Full-season annual and/or perennial cover crops
- Planning and technical assessments

What is nitrogen management?

Nitrogen management as a BMP is designed to reduce nitrogen emissions, improve soil health, enhance crop yield and reduce water pollution. Through the PWCP, MAW may provide funding to producers for the adoption and on-farm implementation of nitrogen management practices that are recommended by a licensed agrology professional (with demonstrated competency in the

agronomy practice area that may include the CCA designation) or a certified crop advisor. Eligible activities include:

- Use of polymer coated urea (PCU) fertilizer.
- Use of nitrification and urease inhibitors. These products reduce nitrogen volatilization and help fertilizers to be gradually incorporated into the crops. Nitrogen losses through leaching and surface runoff are also reduced.
- Split fertilizer application with a reduced rate in each application to improve the crop use efficiency and reduce nitrogen losses from a single application of fertilizer.
- Planning, technical assessments or engineered designs.
- Soil testing and soil mapping to determine specific nitrogen requirements in the soil according to crop types and needs.
- Use of soil organic amendments and synthetic fertilizer substitutes (manure, compost, digestates) to improve nitrogen balance in the soil and crop nitrogen intake.
- Increasing legumes in rotation to fix nitrogen and reduce fertilizer use in the subsequent crops. Legumes also improve soil composition with their extensive root systems.
- Application of nitrogen in spring instead of fall to avoid nitrogen's leaching, volatilization and/or runoff.

What is rotational grazing?

Rotational grazing is a common practice for grazing management to create sustainable forage resources for cattle producers. This practice offers multiple benefits such as soil quality improvement, including better drainage, soil organic carbon increase and pasture recovery. In addition, rotational grazing effectively reduces GHG emissions (carbon dioxide, nitrous oxide and methane), improves plant biomass and reduces soil compaction. Livestock producers implementing this BMP will provide many benefits to climate change mitigation and soil protection.

Rotational grazing is an agroecological practice based on rotating the areas where the livestock graze throughout the grazing season. This method allows for better grazing by using forages when they have the most nutritional value without over or under grazing certain species or pasture areas. This system can extend the grazing season, reducing the need for winter feed to be made and transported to a confinement feeding area. It also spreads manure throughout the pasture, reducing the need for synthetic fertilizers on pastures.

Through the PWCP, MAW may provide funding to producers adopting the following activities:

- Fencing to support the rotational grazing plan
- Watering systems to support the rotational grazing plan
- Improving pasture compositions by seeding legumes such as alfalfa or sainfoin
- Creation of a grazing management plan

How can I apply to PWCP?

PWCP is managed by MAW. Manitoba's watershed districts are available to assist farmers in their jurisdiction with PWCP applications and documentation required for this program. Please contact your local watershed district for further information about BMPs, funds, eligibility and conditions. Full details are available at www.manitobawatersheds.org/prairie-watershed-climate-program. ■

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Cattle grazing on a rotational basis

GROW Programming Realizes Economic and Environmental Benefits for Landowners

By Watershed Planning and Programs Section, Environment, Climate and Parks

Manitoba's watershed districts understand the importance of balancing the needs of the watershed with the need for a viable agricultural economy. There are many environmental benefits resulting from functional ecosystems including water filtration, sediment reduction, flood water storage, groundwater recharge and increased biodiversity.

Watershed districts are often approached by landowners who experience flooding, erosion and degraded soil health. These issues can have a significant effect on a landowner's bottom line. Through Manitoba's recent investment in "GRowing Outcomes in Watersheds" (GROW), watershed districts provide funding for farm-led solutions, including annual incentive payments to balance production with natural landscapes and offset economic costs associated with environmental stewardship.

This project implements actions outlined in the local watershed management plan to reduce or eliminate excess nutrients from entering waterways, acknowledge agricultural producers as the stewards of the land and preserve natural areas through the implementation of ecological goods and services programs.

Conservation of temporary wetlands

Wetlands provide an abundance of environmental benefits. However, wetlands can result in private costs for some farmers. Through GROW, this cost can be offset with an annual payment to protect these wetlands.

The Souris River Watershed District is working with Gerry Williams, who runs a mixed farm operation near Souris, Man. The farm includes many different types of wetlands, ranging from temporary to permanent wetlands that hold water all year long. Williams is participating in GROW by conserving smaller, shallow wetlands under 10-year term agreements, and enhancing the larger wetlands on his property by removing livestock access. The district is supporting these efforts through GROW and providing annual payments and funding toward establishing fencing and an offsite watering system.

Water retention

The Inter-Mountain Watershed District is designing a large water retention project located in the Rural Municipality of McCreary. Owned by the district, this project is in an area that naturally floods every spring, and the district is planning to create temporary backflood areas on the property.

Using water retention to reduce peak flow is a high priority in the Dauphin Lake Integrated Watershed Management Plan. The board purchased the 480-acre parcel, recognizing its ideal location to store high water flows from the Turtle River, and protect downstream properties, including the Town of Ste. Rose, from flooding. The project will serve to demonstrate water retention projects that could be implemented on private land throughout the district.

Upland restoration

This year, Brad Loewen from the West St. Paul area is participating in a GROW project with East Interlake Watershed District. His main objective is to convert 65 acres of hayland into tall grass prairie. Environmental benefits provided by the tall grass prairie landscape include delaying and reducing runoff events, stabilizing soils, increasing groundwater recharge and storing carbon.

On top of providing annual incentive payments, the watershed district staff are working with Loewen to source trees and seed and assist with planting. This project implements actions outlined in the local watershed management plan to reduce or eliminate excess nutrients from entering waterways, acknowledge agricultural producers as the stewards of the land and preserve natural areas through the implementation of ecological goods and services programs.

Watershed districts are able to fund these projects thanks to Manitoba's recent investment of $204 million to establish the Conservation, GROW and Wetlands GROW Trusts. For more information about GROW, please visit www.manitobawatersheds.ca. ■

GRAZING FORWARD

A new pilot program offered in AWWD

By Ryan Canart

The Assiniboine West Watershed District (AWWD) is one of two watershed districts in Manitoba offering Grazing Forward, a new pilot program through ALUS Canada and funded by Cargill and A&W. Grazing Forward recognizes leading-edge beef producers for their work and provides financial incentives to support their adaptive multi paddock (AMP) grazing production practices. AMP grazing provides high value ecological goods and services (EGS) which benefit not only the individual farm, but the whole watershed.

The benefits of AMP grazing can include increased above and below ground biomass, building landscape resilience in the face of floods and droughts, and increased carbon sequestration, which aids in the retention of available water. The absorption of methane into the soil was also measurably higher in AMP grazing systems compared to continuous grazing operations, which combats methane's overall impact on the global climate. On the production side, studies and trials have indicated an increased carrying capacity, as much as 100 per cent, under AMP grazing and higher weight gains coming from these grazing practices.

AMP grazing, also known as enhanced grazing, typically uses increased water and fence infrastructure, as well as labour to achieve smaller paddocks, higher stock densities and longer rest periods. Keeping an eye on ecological indicators is critical to the success of the program, given the variable conditions from year to year. Rates of plant growth and regrowth, grazing length, timing, distribution and uniformity all factor into long-lived productive grasslands. Given the extreme variation in the weather from last year to this year, we need to adapt to incorporate up to five times the dry matter production compared to last year.

As an AMP grazer myself, I feel that the benefits are very real, and it is one of a few practices in modern agriculture that is easily adaptable and beneficial. Using AMP practices, farmers transition from damaging the ecosystem due to season-long continuous grazing, to regenerating it while at the same time increasing a rancher's potential profits.

The pilot project will run for five years, with participating producers receiving an annual payment for the EGS they produce. By partnering with ALUS on the Grazing Forward program, AWWD hopes to showcase the benefits of these practices by developing videos and testimonials, and other promotional formats in the years to come. For more information, please contact AWWD directly. ■

Ryan Canart is the manager of the Assiniboine West Watershed District.

High-density mod grazing near Hargrave, Man.

CAWD Builds on Rain Garden Success

City of Brandon rain garden pilot project to expand to all of CAWD

By Neil Zalluski

The Central Assiniboine Watershed District (CAWD) has entered a partnership with one of our municipal members, the City of Brandon, to deliver a pilot project constructing rain gardens.

The partnership includes watershed district staff implementing rain garden projects while the city promotes the program through their Environmental Initiatives Coordinator, Lindsay Hargreaves, who said, "The success of this program will be a stepping stone to create a long-term program for Brandon residents to incorporate green infrastructure into their yard to help mitigate storm water runoff."

Rain gardens have several benefits including, but not limited to, reducing the amount of water that enters the local storm water system, reducing peak flows during major water events, recharging

The program completed eight residential rain gardens on private property within the City of Brandon in 2021.

groundwater and reducing pollutants to our waterways. Rain gardens also attract pollinators and birds, providing additional benefits such as promoting biodiversity, which is not only beneficial to the environment, but can also beautify the urban area.

The program completed eight residential rain gardens on private property within the City of Brandon in 2021. The process was based on a homeowner application to have a rain garden constructed, which, once approved, was designed and installed with assistance from CAWD staff. A qualified landscaper was used to complete the work to ensure a professional product.

With the success of year one, CAWD is now looking to complete another year of rain garden programming in 2022. When observing the demand for rain gardens on urban properties, CAWD has decided to expand the program to all members. An ad campaign will be launched soon to assess the demand.

Basic eligibility requirements for the program:

- Must have a residential or small acreage property within the boundaries of the CAWD. (Refer to centralassiniboinewd.ca and refer to the district map.)
- The rain garden must be in a low-lying area or in an identified target area.
- The rain garden must be installed at least three metres away from any building foundation.
- Downspouts must be able to be redirected towards the area of the rain garden if not already directed that way.
- The proposed rain garden location must be clear of any trees or underground services. (A utility survey will be completed prior to construction.)

Applications will be assessed as they arrive. For information and to apply, visit:
City of Brandon limits: brandon.ca/rain-garden
Outside Brandon city limits: centralassiniboinewd.ca ■

Neil Zalluski is the manager of the Central Assiniboine Watershed District.

EIWD Saw Increase in Landowner Conservation Projects in 2021

Regenerative agriculture projects new to EIWD

By Patricia Barrett

This article was originally published in The Express Weekly News *on Dec. 16, 2021.*

The East Interlake Watershed District (EIWD) saw a lot of interest in 2021 from landowners wanting to undertake conservation projects.

The EIWD's board approved 33 projects out of a pool of 113 submissions and worked with provincial and federal funding partners GROW, Ag Action and Environment and Climate Change Canada, which support landowners taking actions that benefit their local watersheds.

EIWD manager Armand Belanger said the district partnered with landowners to improve/maintain 12 wetland projects totalling 245 acres, three tall grass restoration projects totalling 65 acres and three tree-planting projects on 13 acres. The district has also been working with 16 farmers to protect over 100 acres of riparian areas (banks of a river, stream) and to help rebuild soil on over 1,000 acres of land.

"All the projects are exciting and diverse, with the goal of each one to either improve or enhance soils, wetlands, grasslands, forests and the ecological goods and services (EGS) that they provide," said Belanger. "EGS are things that benefit the watershed and the people who live there. They include creating wildlife habitat for us to enjoy, slowing down water to prevent flooding, holding water for times of drought, sucking up nutrients and contaminants before they head into lakes and streams, which allow us to enjoy clean water to drink and play in, absorbing carbon from the air and putting it into the ground to make the soil rich and healthy and mitigating the effects of climate change."

Sunrise over a marsh in Manitoba

keithlevit/123RF

Some research has shown that a conventionally farmed field that gets an inch of rain will take about an hour to absorb it whereas a field farmed under RA principles can absorb an inch of rain in 10 to 30 seconds.

The projects were carried out near communities such as Selkirk, Stonewall, Arborg, Fisher Branch and West St. Paul.

New to the EIWD in 2021 were regenerative agriculture (RA) projects, which focus on improving soil health, regenerating topsoil and building resilience to climate change, among other farm rehabilitation initiatives. Belanger says the EIWD hopes to see more engagement on RA projects next year.

"There are many benefits to farmers that practice regenerative agriculture, including healthier soils that help grown healthier crops and livestock, improved biodiversity above and below the soil, habitat for pollinators and songbird populations and reduced farm vulnerability to droughts, to name a few," said Belanger.

The EIWD is particularly interested in improving water infiltration of fields, he said. Some research has shown that a conventionally farmed field that gets an inch of rain will take about an hour to absorb it whereas a field farmed under RA principles can absorb an inch of rain in 10 to 30 seconds.

"If a second inch fell, it could take a conventional field all day to absorb it (over 24 hours). In comparison, a regenerative ag field would only take 30 seconds to a minute to absorb that second inch," said Belanger. "Some estimations are showing that farmers could store an additional 25,000 gallons of water on one acre of land if they follow RA principles."

The EIWD didn't see a great number of temporary wetland projects in 2021 and Belanger said he hopes to see that increase in the future. The EIWD can help protect Class 1 (ephemeral) and Class 2 (temporary) wetlands from being drained by giving landowners yearly incentive payments for leaving the wetlands as they are.

The EIWD is currently working on updating the Netley-Grassmere and Willow Creek Integrated Watershed Management Plan (IWMP) for long-term sustainability. LiDAR data, which shows land elevation, can identify strategic locations within the watershed where water can be stored and upland areas that can be improved to reduce the impacts of flooding and drought.

"The LiDAR analysis and the IWMP update will be done hand-in-hand to help one another," said Belanger. "We are working with Hank Venema of Strategic Systems Engineering. The LiDAR data that they're analyzing has over 8 billion elevation points plus culvert data the EIWD has been collecting over the years."

For more information about conservation projects and funding, as well as regenerative agriculture projects, call the EIWD at 204-642-7578 or visit www.eastinterlake.ca. ■

INVESTING IN THE FUTURE

IMWD continues to focus on youth education programs

By Laurie Hykawy

Our youth are the future, and that is why the Inter-Mountain Watershed District (IMWD) continues to invest in youth education programs, such as school presentations, scholarships, tours and festivals. Every year, IMWD provides scholarships for students pursuing education in the environment or agriculture fields at a university or college, holds the Oak Hammock Marsh "On the Go" tour and hosts the Water Festival.

The Water Festival is the district's primary educational outreach event as it provides an excellent opportunity to highlight local environmental issues and priorities. District staff commit many hours planning, organizing and setting up for the two-day event, which is held at the district's yard site and trail located along the beautiful Shanty Creek just outside of Ethelbert, Man.

After a two year break due to the pandemic, the district decided to host the event once again. Invitations were sent to all the elementary schools within the district boundaries with Grade 5 as the targeted age group. As a result of the efforts, 280 students from 11 schools were in attendance. Twelve interactive learning stations were set up around the property, which were: a food chain game, critter dipping, composting, recycling, tree planting, fisheries, nature trivia, a watershed model, a stream table,

The Water Festival attracted 280 Grade 5 students from 11 schools to the district's yard site and trail located along the beautiful Shanty Creek

water cycle, water conservation and bird migration. Lunch was also provided by the district with the help of local sponsorships. The two days were full of excited, eager to learn children, smiling faces and knowledgeable station volunteers. Each student was provided with a couple of trees to plant to remind them of the event for years to come. Trees were delivered to the schools that were unable to attend.

The IMWD is a large district. Therefore, staff will be looking into options to reorganize the event in an effort to accommodate all schools. A big thank you goes out to all the sponsors, volunteers, students, teachers, chaperones, bus drivers and staff for making the festival a success!

The IMWD operates in partnership with Manitoba Environment, Climate and Parks, Manitoba Agriculture and Resource Development, the Manitoba Association of Watersheds and the following municipalities: Alonsa, Dauphin (city); Dauphin (R.M), Ethelbert, Gilbert Plains, Grandview, Lakeshore, McCreary, Mossey River, Mountain South, Riding Mountain West, Roblin, Rosedale and Ste. Rose. These partnerships enable the IMWD to deliver a variety of soil, water and educational programs throughout the year. ■

Laurie Hykawy is the financial administrator at the Inter-Mountain Watershed District.

Livestock Reseeding Pastures

KWD is working with livestock producers to re-establish poor pastures

By Heather Perchaluk

The Kelsey Watershed District (KWD) is working with livestock producers to re-establish pastures that are in poor condition with more desirable forage species, with the goal of establishing new agricultural practices to decrease nutrient loading. In turn, this decrease in nutrient loading will provide water quality benefits.

The purpose of this project is to rejuvenate pastures by using livestock as a delivery agent for reseeding. This will be achieved by mixing grass seeds into mineral mixes. As the livestock ingests the minerals, they will also ingest the hard-coded seeds, which will pass through the digestive system of the ruminates and then be deposited onto the pastures into a fertile environment. KWD will provide financial assistance with mineral and hard-coated seed that will be blended for the livestock to ingest and deposit onto pasture lands.

This project reseeds pastures without the use of mechanical disturbances and doesn't take existing pastures out of production. Over time, pastures lose their productivity, typically because the legume species dissipate yearly. Legumes convert atmospheric nitrogen into a form of nitrogen that grasses can use, thus keeping pasture productive. When pastures no longer have access to available nitrogen, their productivity decreases, as does the biodiversity of all plant species. The traditional solution would be to plow down the pasture or apply artificial nitrogen or sod seed it with legumes, a process that can be very costly to the producer. Much of the pastureland within the Carrot Valley farming area is saline and any mechanical disturbances to these soils can have detrimental impacts to the ecosystem. The best management practices for these lands are to maintain permanent cover and this reestablishment project will assist in achieving this goal. ■

Heather Perchaluk is the financial administrator at the Kelsey Watershed District.

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The purpose of this project is to rejuvenate pastures by using livestock as a delivery agent for reseeding.

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District IMPROVEMENTS

Heavy rainfall in 2022 put NRWD projects to the test

By Colin Gluting

Over the last several years, the Northeast Red Watershed District (NRWD) has been fortunate enough to partner with several organizations to improve surface water management in the area. NRWD has created several water retention sites and enhanced existing wetlands to store water temporarily and permanently during spring melt and heavy rain events. NRWD also completed several large drain cleanouts and culvert upgrades that have made significant positive impacts to the watershed and its residents.

During the spring of 2022, many of these recently completed projects were put to the test. Like most of Manitoba, NRWD experienced prolonged periods of excessive water flows. NRWD recently completed the Ste. Genevieve Water Retention Area project, which successfully contained 110 acre feet of water, and prevented the adjacent road from washing out, as it had done for several years when experiencing

NRWD also partnered with the RMs of Springfield and Tache to improve the Plympton Road Drain and Prairie Grove Drain.

Ste Genevieve Water Retention Site

this type of runoff. The project was funded by The Conservation Trust, Lake Winnipeg Basin Program and the RM's of Springfield, Tache, and Ste. Anne.

NRWD also recently made inflow improvements to the Edie Creek sub-watershed, by creating a diversion channel to provide an additional 40 acre feet of storage to an existing water retention site constructed by the NRWD and RM of Springfield in 2010. This project alleviated issues along Centerline Road and has other benefits such as nutrient reduction to Lake Winnipeg and increased biodiversity.

These projects, along with several small retention projects funded through GROW and the Ag Action program, have made a positive impact on the watershed, both with regards to surface water management and improving climate change resiliency. NRWD's GROW Program has been underway for two years and we are seeing more interest as word travels through the watershed regarding the program's potential.

NRWD also partnered with the RMs of Springfield and Tache to improve the Plympton Road Drain and Prairie Grove Drain. These projects include several miles of drain cleanout and stabilization, as well as several large culvert crossing upgrades. During the runoff and rain events of the spring, many local producers made note of the improved infrastructure and the associated benefits. NRWD relies on local knowledge of the landscape not only for prioritizing projects, but ongoing monitoring as well.

While more upgrades and maintenance are needed, the combination of water retention and improved waterway infrastructure have proven to be effective in mitigating major events. NRWD looks forward to building on its existing relationships to provide resiliency to the watershed. ■

Colin Gluting is the manager of the Northeast Red Watershed District.

PEMBINA VALLEY WATERSHED DISTRICT

A Win-Win for the Producer and the Watershed District

A partnership between a local landowner and the watershed district that benefits all parties

By Angie Smith

The Pembina Valley Watershed District (PVWD) partnered with landowner Darcy Stewart to create a small retention project in his pasture, which is located near the east end of Rock Lake in the Cartwright-Roblin Municipality. The purpose of this project was to provide water for the landowner's cattle, as well as reduce downstream flood peaks, rapid run-off, erosion and sedimentation into the Pembina River.

According to Stewart, "At a producer's meeting in early 2020, Randy Dow, the PVWD technician and I started discussing having cattle near Rock Lake, and what I could do to help limit water runoff. Then, with the hot and dry spring and summer of 2021, and our wells having trouble keeping up with the demand of the cattle's needs, we started to realize the importance of having the ability to hold water on our land. With this retention project, we are hoping to see the benefits of having moisture around."

The Stewart dam is designed to hold back a maximum of about one metre of water and back flood the low-lying areas of the pasture. The control structure is a stop log gate design, where 2 x 4, 2 x 6 and 2 x 8 boards can be installed to set the level of water retained to meet the landowner's needs, while allowing excess water to flow downstream. This design works well in certain situations due to the flexibility it provides with regards to how much water

PEMBINA VALLEY WATERSHED DISTRICT

is retained, as well as the relative low cost of replacement boards should they become damaged.

The dam will be used to help provide water for cattle and the grasses growing in the pasture, and will reduce downstream flood peaks by providing an area for water to be held during a big rain or the spring melt. In the fall, some or all of the water will be drained so that there is the greatest capacity possible to catch runoff in the spring. This reduces the volume and speed of water travelling downstream, both of which will reduce flooding and erosion. Slowing the water also means there is more opportunity for it to seep into the ground to recharge the groundwater, and more time for any sediment in the water to settle out and not be carried into the Pembina River.

"It is rewarding to see a young producer participating with the watershed district in a project that benefits both parties. The producer gets some long-term water supply on his land, and the watershed benefits from the reduced surface water runoff and resulting erosion, particularly in this sensitive area where shale runoff is silt clogging the Cypress Creek and the Pembina River," said Ross Ballantine, Central Pembina River Sub-District chair. ■

Angie Smith is the assistant administrator at the Pembina Valley Watershed District.

PARTNERSHIPS MAKE THE RBWD TICK

These collaborations enable the district to advance mutual interests for the sake of the environment

By Angie Smith

Through one partnership, Redboine Water District (RBWD) was able to replace a damaged bridge and bring a new crossing to fruition. The Trans Canada trail crosses the Tobacco Creek south of Highway 23 and west of Miami. Frequent flooding caused the bridge built by the RM to wash out, and it was no longer useable. RBWD was approached to help find a solution to the issue by Les McEwan, chairman from the Deerwood Soil and Water Management Association. With funding from the Lake Winnipeg Basin Foundation (LWBF), a design was agreed upon for a low-level crossing.

The crossing incorporates a retention component to create a pond and wetland area upstream of the crossing, a steel weir to minimize the risk of erosion and washout during high flows and a wide low-level crossing to accommodate foot traffic, horses and ATVs. Construction was completed late in the fall to minimize the impact on the surrounding area and the effects of in-water work on any aquatic life. RBWD kept the exposed footprint of the work site contained to the trail and crossing site, leaving the woodlands around the site intact. Native material was reshaped from the banks and salvaged from the previous washouts to construct the new berm that would create the wetland habitat. The sheet steel piles were driven into place and reinforced with clean angular rip rap to prevent future erosion. It was decided to wait until the spring to install the final top dressing on the crossing to allow a season of use to settle the material into place and avoid having it wash downstream with the first spring melt. The new crossing will improve both the natural habitat of the area and access for people using the Trans Canada Trail.

According to McEwan, "The Deerwood Soil and Water Management Association has been partnering with local districts (first conservation districts and now watershed districts) for the last 33 years, and we are pleased to have had an opportunity to participate with RBWD in this project. We see these collaborations as an important way to both share research information and resources to further the conservation movement. Between ourselves, PVWD and now RBWD, there have been over 50 small dams built in this area of the escarpment on the Shannon and Tobacco Creek tributaries since 1985, aiding in water retention during seasonal runoff events and lessening downstream flooding damages." ■

Angie Smith is the administrator at the Redboine Watershed District.

Trans Canada Trail Crossing

Gardenton Community Pastures Water Retention Project

Taking pressure off local infrastructure while reducing downstream water levels

By Joey Pankiw

In the fall of 2020, Seine Rat Roseau Watershed District (SRRWD) staff approached the Association of Manitoba Community Pastures (AMCP) to investigate the possibility of building a water retention structure on the Gardenton Community Pasture to help mitigate local water management issues. The Gardenton Community Pasture is in the Roseau River sub-watershed, southeast of Gardenton along the U.S. border and covers almost 1,300 acres of land. The project was designed in-house by SRRWD staff using LiDAR data and hydrological modelling to meet the needs of both the AMCP and the local community.

The Gardenton Community Pasture Water Retention consists of a 1,250-metre (4,100-foot) dike. The dike was built to make use of a naturally occurring, low-lying area of wet cattle pasture that was saddled by two higher ridges. It has a capacity to hold 90 acre feet* of water over 153 acres of land. The dike was constructed using on-site sub-soil fill material, which created a ditch along the wet (upstream) side of the dike.

Water levels in the retention back flood area are controlled by two 750-millimetre (30-inch) culverts, with one of the culverts having an intake control gate at the upstream end used to limit the volume of water that flows through the culvert. This allows for a slow draw down of the water stored in the retention over a period that usually lasts three to seven days, depending on weather and flow conditions. No water is permanently stored in the back flood area.

In addition to building the water retention, SRRWD was also able to fund fencing around the retention back flood area. This allows AMCP staff to keep cattle out of the area when it's wet and allows access when conditions are suitable. In recognition of the restricted grazing in the back flood area, SRRWD provides the AMCP an annual land payment. Both the fencing and annual payments are funded through ALUS Canada's Grazing Forward Program.

With the water retention in place, it will take some pressure off the local infrastructure while reducing water levels downstream. Retention will help AMCP to open more acres for grazing downstream. The dike also allows improved access to move cattle in times of high water to the dry areas on either side of the dike.

SRRWD is looking forward to working with AMCP to investigate and construct more water retention structures within the Gardenton Community Pasture in the future. ■

Joey Pankiw is the assistant district manager at the Seine Rat Roseau Watershed District.

**An acre foot is the equivalent of holding one-foot-deep water across an entire acre of land.*

Culvert control structure

Finished berm

Construction of berm

SRWD's Next Generation Integrated Watershed Management Plan

Protecting what's important

By Dean Brooker

The Souris River Integrated Watershed Management Plan (IWMP) will act as a roadmap for the Souris River Watershed District (SRWD) and other watershed stakeholders to protect what is important to everyone over the long term. An IWMP is a long-term action plan to manage land, water and related resources on a watershed basis. The most important aspect of an IWMP is implementation of actions and recommendations; without it, the plan is no more than a list of good intentions.

On Jan. 1, 2020, the West Souris River Conservation District and the Turtle Mountain Conservation District disbanded and formed the SRWD. The SRWD is comprised of six sub-districts and nine member municipalities with a land base of 7,130 square kilometres.

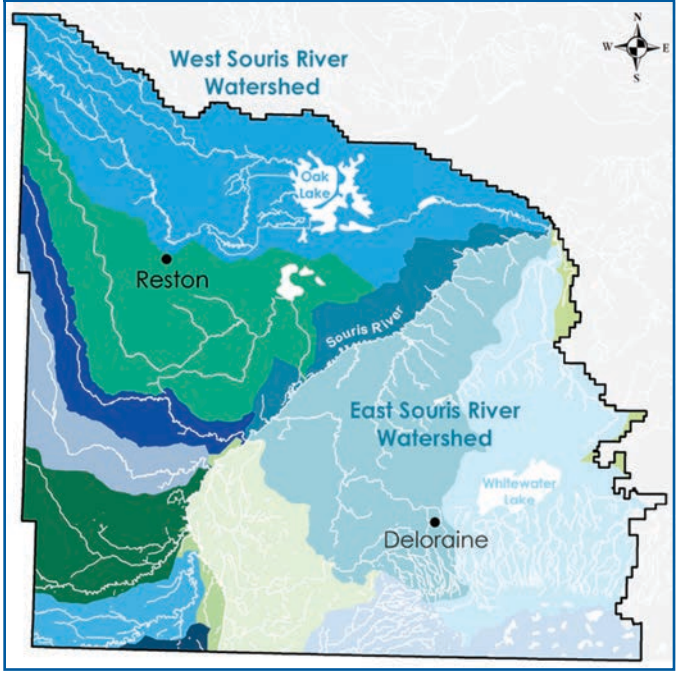
The transition to watershed districts allows for implementation of projects that benefit the entire Souris River watershed, addressing watershed challenges together. The West Souris River Conservation District completed their last IWMP in 2013, and Turtle Mountain Conservation District in 2006, with the amalgamation of the districts there was a need for a new IWMP.

Since 2020, district staff, provincial staff and the project management team (PMT) have been working to complete this task. The PMT is comprised of ratepayers throughout the watershed district. The PMT has developed a vision and mission statement, as well as guiding principles for the plan. Watershed values, threats and concerns were collected through public input last year. Since in-person meetings were restricted during this time, a virtual survey option and online sessions provided innovative ways for watershed residents to participate in the planning process. The PMT used the information from the surveys to develop a draft action plan.

The next steps for the Souris River IWMP include establishment of the watershed team, Indigenous engagement and completion of drinking (source) water assessments and the surface water retention study. Funding for the development of the IWMP is through a grant from the Province of Manitoba. ■

Dean Brooker is the general manager of the Souris River Watershed District.

Souris River Watershed District



The transition to watershed districts allows for implementation of projects that benefit the entire Souris River watershed, addressing watershed challenges together.

BARKER RETENTION

Increasing resiliency to the effects of climate change in the Swan Valley

By Edward Shao

The second-largest retention structure constructed in the Swan Lake Watershed District (SLWD) is 300 feet wide, running northwest and southeast, and is located approximately 12 miles south of Swan River, north of the Duck Mountain Provincial Park. The structure was designed for this location due to the high-water flows that drain from the Duck Mountains, resulting in municipal roadway washouts, severe soil erosion and flooding of downstream cropland. The location was chosen because an increase of approximately 650 feet in elevation is experienced less than 10 miles upstream.

The purpose of this project is to reduce peak flows upstream, reduce sedimentation into the watershed, ensure flood protection and reduce erosion risk, which are all actions outlined in the SLWD's Integrated Watershed Management Plan. This past winter was unlike the last five years with more snow falling during the first snowfall than all of winter 2020. This retention structure is a dry dam; all the water being retained is temporary and will eventually drain completely before the next high-water event. The retention structure incorporates one 30-inch diameter culvert that was placed at waterway bottom, a 33-foot-wide main rock chute spillway, a 23-foot wide rock chute spillway near the top of the structure to act in emergency cases with high water events, 4:1 slopes on the upstream side and 3:1 slopes on the downstream side of the structure, rated for a one-in-50-year flood and a reservoir capacity of an estimated 24 acre feet of storage.

This water retention project was made possible by funding from the Ag Action Manitoba (Assurance: Watershed Ecological Goods and Services) Program and the Manitoba Association of Watersheds. The SLWD would also like to recognize the great work completed by Adams Contracting, Ltd. The Swan River Valley is now "two" steps up to increasing environmental resiliency to the effects of climate change. ■

Edward Shao is the manager of the Swan Lake Watershed District.

Construction phase

Post-construction phase

This retention structure is a dry dam; all the water being retained is temporary and will eventually drain completely before the next high-water event.

LIVESTOCK PRODUCERS HIT HARD BY 2021 DROUGHT CONDITIONS

How one of the driest years in decades prepared producers for a sustainable future

By Kelsey Benson

This past year's drought devastated much of the prairie provinces and beyond, and its impacts have not gone unnoticed in the West Interlake Watershed District (WIWD) region. Cattle farming is one of the largest industries within the WIWD; they, along with other livestock and agricultural producers, have been hit the hardest during the drought. Livestock farmers were left without food and water for their animals, which not only put stress on farmers, but forced some to sell their entire herds. Those who have farmed their entire lives were left with nothing. A lifetime of hard work had been exchanged with a forced sell at an auction mart, with many barely making a profit.

The WIWD saw the need and opportunity to aid the producers in our area. What producers were most desperate for was water. They informed us how dugouts that they relied on to supply water were completely dried up. Luckily the WIWD received GROW funding, which allowed us to provide funding for over 30 alternative watering systems. Producers received 50 per cent funding up to $10,000 for the watering system, along with additional funds for fencing off or filling in their dugout. Through this program, producers received a consistent clean water supply. In return, the WIWD received protected riparian habitat for fenced-out dugouts, or enhanced upland habitat from filling in the dugout and restoring it to its original state. Digging dugouts can also contaminate groundwater supplies; by providing this program producers were prevented from digging dugouts in areas where their water supply had dried up.

Luckily the WIWD received GROW funding, which allowed us to provide funding for over 30 alternative watering systems.

The WIWD also provided a cover crop/polycropping program with approximately 7,800 acres funded this past year. Not only has this program become quite popular in our region, it's also become an important practice to have this past year. Producers in our program have been planting multispecies crops, and the staff at the WIWD have been monitoring the soil health improvements. Another benefit of polycropping is that some species survive better in drought conditions than others. This allowed some species to grow when others could not survive the drought. Polycropping has also been found to be quite effective in water filtration, ensuring that any precipitation did not erode the soil. It was also found by many producers that after receiving some rain in late-summer, that the crops grew extraordinarily well for the conditions, allowing them to provide much-needed feed to their livestock.

Alternative watering systems and polycropping were not the only projects we did this past year. We funded perennial seeding (3,900 acres), cross fencing (2.4 kilometres) and wetland conservation (64 acres) projects this year, with numerous shelterbelt projects to be established in the upcoming year. We also have two popular programs that we provide for residents: water testing days (400 tests) and the community tree nursery program (3,500 trees).

While this past year was devastating for the agricultural industry, there is a positive outlook on it. Producers have realized that practices that are beneficial to the environmental are also beneficial to them. The programs at the WIWD will encourage sustainable practices in agricultural producers and residents, bringing us toward our goal of a sustainable future by improving the water, soil and overall environment of the WIWD region. ■

Kelly Benson is the manager of the West Interlake Watershed District.

A YEAR IN REVIEW

Many projects on the go for WWD

By Beth Rudkewich

Westlake Watershed District (WWD) allocates a large amount of its resources to maintaining drainage infrastructure. In 2021, WWD worked on the planning and execution of drain maintenance projects and crossing replacements, and is working through the planning processes for upcoming drainage reconstructions. The district replaced seven crossings, completed 19.3 kilometres of drain maintenance and has more projects in the planning stages.

WWD is continuing to build its conservation programming. Programs previously offered by the district include abandoned well sealing and forage seed rebate. The opportunity to apply for grants from the GROW Trust through the Manitoba Habitat Heritage Corporation has enabled WWD to expand its conservation programming efforts by offering an enhanced forage seed rebate program, a livestock exclusion fencing program, a polycrop program (where the goal is to improve soil health and terminate with a perennial stand) and a general program application for landowners to apply for funding towards any project that meets WWD's Integrated Watershed Management Plan goals. In 2021, GROW programming resulted in 488.5 hectares of seeded perennial forage, 32.4 hectares of cover crop/polycrop used in demonstrations as part of soil health projects, which includes 32.4 hectares of rotational grazing, as well as other projects. The district is also still working to complete several water retention projects.

In 2021, WWD engaged AAE Tech Services to conduct a fish and habitat assessment in the Lonely Lake Drain. The objective of this study was to quantify existing suitable walleye spawning habitat within the Lonely Lake Drain, while also documenting fish movement through the drain during the spring spawning run. The overarching goal is to provide recommendations for spawning habitat improvement to the WWD. To determine if and how fish use the Lonely Lake Drain during the spring spawn, hoop nets were placed within the channel. Drought-like conditions resulted in the water levels of the drain and the lake being extremely low, which impacted the study. In total, 145 fish were captured during the Lonely Lake Drain study, none of which were walleye. Through the surveys of the drain that were conducted, it was found that there is very limited suitable walleye spawning habitat present within the study area.

WWD distributed approximately 1,100 saplings of White Spruce, Golden Willow and Okanese Poplar to school students and landowners within the district. These trees provide many benefits and can be used in shelterbelts to help prevent erosion. With the assistance of the Provincial Hometown Green Team Grant program, the district hired a local student to maintain 10 recreational sites throughout the WWD, as well as maintain the 14 community Hügelkultur raised garden beds located in Alonsa. The garden beds keep local residents and students engaged in sustainable agriculture practices while offering an outdoor opportunity for residents to connect with each other.

The district also received grants from Canada Summer Jobs and the Information and Communications Technology Council, which enabled WWD to employ a Red River College Geomatics Technology student for 23 weeks. This grant enabled the district to complete surveys for water rights licenses' and move forward on other projects such as water retention projects.

WWD is proud to contribute to drainage infrastructure maintenance and conservation efforts that help support a sustainable and productive future for agriculture. ■

Beth Rudkewich is the district technician at the Westlake Watershed District.

Hoop Nets placed in Lonely Lake Drain

Three months after planting, cuttings have rooted well and are growing quickly

In 2021, WWD engaged AAE Tech Services to conduct a fish and habitat assessment in the Lonely Lake Drain.

The Push for **Shelterbelts**

Planting tens of thousands of trees

By Rodney White

Over the last five years, Whitemud Watershed District (WWD) has distributed over 68,000 trees; more than 30,000 of those were planted by district staff with district equipment. There has been a push throughout the environmental sector to get as many trees in the ground as possible, and WWD is striving to be as large of a contributor as possible.

In 2022 alone, WWD distributed over 22,000 trees while planting over 10,000 of those. This was our largest total for both distributing and planting to date. The increase in planting sites came with its fair share of issues, mostly due to weather and the limited time to plant. However, from a district point of view, the uptake of tree planting is a great thing to see because we are seeing an increase in woodland clearing to turn into cropland not only throughout the district, but the province as well. As such, it is more important than ever to increase the distribution and planting of trees anywhere possible.

The district is preparing to have a similar uptake in the shelterbelt program in 2023, with landowners already submitting inquiries. There has also been interest in potential block planting sites, ranging from one to five acres in size. WWD looks forward to the continued success of our shelterbelt program and encourage more landowners to participate in any way they can. ■

Rodney White is the manager of the Whitemud Watershed District.

In 2022 alone, Whitemud Watershed District distributed over 22,000 trees while planting over 10,000 of those.

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