Research in the South Slave **SUMMER/AUTUMN RECAP**

DECEMBER 2024



FOOD AND FOREST CONNECTIONS

Sarah Rosolen, Manager, South Slave Research Centre

Over the last year, we have been working hard to build local capacity and cooperation around food sovereignty in Fort Smith. There are different definitions for food sovereignty, but to us it is about reducing dependence on trucked-in food and building food self-sufficiency and health by harvesting and growing more food locally, all against the backdrop of the impacts of colonization and a changing climate.

We began with a small project this year, the Boreal Berry Patch Collective, a collaborative project to promote growing and harvesting and spark conversations about what food self-sufficiency means in this part of the NWT. Twelve community organizations agreed to plant berries on and around our properties and to start building capacity through our networks. From seed starting and transplanting, to medicine walks, morel mushroom picking, and making jam and pesto, the BBPC collaborators delivered 22 workshops this year led by local knowledge holders.

We have put a huge focus on identifying, sharing and honouring local knowledge for this project, which will continue as we start charting the next steps. It has been amazing to see the community come together to share and learn - through participation panel discussions, workshops, the Harvest Festival, Local Growers Network, and activity on the Thebacha Growers and Wild Plant Harvesters Facebook page. With all this knowledge and enthusiasm, we are confident that local food sovereignty is achievable.

A lot of local knowledge exists and people are interested in working together.

Momentum from the BBPC helped propel several other SSRC collaborations this year including the community garden (page 2), Harvest Festival (page 3), strawberry research (page 4), and greenhouse microcredential development (page 8). This issue also includes several contributions from Community Organizations, Visiting Researchers, and GNWT Species at Risk Secretariat, who are looking for input on upcoming species assessments.





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Newsletter Editor: Helena Katz

Fort Smith Community Garden 2024

Trent Stokes, Agriculture Technician, South Slave Research Centre

This summer, the South Slave Research Centre took on managing the community garden in Fort Smith. The community garden is part of Mission Historic Park, which is run by the GNWT's Industry, Tourism and Investment.

This year, 23 community members signed up for a free plot and used it to grow food and flowers. Several gardeners have been working this soil here for years, and others were new to the garden. Some were even new to gardening. It was great to see people sharing tips and tricks, and I learned a lot as well.

So much bounty! Cabbages bigger than your head, tomatoes, peppers, broccoli, strawberries, squash, pumpkins, corn, carrots, potatoes and all the beautiful flowers! One of the big hits at the Harvest Festival (see next page) was the "WOW table" that gave local growers the opportunity to

show off something they grew that they were proud of. We were happy to see so many members of the community garden participating.

The community garden is a small part of the vision of food sovereignty in Fort Smith, but an important one. We are going to keep working hard to get more people involved so we can regain the title of Garden Capital of the North.











This project is funded by Industry, Tourism and Investment (Sustainable Canada Agriculture Project) .

Harvest Festival celebrates abundance from the land

Helena Katz, Communications Coordinator, South Slave Research Centre

In partnership with the Desnede Farmers Market, the Boreal Berry Patch Collective celebrated the end of the growing season with a Harvest Festival at Fort Smith's Mission Park on September 21. A huge kudos and gratitude to Don Jaque for pulling it off with such pizzazz!



Celebrating abundance from the land, gardeners displayed their biggest and weirdest at a WOW table, organized by Sandra Jaque.



Volunteers young and old dug up potatoes grown in the community garden for Smith's Landing First Nation's fish camp, Uncle Gabe's Friendship Centre and the Food Bank.

The festival was supported by Industry, Tourism and Investment (Sustainable Canada Agriculture Project) and the Climate Change Health Adaptation Program (Indigenous Services Canada).



Festival goers were serenaded by Matt Coyle and Kenny Shae



Huge Mahsi Cho to Tim Vanderspek, a local farmer, who brought three calves and a fuzzy sheep - a great draw and true testament to local farming possibilities.



Brenda Chalifoux and Ramanda Sanderson created a gorgeous display of ribbon skirts and Louise Beaulieu shared her knowledge of local medicines. Soil researchers from the University of Guelph offered information about the building blocks for a healthy garden. Over 20 vendors rounded out the festival with produce, food, and crafts for sale.

research in the territory.

Northwest Territories Strawberry Research Trials

Sarah Rosolen, Manager, South Slave Research Centre

The NWT Strawberry Research Trials (Scientific Research Licence No. 17558) is a collaborative research project being run in three NWT communities:

Sambaa K'e, Fort Smith, and Yellowknife.

The goal is to develop agricultural production data for different varieties of strawberries and to pilot a model for distributed agricultural

The project got off to a slow start for a few reasons. We ordered the strawberries from an east coast provider, as it was suggested they had similar varieties to those being grown in Greenland. Unfortunately, the plants didn't do well in transport and most of the strawberries arrived in poor condition. Luckily, we had ordered one variety from our local provider, Roots and Ruminants, so we had those to work with. The other sites had similar issues with no back up berries.

Then it was a cold June. The berries that survived didn't start growing well until the end of August. We were able to harvest a few (which were tasty), but not enough to compare yield or quality. We did, however, manage to propagate a number of new plants from each of the varieties, so we focused on building up the stocks to try again next year.

Overall, it was a great opportunity to see how we can work together in different locations to conduct agricultural research in the NWT.

There has been a lot of local interest at each site, as strawberries are such a valued crop here in the NWT.

The Strawberry trials are supported by Industry, Tourism and Investment (Sustainable Canada Agriculture Project).

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STEM Outreach Update

Hilary Turko, Outreach Coordinator, South Slave Research Centre

Summer 2024 was an exciting and engaging time for ARI's STEM Outreach Team. We kicked things off with STEM Day at JBT Elementary School in Fort Smith, where students had a blast building and launching their own stomp rockets. It was a perfect way to introduce them to the principles of aerodynamics in a hands-on creative setting. JBT's Outdoor Discovery Day brought more excitement as we took STEM outside, launching water bottle rockets. We all got a bit soaked on the beautiful, sunny day.

In addition to regular STEM visits to the Town of Fort Smith Day Camp, where campers explored a variety of STEM activities and challenges, we also participated in the Dark Sky and Whooping Crane festivals. Participants got hands-on with robotics, built air mazes and were creative with recycled materials.



A key highlight was our trip to Deline, where we delivered hands-on training to summer camp staff. We focused on empowering them to work effectively with youth, design and schedule engaging camps and lead STEM-based activities.

None of this would have been possible without the outstanding work of our summer student, Anais. Her enthusiasm and dedication were invaluable in ensuring the success of each event. We wish her the best this year at McGill University as she continues her studies.

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Thebacha Campus Speakers Series

Hilary Turko, Outreach Coordinator, South Slave Research Centre

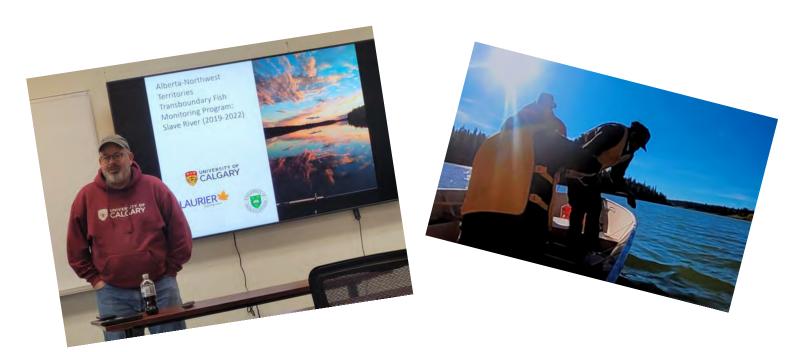
Delivering public presentations raises awareness of the work researchers are undertaking in the South Slave and creates opportunities for scientific and local knowledge-sharing between researchers and community members. Here is a snapshot of recent offerings from our ARI Speakers Series.

July 18, 2024: "Understanding Soil Fertility Across Southern NWT"

University of Guelph masters student Jane Mariotti presented a research project in which soil samples from communities around the South Slave region are being tested. The goal is to provide maps and data to the community regarding soil fertility and make-up to help with future agriculture projects.

August 20, 2024: "The Slave River, Driftwood, and Dams"

Dr. Natalie Kramer Anderson presented the broader impacts of dams on the Peace to the Slave River and the Slave River Delta. Natalie has been coming to Fort Smith since 2008 to paddle the rapids and has conducted research focused on driftwood along the Slave and Mackenzie rivers.



September 26, 2024: "Quantifying sediment mercury enrichment at Pine Lake"

Amy Lacey from the University of Waterloo presented data she collected in 2022 with the assistance of students in Aurora College's Environment and Natural Resources Technology Program.

September 26, 2024: "The development of a fish monitoring program for the NWT-AB transboundary agreement"

The University of Calgary's Dr. Kelly Munkittrick has been working since 2018 to align a monitoring program with community desires, historical data, and upstream monitoring programs associated with the oil sands. He presented the data collected to date and its current status.



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Pine Point ENRTP Class Trip

Sarah Rosolen, Instructor Environment and Natural Resource Technology Program

On Friday October 25th, the Environment and Natural Resources Technology Program at Aurora College headed over to the Pine Point mine. The original mine closed in 1988 and has been a focus of redevelopment by various companies since then. It is now owned by Pine Point Mining Limited (PPML), a joint venture between Osisko Metals and Appian Capital Advisory LLP. They have their sights set on opening as early as 2029.

We met with PPML geologist and project manager, Jarden Hansen, who gave us a better understanding of the geology of the area, discussed where PPML is with development, including details about the company's feasibility study, and showed us around the site. Our students were engaged and had a lot of great questions about what this could mean for the local economy as well as potential environmental impacts.





Research Data Management

Melanie Adams, Manager of Research Data Management, Aurora College



On October 7th and 8th, a series of workshops on research data management (RDM) was held at Thebacha Campus, Aurora College. Part of a three-part series held across the Northwest Territories funded by the Social Sciences and Humanities Research Council of Canada, the sessions were led by James Doiron, University of Alberta Research Data Management Strategies Director, and staff from Aurora Research Institute in Inuvik.

These workshops aimed to bring together those practicing, supporting, or interested in research in the Northwest Territories to learn more about managing research data.RDM is essential for promoting scientific innovation, and building RDM capacity is critical for increasing the impact of Northern research.

Each day was well attended, with members from the community, Aurora College staff, and students. During these sessions, attendees could ask questions, share best practices, and discuss challenges and opportunities specific to the North. The topics of the workshops included the supports available for managing research data throughout the research lifecycle, data management planning, and sharing research data.

Additional subjects discussed in the group included the special considerations required for managing Indigenous data, the importance of researchers taking time to build relationships with the communities where they conduct research, and the challenges involved with migrating older data into new formats. Attendees engaged in thought-provoking conversations and shared their diverse experiences during these two days, resulting in productive and successful sessions.

Greenhouse Operations Course Coming Soon!

Sarah Rosolen, Manager South Slave Research Centre

Aurora College had the incredible opportunity to work with Northern Alberta Institute of Technology and University of Fraser Valley to develop a microcredential that will provide practical experience with greenhouse operations. This course will be a blend of on-line and in-person hands-on training covering general greenhouse operations,



plant propagation and care, as well as financial considerations.

This course was developed with Indigenous communities in mind, to support their work in reclamation and food growing. The course will be piloted in BC in March 2025 with an expectation that we will be able to deliver it next spring (in partnership with UFV and NAIT to begin with). We are very thankful for the support and advice from several northern experts including Janet Dean (Territorial Agri-food Association), Alex McMeekin (Riverside Growers), Kathryn Scott (Samba K'e First Nation), and Lillith Brook (Agriculture Agri-food Canada).

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COMMUNITY IN ACTION: Thebacha Leadership Council

Mike Couvrette, Coordinator, Thebacha Leadership Council

The Thebacha Leadership Council (TLC) has established a "Leaders Table" - representing the five governments elected by the people of the Thebacha community. This table seeks to collectively advance social and economic activity and development on the traditional lands of the partners.

June 21st, 2024: A historic Memorandum of Agreement (MOA) was signed by the governments of Salt River First Nation, Smith's Landing First Nation, Fort Smith Métis Council, the Town of Fort Smith and the Member of the Legislative Assembly for Thebacha.



The MOA highlights the leaders' shared priorities, including taking care of shared lands and waters, celebrating and preserving cultural heritage, and enhancing the social and economic well-being of the Thebacha and Fort Smith community. The signing of the MOA is the beginning of a commitment to work together and to develop a long-term framework for action on shared priorities for the benefit of all.

TLC Vision

Together, we are leaders in building a strong, prosperous, equitable, and sustainable community and region for all with an unrivalled quality of life.

TLC Guiding Principles

Government-to-Government, working together to achieve respectful, strong, and meaningful relationships among our governments to advance:

Reconciliation - Diversity - Common Concerns - Equity - Jurisdictional Collaboration.

TLC Core Values

- · Community Well-being and Safety
- · Enhancing social, economic, and health outcomes
- · Cultural Preservation and Celebration
- · Environmental Stewardship
- · Community Empowerment
- · Sustainable Development
- · Collaborative Decision-making
- · Partnerships

The TLC is actively working on establishing itself as a strong and unified political voice for the entire community.

COMMUNITY IN ACTION: Inaugural Northern Whooping Crane Festival

Mike Couvrette, Coordinator, Thebacha Leadership Council



Ronnie Schaefer, Whooping Crane Guardian

The festival kicked off at the Museum on Thursday night with the opening of Echoes of the Marsh, an exhibit of art and photography about Whooping cranes and their habitat.

The TLC wanted the festival to focus on sharing scientific and local knowledge at a number of places throughout their traditional territories. Aurora College hosted the opening ceremonies research presentationsa session on Friday afternoon, followed by a Drum Dance in the evening at Salt River First Nations Conference Centre.

The first Northern Whooping Crane Festival took flight in the Thebacha region September 6-8, 2024 with knowledge-sharing talks, on-the-land activities, an art exhibit, hands-on science, drum dance and a gathering in the heart of downtown Fort Smith. The Festival was an initiative of the newly formed Thebacha Leadership Council. It was collaboratively organized by the four community governments: Fort Smith Metis Council, Salt River First Nation, Smith's Landing First Nation and the Town of Fort Smith, with support from Wood Buffalo National Park, Northern Life Museum and Cultural Centre, Environment and Climate Change of the GNWT, Industry, Tourism and Investment of the GNWT, Aurora College, South Slave Research Centre, and crane experts from the Calgary Zoo, International Crane Foundation and the Canadian Wildlife Service.





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Northern Whooping Crane Festival (continued)

On Saturday, festival attendees experienced on-the-land events and talks at the Salt Plains, Thebacha Campground, and in Fort Fitzgerald. Presentations included knowledge sharing from scientists talking about the Whooping Crane's return from the brink of extinction and how they monitor and support this unique flock that migrates annually between Aransas, Texas and Wood Buffalo National Park. The festival featured local knowledge sharing from Fort Smith local Ronnie Schaefer who is known as the Whooping Crane guardian. The Fort Smith Metis Council talked about their monitoring work, and Elders shared knowledge related to fisheries, traditional medicines, and the impact of drought and wildfires on wildlife.

A pancake breakfast was hosted on Sunday morning at Uncle Gabe's Friendship Centre to honour biologist Ernie Kuyt, who led Whooping crane conservation efforts from 1965 until he retired in 1990. He was honoured posthumously as 'Whooper of the Year' in a virtual ceremony by Richard Gonzales, Coordinator of the Science & Spanish Club Network in Aransas, Texas. Sunday's festivities continued in downtown Fort Smith with a local Art market and community Fish Fry!

A special "Thank you!" to the following Elders who helped support both the success of the festival and most importantly the indigenous science: Eileen Beaver, Henry Beaver, Louise Beaulieu, Louie Beaulieu, Annie Burke, Patti - Kay Hamilton, Ronnie Schaefer and Archie Smith.







- Annual surveys of the Aransas-Wood Buffalo National Park flock began in 1966. Surveys in May count the number of breeding pairs and nests. Another survey at the end of July/early August looks at the number of chicks.
- • The flock increased from 16 birds in the 1940s to 536 birds currently.
- The first nest outside Wood Buffalo National Park was found in 1982, marking the beginning of a breeding range expansion outside the park.
- In 2014, a nest was spotted at the Salt Plains inside the park. The nest is still used.



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COMMUNITY IN ACTION: 2024 Northwest Territory Métis Nation Climate Change Summit

Leah Mercredi, Regional Environment Coordinator, NWTMN

The Northwest Territory Métis Nation held its first annual climate change summit on October 22nd and 23rd at Roaring Rapids Hall in Fort Smith, NT. The summit brought together the Fort Smith Métis Council, Hay River Métis Government Council, and the Fort Resolution Métis Government to discuss climate change under the Indigenous Climate Leadership

On the first day, we focused on informative discussions led by land users who shared the environmental changes they observed. Presentations were given by various organizations, including the Government of the Northwest Territories (GNWT), Aurora College, the Federal Government, and the Northwest Territories Association of Communities (NWTAC).



Day two consisted of community breakout sessions to identify our climate priorities, discuss potential projects to adapt to and mitigate climate change and recommend ways to ensure Métis perspectives are reflected in government policies.

The summit was a success, and we learned a great deal from one another. Together, we will pave a path forward in a changing climate. Recognizing that we are in the midst of a climate crisis, we understand the urgent need to mitigate its effects and adapt. We advocate for consistent multi-year funding and partnerships, emphasizing that these discussions must continue.

The next step is to develop climate change and adaptation strategies. The time to act is now.

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VISITING RESEARCHERS: Characterizing Soil Fertility within Denendeh, NWT

Jane Mariotti, University of Guelph



I am a master's student at the University of Guelph in Ontario. My research project hopes to provide local growers and community planners with information on where the best soils are located on the landscape. The research also looks at nutrient levels in soils burnt during the 2023 wildfire season, to gain insight into potential remediation measures.

Over the summer of 2024, field technician Nava Brimble and I had a wonderful time meeting with community partners and doing fieldwork around Fort Smith and K'atl'odeeche First Nation. In August, we visited 29 sites within spruce, aspen and mixed stand forest within burnt and unburnt sites. At each site, we collected soil cores and recorded the vegetation present. We also collected cores in areas of community interest surrounding Fort Smith, including two firebreaks and the community garden. In September, my supervisor Catherine Dieleman and I met with project partners and attended the Harvest Festival.



In the summer of 2025, I hope to continue collecting soil cores in areas of interest to community partners. I also plan to continue fieldwork in additional ecosystem types to build out a map of soil fertility across southern NWT.

Results from this project will provide local food growers with information on where to initiate, expand, or concentrate food production efforts. It will also provide information on ideal crops species for different soils, and on remediation efforts necessary to achieve desired nutrient profiles in soils with diverse land use or wildfire histories.



VISITING RESEARCHERS: Caribou lichen and climate change

Katerina Coveny, Wilfrid Laurier University

We are researchers from Wilfrid Laurier University in Waterloo, ON, studying how permafrost thaw and fire affect caribou lichen populations. Caribou lichens are a group of ground dwelling lichens with incredible diversity and resilience in harsh climates. They are found throughout the boreal forest and are an important food source for boreal caribou.



Caribou lichen is being negatively affected by climate change through wildfire disturbances and increased rates of permafrost thaw. We spent the summer in Kakisa, Hay River and Fort Smith in both old growth and newly burnt forests to understand how permafrost thaw and forest fire disturbances are changing caribou lichen populations. We conducted vegetation surveys and measured permafrost depth and fire severity at 150 sites across the region.



Many of the forests near Fort Smith have burned twice in the span of 10 years, which can significantly impact forest regeneration after fire.

Many of the forests near Fort Smith have burned twice in the span of 10 years, which can significantly impact forest regeneration after fire. We worked with staff from the Wildlife Research and Monitoring team of the GNWT-South Slave Region to measure burn severity and set up vegetation monitoring around their small mammal trapping sites near Fort Smith. This monitoring will help to explain changes in mammal use of these sites after fire.

Our team had the opportunity to join ENRTP students at their fall field camp, where we set up long-term forest monitoring plots in and around the camp. These plots will be revisited to see how the forest changes and recovers after fire. Students learned how to determine burn severity of the soil, combustion of the tree canopy, how to identify tree species and measure the size of individual trees. We are grateful for the opportunity to instruct and be a part of this wonderful field camp!

This research is led by Katerina Coveny with field assistance from Austin McIntosh, Maya Provenzano and Kyle Fennig-Bourque. To get in touch or learn more, you can contact Katerina at cove3330@mylaurier.ca or check out our lab website https://forestecology.ca/

VISITING RESEARCHERS: Wildfire and carbon stocks

Dr. Thea Whitman, University of Wisconsin

This past summer, our research team from the University of Wisconsin-Madison returned to Wood Buffalo National Park to study how the 2023 wildfires affected soil carbon stocks. In 2019 and 2022, we sampled unburned soils at 30 sites within the park for a different project. Many of these sites burned in 2023. In 2024, we returned to these same sites, to re-sample soils and to estimate how much carbon was lost during the wildfires, drawing on our "before" measurements from the previous years.





We were happy and a little surprised that we were able to relocate almost all of the sites, but **it was** sobering to see the effects of the fires on the park, the region, and the local communities. In addition to estimating carbon lost through combustion during the fire, we also incubated the soils right after collecting them, and then again back in Wisconsin, to evaluate how microbial activity changed.

We are currently in the process of grinding up the soil samples and weighing tiny amounts into little tins that we drop into the elemental analyzer to allow us to estimate the amount of carbon in them. We hope to have our first results to report early in 2025, so stay tuned!



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VISITING RESEARCHERS:

Kids give a WHOOP: Learning about Whooping Cranes at camp and daycare

Arisha Imran, University of Waterloo

We had an amazing time this August with the summer camp and daycare kids in Fort Smith, who participated in some exciting whooping crane activities led by researchers Arisha Imran, Laura Anderson and Amy Lacey from the University of Waterloo.

The morning kicked off with a lively whooping crane trivia game for the summer campers. We saw some incredible whooping crane dances and nest drawings as campers learned interesting facts about the cranes and their habitat. The fun continued as we taught everyone how to make origami paper cranes, which were decorated beautifully!





In the afternoon, daycare kids got their turn to join the fun by "flying" like whooping cranes. They decorated cardboard wings and had a blast racing and showing off their flying skills!

A big shout out to Tori, the program coordinator, and Anaïs for helping us put this fantastic day together. We hope to do more outreach in the future at summer camp, STEM camps, and other community events!

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HAVE YOUR SAY: Should red-sided garter snakes be added to the NWT List of Species at Risk? Why or why not?

NWT Species at Risk Secretariat



Red-sided garter snake_Credit Joslyn Oosenbrug

Special Concern means a species could become Threatened or Endangered because of a combination of biological characteristics and identified threats.

Red-sided garter snake (Thamnophis sirtalis parietalis) is the most northern snake in North America. The karst landscape around Fort Smith is full of caves and crevices where many snakes spend the winter.

The snakes hibernate together in specific, small areas – which means a single threatening event could negatively impact many of our snakes at once. In recent years, severe wildfire and drought have affected their habitat.

The Conference of Management Authorities on Species at Risk is considering whether to list red-sided garter snake under the Species at Risk (NWT) Act as a species of Special Concern.

Let us know what you think!

Contact the NWT Species at Risk Secretariat (SARA@gov.nt.ca) or fill out our survey.

Visit www.surveymonkey.com/r/P5C2T2

For more information: www.nwtspeciesatrisk.ca

SHARE YOUR KNOWLEDGE ON AMPHIBIANS

NWT Species at Risk Secretariat

The NWT status report on Canadian toad, western toad and northern leopard frog is available for review.

The <u>NWT Species at Risk Committee</u> is preparing to assess the biological status of three amphibian species under the Species at Risk (NWT) Act in April 2025:

- ·Canadian toad (Anaxyrus hemiophrys)
- ·Western toad (Anaxyrus boreas)
- ·Northern leopard frog (Lithobates pipiens)

To help inform the assessment, the Committee has developed a <u>multi-species status report</u> with the best available knowledge on these species in the NWT.

The <u>draft species status report</u> is currently available for review. A <u>fact sheet</u> includes maps of where the species are believed to occur, as well as a list of questions the Committee will consider in its status assessments.

Comments on the draft species status report must be submitted to the NWT Species at Risk Secretariat (<u>SARA@gov.nt.ca</u>) no later than December 15, 2024.

For more information: www.nwtspeciesatrisk.ca

CURRENT STATUS IN THE NWT:

Northern leopard frog - Threatened Western toad - Threatened Canadian toad - No status



Northern leopard frog in grass.

Photo credit: Kris Kendell

DID YOU KNOW?

Northern leopard frog and Canadian toad are only found in the South Slave region of the NWT. They are at the northern limit of their Canadian range.