14th Prairie Conservation and Endangered Species Conference

May 5-7, 2026 Saskatoon, SK

Presentation Abstracts

Contents

Abstracts - Plenary Presentations

Plenary 1: May 6th 9:30-10:20 am

Resilience Through Unity: How the Association of Manitoba Community Pastures Strengthened a Diverse Network.

Barry Ross, Association of Manitoba Community Pastures

Abstract: I will be discussing how the diversity of species and habitats on the community pastures has been key to their resilience. The community pastures in Manitoba faced many hurdles since the loss of the federal governments financial and technical support. They remain today, the largest tracts of unbroken grasslands in Manitoba , the unique habitat being key to AMCP's financial model and their success story.

Plenary 2: May 6th 1:00-1:50 pm

Overwintering in Canadian reptiles; knowns, unknowns and presumptions.

Nicholas Cairns, Royal Alberta Museum

Abstract: When most people think of reptiles they think of heat. That vision makes sense, we typically only interact with reptiles in the summer, in warm areas and at warm times. However, winter likely puts more constraints on species and therefore overall diversity in these taxa in Canada. The extremes of a Canadian winter mean only species that are physiologically and behaviourally adapted can survive. Survival also requires the correct geology, geography and ecological communities to allow access to refugia. As such, winter shapes range limits and communities for species that are only "active" in the summer. We will discuss, brumation, overwintering site selection, trade-offs and the physiological "cheat codes" that allow reptiles to persist in some of the most challenging conditions on earth.

Plenary 3: May 6th 1:50-2:40 pm

Rematriation of Buffalo to the grasslands.

Jesska Surjik, Buffalo Culture Collective

Abstract: What if the key to healing an entire ecosystem walks on four hooves? Jesska Surjik invites you to meet the original steward of the grasslands: the buffalo. Drawing on Indigenous teachings, ecological science, and the hands-on rematriation work of the Buffalo Culture Collective, Jesska will share how the buffalo's return supports endangered species, restores prairie soils, and calls all of us into a shared responsibility for reconciliation. You will leave with a deeper understanding of why the entire grassland thrives when the buffalo is home—and how you can be part of that healing.

Plenary 4: May 7th 9:10 – 10:10 am

From Grassroots to Connections Across a Biome: Strengthening Indigenous-led Grassland Conservation

Cheyenne Ironman, Indigenous Kinship Circle

Abstract: As a First Nations practitioner working in grasslands stewardship, experiences of engaging with networks such as the Indigenous Kinship Circle have highlighted the importance of relationship building grounded in reciprocity, respect, and shared responsibility among Indigenous peoples and allies to strengthen Indigenous-led stewardship and Reconciliation.

The Indigenous Kinship Circle (IKC) connects Indigenous people and allies across the central grasslands of Turtle Island/ North America. The IKC and networks like it have a critical role in creating spaces for Nation-to-Nation collaboration, dialogue and the exchange of knowledge and unique insights. As First Nations people, we come from diverse cultures, with distinct governance systems, histories, and at the same time, we share common priorities and face similar social challenges and systemic barriers that only those with lived experience can truly understand and relate to. It is through these connections that we can help support one another to build capacity in our communities, support revitalization efforts, and reinforce culturally grounded approaches to stewardship.

Building on this understanding, the Indigenous Kinship Circle in partnership with the kihci-okāwīmāw askiy Knowledge Centre at the University of Saskatchewan, is beginning a 5-year project to create a peer mentorship network centered around conservation, restoration, cultural revitalization, and food systems for First Nations across the three prairie provinces. Another key outcome will be to centre Indigenous science/ Traditional Ecological Knowledge, perspectives, and approaches to stewardship more broadly by bridging connections and strategic collaborations with Western Science-based conservation groups.

Plenary 5: May 7th 3:00-4:00 pm

Resilience Through Connection: What Biodiversity Teaches Us About Working Together.

Terry Gagne, Redberry Lake Biosphere Reserve

Abstract: Exploring how conservation organizations, like biodiverse ecosystems, are strongest when they are connected, collaborative, and diverse. Drawing on personal experience and the work of the Redberry Lake Biosphere Region, it highlights what RLBR is working on and why shared resources, collective capacity, and strong partnerships supported through networks like PCAP are essential for small non-profit conservation organizations, especially in a time of limited federal funding and growing pressure.

Abstracts - Concurrent break-out Session

Session 1: Engaging Communities in Conservation

May 6th 10:40-11:00 am

1.1 No one says "biodiversity" to me": Enhancing Conservation on the Working Landscape of the Saskatchewan Aspen Parkland

Andrea Olive
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Abstract: The Aspen Parkland—a transitional biome spanning Alberta, Saskatchewan, and Manitoba—is one of Canada's most altered ecozones. As of 2025, less than 5% remains in conserved or protected areas, with the remainder threatened by land conversion, intensive agriculture, biodiversity loss, and shifting precipitation patterns. While opportunities exist to expand and connect protected areas, such efforts require partnerships with the agricultural community that dominates this working landscape. This presentation examines how agricultural producers in the Aspen Parkland can enhance conservation of land, water, and biodiversity on their working landscapes. Drawing on interviews with farmers, politicians (municipal and provincial), and NGO representatives in Saskatchewan's eastern Aspen Parkland, I demonstrate that conservation—particularly biodiversity—has low issue salience among stakeholders. Trade disputes, tariffs, land prices, and drainage dominate regional concerns. Furthermore, trust deficits regarding information sources, technology adoption, and policy initiatives present significant barriers to enhanced conservation governance. I argue that improving biodiversity conservation governance in the Aspen Parkland requires three critical interventions: increased

awareness of conservation urgency, deliberate trust-building between stakeholders and institutions, and provincial policies that incentivize stewardship practices. Without these measures, the ecological integrity of this critical transitional ecosystem will continue to decline.

Session 1: Engaging Communities in Conservation
May 6th 11:00-11:20 am

1.2 Shared Legacy: Community Connections to Conservation Outcomes in Manitoba's Tall Grass Prairie

Christine Chilton, Norm Gregoire, Cary Hamel, Tim Teetaert, Monique Chenier, Chris Friesen, Jacalyn Gray, & Brittany Fisher.
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Abstract: Joint Presentation between Christine Chilton & Norm Gregoire / In 2023, NCC and the Shared Legacy Partnership introduced a collaborative approach to conserving Manitoba's Tall Grass Prairie, emphasizing species-at-risk context, relationship building with producers, landowners, and the RM of Stuartburn, and fostering pride in place. For 2026, we shift from "what we'll be doing" to "what's changing—and how we know." This presentation explores how understanding community priorities is vital to resilient landscapes, as local values shape lasting conservation. We pair real-world examples with evidence of behaviour change, trust, and conservation outcomes, supported by fresh public-opinion insights and on-the-ground results. Highlights include the growth of Shared Legacy's collaborative efforts – community events that bring people together, outreach through local media, and practical stewardship initiatives that strengthen relationships and support prairie conservation. We also address reputational risk management amid conservation misconceptions, sharing lessons on the importance of listening, plain-language outreach, local champions, and continuity with trusted partners. Finally, we look ahead to sustaining Shared Legacy beyond our current funding structure, showcasing how partners are collaborating to secure new resources and keep this critical work moving forward.

Session 1: Engaging Communities in Conservation
May 6th 11:20-11:40am

1.3 Investigating Broader Social Impacts of Conservation on Grassland Species

John Pattison-Williams, Heather Peat Hamm, Mia Grey, & Belle Dodds
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Abstract: Loss of habitat is having a significant decrease on grassland species. Human impacts on habitat are a clear driver of loss. Understanding social impacts is essential and this is the role of the national Grassland Learning and Knowledge Hub (GLKH) led by the University of Alberta. The GLKH is exploring alternatives to enhance grassland conservation by engaging with human communities (Indigenous and non-Indigenous) that live on the grassland landscape. Preliminary results indicate that at times cultural impacts can override economic factors for conservation within grassland communities and lead to a loss of wildlife species, including species at risk. There are many situations/years in which the annual income from ranch farming is not the most economically viable use of the land, unless the support of habitat and/or the ranching lifestyle is given valuation. Additionally, a lack of public understanding (or misinformation based on more intensive cattle practices) of the importance of grazing or fire for good management of prairie grasslands can lead to lack of support for ranching practices within the food consumer milieu. An effort is required to support rangeland ranching practices through promotion of prairie ranching with urban consumers within the prairies. The research team will continue to explore these factors in multiple ways over the next three years to enhance and promote grassland conservation across the Canadian Prairies.

1.4 Centering Community in Conservation: Engagement to Advance Species at Risk Recovery in Southwest Manitoba

Steven Anderson, Matt Gasner, Christine Chilton, Ron Bazin, & Rebekah Neufeld
The Nature Conservancy of Canada

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Abstract: Southwest Manitoba supports a mosaic of ecologically rich habitats that host numerous species at risk. Since European settlement, an estimated 75% of Manitoba's mixed-grass prairie has been converted to annual crop production and other land uses. Recognizing the area's high biodiversity value and ongoing anthropogenic pressures, the Pan-Canadian Approach to Transforming Species at Risk Conservation designated Southwest Manitoba as a Priority Place. The region includes most of the remaining mixed-grass prairie in Manitoba, a refuge for grassland birds and rare species like the Prairie Skink and Dakota Skipper. A collaborative planning initiative was co-led by Environment and Climate Change Canada and the Nature Conservancy of Canada, with guidance from a planning team composed of local conservation partners and staff from provincial and federal governments. This initiative represents an important landscape-scale, place-based effort in the region to align multi-species recovery with community-identified priorities through a shared, adaptive-management lens. The goals are to: (1) strengthen relationships among existing conservation partners, (2) explore common ground with new partners and communities, and (3) build a shared, locally grounded vision for species at risk recovery and prairie conservation. Planning was informed by five targeted conservation topic workshops, ten community workshops, a community survey, and a review of existing conservation plans relevant to the area. This presentation will highlight key themes that emerged from community engagement, including the importance of grasslands to local economies, cultural identity, and quality of life. It will also present complementary conservation strategies designed to support community well-being while guiding collaborative action and future investment in species at risk recovery and long-term prairie ecosystem resilience in Southwest Manitoba.

2.1 Using molecular tools to identify mussels and support their conservation in the Lower Qu'Appelle River, SK.

Gregory Frie, Tim Jardine, Iain Phillips, André Martel, & Markus Brinkmann
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Abstract: River mussels (*Unionidae*) are known as keystone species, providing several valuable ecosystem services including water filtration, but are also easily impacted by water quality decline. These mussels persist in the prairie river systems that provide Saskatchewan with water for drinking, irrigation, industry, and recreation. Water use by humans, along with impacts from pollution, damming, and invasive species, make populations of river mussels especially vulnerable to decline or extirpation. Despite their positive impact on rivers, native mussels remain largely understudied, with uncertainties surrounding their presence and specific reproductive behaviour, specifically the role of host fishes in distributing mussel larvae. The Qu'Appelle River, in southeastern Saskatchewan, is a major tributary of the Assiniboine River, and within it, eight of the 13 river mussel species known to the Assiniboine drainage have been documented in Saskatchewan. Records for several other mussel species in the drainage come exceedingly close to Saskatchewan waters – including the threatened Mapleleaf (*Quadrula quadrula*). We are using a molecular approach to identify larval mussels, collected on wild fishes from the Lower Qu'Appelle River. We developed Unionidae-specific metabarcoding primers, which we are using to identify mussels in their larval life stage, called glochidia. This research can uncover important details about Saskatchewan's river mussel populations by A) identifying mussel species present in Saskatchewan, and B) confirming existing or identifying novel host-parasite relationships that mussels share with fishes in the region. By specifically targeting the known-host channel catfish, we are also assessing if threatened Mapleleaf are present in Saskatchewan waters. By identifying glochidia using molecular tools, we can more thoroughly document the mussel community and reproductive patterns in the Lower Qu'Appelle River, to better conserve mussel assemblages in this river and provide an identification method that can reliably identify mussels at any life stage.

Session 2: From Lab to Landscape
May 6th 11:20-11:40am

2.2 Patterns of population subdivision of Ord's kangaroo rat throughout its Canadian range

Jessie Bainbridge, Chris Somers, Ryan Fisher, Greg Wilson, & Sandi Robertson
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Abstract: Understanding population structure is critical for the conservation of species at risk, particularly those at northern range limits, where marginal habitat conditions and habitat loss can promote isolation. The Ord's kangaroo rat (*Dipodomys ordii*) occurs at the northernmost limit of its range in Canada and is federally listed as Endangered. In Canada, the species only occupies 12 sparsely distributed sand dune complexes across southeastern Alberta and southwestern Saskatchewan and is restricted to sparsely vegetated areas within these complexes. Habitat loss, naturally patchy dune complexes, and narrow habitat requirements likely reduce landscape connectivity, limit dispersal, and thereby promote population subdivision. To test this hypothesis, we collected fur samples from 345 individuals across 8 dune complexes to determine the genetic population structure using microsatellites at 11 loci. Bayesian assignment (STRUCTURE) and multivariate ordination (DAPC) strongly supported two primary genetic groups likely separated by the South Saskatchewan River, with finer-scale subdivision within each side. Our findings suggest limited movement and dispersal between some dune complexes and can help inform conservation planning and prioritization, particularly relating to conservation translocation projects.

Session 2: From Lab to Landscape
May 6th 11:20-11:40am

2.3 Living off the Fat of the Land: Linking Grassland Vegetation, Insects, and Birds

Vincent Fyson, Diego Steinaker, Kiel Drake, Sonia Cabezas, Carolyn Callaghan, Christy Morrissey, Kevin Hawkshaw, & John Wilmshurst
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Abstract: Grassland birds select nesting habitat using vegetation structure, but food provisioning might also affect selection. Both insectivorous and granivorous passerines feed energy-rich insects to nestlings, so nesting habitat must also include beetles, grasshoppers, and caterpillars (larvae) that are preferred foods. However, evidence suggests that the nutritional quality of bird food is not uniform. The interaction of these drivers of grassland breeding bird success (vegetation structure and insect nutritional quality) remains unclear. We tested whether vegetation predicts insect nutritional quality, and whether this relates to bird abundance and richness in native grasslands across southwestern Saskatchewan. Insect sweepnet samples, collected on rangeland plots in 2022 and 2024, were analyzed for lipid content using Gas Chromatography-Mass Spectrometry. Dietary lipids for terrestrial animals include omega 3 and 6 Polyunsaturated Fatty Acids (PUFA), among which we focused on alpha-linolenic acid (ALA), a precursor to dietary fats crucial for the migration of young-of-the-year passerines. Sweepnet samples were collected where both vegetation composition and bird abundance were measured, allowing correlation among ecosystem components. Redundancy analysis found that among vegetation parameters, bare ground, grass cover, litter, and sward density were significant correlates of insect ALA concentrations. Although vegetation only explains ~12% of lipid variance, the difference is significant and suggests that insect nutritional value varies with rangeland characteristics. Bird richness and abundance from point counts showed varying correlations with vegetation parameters and insect ALA depending on bird dietary preferences. In spring, when insects are less abundant and birds are selecting nesting sites, vegetation cues were more closely correlated to grassland nesting birds. During summer, insect lipid content correlated with bird abundance and diversity, particularly in species that are granivorous as adults. Seasonal timing determines whether vegetation traits or insect nutritional quality better predict bird abundance, with consequences for habitat selection and rangeland management aimed at supporting bird conservation.

Session 2: From Lab to Landscape
May 6th 11:40-12:00am

2.4 Using Species Distribution Models to Inform Conservation of Rare Vascular Plants in Northern Saskatchewan

Dustin Snider, Eric Lamb, & Katherine Standen
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Abstract: With ongoing natural resource development in northern Saskatchewan, protecting rare vascular plants has become increasingly important. Funding and management efforts should be aligned with the vulnerability of each species. In northern Saskatchewan, data limitations make conservation ranking difficult, and the full distributions of many boreal plants are likely underestimated due to inaccessible habitats. Recent advances in spatial modelling provide new opportunities to address these data limitations. Species distribution models (SDMs) link species occurrences with environmental variables to predict where suitable conditions are likely to occur. We developed SDMs for rare vascular plants identified in the forests, peatlands, and remnant grasslands of the Porcupine Hills. Our models use publicly available predictors, including Sentinel-2 imagery and a digital elevation model, to allow the predictions to be extrapolated to other boreal regions of Saskatchewan and Manitoba. By identifying new areas of suitable habitat, these models can guide targeted surveys and improve our understanding of species rarity. Our goal is to inform funding priorities and strengthen conservation efforts for vulnerable plants in the central Boreal Plains.

May 6th 10:40-11:00am

3.1 Across the border: multi-jurisdictional survey of the Canada-northern Montana Swift Fox population

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Abstract: The Swift fox (*Vulpes velox)* is a small carnivore species of concern across much of its range. Although its populations have locally rebounded due to both natural recolonization and extensive restoration efforts, the latest assessment found the species in only 44% of its historic range in the USA and 3% in Canada, with large gaps remaining between occupied portions. In 2024, a multi-jurisdictional survey was commenced to determine distribution, occupancy, and connectivity of Swift Fox populations across northern Montana and southeastern Alberta. The study was expanded to southwestern Saskatchewan in 2025. Monitoring efforts mirrored sampling framework and methodologies applied in a wider, state-wide survey that was started in Montana in 2023. Briefly, a 7.5 x 7.5 km grid was overlaid to each study area, and cells classified as High (>50%), Medium (26-50%) and Low (<25%) habitat quality based on amount of grasslands as derived by Grasslands Vegetation Index or equivalent GIS layers. Cells with <50% agricultural or grasslands were excluded. Within each grid cell, 4 camera trap stations (i.e., trail camera and scent post) are deployed for 14 consecutive nights. In 2024-25, Swift fox was detected at 114 of 247 (46%) grid cells in Montana and 60 of 78 (76.9%) grid cells in Alberta. The species was detected at 28% and 46.9% of all stations, respectively. In Alberta, demonstrated occupancy of multiple cells indicated a 26 km west-ward range expansion of the species, and preliminary data in 2025-26 are consistent with these findings. Confirmed reports suggest also a potential northward expansion of approximately 62 km on the east side of the Albertan range. These preliminary data bring hope with respect to the recovery of the Canada-northern Montana Swift fox population, as well as the functioning and connectivity of the remaining grassland ecosystems inhabited by this and other species at risk.

3.2 Paws on the Prairie: Collaborative project on Swift Fox distribution in Saskatchewan

Beatriz Prieto-Diaz, Andrea Benville, & Rebecca Magnus
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Abstract: The Saskatchewan Ministry of Environment led a range-wide Swift Fox survey during September-December 2025. Coordinated with ongoing efforts in Alberta and Montana, the survey used non-invasive methods to attract wildlife by placing a scented wooden stake in front of a trail camera. In total, over 472 camera stations were established across 118 quadrants. This type of range-wide survey in a limited time and with limited resources was only possible through extensive collaboration and current technology. Different organizations and individuals helped through lending trail cameras, sharing personnel or helping with picture analysis. This work would not have been possible without the support of local landowners, who generously provided permission to access their land and allowed us to deploy cameras on fence lines. Throughout the project, collaboration was key. Technology was another key factor in the success of this project. The use of GIS tools allowed us to update landowner permission in a shared map through an ESRI Community Hub. This way, volunteers were able to submit data, and we could update landowner permission, all in real time. The ability of these tools to download maps for offline use makes a difference when working in remote locations.

3.3 Under the soil, monitoring the cryptic herpetofauna of Grasslands National Park

Samuel Davison & Laura Gardiner
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Abstract: Understanding and monitoring species-at-risk populations is necessary for informing conservation actions and recovery. Herpetofauna, more commonly referred to as reptiles and amphibians, are comprised of groups including snakes, lizards, frogs, toads, and turtles. As of 2023, the IUCN Global Amphibian Assessment (GAA2) reports that 40.7% of amphibian species are globally threatened, making them the most threatened vertebrate group in the world. In addition, an estimated 21.1% of reptile species are considered globally threatened, however, this statistic is influenced by significant data deficiencies, and reptiles have therefore been largely excluded from global conservation-prioritization analyses. Reptiles and amphibians are largely underrepresented when considering conservation efforts and yet are two of the largest at-risk groups. In Saskatchewan, there are 12-species of reptiles and 7-species of amphibians. Through integrating monitoring strategies Grasslands National Park (GNP) supports herpetofauna conservation, research and awareness including continued occupancy monitoring of snake hibernacula and lizard summer foraging sites, both following a 5-year rotating schedule. Species presence and richness is recorded while documenting invasive species to map and mark areas for removal efforts to maintain quality habitat. Greater short-horned lizard surveys include mark and recapture components to help assess population dynamics over the long-term. In 2025, GNP supported the Canada wide blitz on snake fungal disease (SFD) carried out by Carleton University, helping research on diseases that may affect focal species. Outreach programs including our snakes on roads and rattlesnake ramble help us increase citizen awareness and citizen science with park visitors and the public. These efforts are vital to helping understand and protect herpetofauna in GNP.

3.4 Incorporating Diverse Perspectives into the Sturgeon River Plains Bison Herd's Stewardship

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Abstract: A complexity of socioeconomic, sociocultural dimensions, entangled with diverse notions of conservation, wildness, domestication, and multispecies relationality, influences the stewardship of threatened species. Emblematic of this complex amalgam, the Sturgeon River Plains Bison Herd's (SRPBH) success and stewardship hinge on these diverse perspectives, and the interests and concerns they inspire. The SRPBH mainly inhabits the southwest corner of Prince Albert National Park, and is one of only two wild, unfenced, and free-roaming plains bison herds within this species' original Canadian range. This herd also meets behavioural and genetic criteria pertaining to "wildness" that other herds do not, connecting it to broader conservation discourse around this species' sustainability and genetic viability. Plains bison are recognized as cultural and ecological keystone species of grassland ecosystems, and this herd is the subject of biological and ecological studies, linking it to research on plains bison, rewilding, and human-wildlife coexistence more broadly. Beyond ecological importance, the SRPBH holds significance for many Saskatchewan Indigenous communities and is connected to Indigenous-led Buffalo rematriation and initiatives. However, the SRPBH is also the source of conflict as its foraging and activities damage crops and infrastructure, resulting in friction between conservation directives and community livelihoods. Although mitigation measures have been attempted, problems persist, and several residents are left bearing the burden of this herd's presence. Due to the diverse perspectives involved, support for the herd's stewardship and population growth remains inconsistent, and the herd remains threatened with a 50% population decline. In-depth interviews, participant observation, and a mail-out survey documented the pertinent socioeconomic, and sociocultural factors determining the SRPBH's future. This study aims to equally emphasize the diverse perspectives involved and analyze how wildlife and conservation strategies impact local communities', and interested parties', providing a baseline of social science data valuable for informing future SRPBH co-management policy and planning.

4.1 The Prairie Canada Piping Plover Census & Collaborative Monitoring

Rebecca Magnus and John Conkin
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Abstract: The International Piping Plover Breeding Census (IPPBC), conducted at 5-year intervals from 1991-2016, represents the only standardized survey to assess abundance and distribution of Piping Plover across its range. The IPPC was cancelled during 2021 due to pandemic restrictions, and future international efforts are currently not planned. In lieu of the 7th IPPBC, a Prairie Canada Piping Plover Census (PCPPC) across the provinces of Alberta (AB), Saskatchewan (SK), and Manitoba (MB) was conducted May 27th to June 16th, 2024, to collect updated data to support recovery actions by governments and conservation organizations. The 2024 PCPPC included over 1477 person hours (253 in AB, 1116 in SK, and 108 in MB) contributed by 176 (29 in AB, 122 in SK, and 25 in MB) collaborators, contractors, and volunteers to survey 236 basins (54 in AB, 174 in SK, and 8 in MB). Compared to the previous IPPBC in 2016, results indicate a 4.4% decrease in adult Piping Plovers with 887 birds (269 pairs) observed in 2024. Provincially, 75 birds (24 pairs) were documented in AB, 810 birds (244 pairs) in SK, and 2 birds (1 pair) in MB. This compares to 928 birds (324 pairs) across the Canadian Prairies in 2016, with 123 birds (43 pairs) in AB, 802 (280 pairs) in SK, and 3 birds (1 pair) in MB. In 2024, Piping Plovers were found on 69 basins (11 in AB, 57 in SK, and 1 in MB); in 2016 Piping Plovers were found on 55 basins (17 AB, 36 SK, 2 MB). The 2024 PCPPC is the lowest ever recorded census result for the combined prairie provinces. Maintaining annual collaborative surveys in Alberta and Manitoba and surveying a subset of basins in Saskatchewan annually (Saskatchewan contains more Piping Plovers than any other jurisdiction) will allow a more comprehensive understanding of Piping Plover population trends.

Session 4: Grassland Birds I
May 6th 3:20-3:40pm

4.2 Conservation of Burrowing Owls in Canada

Geoff Holroyd
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Abstract: In Canada, the Burrowing Owl is an endangered under the Species at Risk Act. The number of breeding pairs declined 90% during the 1990's despite voluntary protection of over 37,000 hectares of the species habitat on private grasslands. Low recruitment exacerbates the Burrowing Owl's decline in response to habitat loss, typically only 3-4 young fledge from the average clutch size of 9 eggs. Food supplementation experiments indicated that the wild food supply is inadequate for this species to reach its reproductive potential in many years. Migration and dispersal are important ecological processes and understanding them is a requirement for species conservation efforts. Studies of movements of Burrowing Owls using banding, VHF telemetry, stable isotopes, geolocators, and satellite transmitters demonstrate that annual dispersal is a second factor driving the owl's decline in Canada. Supplemental feeding at nests in Grassland National Park has helped increased the recruitment of fledglings in a cost-effective way. Food supplementation is more cost-effective than holding young over winter for release as one-year olds. This talk summarizes 30 years of research into the population dynamics, breeding biology, migration and dispersal of this species in Canada, Texas and Mexico and suggest considering supplemental feeding of nests to be incorporated in recovery action plans and further research at the larger landscape scale, alongside with protection of critical habitat. Greater international cooperation and direct conservation actions on the ground are needed to achieve recovery of this species across the northern Great Plains. In particular a food supplementation program is needed in prairie Canada to provide nesting owls with dead mice twice weekly through June and the first week of July.

Session 4: Grassland Birds I
May 6th 3:40-4:00pm

4.3 Eight years of burrowing owl head-starting in Suffield, Alberta

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Abstract: Burrowing owls (*Athene cunicularia*) are threatened or at-risk throughout much of their distribution in western North America. Sharpest declines have been observed in the breeding populations of the Northern Great Plains, and in Canada they are listed as Endangered. For Canada's Burrowing Owl populations, the two most limiting life-stages are the periods from 1) egg to post-fledging juvenile and 2) from juvenile to 1st-year adult. To test if the population bottleneck during this 2nd stage could be circumvented, and boost the burrowing owl population around Suffield, Alberta, we initiated a head-starting project in 2016 in collaboration with the Canadian Wildlife Service and Alberta Environment and Protected Areas. We located burrowing owl nests using call-playback surveys each spring and brought youngest brood-members into human care 20 to 35 days after hatching. We held these owlets over winter and soft-released them the following spring as adults. Finally, we monitored head-started owls throughout the nesting season, and released a subset carrying satellite transmitters to track movement and inform survival estimates. Between 2016 and 2025, we brought 173 owlets into human care, and we released 171 owls, consisting of 80 female-male pairs, and 11 lone females. We tracked 139 owls post-release with satellite transmitters and released 32 owls without transmitters. To control for possible transmitter effects on survival during migration, we removed 34 transmitters at the end of the breeding season. Released owls produced a total of 63 successful nests, from which 339 owlets were fledged. To date, 3 banded-only owls have returned from migration to breed for a 2nd time, 4 owls survived winter carrying transmitters, and 2 of those 4 survived a northward trip and returned to south-eastern Alberta.

Session 4: Grassland Birds I
May 6th 4:00-4:20pm

4.4 Last Mountain Bird Observatory: 35 years of songbird monitoring on the prairies

Jordan Rustad & Alan Smith
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Abstract: Banding stations provide important long-term datasets about migrating songbirds, allowing researchers to determine migration routes, population trends, and offer education opportunities for the public. Last Mountain Bird Observatory has operated continuously since 1990, and as a member of the Canadian Migration Monitoring Network since 1992. We are the only CMMN station in Saskatchewan and capture boreal breeding warblers and birds from Alaska, Northwest Territories, and northern British Columbia, Alberta, and Saskatchewan. We are one of the only CMMN stations located in the prairies and provide important information about our boreal migrants move through grassland regions. In addition, we have contributed to national population trends of 56 species through daily mist netting and census efforts during spring and fall migration for over 30 years. We have also contributed to multiple research projects on stable isotopes and ectoparasites. We will shortly be preparing the 35-year report (1990-2025) for landbird monitoring at Last Mountain Bird Observatory. Since the publication of the 25-year report we have noticed changes in capture rate and net hours. The number of net hours has decreased and so has the number of birds captured but capture rate has remained relatively stable. We will be investigating possible explanations including weather patterns, specifically wind speeds, regional landscape changes, and local habitat. It is our hope that our consistent data set on migrating birds and the 35-year report will inspire further research into local movements through the Last Mountain Lake area and the prairies.

Session 5: Education and Knowledge Sharing

May 6th 3:00-3:20pm

5.1 Transforming agricultural landscapes for resilient food systems and biodiversity conservation

Branimir Gjetvaj
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Abstract: Food systems are increasingly vulnerable to environmental degradation and climate change, making their long-term sustainability dependent on healthy ecosystems and natural processes. Balancing food production, climate change mitigation, and biodiversity conservation requires transformative, systemic change rather than incremental adjustments. Because the drivers of biodiversity loss and ecosystem decline are deeply embedded in existing structures, solutions must be integrated and far-reaching; reshaping policy, economic frameworks, technology, and social systems.

5.2 Conservation through childhood education

Shirley Bartz
SK Prairie Conservation Action Plan

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Abstract: With native prairie and its host of wildlife species rapidly disappearing, building awareness of our grassland community with the next generation of land users should be a priority in conservation efforts. This presentation describes the SK PCAP's efforts to educate elementary and high school-aged children about native prairie, species at risk, biodiversity and the roles agriculture can play in conservation. Through education, we are building relationships that will help conserve rare species and ecosystems.

Session 5: Education and Knowledge Sharing
May 6th 3:40-4:00pm

5.3 "It's our gem": Leveraging community values to conserve prairie grasslands

Mary Agnes Welch & Christine Chilton
Probe Research

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Abstract: To achieve these outcomes, conservation practitioners need to champion policies and support systems that promote diverse, multifunctional landscapes across spatial scales – from fields and watersheds to regional agroecosystems – and to guide evidence-based design and management. This vision depends on inclusive governance, equitable participation by local and Indigenous communities, and stronger collaboration among environmental organizations, agricultural producer groups, researchers, and policymakers. Recognizing multiple value and knowledge systems through collaboration and co-development is essential for designing socially, culturally, and economically viable sustainability practices. Building communities of practice that enable knowledge sharing and collective learning will be key to advancing agroecological land management strategies that restore soil health, enhance biodiversity, and sustain culturally valued agroecosystems.

Session 5: Education and Knowledge Sharing
May 6th 4:00-4:20pm

5.4 Conservation through Indigenous land access on the prairies

Amy Seesequasis & Valerie Zink
Treaty Land Sharing Network

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Abstract: The presentation will reflect on ongoing efforts to support community-led solutions that drive agroecological transformations, strengthening both resilient food systems and nature conservation.

May 6th 3:00-3:20pm

6.1 Grazing, mowing and burning small white lady's-slipper (*Cypripedium candidum*) habitat in remnant tall grass prairie in southeastern Manitoba.

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Abstract: Small white lady's-slipper (*Cypripedium candidum*) is a perennial orchid found in remnant prairie habitat in southern Manitoba. The species is listed federally and provincially as endangered and provincially ranked as an S2 (imperilled) species. One of the largest populations is found at the Manitoba Tall Grass Prairie Preserve in the southeastern corner of the province. In 2014, series of monitoring plots were established on Preserve lands to track the species' response to active management activities utilized to maintain a diverse and resilient tall grass prairie ecosystem. Rotational grazing, shrub mowing and periodic burning are used in varying combinations to reduce shrub and tree encroachment, encourage grass and forb growth and decrease litter accumulation. Over eleven sampling years, stem counts were variable between plots and between years, with overall lowest counts occurring in 2019 and 2020. No strong associations were found with vegetation cover groups (e.g. sedges, grasses, forbs, or shrubs) and stems counts. During this time, management activities in these areas have prevented trees and shrubs from encroaching into small white lady's-slipper habitat.

6.2 How do disturbance-based management practices influence soil properties and the presence of preferred plant species for Poweshiek Skipperling in Manitoba?

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Abstract: The Canadian habitat recovery strategy for the endangered Skipper, *Oarisma poweshiek* promotes disturbance-based management practices (e.g., cattle grazing, prescribed burns and mowing). Soils are critical components of the prairie ecosystem, influencing the availability and quality of plants needed to support *O. poweshiek*. We analyzed soil properties to determine their effects on the presence and frequency of preferred plant species for the *O. poweshiek* across occupied and unoccupied sites, and under different management practices. Preferred nectar plants such as *Rudbeckia hirta* and *Dalea purpurea* were associated with high soil moisture and nutrient-rich environments. In contrast, species such as *Prunella vulgaris* and *Solidago ptarmicoides* appeared more tolerant of lower nutrient levels. Similarly, preferred larva host grasses such as *Muhlenbergia richardsonis* and *Andropogon gerardii* may tolerate lower soil fertility or moisture. Our results showed that vegetation patterns are reflected in different land management practices that influence soil quality and, in turn, plant diversity. By understanding how management practices affect soil conditions, land-managers can make informed decisions to maintain suitable habitat for *O. poweshiek*.

6.3 Management practices benefit endangered Poweshiek Skipperling (*Oarisma poweshiek*)

Samantha M. Knight, Barbara I. Bleho, Melissa Grantham, Richard Westwood, Nicola Koper, & Cary D. Hamel
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Abstract: Poweshiek Skipperling (*Oarisma poweshiek*) is a small, prairie endemic butterfly that is listed as Endangered under Canada's Species At Risk Act and the US Endangered Species Act. Populations have declined precipitously in the past few decades, and their global range is now restricted to two isolated regions in complex agricultural-residential landscapes, one of which is the managed Manitoba Tall Grass Prairie Preserve in Canada. Species' recovery is challenging, and research is underway to address knowledge gaps such as life history, cause of decline, and ongoing habitat management needs. In this study, we used a decade of survey data from 2010 to 2019 to understand how habitat features, management practices, and extreme weather impact Poweshiek Skipperling abundance in Manitoba. Our study found that the strongest predictor of abundance was the density of black-eyed Susans (*Rudbeckia hirta*), a primary nectar plant for adults. Poweshiek Skipperling abundance also had a negative relationship with both the number of years since a burn occurred and the number of years since grazing occurred. Cumulative precipitation during their active period (May–June) had a negative relationship with Skipperling abundance, while warm early springs and cool temperatures during the active period had positive relationships. These results suggest that management actions that maintain tall grass prairie habitat in an early successional stage (burning and grazing) and maintain important nectar sources benefit this population. In contrast, extreme weather events had varying effects on Poweshiek Skipperling abundance, and may be exacerbated by climate change. Results from this study are informing ongoing management practices in the Manitoba tall grass prairie, providing the support needed to give this endangered Poweshiek Skipperling population a chance to persist and hopefully thrive.

6.4 Conserving grassland songbirds through climate-informed management of disturbance regimes

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Abstract: Grassland bird communities rely on spatial heterogeneity in habitat structure at multiple spatial scales because species differ in nesting and foraging needs, grasslands grow and change dramatically over the season, and because continental grasslands are notoriously climatically variable from year to year. Thus, there is no one-size-fits-all approach to management that will universally benefit whole communities under differing ecological contexts. I will discuss recent studies that provide practical solutions to creating and maintaining spatial heterogeneity at meaningful scales. I then propose a dynamic approach to management appropriate to regions with highly variable climate, multiple tools and landowner constraints, and abundant local knowledge of how to create desired vegetation structure given local circumstances.

7.1 High spatial variability of depredated artificial Greater Sage-grouse nests in Grasslands National Park, Canada

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Abstract: Increased predation pressure is a major threat to the few remaining endangered greater sage-grouse populations in Canada. To gain information on nest depredation rates, identify nest predators and assess potentially influential variables on the probability of predation, we performed an artificial nest study at Grasslands National Park in 2016 and 2017. Inside a three km spatial extent around two active and four inactive greater sage-grouse leks, 80 artificial nests were deployed for two weeks each. Depredation was assessed through the analysis of both remote camera pictures and physical evidence from nest remains. Of the 80 artificial nests that were monitored in 2016 and 2017, 35 nests (44%) were depredated, and there was high spatial variability in where nests were depredated with two of the study areas in the West Block accounting for 71% of the nest predations despite containing 40% of the nests. A primary predator species was identified for 24 of the 35 depredated nests (69%). Of these, 12 were depredated by black-billed magpie, 9 by American crow, 2 by coyotes and 1 by American badger. Artificial nests that were deployed earlier (e.g., May 1-15 vs May 16-30) and closer to tall anthropogenic structures were more likely to be depredated. Through this study and others, there is support for considering management of corvids in areas with vulnerable sage-grouse populations. Additional monitoring should be conducted to inform how those management activities are carried out.

7.2 The Last of Us: Preventing extirpation of Greater Sage-grouse in Grasslands National Park, Canada

Laura Gardiner, Julia Put, & Christopher Reed
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Abstract: Grasslands National Park (GNP) protects the last known active Greater Sage-grouse (GRSG) lek in Saskatchewan, a population that is at imminent risk of extirpation without sustained conservation efforts. Five-year male lek count averages indicate a 64.4% overall decline from 1995–1999 to 2020–2024, including 97.4% in the West Block and 16.6% in the East Block. The updated Multi-species Action Plan for GNP (2026) provides strategic direction to prevent extirpation of GRSG between 2026 and 2035 through ecosystem-based, landscape-scale, and collaborative approaches essential for a species dependent on large, connected, and ecologically diverse habitats. Priority actions are beneficial grazing (with bison and cattle), prescribed fire, habitat restoration and invasive alien plant management to improve habitat quality for GRSG and many other species at risk. However, even in areas where vegetation is healthy, anthropogenic infrastructure (e.g., buildings, fences, power poles, contaminated sites, etc.) remains a significant threat to GRSG survival and habitat selection by facilitating predation and causing habitat avoidance by GRSG. GNP aims to improve habitat functionality and connectivity through infrastructure removal and mitigation (e.g., installation of perch deterrents, wildlife-friendly fencing, road mortality mitigation) and coordination with neighboring jurisdictions and land managers. Population augmentation continues to be considered as a key strategy to prevent extirpation, in collaboration with partners. If resources permit, predator monitoring and management through indirect methods will also be considered, as reducing factors that enhance predator success is currently considered one of the highest priorities to ensure GRSG persistence in Canada. These efforts not only aim to prevent the extirpation of GRSG in Saskatchewan, but also contribute to the conservation of prairie ecosystems by enhancing habitat connectivity, restoring ecological processes, and supporting biodiversity across one of Canada's most endangered landscapes.

Session 7: Grassland Birds II
May 7th 11:20-11:40am

7.3 Beyond Vegetation Structure: How Plant Communities and Soils Shape Habitat for Grassland Species at Risk

Philip Rose, Paul Jones, Brad Downey, & Julie Landry-DeBoer
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Abstract: Since 2002, MULTISAR has operated as a voluntary, habitat stewardship program dedicated to conserving prairie species at risk in southern Alberta. This collaborative initiative—uniting environmental NGOs, provincial agencies, local ranchers, and supported by Environment and Climate Change Canada and several cattle industry associations—has generated an extensive dataset of wildlife and habitat records throughout the southern prairies of Alberta. Over 23 years, MULTISAR has conducted detailed wildlife, rangeland, and riparian assessments across more than 1 million acres, including over 15,000 point counts and 5,000 plant inventories and range health assessments. This dataset provides an exceptional opportunity to investigate attributes of vegetation associated with prairie species at risk. While vegetation structure is often considered the primary driver of nest-site selection for grassland birds, plant community composition—shaped by soil type and grazing regime—establishes the structural bounds within which these species operate. Consequently, geospatial classification of plant communities and soil types may offer a rapid, cost-effective means of predicting habitat suitability at broad spatial scales. When integrated with other landscape features influencing occupancy (e.g., roads, energy development) and emerging remote-sensed indicators of vegetation structure, these classifications have strong potential to improve habitat suitability modelling. This presentation will share preliminary findings from early exploration of the MULTISAR dataset, including occupancy patterns for priority species at risk such as chestnut-collared longspur and Sprague's pipit across reference and successional plant communities defined by the Dry Mixedgrass Range Plant Community Guide. We also examine occupancy across range sites delineated by Alberta's Grassland Vegetation Inventory and verified through MULTISAR field assessments. These initial results underscore the value of long-term, landscape-scale data for advancing species at risk management and highlight opportunities to further integrate plant community, soil, and vegetation structure data into future conservation planning.

Session 7: Grassland Birds II
May 7th 11:40am-12:00pm

7.4 Changes in landcover of a prairie city picks winners and losers in the bird community

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Abstract: Urbanization can result in grassland- or cropland-dominated landcovers being converted into roads, buildings and exotic vegetation. However, these landcovers may not provide suitable habitat for the original grassland or cropland-associated species that inhabited the area. We examined habitat suitability of three tree-associated and three grassland-associated birds over three years (pre-European settlement, 1951 and 2021) in Regina, Saskatchewan Canada. In addition, we monitored current wildlife abundance and richness patterns in urban, surburban, and rural sites in and around Regina. Regina was historically in a treeless, grassland landscape, but has had an extensive tree planting program since 1913 resulting in over 500,000 trees currently planted within the city. Model-predicted mean habitat suitability for the three tree-associated birds increased from 0.04 pre-European settlement to 0.36 in 2021, whereas mean habitat suitability for three grassland-associated species decreased from 0.68 prior to European settlement to 0.45 in 2021. From contemporary monitoring, grassland- and wetland-associated species such as Western Meadowlark, Vesper Sparrow, Horned Lark, Yellow-headed Blackbird, and Marsh Wren were less likely to be present in areas with >50% urban cover within 2 km of the survey site. Maintaining remnant grasslands within city boundaries or replanting and restoring some areas with native grass and forb species, could result in urban areas that provide some habitat for grassland birds. However, as urban expansion accelerates, the best strategy to conserve and manage grassland birds is for urban planners to avoid development, in order of priority, on remaining patches of native grassland, grasslands dominated by non-native exotic grasses and forbs, and annual cropland.

8.1 Collaborative science for Tomorrow's Prairies: toward a shared understanding of grassland classification in Canada

Alison Long, Ronnie Drever, Nasem Badreldin, Christie Borkowsky, Prieto Diaz, Lysandra Pyle, & Sam Robinson
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Abstract: We present findings from a large collaborative research effort related to how temperate grasslands are mapped and classified in Canada. Tomorrow's Prairies aims to map grasslands and forecast future changes in their biodiversity and carbon based on socio-economic scenarios of conversion to cropland or settlements. This three-year effort funded by the Nature Smart Climate Solutions Fund unites 39 experts from government, academia, and conservation organizations, organized into five Working Groups tackling distinct but interrelated aspects. The Classification Working Group is conducting a structured comparison of 26 datasets mapping temperate grasslands in Canada by characterizing similarities and differences in classification, definition, and extent. Understanding the complexity of grassland cover presents a significant challenge because of the number of datasets available, each with unique assumptions, methodologies, and limitations. This abundance creates obstacles for scientists, policymakers, and conservationists who rely on accurate land cover information to guide decisions. This project addresses these challenges by comparing existing data for the five provinces (BC, AB, SK, MB, and ON) where extensive native grasslands occur, using the Canadian National Vegetation Classification as a common classification framework. We analyze areas of agreement and disagreement to build a shared understanding and foster timely grassland conservation action. A principal output is a harmonized map of native and tame grasslands that serves as the baseline for assessing future change and its implications for ecosystem carbon and biodiversity.

Session 8: Tools for Conservation
May 7th 11:00-11:20am

8.2 Collaborative science for Tomorrow's Prairies: projecting grassland loss under conversion scenarios

Bronwyn Rayfield, Joseph Bennett, Lauren Bortolotti, Susan Cook-Patton, Emily Lindsay, Alison Long, Richard Schuster, & Ronnie Drever
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Abstract: We present findings from a large collaborative research effort projecting grassland loss under conversion scenarios across the Prairies. Tomorrow's Prairies aims to map grasslands and forecast future changes in their biodiversity and carbon, based on socio-economic scenarios of conversion to cropland or settlements. This three-year effort funded by the Nature Smart Climate Solutions Fund unites 39 experts from government, academia, and conservation organizations, organized into five Working Groups tackling distinct but interrelated aspects. The Modelling Working Group developed a data-driven, spatially explicit landscape-change framework to quantify where grasslands are most at risk of conversion to other land uses. Conversion risk is mapped using a multidimensional analysis that integrates biophysical factors, landscape context, and socioeconomic drivers. We evaluate three conversion scenarios: zero conversion, business-as-usual based on 10-year historical rates, and rapid conversion reflecting elevated rates of land-use change. Scenarios are implemented using a modelling approach that allocates conversion according to scenario-specific rates and the spatial distribution of conversion risk. The resulting projections highlight areas of persistent grassland and places where grasslands are especially vulnerable to future loss. These scenario-based projections form the foundation for biodiversity and ecosystem carbon assessments within the broader Tomorrow's Prairies initiative.

Session 8: Tools for Conservation
May 7th 11:20-11:40am

8.3 Collaborative science for Tomorrow's Prairies: Biodiversity impacts for scenarios for grassland conversion in Canada

Ronnie Drever, Susan Cook-Patton, Jeremy Hogan, James Paterson, Heather Peat Hamm, Alison Long, Kyle Bobiwash, Joe Bennett, Barry Robinson, & Chris Latimer
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Abstract: We present findings from a large collaborative research effort related to how grasslands conversion affects Prairie biodiversity in Canada. Tomorrow's Prairies aims to map grasslands and forecast future changes in their biodiversity and carbon based on socio-economic scenarios of conversion to cropland or settlements. This three-year effort funded by the Nature Smart Climate Solutions Fund unites 39 experts from government, academia, and conservation organizations, organized into five Working Groups tackling distinct but interrelated aspects. The Biodiversity Working Group developed biodiversity indicators related to special places, grassland-dependent species, and grassland condition. We quantify baseline conditions for each biodiversity indicator based on current land cover. According to three scenarios (no change, business-as-usual, rapid conversion), we use a land use change model to measure biodiversity changes as a consequence of conversion. Research findings can support identification of focal areas for effective conservation investments and quantify scenario-based outcomes for high biodiversity areas, species at risk, and rare grassland ecosystems.

Session 8: Tools for Conservation
May 7th 11:40am-12:00pm

8.4 Working Together for Biodiversity: A Review of Collaborative Conservation in Canada

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Abstract: Why and when do people work together to achieve a common conservation goal? Collaborative conservation has emerged as a promising governance strategy to address biodiversity loss across diverse landscapes. By building consensus among diverse actors, these arrangements aim to enhance both social and ecological wellbeing. However, research has predominantly focused on the Global South and, more recently, the United States, leaving significant geographic and contextual gaps. This presentation explores collaborative conservation in Canada, where factors like private and public lands, Indigenous governance systems, and vast working landscapes create unique opportunities and challenges for collaborative approaches. Through a systematic review of academic articles, book chapters, and reports, we analyze the characteristics, goals, activities, and outcomes of Canadian collaborative conservation initiatives. Our findings reveal that collaborative conservation is an increasingly emphasized yet critically understudied governance arrangement in Canada, particularly on working landscapes where diverse stakeholder interests intersect. We identify key patterns in how these initiatives function, their stated objectives, and their reported outcomes. Given Canada's complex land tenure systems and the growing imperative to build broad-based conservation support, understanding collaborative governance dynamics is essential for informing policy and improving biodiversity conservation. This research contributes foundational knowledge for developing more effective and resilient social-ecological systems across Canada's diverse regions.

Session 9: Breaking down Barriers for Conservation

May 7th 10:40-11:00am

9.1 Lizard, Lizard, Lizard - Mitigating for Sensitive Species on an Ecologically Significant Grassland

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Abstract: In 1883, the Canadian Pacific Railway (CPR) built a bridge across the South Saskatchewan River. During the CPR's search for water, their drills accidentally struck gas. This accident resulted in the development of one of the largest gas fields in North America. Since then, it has been developed by a variety of energy companies and industry representatives, resulting in oil and gas wells scattered broadly across this southeastern region of Alberta. The Manyberries gas field, however, is home to much more than wellsites. The native grassland habitat and the Bearpaw Shale formations host concentrated populations of numerous ecologically sensitive and protected species. Among the list of sensitive and endangered species in the region are mountain short-horned lizards. Found in southeastern Alberta and southwest Saskatchewan, this species was declared Endangered in 2007. Threats to this species are varied, including conversion of native habitat, the construction of roads or infrastructure in native habitat regions, inclement weather, and mortality due to predation. All these conditions are present in the Manyberries field. Energy companies and industry representatives are focussed on the process of abandoning and reclaiming all their assets in the Manyberries field. Working in the region comes with a host of challenges due to the variety of rare and protected species in this area. Coordinating the abandonment, remediation, and reclamation of assets has required an adaptive approach to traditional techniques to protect these sensitive and endangered species, such as mountain short-horned lizards, and has involved the collaboration between industry, stakeholders, and government. We do not operate in this region as we used to. We know more, and in some cases, we now know better. This presentation will seek to share experiences and perspectives gained from using creative and collaborative methods to succeed in this unique and challenging landscape.

Session 9: Breaking down Barriers for Conservation
May 7th 11:00-11:20am

9.2 Effects of climate change on future potential habitat of plains rough fescue (*Festuca hallii*) in the Central Plains of North America

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Abstract: Rough fescue, a native grass species of North America's central plains, has experienced significant declines due to habitat fragmentation resulting from agricultural, industrial, and urban development. To assess the future potential distribution of this species, we employed ecological niche modeling using a Maxent model calibrated with historical occurrence data and environmental variables (climate and soil). Future projections were generated under two time periods (2050 and 2070) and three Shared Socioeconomic Pathways: SSP2-4.5 (moderate emissions), SSP3-7.0 (high emissions), and SSP5-8.5 (very high emissions). Across all scenarios, suitable habitat was projected to shift northward into the Canadian boreal forest and upslope toward alpine regions of the Rocky Mountains, where cooler and moister conditions are expected to favor persistence. Areas identified as high-quality habitat in the Canadian prairies under historical conditions were predicted to decrease significantly under future climates. The extent of optimal habitat is projected to decline from approximately 450,206 km² to 16,428 – 30,737 km² by 2050 and to 677 – 7,738 km² by 2070. These findings indicate a rapid and severe contraction of suitable habitat over the next 45 years, highlighting the need to identify climatic refugia and implement conservation strategies to ensure the long-term persistence of this emblematic grassland species.

9.3 Pronghorn Xing: "Paving" the Way for Wildlife Corridors

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Abstract: The TransCanada Highway (TCH) is a vital cross-country transportation corridor, bisecting southern Canada. The highway, its perimeter fencing for human and livestock safety, and increasing traffic volumes, combine to be a potent barrier in the wildlife corridors it bisects. Mitigating this barrier effect is an essential conservation action that requires cross-jurisdictional, multi-disciplinary collaboration and effective outreach to stakeholders and communities along the highway's path. The Pronghorn Xing project is a collaboration of the Miistakis Institute, Alberta Conservation Association (ACA), and Canadian Wildlife Federation (CWF) with the goal to identify and communicate wildlife crossing infrastructure along the TCH. Identifying movement corridors combines multiple data inputs including an ACA-led collaring program of over 100 pronghorn towards improving our understanding of their movements in the Sagebrush Steppe region of Alberta and Saskatchewan. These data will refine our estimates of the best places to locate wildlife crossing infrastructure on the TCH to benefit multiple wildlife species as well as motorists. The communication initiative, led by the Miistakis Institute, develops information products and conducts consultation with municipalities, Indigenous communities, land trusts, provincial governments and highway contractors. We have also held a workshop to connect road ecology researchers with Saskatchewan government employees. We identified six potential highway crossing sites on the TCH—three each in Alberta and Saskatchewan. Collaring has provided evidence of pronghorn movements affected by the TCH, with many animals approaching but not crossing. Many movement areas are at, or close to, our proposed crossing sites. Remote cameras and audio have found many species, including species at risk, that are moving close to proposed crossing sites and would therefore benefit from mitigation infrastructure. Consultations have shown broad interest in creating safe opportunities for wildlife crossing, but with an emphasis on motorist safety. Funding remains a challenge at all levels of government.

Session 9: Breaking down Barriers for Conservation
May 7th 11:40am-12:00pm

9.4 The risks, benefits, and challenges of cross-boundary conservation of species

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Abstract: Species ranges don't respect provincial, national, or international borders. Yet conservation activities that don't address threats at the scale that individuals experience are unlikely to be successful. It can be particularly difficult to address threats for species with long distance migrations spanning multiple jurisdictions. However, when done successfully and coordinated well, a wider team of collaborators can address more diverse or geographically spread threats. Finding sources for conservation translocations can also be challenging particularly in the context of cross-boundary conservation. Conservation breeding is a huge commitment in terms of cost and effort and there are many benefits of wild-to-wild translocations instead. Even so, finding sources for wild-to-wild translocations might not be possible within jurisdictions that have experienced severe declines. Collaborations with agencies or organizations in other parts of the species' range may allow for wild-to-wild translocations but are challenging when it comes to permitting and transporting animals. Conversely, using sources for translocation that come from different populations or potentially even species, risks hybridization and outbreeding depression. Also, using individuals sourced from other jurisdictions may risk a loss of conservation status and associated habitat protection. Furthermore, conservation programs may be vulnerable to political or funding changes, but there can also be resilience if cross-boundary jurisdictions work to support each other. One benefit to species that span boundaries is that barriers to species recovery present in one jurisdiction may not be present in another allowing for population resilience or redundancy. Using examples from the Wilder Institute's North American conservation programs I will discuss some of the risks, benefits, and challenges of cross-boundary conservation for at-risk species such as burrowing owls, whooping cranes, curiously isolated hairstreaks, black footed ferrets, and northern leopard frogs.

Session 10: Conservation Planning

May 7th 1:00-1:20pm

10.1 Learning as We Go: Bringing Heritage Resource Management into Conservation Planning

Erica Maier
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Abstract: This presentation shares reflections from incorporating landscape history, environmental education, and heritage resource management into conservation planning at Beaver Creek Conservation Area. Drawing on a background in archaeology and experience in environmental education, it explores how understanding past and present site use has shaped management approaches in an active conservation and learning landscape. This presentation will emphasize learning in progress, including ongoing efforts to build relationships, and offers insights for practitioners curious about integrating cultural and ecological perspectives into resource management planning.

Session 10: Conservation Planning
May 7th 1:20-1:40pm

10.2 Prairies Under Pressure: Mapping Woody Plant Expansion and Assessing Its Impact on Ranching

Irini Soubry, Lampros Nikolaos Maros, Yihan Pu, Elise Denning, Yanzhen Lin, Claire Owen, Eric Lamb, Kathy Larson, John Wilmshurst, Richard Gray, Tia McDonald, Chiara Richiardi, Maria Patrizia Adamo, & Xulin Guo
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Abstract: Healthy grasslands are the backbone of prairie ecosystems and a vital support for rural economies, yet they face growing threats by woody plant encroachment (WPE). When trees and shrubs spread into open grasslands, they reduce forage for cattle and bison, alter wildlife habitat, and fire and grazing patterns. These changes impose economic costs on ranchers, while triggering ripple effects on grassland biodiversity and on cultural values tied to prairie landscapes. Effective WPE management requires reliable information on where woody plants are spreading and how quickly, a knowledge gap that remains for the Canadian Prairies. Field surveys are costly, time-consuming, and limited in scope, but satellite and drone imagery can help overcome these constraints and can deliver spatial and temporal insights into WPE drivers. Connecting WPE trends with their economic impacts is critical for motivating management action. Our project uses remote sensing to detect woody plants and monitor their expansion over the past 40 years. This approach identifies high-risk areas and reveals key drivers connected to climate, land-use practices, or fire suppression. We present case studies of fractional shrub and tree cover from three prairie sites (2 in Saskatchewan and 1 in Alberta) and efforts to scale findings across the Aspen Parkland, Moist-Mixed Grassland ecoregions, and Italian grasslands. A detailed time-series analysis of Foam Lake Community Pasture (1985–2025) will show how tree cover has changed over time and why. Finally, we estimate ranchers' economic losses resulting from forage reductions due to WPE on two Saskatchewan pastures and draw on consumer willingness to pay for grass-fed meat and milk from the literature to help inform policies that promote grassland health. By linking ecological and economic dimensions, this research provides practical tools for ranchers, land managers, and policymakers to restore disturbance regimes and conserve prairie ecosystems.

10.3 Conservation prioritization at scale: using GIS-analysis to identify Where to Work in Canada's agricultural heartland

Lisa Greaves, Tsogo Saikhan, Evan Balzer, Matthew Braun, Katelyn Ceh, Marc Edwards, Cary Hamel, Kristen Martin, Rebekah Neufeld, Dan Wismer, & Jeremy Hogan
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Abstract: Canada's prairie provinces are some of the most productive, yet converted and fragmented places in Canada: encompassing 60 million hectares, less than 11 million hectares remains as intact native habitat, and the rate of conversion continues unsustainably. Land costs and conversion pressures continue to rise, putting significant strain on land-based conservation practices. To ensure efforts are optimally allocated to the areas most important for landscape resiliency, Nature Conservancy Canada (NCC), in partnership with Carleton University, has created the open source "Where to Work" decision support tool. This web-based tool helps identify the best places for conservation by analyzing many layers of geographic data, using advanced methods to find optimal locations where conservation efforts will have the greatest impact. For the first time, this tool makes it possible to optimize decision-making across large landscapes such as the Prairie ecozone. Using Where to Work, conservation practitioners can identify solutions that maximize specific outcomes of interest (e.g., restoration or ecosystem services that improve agricultural productivity and resiliency) for external partners interested in improving their sustainability practices and ability to contribute to, and report on, success. NCC conducted several Where to Work analyses in the Prairie ecozone, each with a specific and unique conservation impact focus, then aggregated these solutions to identify lands that contribute most effectively to distinct conservation goals. From this, NCC identified 1) the places with the highest likelihood of "return on investment" for land-based conservation efforts, and 2) the specific contributions of individual areas to conservation goals, which allows for more nuanced and informed decision-making with external partners interested in specific outcomes.

10.4 Conservation of Vegetation Communities: Using the Canadian National Vegetation Classification to Crosswalk, Classify and Rank Grassland Types

Sarah Vinge-Mazer, D. Faber-Langendoen, A. Wells., D. Downing, L. Pyle, M. Tremblay, J. DiBenedetto, M. Manning, B. Maxell, & S. Mincemoyer
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Abstract: Conservation ranking systems are commonly used for prioritizing at-risk species management activities but can also be applied to ecosystems and vegetation communities. The Canadian National Vegetation Classification (CNVC) project has recently completed a three-province (AB, SK, MB) and cross-border (US) effort to crosswalk, classify and apply conservation ranking to prairie vegetation types within the CNVC hierarchy. NMDS ordination, cluster analyses and expert review were used on over 4000 vegetation plots to produce a type-based classification that includes 16 groups and 51 alliances. Conservation ranks were calculated for each group using NatureServe methodology. The project has also produced a map of the groups, using soils, ecosites and expert review, which is feeding into partner projects that are focused on quantifying remaining native grasslands. This work provides important insight into which vegetation types are most at risk within the larger prairie ecosystem and forms the basis for prioritizing conservation effort across the prairie provinces.

10.5 Detecting Crested Wheatgrass Using Remote Sensing

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Abstract: Crested wheatgrass (*Agropyron cristatum*) is a perennial grass widely introduced across the North American prairies, where it has become a persistent invasive species. Initially planted to revegetate degraded rangelands after the 1930s drought, its success stems from early spring growth, extensive roots, prolific seed production, and tolerance to grazing and drought. Its establishment success is driven by early spring phenology, extensive root systems, prolific seed production, and tolerance to grazing and drought. These traits enable rapid establishment, seedbank dominance, and displacement of native grasslands. Monitoring this invasive grass remains a major challenge: field surveys are costly, and lack of knowledge of effective remote sensing approach. This research integrates field-based hyperspectral measurements with biophysical data to develop a spectral and trait-based approach for separating crested wheatgrass. Field surveys and hyperspectral data revealed that crested wheatgrass stands had lower bare ground cover and higher grass cover, height, leaf area index, and biomass compared to native grasses. Spectrally, crested wheatgrass exhibited significantly lower reflectance in visible and shortwave regions. Several spectral indices, Red Green Ratio (RGR), Water Stress Index (WSI), Shortwave-Infrared Vegetation Index (SWVI), and Cellulose Absorption Index (CAI), effectively separated crested wheatgrass. These indices were applied to Sentinel-2A and PlanetScope time series for classification. The 5-day RGR PlanetScope based model accurately mapped crested wheatgrass. Results emphasized the importance of satellite data with frequent revisit (i.e. high temporal resolution: 5-day) and phenological windows such as early spring growth and fall regrowth. This study identifies key spectral regions and biophysical traits sensitive to species differences, offering practical insights into scalable satellite-based detection strategies to support grassland conservation and invasive species management.

11.1 Restoring Grassland Habitat: 17 Years of Native Grass Reseeding in the Dry-Mixed Grasslands of SE Alberta.

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Abstract: Alberta Conservation Association has undertaken 2,300 acres of native grass reseeding through the MULTISAR Project over the past 17 years. Reseeded sites between 2008-2025 range from 90 acres to 600 acres of connected landscapes within the Dry-Mixed Grasslands of SE Alberta. These sites are found on loamy soils and were farmed for several decades before being reseeded to native species. All sites have been monitored yearly for changes in plant and bird communities following reseeding initiatives. Seeding techniques like broadcast, direct seeding, and island source seeding have been completed throughout the years with the more recent reseeds containing a total of 10 different species (grass, forbs, shrubs). Changes in the bird community are noted around the 5-year mark when we see the return of species like Sprague's Pipit and Baird's Sparrow.

11.2 Seeds of Diversity: native seed production and urban restoration

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Abstract: For over 10 years, the Living Prairie Museum and the City of Winnipeg Naturalist Services Branch have developed a small prairie seed production facility to supply local genetics to urban prairie restoration projects. This talk will review the collection, propagation and harvesting processes that have been adapted over the years. We will discuss the challenges and opportunities of small-scale seed production for restoration work. The talk will also explore our successes of seed propagation and restoration as an educational and community engagement opportunity in an urban setting. We will conclude with reflections and recommendations that may be helpful for other groups working with seed production and restoration on a small scale or in urban areas.

11.3 Economic Incentives with Ecological Benefits: Using a Reverse Auction for Native Grassland Restoration

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Abstract: Saskatchewan is known for their native grasslands that hold significant cultural, historical and economic importance. Due to the extensive loss of grassland habitat, the Saskatchewan Stock Growers Foundation (SSGF) administered a native grass restoration program known as the Reverse Auction for Grassland Restoration. Previous native seeding programs delivered in the province would cover only a percentage of the entire project and had very low uptake. This program has a unique approach where landowners submit bids, expressed as $/acre figure, for portions or entire parcels of land to be converted from cultivated land back to perennial cover using native species. Cost considerations for the bid amounts included land prep, weed control, equipment rental/use and loss of income from annual cropping. The bids were ranked using an environmental benefit metric composed of estimates for soil organic carbon potential, grassland bird habitat increases and connectivity of existing grasslands. The winning bidders were offered 30 year agreement contracts to keep in perennial native cover. Using a system to rank the bids and by analyzing imagery of surrounding land, we are able to better allocate limited funding for these native seeding projects. Across two rounds, the program drew bids from 30 landowners covering about 7,400 acres, resulting in 12 landowners restoring more than 1,280 acres to native grass. The strong demand for the program in both the first and second round reaffirmed the need for increased landowner support to take on native grass restoration projects not only financially but technically. The price-discovery findings highlighted the need for more funding for native seeding projects and, with a clearer understanding of landowners' financial impacts, will help guide the design of programs that boost participation and expand total acres restored.

11.4 Breaking Down Dams, Building Back Prairies: A Case Study in Southern Alberta

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Abstract: The southern Alberta grasslands, defined by short, dry summers and limited precipitation, have long relied on irrigation and water development projects to support cultivation and ranching activities. Beginning in the 1970s, modernization of water infrastructure steadily advanced, leaving some older structures obsolete and disconnected from the improved network. Many of these non-operational structures remained on the landscape, slated for eventual removal. Jaydot Dam was one such case. Situated within native grasslands near the Alberta-Saskatchewan border, Jaydot Dam sat in the heart of a unique and ecologically significant landscape. These grasslands provide critical habitat for several at-risk species, including Greater Sage Grouse, Swift Fox, Ferruginous Hawk, and Northern Leopard Frog. The presence of these species created unique challenges, requiring careful navigation of restricted timing windows and regulatory requirements. This presentation aims to highlight how collaboration among provincial agencies, environmental consultants, and a committed contractor enabled the successful decommissioning of Jaydot Dam and set the trajectory for successful restoration of native grasslands. This effort not only removed outdated infrastructure from the landscape and reduced liability from a dam safety perspective, but also renewed ecological integrity, improved habitat for vulnerable species, and demonstrated the power of coordinated action in restoring and conserving Alberta's prairie landscapes.

Session 11: Restoration
May 7th 2:20-2:40pm

11.5 From Collection to Capacity: Building a Resilient Native Seed Network for Western Canada

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Abstract: Western Canada faces rising demand for native plant seed to support ecological restoration, climate adaptation, and species-at-risk recovery, yet the region lacks a coordinated and reliable seed supply chain. As part of a 2024–2026 Nuffield Canada Agricultural Scholarship, Renny W. Grilz travelled across Canada, the United States, and Europe to study how established native seed industries, seedbanks, and restoration programs are structured worldwide. The objective was to identify models and practices that could strengthen Western Canada's emerging sector. Key lessons highlight the importance of strong regional networks, long-term public investment, consistent technical extension, and seedbanking systems that preserve genetic diversity while supporting large-scale restoration. This work outlines a clear pathway to build a resilient, collaborative native seed industry for Western Canada.

12.1 Peer Learning and Wetland Conservation: Insights for Conservation Practitioners

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Abstract: Agricultural producers manage vast swaths of land in the Canadian Prairies, making them critical partners to achieve conservation objectives. While economic payments are one approach to incentivize conservation efforts, payments alone can't achieve current targets with conservation NGOs noting that a greater understanding of motivations is needed to build relationships with producers. Using semi-structured interviews with farmers and conservation organization staff, we explored the role of peer learning in conservation decision making, focused on wetland conservation. Education on the benefits of wetlands has the potential to improve retention, however participants suggested the messenger is more important than the message with trust a precondition to learning. A producer's peers are a primary source of trusted information and peer learning can often lead to changes in land management practices. While exploring the complexities of these peer relationships, we've learned that an individual's peers are context dependent making them trusted in some areas but less so in others. However, where a producer views an individual and their information positively through a peer lens, it is due to the recognition of shared experiences and understanding. These bonds over shared experiences were found to be a primary driver in the creation of trust. By examining producer's learning preferences, we can better inform conservation outreach through a lens of trust and relationship building.

12.2 Influence of agricultural intensity on waterfowl productivity in the Canadian Prairie Pothole Region

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Abstract: Investigating mechanisms that influence productivity (i.e., the number of breeding adults and resultant offspring) in wildlife populations can provide evidence for patterns in population dynamics. Productivity is a strong indicator for effectively managing North American waterfowl populations (i.e., ducks, geese, swans). The Prairie Pothole Region (PPR) of North America is a wetland-grassland ecosystem, supporting >50% of duck production. This region has undergone agricultural expansion and intensification leading to increased mechanical disturbance and application of agrochemicals, which have negatively impacted aquatic habitats important for breeding ducks. The mechanisms by which agricultural intensification are impacting duck productivity in the Canadian prairies are key information gaps. My MSc thesis objectives are to 1) compare precision and accuracy of duck productivity estimates when accounting for imperfect detection using drones, and 2) assess how duck productivity is affected by agricultural intensity as explained by water quality, agrochemicals and aquatic macroinvertebrates. I hypothesize that measuring distances to observations and conducting replicate surveys to account for imperfect detection will improve precision and accuracy of duck productivity estimates. I also hypothesize that agricultural intensification is reducing duck productivity across the PPR through changes to wetland water quality and aquatic macroinvertebrate availability. To test my hypotheses, we surveyed ducks and sampled wetlands on quarter sections (65-hectare sites) across a gradient of agricultural intensity in Alberta (n = 17, 2023-2025), Saskatchewan (n = 10, 2025) and Manitoba (n = 10, 2025). We sampled 220 wetlands for aquatic macroinvertebrates, water quality and agrochemicals. We counted breeding pairs and ducklings with a drone to estimate productivity. My research will test an important mechanistic hypothesis of how duck productivity is influenced by agricultural intensification. My results will equip practitioners with evidence to prioritize conservation investments in space and time based on the direction and magnitude of agricultural effect.

Session 12: Wetlands
May 7th 1:40-2:00pm

12.3 A watershed class–based evaluation of changes in Prairie wetland habitat and bird abundance with changing climate

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Abstract: Wetland management decisions can be clouded by unknown or unanticipated changes in climate that can influence the spatial extent of these systems. Understanding impacts of climate on biota is, however, dependent on recognizing that inundated areas associated with wetlands are highly dynamic both interannually as the system alternates between dry and wet phases, and intra-annually (across seasons). We address this gap using a novel assessment to characterize climate change induced impacts to wetland ecosystem services at long timescales. We explore how hydrological behaviour is expected to manifest in changes to wetland extent, and thus change habitat quality under different future climates. We link these changes to dabbling ducks and wetland associated bird populations. The results highlight the potential to adopt different wetland conservation strategies in different parts of the prairies ecoregion, as predicted responses to climate vary according to the characteristics of the wetland complex and other watershed influences on hydrological behaviour for each watershed class. Under a drier future climate, fewer remaining wetlands corresponding with reduced bird populations may encourage more stringent conservation measures to maintain the ecosystem services these features provide, including wetland biota.

Session 12: Wetlands
May 7th 2:00-2:20pm

12.4 Understanding the impacts of agricultural land use on aquatic insect populations in the Prairie Pothole Region.

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Abstract: Aquatic insect populations in prairie wetlands are threatened by intensive agricultural land-use. Pesticide runoff from cropland alters water chemistry and affects aquatic communities, yet the extent of these impacts remains unclear. This study assesses how agricultural land use influences aquatic insect diversity, biomass, and polyunsaturated fatty acid (PUFA) production in wetlands of the Prairie Pothole Region. We sampled 35 wetlands classified as grassland (n=18) or agricultural (n=17) by deploying emergence traps throughout the May–September season. Adult aquatic insects were collected every 5–8 days, identified to order level, and their biomass estimated through dry weight measurements. PUFA content was analyzed in selected samples with sufficient biomass (>20 mg). Results showed similar insect diversity across land uses, with 13 orders recorded and Shannon indices of 1.66 (agriculture) and 1.60 (grassland). Simpson indices were 0.71 and 0.68, respectively. Biomass was slightly higher in grassland wetlands (18.8 mg/m²/day) compared to agricultural ones (17.4 mg/m²/day). Conversely, PUFA production was marginally greater in agricultural wetlands (0.49 mg/m²/year) than grasslands (0.45 mg/m²/year). However, statistical analyses indicated no significant effect of land use on diversity, biomass, or PUFA levels. The absence of significant differences may suggest that wetlands classified as “conserved” grasslands are influenced by surrounding agricultural activities, possibly through pesticide drift or hydrological connectivity. These findings highlight the complexity of agricultural impacts on aquatic ecosystems.

Session 12: Wetlands
May 7th 2:20-2:40pm

12.5 Little Streams, Big Habitat Value

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Abstract: From 2023 to 2026, the Milk River Watershed Council Canada (MRWCC) and Cows and Fish teamed up on a project called "Little Fish, Big Stewardship" which is partially funded by the Fisheries and Oceans Canada's (DFO) Canada Nature Fund for Aquatic Species at Risk. The project focused on bringing together a diverse range of stakeholders across the watershed to improve riparian and instream habitat for three at-risk fish in the Milk River watershed: Rocky Mountain sculpin, western silvery minnow, and stonecat. Our project has been a testament to resiliency through diversity on two levels: Fish sampling efforts have confirmed the presence of the federally threatened Rocky Mountain Sculpin in tributary streams to the Milk River, which are not recognized as Critical Habitat in the species' recovery strategies. This species' presence in diverse habitats – other than the mainstem Milk River – is of significant value to the population's resiliency in a system where water security is uncertain. Second, in the prairies, diverse and healthy riparian plant communities play a crucial role in maintaining resilient prairie ecosystems. Equally, we need diverse stakeholders to manage riparian areas at a watershed scale. Riparian health inventories were completed for over 26 sites to guide implementation, water quality and fisheries surveys were conducted, and working with local landowners custom Beneficial Management Practices (BMPs) were voluntarily implemented that mutually improved species at risk habitat, livestock, and water management. By working with each landowner to understand their operation's unique needs, we found economically and ecologically sustainable solutions. Our presentation will highlight how diversity, from habitat availability to approaches in management practices, can lead to resiliency in an altered prairie watershed.