14th Prairie Conservation and Endangered Species Conference

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Poster Abstracts

1. Stewards of Saskatchewan: Collaborative Approach to Habitat Conservation and Population Monitoring of Species at Risk

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Abstract: Nature Saskatchewan's Stewards of Saskatchewan (SOS) programs have been engaging and partnering with land stewards in voluntary stewardship since 1987, benefiting species at risk (SAR) and other flora and fauna that share those habitats across southern and central Saskatchewan. Through voluntary stewardship agreements, participants agree not to knowingly destroy or cultivate SAR habitat, including tame or native prairie, shelterbelts, and shorelines. Participants also agree to annually report the number of SAR on their land and any land use changes. The occurrence information, along with rare plant search and monitoring data collected by staff, is shared with the Saskatchewan Conservation Data Centre and federal recovery teams to support SAR statuses/listings, recovery strategies, and action plans. The SOS programs work with just over 1,200 program participants, conserving approximately 1,073,000 acres of habitat and 223 miles of shoreline for many SAR. The SOS programs support participants in completing habitat enhancement projects, including native seeding, wildlife-friendly fencing, and alternative water developments. Additionally, the programs provide educational resources, such as site-specific SAR beneficial management plans, to help participants make informed decisions for their operation and the SAR that call their land home.

2. Conserving water quality – benefits and co-benefits of BMPs in the context of prairie agriculture

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Abstract: Agri-environmental initiatives have diverse objectives, ranging from improving soil health, through habitat protection and improving water quality. The prairie region of Canada is notable for water quality issues in lakes, including Lake Winnipeg and many smaller eutrophic and bloom-prone lakes. It is also a region where the hydrology and agricultural practices constrain efficacy of beneficial management practices (BMPs) for reducing nutrient loading. Using results spanning insights from expert surveys to interviews, we identified areas of consensus on priority water quality interventions and identify both co-benefits and trade-offs in BMP implementation. Key insights on what is acceptable and tractable for prairie producers will be shared, along with insights for the conservation community on areas where multiple benefits can be attained from interventions. Options to attain maximum benefit from BMPs, by identifying those with gains across multiple objectives spanning GHGs to habitat and water quality, will aid in achieving goals in an environment with high pressure to maximize production. Spatial targeting, including considering sensitive areas for water quality (e.g., areas with high hydrologic connectivity, or impacts on drinking water) are also strategic.

3. State of the Valley Assessment Report

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Abstract: Meewasin is a non-profit organization and regional conservation authority that manages several natural sites and an extensive network of trails throughout the city of Saskatoon and the surrounding rural area. Meewasin exists to ensure a healthy and vibrant river valley for present and future generations by promoting a balance between human use and conservation. Since 1998, Meewasin has produced the State of the Valley report on a five-year cycle. This report utilizes quantitative and qualitative data to assess progress and trends in Meewasin's efforts to promote this balance through conscientious development, integrated resource management practices, ecological monitoring, community engagement and public education. The poster will showcase results from current State of the Valley report. These include the increased use of disturbance regimes such as prescribed fire to promote grassland health, landscape changes observed, insights into species biodiversity and Meewasin's efforts to engage the community in the conservation of the Meewasin Valley to promote these outcomes.

4. Avian Responses to Non-crop vegetation in Cropland: Ecological Trap or Habitat Refugia?

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Abstract: The Canadian Prairies have struggled to balance the demands of agriculture, one of the largest economic industries, with conservation goals. Agriculture poses multiple threats to the hundreds of bird species that utilize croplands and pastures for breeding and staging on migration. Cultivation of monocultures and extensive use of large machinery in crop fields eliminates habitat diversity and physically displaces birds, including ground nesting species. Additionally, increased exposure to highly toxic insecticides can impact avian food supply and has the potential to cause adverse effects to exposed individuals. We hypothesize that remnant non-crop habitats of grasses, shrubs, and trees may offer a refugia for migratory and resident species, but they may alternatively act as an ecological trap drawing in birds to low quality or high hazard habitats. We plan to study these non-crop areas in field margins or marginal cropland conversions associations with bird biodiversity to quantify the benefits and costs for farmland bird populations. Our primary research goals are to 1) measure avian richness and diversity before and after forage conversions or in crop and existing non-crop habitats and 2) quantify individual insecticide exposure and diet composition. Through the use of Audio Recording Units (ARUs), fecal eDNA analysis, and blood plasma insecticide analysis from 9 target species (eg. Vesper sparrow, Savannah sparrow, Brown-headed cowbird, and Red-winged blackbird) across 8-12 sites in Saskatchewan, we will evaluate differences in species richness, diet and pesticide loads to vulnerable and declining populations occupying forage patches adjacent to cropland and assess the influence of patch size, configuration, and connectivity in mitigating negative effects. This study presents an exciting opportunity to explore how identification and conversion of marginal land to non crop vegetation can increase agricultural efficiency while simultaneously providing conservation benefits to farmland birds across the prairies.

5. Saskatchewan Conservation Data Centre

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Abstract: This poster aims to encourage people to submit observations of wild species to the Saskatchewan Conservation Data Centre (SKCDC), explain how, and give an overview of some of the uses for the data. The SKCDC (www.biodiversity.sk.ca) manages a provincial database with the Government of Saskatchewan for gathering, interpreting, and distributing standardized information on the ecological status of provincial wild species. Wild species observation data is compiled from a variety of sources including citizen science (e.g., iNaturalist.ca), academic research projects, museums/herbaria, and industry. We focus on mapping locations of species of conservation concern, maintaining taxa lists of organisms known to occur within Saskatchewan and assigning conservation ranks to each of these taxa. Our data is made available through the Government of Saskatchewan website, HABISask (https://gisappl.saskatchewan.ca/Html5Ext/?viewer=habisask), intended at project screening for development projects by industry/environmental consultants who have signed a data sharing agreement with the SKCDC and have a sign in account. We also provide data for COSEWIC assessments and academic research projects. The SKCDC is a member of NatureServe and its affiliate, NatureServe Canada. The NatureServe Network consists of programs, similar to the SKCDC, across Canada and the United States of America.

Learn more about the NatureServe network here: http://www.natureserve.org/.

6. Collaborative science for Tomorrow's Prairies: scenario-based carbon outcomes under grassland conversion

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Abstract: We present findings from a large collaborative research effort related to how grassland loss under conversion scenarios affects carbon sequestration and emissions in the Canadian 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 Carbon Modeling Working Group applies the DayCent (Daily Century) biogeochemical model to project soil carbon stocks and greenhouse gas emissions from 2025 to 2050 under a range of socio-economic and climate scenarios. Our modeling integrates high-resolution data on soils, climate, land management, and vegetation. Calibration and validation are performed using peer-reviewed, regionally-relevant, empirical data. We focus on dynamic land-use transitions that are most critical to carbon cycling, particularly the conversion of native and tame grasslands to cropland or settlements. Scenario development is informed by historical land-use patterns, spatial drivers, and projected socio-economic trends. The model quantifies how these transitions alter soil organic carbon stocks and greenhouse gas fluxes, highlighting the trade-offs between agricultural expansion and climate mitigation. Our results provide spatially explicit projections of carbon outcomes under alternative futures, supporting the identification of priority areas for grassland retention, restoration, and sustainable management. These scenario-based insights are designed to inform conservation policy, climate action, and sustainable agriculture across the Prairies, and are harmonized with the outputs of the project's other Working Groups.

7. Partners in Prairie Stewardship: Reducing Burdock Spread and Enhancing Wildlife Habitat on the Missouri Coteau

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Abstract: Supporting ranchers by sustaining healthy, productive rangelands remains central to the success of Habitat Management Agreements with the SSGF. The ongoing Habitat Agreement with the Monet Community Pasture to control the spread and impact of Common Burdock is demonstrating early positive impacts on overall range health. Five years into a 15-year Habitat Management Agreement, the pasture is implementing an effective long-term strategy to manage Common Burdock across its 46,000 acres. Pasture riders have been trained to identify invasive weeds and to continuously update mapping of burdock occurrences, allowing for timely and targeted control efforts by herbicide applicators. The pasture is located on the Missouri Coteau, near Elrose, SK and as a result of the partnership, the spread of burdock within the pasture has been significantly reduced, supporting healthier native grasses and improved habitat conditions for elk, deer, and species at risk such as Ferruginous Hawks and Burrowing Owls. Long-term support for community pastures such as Monet is essential to maintaining the ecological and economic viability of these working landscapes. These pastures are responsible for stewarding some of the last remaining blocks of intact native grasslands, an ecosystem that requires consistent management, reliable resources, and stable partnerships to remain resilient in the face of invasive species, climate variability, and land-use changes. Continued collaboration through these types of agreements ensures that producers have the tools and capacity needed to implement sustainable practices and maintain the environmental services these landscapes provide.

8. Genetic analysis and species determination of Tiger Salamanders in Manitoba, Canada.

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Abstract: The Tiger Salamander complex in Manitoba presents a long-standing taxonomic challenge due to similar morphology, overlapping species ranges, and the potential for hybridization. Geographic limits and percentage populations of the Eastern Tiger Salamander (*Ambystoma tigrinum*) and Western Tiger Salamander (*Ambystoma mavortium*) remain unclear within Manitoba. Considering the Eastern Tiger Salamander is listed as Endangered and the Western Tiger Salamander is listed as Special Concern under the Species at Risk Act, clarifying their distributions is particularly important for effective conservation planning. As morphological traits cannot reliably distinguish species or detect hybrid ancestry, a genetic analysis was conducted to resolve species identity and clarify species range/extent. After comparing salamander genetic samples collected over 7 years, in southern Manitoba to a pre-existing amphibian DNA library comprised of 41 Ambystoma species (AmbyPhy, Shaffer, et al. unpublished), all samples from Manitoba were discovered to be A. tigrinum apart from the three most western samples being *A. mavortium*. A. tigrinum formed two distinct groups: an eastern, genetically isolated population and a distinct western population. The western population contained low levels of admixture with *A. mavortium*, *A. tigrinum* from the U.S., and the eastern population. Due to the admixture and geographic proximity of the western group to these other populations, a current or historic contact zone between *A. tigrinum* and *A. mavortium* is suggested. This collaboration between UCLA, CWS, and MBCDC provides genomic evidence that improves the accuracy of population size, structure and extent of area occupied, and therefore informs surveys, monitoring and recovery strategies for *A. tigrinum* and *A. mavortium*.

7. Long-term Monitoring of Black-tailed Prairie Dogs in Grasslands National Park

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Abstract: Black-tailed prairie dogs (*Cynomys ludovicianus*; hereafter BTPD) inhabit short- and mixed-grass prairie throughout North America. In Canada, they occur exclusively in southwest Saskatchewan, within the West Block of Grasslands National Park and the surrounding area. The population is confined to 20 known colonies distributed throughout a small area (<12 km²) and is geographically isolated from the nearest population. This isolation, combined with a small population size, limits the species' ability to recover from significant and/or consecutive population crashes caused by increasing threats posed by drought and sylvatic plague. Consequently, the BTPD has been listed as Threatened under Canada's federal Species at Risk Act since 2018. The Recovery Strategy and Action Plan for Black-tailed Prairie Dog in Canada, published in 2021, aims to achieve 80% probability of persistence over 50 years by 2040. To accomplish this, the Plan outlines population and distribution objectives, including: i) a minimum total area of occupancy of 1,400 ha, and ii) a minimum average population density of 7.5 individuals/ha across visual count plots. Grasslands National Park monitors progress towards these objectives using visual counts and colony mapping. Visual counts provide repeatable measures of both population density (individuals/ha) and reproductive success (young-to-adult ratio), while colony mapping estimates the area occupied by BTPDs. In 2025, visual counts returned a population density of 14.56 animals/ha and colony mapping captured a total area of 1084 ha occupied by BTPDs within Grasslands National Park. This shows progress on the population density objective laid out by the Recovery Strategy and Action Plan, with progress to still be made on the total area occupancy objective. Given the year-to-year variability in BTPD populations, long-term monitoring is essential to assess population status and trend to guide management strategies.

10. Effects of Grazing on Plant–Soil Feedbacks of Native and Invasive Prairie Species

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Abstract: Plant invasion is a major threat to the long-term integrity of Canadian prairie ecosystems, contributing to native biodiversity loss and reduced grassland resilience. Plant–soil feedbacks (PSFs) play a key role in invasion dynamics, either facilitating spread through mechanisms such as enemy release or limiting establishment via biotic resistance. Grazing is another dominant ecological driver in prairie systems, yet its interaction with PSFs and invasive plants remains poorly understood. Here, we tested whether different grazing regimes alter biotic PSFs and soil microbial communities in ways that could facilitate or suppress plant invasion. We conducted a field experiment across different grazing treatments and collected soils for bacterial, fungal, and oomycete sequencing and for use in a greenhouse experiment. Field-conditioned soils were used as inoculum to quantify plant growth responses of the invasive *Bromus inermis* (smooth brome) and the native species *Elymus lanceolatus* (northern wheatgrass), *Bouteloua gracilis* (blue grama), and *Achillea millefolium* (common yarrow). We then tested how grazing treatments affected PSFs of each species and the soil microbiome. Grazing had no detectable effect on smooth brome plant–soil feedbacks and produced inconsistent effects on bacterial richness. In contrast, common yarrow exhibited positive feedbacks in grazing exclosures, and high-density grazing exerted negative effects on its PSFs. These findings indicate that grazing does not promote biotic soil changes that facilitate invasion by smooth brome, but it may negatively affect subordinate native species. From a conservation perspective, this suggests that grazing remains a practical and effective management tool for prairie ecosystems without enhancing invasive plant success through belowground biological mechanisms, although species-specific trade-offs should be considered.

11. The Prairie Landscape Inventory: A Wall-to-Wall Native Prairie Model for Saskatchewan

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Abstract: Accurate mapping of the current extent of native grassland is needed to develop public policy and tools to conserve remaining native grasslands and direct restoration efforts. The Prairie Landscape Inventory (PLI) is a wall-to-wall landcover map for Saskatchewan's prairies that separates native and tame grassland. The landcover classification maps were developed in different phases from 2019 to 2023 using machine learning algorithms and Google Earth Engine. Freely available 10-m resolution Sentinel satellite imagery was used as well as nearly 9,000 field samples from across all ecoregions. Field samples were collected through collaboration across the provincial government, and with partner organizations and volunteers, primarily using Survey 123 for roadside surveys. The PLI landcover map indicates that about 16% of the Prairie Ecozone is native grassland, compared to 55% cropland and 13% altered or tame grassland. The Mixed Grass Ecoregion and the Cypress Upland Ecoregion are the ecoregions with the highest percentage of native grassland (approx. 35% each). The Moist Mixed Grass and Aspen Parkland Ecoregions have the lowest percentage of native grassland (9% and 3% respectively). The accuracy of the landcover classification models ranged from 70% for the Moist Mixed Grassland to 92% for the Cypress Upland. The Government of Saskatchewan has published the landcover maps to view on HABISask and to download on GeoHUB. These maps and data support land-use planning, conservation initiatives, and ecological research by providing high-resolution, up-to-date spatial data on prairie ecosystems.

12. MULTISAR: Partnering for Species at Risk Habitat Conservation - A Review of Habitat Enhancement Outcomes

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Abstract: The MULTISAR (Multiple Species at Risk) program is a collaborative, voluntary initiative designed to maintain, enhance, and restore habitat for multiple species at risk within priority areas of Alberta's Grassland Natural Region. Using a landscape-scale stewardship approach, the program integrates wildlife, rangeland, and riparian management principles while drawing on the expertise of wildlife biologists, range agrologists, riparian specialists, land managers, and landowners. A cornerstone of MULTISAR's success is its strong partnerships. Through cooperative relationships, the program supports a wide range of stewardship activities guided by one of its key tools—the Habitat Conservation Strategy (HCS). The HCS helps identify actions that improve ecological integrity for multiple wildlife species while also supporting the long-term sustainability of ranching operations. For more than 20 years, MULTISAR has collaborated with the ranching community to develop HCSs and implement more than 600 habitat enhancements. Here we highlight accomplishments from various enhancement types and share key lessons learned since the program's inception. MULTISAR's partnership includes Alberta Conservation Association, Alberta Environment and Protected Areas, Alberta Forestry and Parks, Prairie Conservation Forum, and Cows and Fish. Advisory members include the Canadian Cattle Association, Alberta Beef Producers, and the Canadian Roundtable for Sustainable Beef, with long-term funding support from Environment and Climate Change Canada.

13. Avian Soundscape Reponses to Inhalation Exposure from Pesticide Spray Applications

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Abstract: Agricultural intensification in the Canadian Prairies has increased reliance on pesticides, contributing to steep declines in farmland bird populations. Spray events release chemicals into the atmosphere through drift, volatilization, and wind erosion, creating ambient background pollution that may pose inhalation risks to birds with highly efficient but vulnerable respiratory systems. While recent studies have examined pesticide impacts on bird behavior, these have typically focused on single crop types or individual pesticides, leaving broader seasonal exposure patterns unaddressed. This study investigates the effects of pesticide spray events on avian acoustic activity across prairie cropland soundscapes using autonomous passive acoustic monitoring. Recordings were collected from Alberta and Saskatchewan during the breeding season (May–July), spanning multiple crop types and pesticide classes. Acoustic data were gathered two hours after dawn and before dusk, and correlated with unique spray events three days before and three days after application. Sonograms were annotated to species level using HawkEars and BirdNET, enabling both community-level and species- specific analyses. Our objectives are to quantify immediate and short-term reductions in vocal activity following spray events, assess recovery trajectories, and compare responses across pesticide classes and single versus multiple-chemical applications. We also aim to evaluate species-specific resilience by examining differences in vocal responses and recovery among farmland bird species. We hypothesize that pesticide spray applications during the breeding season will cause acute reductions in vocal activity, reflecting both physiological stress and behavioral disruption, with recovery times varying by pesticide type and species. By examining multiple pesticides across an entire growing season, this study provides a more comprehensive assessment of inhalation exposure risks than previous single-crop or single-chemical studies. Findings will advance understanding of sublethal pesticide effects on bird communication and contribute to conservation strategies for declining farmland bird populations in prairie agroecosystems.

14. Rare Plants and Ranchers

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Abstract: The Rare Plants and Ranchers project works with landowners to develop site specific beneficial management plans for plant species at risk (SAR) in Saskatchewan, using an ecosystem based, multi-species approach. Our methods consist of three parts 1. interviewing the landowner to gather information on present and historical factors such as grazing regimes 2. conducting site assessments to gather the current conditions of the land through vegetation transects, range and riparian health assessments, invasive species assessments, visits to known SAR populations and recording any other relevant information and finally, 3. the collected information is used to produce a site-specific management plan for the landowner, to benefit the SAR species. NPSS helps the landowner implement these recommendations with ongoing logistical support and through cost sharing. Since the program began in 2012 there are now 26 landowners participating, covering over 137,162 acres across southern Saskatchewan. There are eleven plant species at risk that we are interested in and each of these properties has at least one present on their land. Through our match funding, landowners have been able to tackle threats to these species at risk in ways such as targeting invasive species, reducing cattle activity (pugging and trailing) at riparian areas and tackling shrub encroachment into native prairie.

15. The Saskatchewan Botanical Assessment Working Group (BAWG)

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Abstract: A botanical working group was initiated in 2012 by the Saskatchewan Conservation Data Centre (SKCDC) to establish a provincial body of botanical experts to advise on species rankings. The purpose of this working group was to reassess current information on the distribution, ecology, and conservation status of Saskatchewan's rare and endangered plant species. BAWG assessed dozens of species over a five year period. With no further species to be assessed, the focus of the group shifted to the creation and implementation of the Vern Harms Important Plant Areas of Saskatchewan program. The intent of the IPA program is to identify exceptional places of native plant life in Saskatchewan in the hope that the designation will provide landowners, regulators and decision makers with information and an opportunity to direct development away from these significant sites. The IPA program is named after Dr. Vern Harms, former university professor, curator of the Fraser Herbarium, one of the province's preeminent botanists and a founding member of BAWG. 12 Important Plant Areas have been designated to date, with several more in the assessment phase. Anticipating that the group will soon have adjudicated the majority of IPAs in Saskatchewan, it has now decided to prioritize habitat ranking for Saskatchewan, similar to what has been done in Alberta and Manitoba. Anyone is open to nominate sites to be considered as Important Plant Areas, which will then be adjudicated by BAWG.

16. Capturing Saskatchewan's rare plant history in the W.P. Fraser Herbarium's (SASK) rare plant database

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Abstract: Over the past several decades the W.P. Fraser Herbarium (SASK) has built and maintained a rare plant database of historic occurrences for the S1 through S3 ranked species of the province. Its early beginnings were challenging as they involved amalgamating label information for the collection, as well as, sharing specimen records with the Swift Current Research Centre (SCS), Regina Ledingham Herbarium (USAS), Department of Agriculture Herbarium in Ottawa (DAO), Canadian Museum of Nature in Ottawa (CAN). These four herbaria, along with SASK, cover the majority of collections for the province. The early beginnings of the database are still housed at SASK in 49, alphabetically arranged, label binders. This collection helped form the basis of the database in the 1980's. The present iteration is a digital database that holds all the historical information along with current additions for the province. This wealth of info that spans over 100 years is now used to provide historical context to current day plant surveys. The SASK herbarium can provide a point specific search of the rare plant database where we perform a search in an area 25 km in each cardinal direction from the user provided point. This provides a list of rare species occurrences within this 625 km² search area including species, date of occurrence, habitat description and associated species, accession or reference number, and the S rank of the species. This service is available to any agency wishing to get a better picture of the rare species in their area of interest.

17. Disturbance-Based Management in Action: Impacts on Two Prairie Plant Species at Risk

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Abstract: In Manitoba's Tall Grass Prairie Preserve, disturbance-based management is critically important to maintain habitat for disturbance-adapted species. The Nature Conservancy of Canada uses several methods including prescribed fire, grazing, haying, and woody encroachment control to maintain and restore habitat for species at risk. However, the presence of multiple at-risk species and limited information on associated beneficial management practices can make it difficult to determine and implement the most effective management regime for a given site. In this presentation, we will share the results of two studies examining the effects of land management practices on vascular plant species at risk. The first is a five-year study monitoring Riddell's Goldenrod (*Solidago riddellii*), a species relatively abundant throughout the Tall Grass Prairie Preserve and found under a range of management types. Our study found that haying was associated with the largest number of individuals at a site compared to grazing and idle management. Prescribed fire was associated with a temporary decline in subpopulation size, which recovered over time following burning. The second study monitored two neighbouring subpopulations of Small White Lady's Slipper (*Cypripedium candidum*) over 7 years as grazing management was introduced to one subpopulation after more than a decade of idle management. In the study area, grazing did not have a significant effect on subpopulation size or reproductive success of the orchid, while annual variation in temperature and precipitation were the strongest predictors of subpopulation performance. These findings indicate that the current grazing regime is not negatively affecting this subpopulation. Together, these studies provide valuable evidence to guide adaptive land management within the Preserve, helping ensure that disturbance-based practices have positive impacts on prairie species at risk.

18. Native Plants for Montana's Home Gardens

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Abstract: In the face of increasing pressure on native plant and pollinator populations due to habitat loss, climate change and invasive species encroachment, creative approaches to habitat expansion and preservation can provide new strategies for enhancing plant and animal resources. There is no single action that will solve these large issues, but expanding educational efforts to overlooked populations can encourage smaller actions that can produce positive responses. Gardeners remain a largely untapped resource for addressing climate change, reductions in pollinator populations and loss of habitat. They are a plant-aware population with a vested interest in the preservation of pollinators. Native plants are beautiful and no less appealing to gardeners than exotic imported plants. Because they coevolved with the insects present in prairie ecosystems, they can provide optimal floral resources for native pollinators. They can be utilized in a variety of planting designs such as borders, mass plantings, challenging areas and in a wide range of environmental conditions. Native plants are adapted to the climatic conditions of their locations, which often results in lower supplemental irrigation needs once established, as compared with non-native plants. Aesthetics, pollinator resources and drought tolerance are some of the most desired plant qualities for home gardeners with an interest in conservation. Based on these characteristics, recommendations for native plants suitable for home gardens are an important educational addition. Gardeners planting native plants in their home gardens are an untapped resource that could assist in species preservation, habitat restoration and pollinator support. We have begun outreach efforts focused on native plant education which include a publication about recommended native plant species for Montana home gardens. We hope to track knowledge gained and small-scale impacts as a result of native plantings in home gardens throughout Montana over the coming years.

19. Bats, Insects and Solar Energy

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Abstract: Solar energy is rapidly expanding and there is limited knowledge regarding the ecological impacts of solar facilities, pertaining to taxa such as bats and their insect prey. Our research is focused on the 100 MW Turning Sun Solar project being constructed, in collaboration with Greenwood Sustainable Infrastructure and Ocean Man First Nation, in Estevan SK. The 2025 season was focused on pre-construction data collection, bat activity and species presence are collected using acoustic recording units and mist netting. Insect abundance is collected using UV light bucket traps. The 2026 season will focus on data collection during construction. Our hypotheses are as follows: 1.1 The construction of the solar facility will affect bat activity at the solar site. 1.2 Habitat foraging specialization will determine which species are most affected. 2. Insect abundance will change once construction begins. Preliminary results suggest that bats are not primarily using this land for foraging, and thus are thought to be commuting over the area instead.

20. Rewilding the City: Using Fire and Grazing to Recover Species-at-Risk Habitat in Developed Landscapes

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Abstract: Managing prairies in urban and semi-urban landscapes presents unique challenges, including public-safety constraints, fragmented habitats, recreational pressures, invasive species, and limited opportunities to apply natural disturbance. Despite these barriers, Meewasin has demonstrated that prescribed fire and targeted grazing can be adapted successfully to restore ecological processes and support species at risk within an urban setting. This presentation examines the practical realities of implementing fire and grazing programs in and around Saskatoon, including smoke management, public communication, operational safety, wildlife-sensitive timing, and coordination among partners. Examples from the Saskatoon region illustrate how Meewasin integrates disturbance to reduce woody growth, increase structural diversity, and improve habitat quality for grassland-dependent wildlife.

21. Plant-plant Facilitation Networks in Rare Nitsitaapi Plants of Alberta

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Abstract: Conservation needs a greater focus on how rare species interact within their neighborhoods. Rare plants have been found to exist in communities that are positively associated (have plants that facilitate or help one another). Rare plants often rely on facilitation for their persistence; however, the mechanisms of facilitation are understudied. One example of facilitation occurs through shared pollinators. Common plants may attract numerous pollinators to a community, and as a result, the rare plants who rely on those pollinators for their reproduction will benefit indirectly from those common plants. Although studies have examined how pollinators can facilitate indirect relationships with other plants, few works have addressed how rare plants may benefit from pollination facilitation that does not involve co-flowering, such as sequential mutualism. This work aims to address these gaps by examining the pollinator-mediated plant interactions of two rare species in southern Alberta: *Asclepias viridiflora* (Green Comet Milkweed), and *Geranium viscosissimum* (Sticky Purple Geranium). These species are medicinally and culturally significant to people's of the Niitsitapi (Blackfoot) Confederacy. Asclepias viridiflora is known as Onnikiisaikimsskaan in Blackfoot. The study involves collaboration with elder William Singer III (Api'soomaahka) of the Kainai First Nation and uses data from community science platforms such as iNaturalist to address the research questions.

22. Grassland Diversity Buffers Productivity Losses in Dry Years: Evidence from MODIS NDVI.

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Abstract: Ecological theory predicts that greater plant species diversity enhances the resilience and resistance of ecosystems by stabilizing primary productivity through functional complementarity and niche partitioning. Diverse communities with a broader array of life forms and ecological strategies can use light, nutrients, and moisture more efficiently across space and time. We tested this prediction in native grasslands in the Saskatchewan portion of the Northern Great Plains. Thirty-one independent sites were selected across mixed-grass prairie (Loam ecosites). At each site, we quantified both interannual variation in primary productivity and multiple components of plant diversity (species richness, evenness, and diversity indices). Productivity stability was assessed using interannual variability (standard deviation and coefficient of variation) of the Normalized Difference Vegetation Index (NDVI) derived from MODIS imagery (MOD13Q, 250 m, 16-days resolution). For each site, we integrated NDVI values over the growing season for the years 2020-2025. Integrated NDVI offer a robust, useful proxy for seasonal primary productivity. Plant diversity was measured in the field within 200-m-radius plots (~31 acres) by estimating percent cover of all vascular plant species. As expected, precipitation was the dominant driver of NDVI and productivity across years; however, sites with higher plant diversity exhibited smaller declines in NDVI during dry years. We found a significant negative correlation between grassland diversity and interannual NDVI variability, indicating that more diverse communities maintain more stable productivity and show greater resilience and resistance to climatic fluctuations. These findings have important management implications: maintaining or enhancing diversity in native grasslands may help buffer grasslands against increasing drought frequency and support more stable year-to-year productivity.

23. Assessing and Increasing Awareness of Canada's Grasslands

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Abstract: Native grasslands are among Canada's most endangered ecosystems, yet those working in grassland conservation have long suspected that public understanding of these landscapes, their biodiversity, and threats they face, remains limited. To better understand national awareness levels, Canadian Wildlife Federation, funded in part by Environment and Climate Change Canada and Weston Family Foundation, commissioned a public opinion survey conducted by Abacus Data in spring 2023. This initiative assessed Canadians' familiarity with native grasslands, evaluated their conservation motivations, and identified which policy or management actions they prioritize. Results from 2500 respondents reveal an important awareness gap. Although 80% of Canadians express strong support for environmental conservation broadly, few assign urgency to grassland protection specifically. Only 25% of Canadians report knowing what "grassland" means, and even fewer can distinguish "native" or "natural" grasslands, ecosystems essential to Species at Risk recovery, sustainable grazing systems, and climate resilience. Just 20% of Canadians recognize that grasslands are critically endangered, despite their high biodiversity value and susceptibility to human land use pressures. Despite these gaps, the findings provide clear opportunities. When presented with information about grasslands, Canadians demonstrate openness to conservation engagement and believe both policymakers and the public should prioritize grassland protection. These results highlight the need for strengthened public outreach and policy frameworks that elevate grasslands within national conservation dialogues. Informed by the survey results, the Canadian Wildlife Federation, in collaboration with a coalition of over 30 organizations working in grassland conservation, launched a national awareness campaign to increase grasslands knowledge in Canada. We will measure and report engagement metrics from the campaign, running from January to March 2026. By increasing public perception of grasslands, this project supports the development of more effective Species at Risk policies, strengthens public facing conservation initiatives, and underscores the urgency of improving awareness of Canada's disappearing native grasslands.

24. From Mushrooms to Moose and Everything in Between: A Citizen Biodiversity Project

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Abstract: Habitat loss and contamination throughout southern and central Saskatchewan have been increasing for decades due to modern agricultural practices resulting in population and biodiversity declines of native flora and fauna. Additionally, all indications of climate change are likely to adversely impact and alter the biodiversity of the province. It is therefore important to document the biodiversity and species distributions in the province to establish baselines that can be used for future comparisons. To this end, we have been conducting a multi-year biodiversity survey of 480 acres of an aspen forest/wetland landscape area in the southern fringe of the boreal forest in Saskatchewan. To date we have recorded nearly 950 species including a number considered at risk.

25. Cultural Models and Wetland / Grassland Conservation in Prairie Agriculture

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Abstract: The Canadian Prairies are among North America's most agriculturally significant regions, but this productivity has come at the cost of profound landscape transformation. Over 80% of native prairie habitat including wetlands and grasslands has been converted, despite the ecological and cultural benefits these ecosystems provide. Land-use change continues today, even amid growing policy attention and recognition of environmental and cultural costs. Understanding how crop producers and ranchers perceive and value these elements is critical for effective conservation. This research interprets wetland drainage and grassland conversion as expressions of cultural models in conflict, situating land-use decisions within the human dimensions of environmental change. Ecological degradation is not merely technical failure but emerges from clashing systems of meaning. Farmers act within social and institutional matrices' markets, regulations, and community norms' that reinforce particular understandings of land, while policymakers operate within bureaucratic and scientific frameworks. Research objectives include: (1) capturing the range of narratives about wetlands and grasslands; and (2) identifying cultural models by uncovering shared components individuals associate with these ecosystems and evaluating how they align or conflict with policy values. Using a mixed-methods approach, the study begins with content and discourse analysis of public sources to map prairie narratives. These findings inform Q-methodology and semi-structured interviews, through which participants articulate cultural models of wetlands and grasslands in the Prairie agricultural context. By analyzing perspectives of farmers, policymakers, and other stakeholders, this research identifies opportunities for conservation and areas of potential conflict, advancing strategies for conflict transformation and more inclusive policy design.

26. The Prairie Precision Sustainability Network: Perennializing marginal lands to boost carbon, biodiversity and the bottom line

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Abstract: Marginal croplands are areas within fields that are consistently low yielding and unprofitable. These are often in sensitive areas near wetlands or edges that are subject to salinity, flood risk, or soil erosion and would be better suited to perennial plantings. Our team is working with farmers across the Prairies to map and model the marginal cropland and convert these areas with tame and native forage mixes to study the changes in agronomic, economic and environmental indicators over time. We have collected baseline data in 2025 and in 2026 the first cohort of 45 fields across the prairies are being planted with forage mixes of 3-6 species. We anticipate that there will be benefits to the farmer and the environment that are at low to no cost to the farmer's bottom line through reductions in input costs targeting areas that are already unprofitable.

27. Opening, Expanding, and Following the Muskrat Trails: Connecting Community and Research Knowledge for Delta Biodiversity

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Abstract: The Saskatchewan River Delta (SRD), one of North America's largest inland deltas, is a vital biodiversity region in Saskatchewan. Community members in the SRD have emphasized the urgency of revitalizing and conserving this habitat, particularly for muskrats and migratory birds. This study describes the development and application of The Muskrat Trails, a digital platform that mobilizes research and community knowledge through narrative. We conceptualize the platform as a boundary object, guided by local teachings that describe muskrats as "gardeners of the Delta". The platform stores and shares accumulated knowledge about SRD ecology in multiple digital formats (e.g., photos, videos, documents). The Muskrat Trails platform was developed through an iterative, collaborative design process with local community members, who are co-authors of this abstract. Early feedback suggests the platform supports meaningful engagement with biodiversity stewardship from Indigenous perspectives by making diverse local ecosystem knowledge accessible and creating space for ideation about habitat revitalization and conservation. We invite you to this interactive presentation: by following the Muskrat Trails, you are welcome to join a community dedicated to caring for the Delta. Let's work together to open, expand, and follow these trails of knowledge: The Muskrat Trails.

28. 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.

29. Silent Killer of the Chorus: Searching for Chytrid Pathogens Across Manitoba

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Abstract: Chytridiomycosis, caused by the fungal pathogens *Batrachochytrium dendrobatidis* (Bd) and *Batrachochytrium salamandrivorans* (Bsal), is a leading driver of global amphibian declines. These pathogens interact with climate change, habitat loss, pollution, and land-use intensification to increase host stress and disease susceptibility. While Bd presence is widespread and abundant across much of North America, Manitoba remains a major surveillance gap. Bsal, though not yet detected in North America, has caused catastrophic salamander declines in Europe and poses a significant invasion risk given suitable climate and ongoing wildlife trade. Our project represents the first coordinated effort to assess chytrid pathogen risk in Manitoba by integrating field-based biosurveillance with species distribution modelling (SDM). Amphibians will be sampled using non-invasive skin swabs through the Student Network for Amphibian Pathogen Surveillance (SNAPS) in collaboration with the Canadian Wildlife Health Cooperative, following standardized protocols. To guide surveillance and evaluate environmental suitability, Our SDMs will be built using North American Bd occurrence records and bioclimatic predictors. These models will generate spatially explicit risk maps identifying habitats in Manitoba most likely to support chytrid persistence, helping us to prioritize sampling locations and assess the likelihood of pathogen establishment even in the absence of detections. Field data on amphibian health, vegetation structure, microclimate, hydroperiod, anthropogenic disturbance, and water quality will be collected to link fine-scale habitat conditions with modeled suitability. Together, these approaches will provide a baseline assessment of chytrid risk in Manitoba, supporting early detection, targeted management, and wetland conservation planning to protect amphibian populations and the ecosystems they support.

30. Impact of Grazing on Grassland Herpetofauna in Mixed-Grass Prairie Habitats

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Abstract: Despite covering approximately one third of the Earth's surface, grasslands are among the most threatened and least protected habitats, with 45.8 % of global temperate grasslands converted for human-dominated uses, such as agriculture. Prescribed livestock grazing is one management strategy to restore degraded grassland ecosystems; however, little is known about the effect that grazing may have on grassland reptile and amphibian species (ie. herpetofauna). World-wide, herpetofauna species are in decline, and may be particularly susceptible to impacts from grazing due to their low mobility, and dependence on specific vegetative cover for food, protection, and thermoregulation. The goal of this project is to understand how grazing in mixed-grass prairies affects herpetofauna species at risk. We will survey mixed-grass prairies in south-western Manitoba, in both habitats that are undisturbed, and subject to various grazing regimes. We will use coverboard arrays to locate herpetofauna, while also characterizing plant diversity through quadrat surveys. Using this data, we determined: 1) how grazing affects biotic (plant and herpetofauna species) and abiotic (thermal and moisture) environments, and 2) how biotic and abiotic environments change on a gradient from forest edge to the centre of a mixed-grass prairie. Understanding the potential impacts of grazing can improve management decisions regarding the conservation of grassland ecosystems. This research will fill an important knowledge gap for Nature Conservancy Canada to assist them in management of mixed-grass prairie habitat throughout Western Canada.

31. Multi-Use, Publicly-Owned Grasslands: A Collaborative Vision for Saskatchewan's Threatened Prairie Ecosystems

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Abstract: Grasslands are the most threatened ecosystems on the planet, with only 13% left in Saskatchewan. Publicly owned lands contain a significant portion of these remaining native and tame grasslands. Privatization poses significant threats to biodiversity, habitat quality for species at risk, Indigenous access, stakeholder engagement, and producer grazing opportunities. Following the 2012 closure of the federal Prairie Farm Rehabilitation Administration (PFRA) program, community pastures were transferred to the Saskatchewan government. Initial privatization plans met strong opposition, leading to leasing arrangements with former pasture patrons rather than outright sales. Similarly, Saskatchewan Pastures Program lands (closure announced in 2017) are now being leased. A recent attempted auction of provincial lands containing native grassland was halted due to the need for consultation with Indigenous communities and concerns of environmentalists. However, future sales remain possible under the Saskatchewan's government's choices when applying its Crown Land Ecological Assessment Tool (CLEAT), leaving publicly-owned grasslands vulnerable. Public Pastures – Public Interest (PPPI) was formed in 2012 to address these challenges. The group unites urban and rural citizens concerned about grassland conservation and campaigns for multi-use, publicly-owned grassland spaces in Saskatchewan while promoting good stewardship of privately-owned lands. The organization raises public awareness about Saskatchewan's grasslands, builds relationships with diverse stakeholder groups, and advocates for improved government policies at municipal, provincial, and federal levels. This poster will examine the ongoing threats to Saskatchewan's public grasslands and highlight the role of citizen-led advocacy in protecting these critical ecosystems for future generations.

32. Optimizing Biochar Applications for Soil Health and Carbon Sequestration in Manitoba: Comparing Annual and Perennial Cropping System Field Study

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Abstract: Biochar, a stable, carbon-rich material produced through pyrolysis of organic material in limited oxygen, has emerged as a promising amendment for improving soil health while supporting net-zero emissions in agriculture. Biochar can sequester carbon for centuries, while also converting organic waste into a valuable soil amendment. It can improve soil physical and chemical properties including porosity, nutrient retention, and soil organic carbon, contributing to improved water and air quality, and reduced soil degradation. Despite positive results from laboratory and greenhouse studies, field-based research remains limited, especially in the Canadian prairies. A two-year field study has been conducted in Brandon, Manitoba by the Russ Edwards School of Agriculture and Environment at Assiniboine College, in collaboration with Manitoba Beef and Forage Initiatives (MBFI) to evaluate the agronomic and environmental impacts of biochar under prairie conditions. The study examines different biochar product types, application rates and incorporation methods for improving soil health, while minimizing agronomic losses and maximizing benefits. Field trials were established in both annual and perennial cropping systems. In addition, carbon dioxide (CO_2) emissions were measured every 15 days to assess the broader environmental impact of biochar application. These studies are crucial for understanding how biochar can enhance soil fertility, reduce greenhouse gas emissions, and return carbon waste to the soil ecosystem, ultimately benefiting sustainable agricultural practices in the region. This poster will present the results of a comparative study on annual and perennial systems at MBFI, providing region-specific insights into the potential of biochar.

33. Opting for Representativity over Rarity

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Abstract: The Migratory Birds Convention Act, the National Parks Act, the Canada Wildlife Act and the Fisheries Act were intended to conserve voluminous sweeps of biota and their habitat. The Species At Risk Act (SARA) deviated from this historical federal approach by splitting out an elite class of rare species deemed more worthy of protection than the common species that dominate photosynthesis, nitrogen fixation, pedogenesis, herbivory and other ecological processes in wildlands. It took a myriad of administrative and legal steps to create the SARA species hierarchy. Much effort and expertise both inside and outside government was usurped to complete COSEWIC Species Assessments, Response Statements, Consultation Documents, Ministerial Listing Recommendations, Governor in Council Listing Decisions, Recovery Strategies, Action Plans, SARA Permits, Critical Habitat Descriptions and other SARA documents. Future workloads balloon every time a new species is assessed. SARA has diverted resources towards process and away from action to protect extant prairie biodiversity. Dissecting the whole of nature to separate out a small subset of species for unique treatment prescriptions is incompatible with historical wisdom about ecological interconnectedness. Prior to the ascendency of SARA, many ecologists advocated for protecting whole ecosystems rather than single species. It is imperative that more of Canada's representative landscapes be set aside from development in various forms of protected areas. Protecting and rewilding a large sample of the remaining prairie ecosystem diversity will yield the best probability of perpetuating wild species. Rather than prioritizing SARA process tasks, funding the Canadian commitment to conserve 30% of terrestrial lands by 2030 should be paramount. Opting for representativity over rarity means that each additional piece of conserved land need not be a biodiversity hotspot. It is imprudent to be overly selective about which lands to protect when agriculture, petroleum development, urban sprawl, transportation infrastructure, mining and pollution relentlessly advance.

34. Extent of Woody Plant Cover and Effects of Woody Cover on Forage Production and Quality in the Aspen Parkland Region, Saskatchewan

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Abstract: Woody encroachment is a significant range management issue in western Canada. Here we examine the impact of woody encroachment on forage quality and quantity in the Aspen Parkland ecoregion of Saskatchewan, Canada by estimating the rate of scale of woody plant encroachment over the last 40 years in a representative Aspen Parkland pasture, and by quantifying the effects of increasing woody cover on forage production and quality. Forage production declined with increasing tree cover, with a 10% increase in tree cover resulting in a loss of approximately 80 kg of grass production and 58 kg of forb production per hectare. Shrub cover did not impact forage production, but forage quality declined with increasing shrub cover. The current extent of woody plant cover on the pasture, and changes over time, were estimated using remote sensing methods. Estimates for 2024 using high-resolution (10 m) Sentinel imagery are that 16.93% (7.55 km²) of Foam Lake pasture has tree cover, and an additional 7.87% (3.51 km²) of Foam Lake pasture has shrub cover. Tree cover was estimated from historical Landsat imagery to be 27.07% in 1985, increasing to 32.34% in 2009 and followed by a drop to 18.75% in 2024. While woody cover on this pasture is currently relatively stable, further research is needed to assess longer-term historical trends in cover.

35. Livestock performance responses across grazing intensity in relation to forage productivity and utilization

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Abstract: Livestock performance is one of the determining factors of production and profitability for ranchers. Grazing management through balancing stocking densities with duration used as a tool to increase the productivity and performance of livestock by increasing forage production and utilization rate. The purpose of this study was to evaluate how stocking rate and grazing duration impacts on standing biomass production and livestock performance in fescue grassland. The experiment was established at Kernen native prairie grassland site using twelve, 2ha paddocks which were randomly allocated to 1 of 3 grazing treatments (n= 3) were: 1) short duration, low stocking rate (SDLR) 2 animals x 30 days; 2) short duration, high stocking rate (SDHR) 4 animals x 30 days; 3) continuous, low stocking rate (season long) (COLR) 2 animals x 60 days; 4) paddocks were used as ungrazed controls. Standing biomass production, percentage of daily dynamics, utilization, and animal weight gain were evaluated using linear mixed-effect models to account for year, treatment, and time effect on the response variables. According to these findings, livestock performance was significantly impacted by grazing year, treatments, and their interaction effect. Forage intake and nutritional value may have been impacted by variations in biomass availability and utilization rate across years, which could have contributed to the observed change in ADWG. In general, consistent animal weight gain over time depends on preserving sufficient biomass and preventing overuse. Therefore, it is generally advised to assess livestock performance at different measurement times in order to recommend long-term sustainable stocking density with grazing periods in relation to plant composition, forage productivity, and utilization.

36. Comparing Bioacoustic and Habitat Diversity Inside and Outside First Nations Land Reserves.

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Abstract: Global biodiversity is declining, with birds and bats experiencing severe population losses driven largely by human-induced habitat change. First Nations reserves in Saskatchewan have been identified as ecologically important refugia, yet bird and bat communities on reserves versus surrounding lands have not been systematically compared. This study uses autonomous recording units (ARUs) to conduct standardized bioacoustic monitoring of birds and bats at 143 sites across seven First Nations reserves and adjacent non reserve lands over two field seasons. Species richness, species-at-risk occurrence, soundscape indices, and functional morphology are quantified and related to fine-scale habitat composition derived from Sentinel-2 satellite imagery. By integrating acoustic data with high-resolution land-cover mapping, we aim to identify specific structural attributes that drive community assembly. Generalized linear mixed-effects models (GLMMs) and multivariate analyses evaluate whether First Nations lands support higher bird and bat diversity and whether bioacoustic diversity and habitat relationships differ across land tenure types. This project aims to provide quantitative evidence of the conservation value of First Nations reserves in Prairie Canada and demonstrate bioacoustic monitoring as a practical, non-invasive tool for landscape scale biodiversity assessments.

37. Contaminants in Saskatchewan wetlands: Assessing exposure risks to whooping cranes relative to their annual range

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Abstract: Whooping cranes (*Grus americana*; WHCR) depend on prairie wetlands in Saskatchewan (SK) as migratory stopover habitat within their 3,800 km annual range. These landscapes overlap with intensive agriculture, raising concerns about contaminant exposure and risks to the health of a federally listed endangered species in Canada and the United States. Understanding WHCR contaminant exposure in SK and elsewhere is therefore key to species recovery and prairie wetland conservation. Our objectives were to: (1) quantify contaminant concentrations in SK wetlands used by WHCR during migration and (2) compare concentrations in SK with those detected in other regions used by WHCR, including nesting sites. We collected abiotic samples from wetlands across five regions, including 18 sites in SK, with additional sites spanning the annual range from remote breeding sites in northern Canada, migratory stopover sites in the Alberta Oil Sands Region (AOSR) and Nebraska (NE), and wintering sites on the Texas Gulf Coast (TX). At each site, samples of water and sediment were collected and, at most sites, passive contaminant samplers were deployed for ≥28 days. Water was analyzed for 24 trace metals; sediment for 245 polychlorinated biphenyls (PCBs), 106 pesticides; and passive samplers for 60 naphthenic acids (NAs) and 76 polycyclic aromatic compounds (PACs). Preliminary results are consistent with predictions based on regional land use, with elevated levels of agrochemicals and select trace metals in SK and NE wetlands compared to other regions. Wetlands in regions with greater industrial footprint (TX, AOSR) were characterized by higher concentrations of contaminants associated with oil and gas development. Elevated levels of agrochemicals in SK wetlands suggest a pathway for repeated, episodic exposure, given migratory site fidelity. Such exposure may contribute to cumulative toxicological burden across the migratory range, with possible acute or chronic health effects. Demonstrating these links will require further study, including sampling WHCR to assess contaminant bioaccumulation and evaluate potential effects on health or fitness. Quantifying contaminant concentrations in prairie wetlands used by endangered species provides evidence to assess continued provision of critical ecosystem services and to inform management actions. Specifically, reducing exposure to agricultural contaminants through habitat management or refined agrochemical

use would support WHCR health and broader prairie ecosystem resilience, with probable co-benefits for other species.

38. The Aquatic Insects of Saskatchewan

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Abstract: Aquatic insects are an essential component of most aquatic habitats in Saskatchewan. They function in the recycling of detrital biomass, and in so doing, form an integral part of aquatic food webs. Emergences of adult aquatic insects link the large productivity of aquatic ecosystems to terrestrial ecosystems and provide essential food resources for waterfowl, passerines and other animals. Many adults are important pollinators of riparian and terrestrial native plants. Aquatic insects also make up a significant part of the overall biodiversity of the province. Yet, other than the pestiferous biting flies and obvious dragonflies, most escape the attention of the general public and naturalists. We present information on the current knowledge of the aquatic insect fauna in the province including diversity, taxonomic issues, endangered and rare species, and avenues for future research.