



**EcoServices**  
NETWORK

Summary and Highlights of the

# GRASSLANDS CONSERVATION MARKETS SYMPOSIUM

NOVEMBER 19 AND 20, 2019

CALGARY, ALBERTA

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## Introduction

On November 19 and 20, 2019, the EcoServices Network (formerly Ecosystem Services and Biodiversity Network), hosted the Grasslands Conservation Market Symposium and Think Tank, in Calgary, Alberta. The purpose of the Symposium was to foster partnerships that will establish a prairie grassland conservation marketplace.

The EcoServices Network is a multi-stakeholder group working collaboratively to develop the knowledge and capacity required to support markets for ecosystem services and biodiversity. The Network brings together researchers and leaders to support the development of a conservation market.

The objectives of the Grassland Conservation Markets Symposium were to:

- Increase understanding of grassland conservation and conservation market initiatives
- Understand demand drivers and opportunities for investing in grassland ecosystem services
- Establish leadership for grassland conservation marketplace
- Network, learn and have fun

Over 90 ranchers, farmers, conservation groups, developers, industry, government and academia attended the Symposium to identify opportunities for rewarding landowners and managers for conserving and managing healthy grasslands for ecosystem service and biodiversity benefits.

This report highlights key messages from workshop presentations and discussions, progress toward workshop objectives, and next steps towards a grasslands conservation marketplace.

The agenda is provided at the end of the document.

Presentations from the symposium are available on the [EcoServices Network website](#).

## Presentations

### Grassland Ecosystem Services and Values at Risk

Dr Edward Bork, Mattheis Chair of Rangeland Ecology and Management, University of Alberta

Native grasslands are one of the world's most endangered terrestrial ecosystems, with declines worldwide between 70 and 90%. Canadian native grasslands have declined over 76%, which means the ecological services provided by grasslands are at values at risk.

#### HIGHLIGHTS:

- Grasslands in Alberta provide forage for 1.6 million breeding cows contributing over \$3 billion in primary sales to the economy.
- Grasslands support biodiversity and provide key habitat for wildlife and pollinators.
- Healthy grasslands capture, store, and slowly release surface water, mitigating flood risk
- 10 to 30% of the world's organic carbon is stored in grasslands. Carbon stocks in Alberta's grasslands are estimated between 70 to 180 t/ha, which are comparable to carbon stored in boreal and rainforest ecosystems.
- Conversion of grasslands to cropland and urban-industrial development as well as overgrazing, recreational use and fire reduce grassland ecosystem services. Once lost, naturally, re-vegetated mixed grass prairie is difficult to recover in root mass and soil organic matter, even after 50 years.
- Moderately grazed grassland ecosystems lead to greater diversity in vegetation and bird species richness.
- There are challenges with measuring and validating ecosystem services in grasslands due to the heterogeneity, temporal variability and interpretation of management effects. However, opportunities also exist through innovations in remote sensing, drone technology, and modeling, for better understanding the effects of management on grassland ecosystem services.
- Approaches for conserving grasslands include using voluntary markets for long term protection of ecosystem services.
- Assessment approaches for establishing ecosystem service credits should place less emphasis on additionality and more on the benefits provided by maintaining existing grasslands.

### Conservation Markets, Value for Alberta's Resource Sector

Tom Grabowski, President of the Alberta Chamber of Resources

Conservation markets can help address challenges facing Alberta's resource sectors through lower cost opportunities of meeting environmental requirements. Conservation markets will reward industry for environmental investments while maintaining competitiveness.

#### HIGHLIGHTS:

- The Alberta Chamber of Resources is working collaboratively across resource sectors for systemic and structural change that will promote economic growth and environmental protection.
- A competitive regulatory environment is necessary to attract capital, sustain its existing operations and grow its economy. Factors affecting competitiveness such as approval timelines, certainty and flexibility are strategic priorities for the Alberta Chamber of Resources.

- Conservation markets are innovative approaches to move from prescriptive to outcome-based regulation that is more cost end environmentally effective.
- Offsets could help increase certainty in regulatory decisions and reduce wait times for approvals.
- Conservation markets will require codes of practices, professional sign-off and third-party certification to ensure credibility and recognition that environmental performance has been met. They should also tie into higher order regional plans focused on long term outcomes related to water quality and quantity, biodiversity, and air quality.

## Conservation Exchange 101

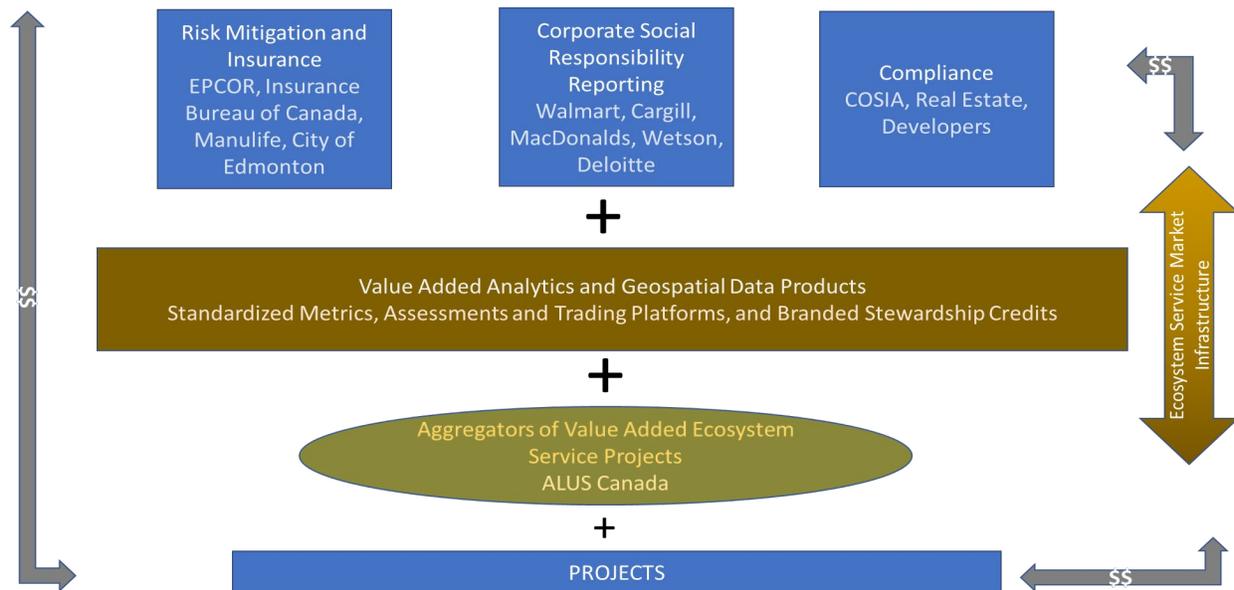
Dr. Marian Weber, [Ecosystem Services and Biodiversity Network](#)

Public demand for sustainable supply chains, risks of increasing environmental regulation, and material risks due to flood, drought, and biodiversity loss are driving the business case for natural capital investment. In Alberta, upwards of \$100 million is invested annually in ecosystem restoration and conservation by NGOs, government, and industry. However, lack of standardized metrics and institutional arrangements makes it difficult to understand the effectiveness of investments and to leverage conservation investments to improve outcomes.

### HIGHLIGHTS:

- The natural capital value chain connects buyers (companies with requirements for risk mitigation, social corporate responsibility, or compliance) to sellers (landowners, managers, aggregators) through data, analytics, standardized metrics and trading platforms. (see figure on Connecting Natural Capital Value Chain)
- Data and information systems are required to link conservation investments to changes in ecosystem services that can be credited and traded in a marketplace
- Business analytics are needed to understand material impacts from degraded ecosystems and transform the way ecosystem services are accounted for in corporate decision-making.
- Market platforms support and coordinate multilateral contracting which can leverage and improve the effectiveness of conservation investments.
- A clearinghouse and exchange could calculate and clear transactions for ecosystem debits and credits. Functions Roles include registering and extinguishing individual environmental liabilities, prioritizing and targeting investments, and reporting on aggregate ecological and financial outcomes.
- The primary difference between conservation investments and conservation markets is coordination. Information and digital platforms are needed to address interdependence and complexities in ecosystem service markets, send the right price signals about future constraints, and leverage and pool multiple conservation investments to maximize benefits.
- A conservation exchange would reduce transaction costs, and provide credibility, transparency, and efficiency in the delivery of ecosystem services.

FIGURE 1 THE NATURAL CAPITAL VALUE CHAIN



## Wyoming Conservation Exchange

Kristi Hansen, University of Wyoming

The [Wyoming Conservation Exchange](#) (WCE) grew out of multi-year process engaging ranchers, farmers, energy companies, policy makers and conservation scientists to conserve grassland habitat for sage groups in the Upper Green River Basin in southwestern Wyoming.

The goal of the WCE is to provide incentives to landowners to conserve habitat for sage grouse while enabling agricultural activities and energy development. For landowners, the exchange offers opportunities to earn income by creating or maintaining critical habitat, while for industry the exchange offers quantifiable sage grouse mitigation opportunities that could be used to streamline regulatory approvals.

The WCE developed an exchange manual, habitat quantification tool, and an exchange agreement template. In 2016, the Wyoming Conservation Exchange became a non-profit governed by a Board of Directors, with one employee and a Technical Advisory Committee.

The U.S. Fish and Wildlife Service listed the greater sage grouse as a candidate species to be protected under the US Endangered Species Act in 2010, however since 2016 both Federal and State governments have reduced requirements for compensatory mitigation of impacts to sage grouse habitat. In addition, downturns in oil prices, in 2015 the Sweetwater River Conservancy opened a conservation bank containing 55,000 acres of sagebrush habitat, further reducing demands for credits from the exchange.

The Exchange transitioned to a state-wide bank with a focus on greater sage-grouse habitat in 2012.

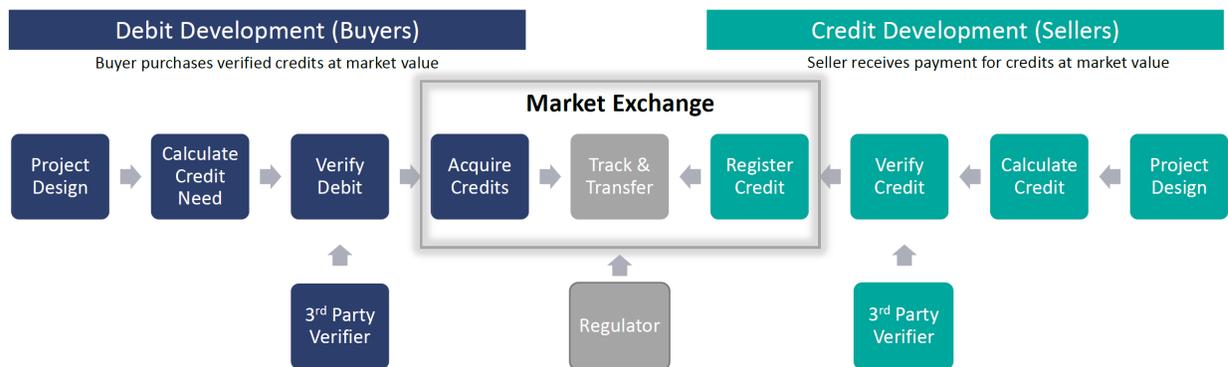
## LESSONS LEARNED:

- A challenge in developing habitat protocols was finding the right balance between high resolution and high cost, and coarse resolution but low-cost quantification methods.
- No trades have occurred so far, mainly due to regulatory changes rescinding mitigation requirements, and the supply of approved sage grouse credits from the Sweetwater Conservation Bank.
- In future for the Wyoming Conservation Exchange is considering integration of carbon credits, habitat credits for other species, and opportunities in the agri-food supply chain for sustainably produced products such as sage-grouse friendly beef. The development of the WCE provided an opportunity to bring diverse stakeholders together to find win-win solutions to a common challenge.

## Example of a Conservation Exchange

Toni Anderson, Silvacom

Building off the Wyoming Exchange example, Silvacom outlined the steps involved in conservation market transactions and the role for the conservation exchange.



## Grassland Conservation Initiatives in the Canadian Prairies

Tom Harrison, South of the Divide Conservation Action Plan

John Cross, Southern Alberta Land Trust & Rancher

Brad Downey, Alberta Conservation Association

Cedric McLeod, Canadian Forage and Grassland Association

Two panel discussions with participation from audience members highlighted the current state of prairie grassland conservation initiatives in Canada, what issues were derailing investment, and how conservation markets could address some of the challenges in financial sustainability of those initiatives.

[South of the Divide Conservation Action Plan \(SODCAP\)](#) has helped conserve close to 250,000 acres of working grassland in Southwestern Saskatchewan, under legally binding conservation agreements with landowners that fit the needs and uniqueness of the landowners on a working landscape. Although there is high acceptance by producers, expansion of the program is impeded by lack of conservation investment opportunities.

[Southern Alberta Land Trust Society](#) (SALTS) is a rancher-based land trust working to protect open landscapes and ranchlands in Southern Alberta from urban and commercial development, and conversion to other agricultural uses. SALTS protect ranchlands through conservation easements. The easement keeps the ownership and management of land with the landowner while restricting future development in exchange for some financial incentives. As of the end of 2016 SALTS had 38 conservation easements protecting over 17,000 acres in areas located from west of Sundre to the border of Waterton Lakes National Park. SALTS also facilitates stewardship projects with landowners to improve riparian and range health. SALTS is committed to the conservation of native grasslands and riparian areas anywhere south of the Red Deer River including south central and southeastern Alberta.

[MULTISAR \(Multiple Species at Risk\)](#), [Alberta Conservation Association MULTISAR](#) works with partners to conserve grasslands in Alberta. They work with landowners to secure lands as well as to develop conservation strategies and plans that assess and conserve priority habitats for wildlife. MULTISAR works directly with ranchers to provide a free habitat assessment and recommendations for management practices that benefit priority species and are compatible with the agricultural operation.

[Canadian Forage and Grassland](#) is a national voice for producers of hay, forage and grasslands for the main purpose of supporting the livestock industry in producing high quality hay and forage products. They have been working with value chain stakeholders and partners in seeking an approved protocol for carbon sequestration in grasslands.

[ALUS](#) supports producers to implement projects that have ecosystem service benefits. ALUS channels the funding provided by individuals, governments, foundations and corporations to invest in farmers and ranchers who actively produce ecosystem services on the working landscape. ALUS operates in about 26 Canadian watersheds or communities, with half being in Alberta. Their programs are focused on addtionality and high value conservation areas.

## Voluntary Demand Drivers for Conservation Markets

Denise Chang-Yen, Shell

David Y Smith, Orion Global Business Sustainability Consultants

Bob Lowe, Canadian Round Table for Sustainable Beef

### SUSTAINABLE SOURCING AND AGRI-FOOD SUPPLY CHAIN

Public trust is an important challenge for the food industry. To build credibility and trust, transparency and traceability are necessary. Sustainability also needs to be to be observable and measurable. Grassland conservation will require increased relevancy for the food sector and elevating the importance of grassland conservation in the public and for food consumers.

Conservation markets could provide reputational benefits as well as supply chain security benefits for the food and retail sector. However, there are challenges due to the lack of understanding of how ecosystem services and biodiversity affect the agri-food sector, and lack of consumer awareness and demand. Companies generally measure performance against short-term deliverables while biodiversity improvements can take 20 years or longer. Sustainably standards are evolving to better integrate biodiversity and ecosystem services. Examples include Pepsico, Danone, Unilever, Nestle and General Mills.

Collaboration is needed throughout the food system and at the multi-national level to meet the challenges of systemic environmental and social problems. There are opportunities to share insights and analysis and address challenges with verification (e.g. “audit fatigue”) and data sharing. The agri-food sector requires a comprehensive, turnkey tool kit that includes data capture, measurement, and chain of custody for supply chain transparency and credibility.

#### CANADIAN ROUNDTABLE FOR SUSTAINABLE BEEF (CRSB)

[CRSB](#) established in 2014, was driven by the recognition by food retailers, processors, NGOs, and producers of the importance of sustainability for the beef industry. CRSB is based on the principle that sustainability is good for both the ecosystem and business through building public trust.

CRSB’s sustainability strategy is based on three priorities: sustainability benchmarking; certification framework development; and sustainability project implementation.

Land use for beef cattle production in Canada represents about 33% of the agriculture land and 68% of the wildlife habitat capacity in the agriculture landscape. In addition, beef cattle production stores about 1.5 billion tonnes of grassland carbon in Canada, with an estimated value of \$82.5 billion. CRSB has completed the first outcome-based certified sustainable beef framework in the world, certifying more than 1000 producers, two processors, and three chain of custody operations.

#### NATURE BASED SOLUTIONS

[Nature-based solutions](#) (NBS) are climate solutions that protect, transform, or restore land, allowing nature to absorb more CO2 emissions from the atmosphere. Such activities can lead to the marketing, trading and sale of carbon credits. Each credit represents the avoidance or removal of greenhouse gases equivalent to 1 tonne of CO2 (<https://www.shell.com/energy-and-innovation/new-energies/nature-based-solutions.html>).

Such projects also have extra benefits such as offering alternative sources of income to local communities, improving soil productivity, cleaning air and water, and maintaining biodiversity. Shell is supporting NBS, through investments in natural ecosystems that will contribute to its three-year target to reduce its net carbon footprint by 2-3%. Shell plans to invest up to \$300 million in NBS between 2019-2021. In order to scale up, NBS must be competitive and provide return on investment, for example, through consumer demands for NBS carbon credits at the gas pump.

## Regulatory Demand Drivers for Conservation Markets

Todd Zimmerling, Alberta Conservation Association

Chad Macy, TransAlta

Aaron Anderson, AltaLink

Brendan Hemmens, Alberta Environment and Parks

Brant Kirychuk, Saskatchewan Environment

Offsets from the impacts of energy and utility development are an avenue for protecting and restoring native grassland in the Canadian prairies.

While offsets have been used by utilities such as TransAlta and Alta Link to offset impacts to native grasslands, lack of an offset policy creates uncertainty in project permitting, construction delays and

increasing costs of development. An offset policy could benefit the utility industry by creating more certainty for the regulatory process and improved public perception.

The Alberta Conservation Association (ACA) has led an offset initiative with oil and gas producers since 2003, in which companies voluntarily offset terrestrial impacts with the purchase of private lands. The offsets are coarse scale, natural region based and include third party review. Suncor, Total E&P and Shell were early participants, with ConocoPhillips and TransCanada also participating in later years. Over 5000 hectares of grassland have been protected since 2003 through ACA voluntary programs.

The Alberta Land Stewardship Act (2009) slowed voluntary participation in ACA's programs because of the lack of clarity from government as to whether voluntary offsets would be recognized within regulatory frameworks. Offset policies are evolving in Alberta and Saskatchewan.

The Government of Alberta supports conservation offsets and is examining its role in enabling an offsets market. Potential roles include governance and oversight, for example, clarifying property rights, outlining requirements for contracts, serving as an insurer in a voluntary market, increased flexibility enabling offsets to meet regulatory requirements, encouraging developers to use voluntary markets to expedite regulatory decisions.

Saskatchewan has developed a Draft Habitat Management Plan, which will help prioritize and target conservation efforts in the province and provide strong science-based guidance for development approvals, industry mitigation and conservation actions. There is currently no formal legislation or policy framework governing habitat offsets or banks; however, there is an operational framework for fish and wildlife habitat mitigation as well as draft operational guidelines for offsetting development impacts on native prairies as well as on prairie wetlands.

## Measurement and Supporting Technologies

Karen Haugen-Kozyra, Viresco

Shannon White, Alberta Biodiversity Monitoring Institute

Shawn Shao, University of Guelph

Deborah Wilson, TrustBIX

### MEASURING CARBON – THE CANADIAN GRASSLAND PROJECT PROTOCOL

Canadian Forage and Grasslands Association (CFGAs) and Viresco, in partnership with the Climate Action Reserve in the US, are developing a Canadian Grasslands Protocol for voluntary carbon market opportunities <https://www.climateactionreserve.org/how/protocols/canada-grassland/>. The protocol provides guidance on how to quantify, monitor, report, and verify GHG emission reductions associated with the avoided conversion of grassland to cropland.

There is a two-year pilot project underway, targeting 5,000 hectares of grassland across Canada. It will act as a proof of concept to help with the approval of the Alberta Grassland Protocol by Environment Canada and Climate Change. There are eligibility requirements (e.g. land must be suitable for crop cultivation - Classes 1-4, but this will be tested through the pilot) and commitment requirements, including the signing of a Qualified Land Conservation Agreement (there can be no breaking of ground, but moderate grazing and forage cropping are allowed). There is an allowance for a 25-year agreement

with a renewal clause. The agreement goes with the land title, not the landowner. Benefits of joining the project include:

- An opportunity to generate (approx.) 0.25-0.5 carbon offsets per acre per year for up to 30 years.
- An honorarium to participate, and upfront costs will largely be covered.
- The opportunity to shape how the protocol is developed.

#### MEASURING BIODIVERSITY – THE BIODIVERSITY INTACTNESS INDEX

The Biodiversity Intactness Index (BII) was developed by the Alberta Biodiversity Monitoring Institute (ABMI) to assess the impact of land use on biodiversity. The BII for Alberta is developed through field sampling and remote sensing, with data incorporated into species-habitat models. The BII is well-suited for use in Alberta’s land use planning, measuring regional goals, establishing targets and priorities, and for agricultural sustainability reporting. Quantifying impacts of practice change (beneficial management practices) is a challenge due to complex relationships between agricultural practices and biodiversity, lack of local data, and limitations of metrics and indicators for “scaling down” the biodiversity benefits of grassland conservation to individual fields and operations. The BII, with advancements, could be used in a conservation market to prioritize areas of interest, or for verification and quantifying additionality.

#### WATER QUALITY AND WATER STORAGE - INTEGRATED MODELLING FOR WATERSHED EVALUATION OF BMPS (IMWEBS)

IMWEBS is a model developed at University of Guelph to quantify the water quantity (drought and flooding) and quality (sediment and nutrients) impacts of best management practices (BMPs) at site, field, farm, watershed, and river basins scales. It integrates economic costs, carbon sequestration and biodiversity benefits of BMPs. The model can be used to quantify multiple ecosystem service credits in a conservation market. It also has a user interface which allows users to examine scenarios and target investments on the landscape to maximize ecosystem benefits. IMWEBS has been developed for Indianfarm Creek in the Oldman watershed, and is also being developed in the Modeste sub-watershed of the North Saskatchewan River.

#### TRACEABILITY – THE TRUSTBIX PLATFORM

In 2015, TrustBIX created the Beef InfoXchange system (BIXS), the traceability platform for McDonald’s Verified Sustainable Beef pilot program. TrustBix demonstrated full traceability from “birth to burger”. TrustBIX uses blockchain technology to provide traceability and is a trusted third party for data management for the beef industry. BIX could also enable the traceability of rangeland rehabilitation for carbon sequestration, species at risk and wildlife habitat. This opportunity is being tested through the new Canadian Agri-food Autonomous Intelligence Network (CAAIN) which will leverage existing blockchain and data capture solutions already working for the beef industry to enable financial incentives from corporations to reach producers as they strive to meet sustainability requirements.

## Risks, Challenges and Opportunities – Municipal and Landowner Perspectives

Lara Ellis, ALUS Canada

Paul McLaughlin, Rural Municipalities of Alberta

Sheldon Atwood, Western Ranchlands Corporation

Bill Newton, Western Stock Growers Association

Tom Lynch-Staunton, Alberta Beef Producers

Kelly Williamson, Saskatchewan Stock Growers

Municipal and landowner representatives provided perspectives on the risks, challenges and opportunities for building a grasslands conservation market:

- It is important that a market focus on outcomes versus practices, for example, paying for carbon in the soil and biodiversity rather than paying for fencing. Landowners should have flexibility to create those desired outcomes in ways that work with their operations.
- Low transaction costs and minimizing low is key for landowner participation
- Uncertainties include whether ecosystem service credits can be stacked,
- Concerns about the share of funding that might go to third parties and aggregators relative to what landowners might be paid.
- Pilots are an effective way to test and find efficiencies and innovations.
- Stakeholders are encouraged to invest in grassland conservation and not wait for all the answers before transactions start.
- Ranchers are faced with many pressures on the landscape, and good environmental management is just one. There are economic pressures to sell to developers and public pressures for sustainable food.
- Municipalities could be a significant partner in markets as they are closer to the landowners and understand rural communities and challenges.

## Summary of Issues Raised by Participants

Throughout the Symposium participants and presenters discussed the risks, challenges and opportunities for a grasslands conservation market to provide ecosystem services and biodiversity benefits. The summary is grouped into four major themes: market structure, protocols and measurements, regulatory framework and education.

### Market Structure

A safe and effective transaction is important, to ensure that payment goes to the seller rather than just solving the diligence or verification questions. There is also a need for comparable fungible commodities – i.e., does what the buyer want to pay for match what the supplier can deliver? Some participants raised points related to appealing to a wide variety of sellers and buyers, that the conservation market needs to be more than just carbon or needs to include multiple ecosystem services. There is a need for diversity in services to draw a diversity of market players, because having only one buyer (driven by

regulation) is inefficient. Pooled investments through multilateral contracts with buyers and sellers would reduce transactions costs.

There is a need to coordinate funding for a conservation market to become established in Alberta. Long-term and better coordinated funding would better support scaling-up a conservation market. Potential funding sources for building platforms and an exchange might include Environment and Climate Change Canada Species at Risk Partnerships on Agricultural Lands (SARPAL) program, which could be a start-up funding source. Several participants also suggested that some funds should come from municipalities and/or the general public because they enjoy the broad benefits from best management practices (e.g. municipal taxpayers could pay farmers upstream to improve downstream water quality and reduce flood risk).

One participant noted that a 6% return is needed to compete with other land conversion options. Concerns were raised regarding the amount of money required for assessment and monitoring compared with the value returned to sellers. In the case of the wetland offset policy, the utility industry highlighted that it cost \$500K to assess wetland suitability for restoration with only \$11K in compensation.

## Protocols and Measurement

Protocols and measurement need to be credible, transparent, and science based. However, many participants have concerns with approaches that are too prescriptive which would increase transactions costs.

Good governance and efficient systems for validation, verification and/or certification are needed. These processes are necessary to demonstrate credibility to the public. However, there were concerns that verification systems may significantly increase costs

There is a need for innovation in data collection, modeling, and platform development to predict outcomes. Ongoing data and measurement challenges include:

- Complex relationships between agricultural practices and biodiversity, and difficulty quantifying the impacts of alternative practices;
- Disparate measurement methodologies;
- Challenge to obtain land use info from landowners.

Concerns about additionality and challenges measuring the gains from maintaining existing ranchlands. Need a system that rewards maintenance of healthy existing ranchlands rather than restoring grasslands that may have lower biodiversity benefits but meet the criteria of additionality.

## Regulatory Framework

Lack of a regulatory framework or a clear signal from government on regulatory requirements for terrestrial offsets is hampering the development of a conservation market and the use of offsets. It was suggested the market could move forward if there was clarity on government regulation i.e. either government enables offsets to meet regulatory requirements or government steps back so that voluntary offsets will be of greater interest to industry.

A regulated offset program requires strong and explicit leadership. One participant observed that the lack leadership has led to one-off conservation easements rather than a coordinated systemic approach.

Several participants spoke to how landowners are restricted from receiving compensation for the use of their lands for hunting, which is an option in the U.S. and can contribute significant revenues to landowners. A regulatory change would be required for this option to apply in Alberta.

### Education and Awareness

There is a need for continued education and awareness of the importance of grassland conservation, the value and benefits of grasslands to the public, and the opportunity for conservation markets to be an effective tool to conserve grasslands in Canadian Prairies. Target audiences include the public, landowners, government officials, financial institutions and industry developers. Indigenous communities also need to be engaged as they manage a significant amount of native grasslands. Engagement of multiple stakeholders is needed to ensure everyone can succeed.

## Think Tank Summary

Interested individuals representing key stakeholder groups were invited to a post-symposium “Think Tank” in order to advance the concepts discussed during the Symposium. Outcomes and initiatives from the think tank, and opportunities to participate in future conservation market projects or events will be posted on the [EcoServices Network](#) website.

# 2019 GRASSLAND CONSERVATION MARKETS SYMPOSIUM AGENDA

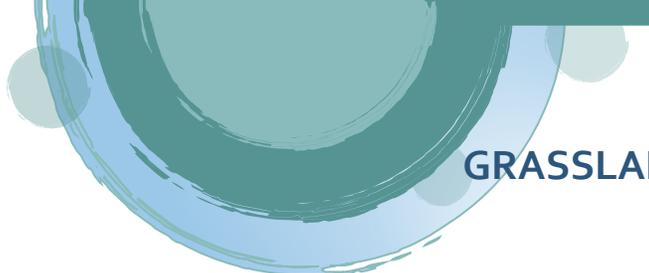
November 19 and 20, 2019 | Deerfoot Inn | 1000, 11500 – 35 Street SE Calgary, Alberta, Canada

THE GRASSLAND CONSERVATION MARKETS SYMPOSIUM WILL RESULT IN A PARTNERSHIP OF THE WILLING TO ESTABLISH CANADA'S FIRST PRAIRIE GRASSLAND CONSERVATION MARKETPLACE.

## DAY 1 – NOVEMBER 19

- 7:30 BREAKFAST, COFFEE AND REGISTRATION
- 8:30 WELCOME AND INTRODUCTIONS  
**Marian Weber and John Pattison Williams**
- 8:45 CONSERVATION MARKETS – VALUE PROPOSITION FOR ALBERTA  
**Tom Grabowski, Alberta Chamber of Resources**
- 9:00 – 9:45 KEYNOTE SPEAKER - GRASSLAND ECOSYSTEM SERVICES AND VALUES AT RISK  
**Dr. Ed Bork, University of Alberta**
- 9:45 – 10:00 BREAK
- 10:00 – 10:40 CONSERVATION MARKETS 101  
**Marian Weber, M. Weber Research**  
**Kristi Hansen, University of Wyoming**
- 10:40 – 12:00 CANADIAN GRASSLAND INITIATIVES PANEL  
**Tom Harrison, South of the Divide Conservation Action Plan**  
**John Cross, Southern Alberta Land Trust and Rancher**  
**Brad Downey, Alberta Conservation Association**  
**Cedric McLeod, Canadian Forage and Grassland**
- 12:00 – 1:30 LUNCH AND KEYNOTE SPEAKER  
**Chef Ned Bell, Advocate for Sustainable Ecosystems**
- 1:30 – 2:45 INDUSTRY DRIVERS  
**Denise Chang-Yen, Shell**  
**David Y Smith, Orion Global Business Sustainability Consultants**  
**Bob Lowe, Canadian Round Table for Sustainable Beef**
- 2:45 – 3:00 BREAK
- 3:00 – 4:30 MITIGATION, COMPLIANCE AND GRASSLAND OFFSETS  
Part 1: Industry Perspectives  
**Todd Zimmerling, Alberta Conservation Association**  
**Chad Macy, TransAlta**  
**Aaron Anderson, AltaLink**  
  
Part 2: Government Status Update  
**Brendan Hemens, Alberta Environment and Parks**  
**Brant Kirychuk, Saskatchewan Environment**
- 4:30 – 4:45 WRAP UP DAY 1
- 5:00 – 7:30 RECEPTION AND NETWORKING EVENT  
**Tasty Bites, Cash Bar, Exhibits**





2019  
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**AGENDA**

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**DAY 2 – NOVEMBER 20**

- |               |  |
|---------------|--|
| 7:30 – 8:30   | BREAKFAST  |
| 8:00 – 8:15   | GUARDIANS OF THE GRASSLANDS  |
| 8:30          | WELCOME AND SUMMARY DAY 1  |
| 8:45 – 10:15  | PLATFORMS TO SUPPORT CONSERVATION MARKETS<br><b>Karen Haugen-Kozyra, Canadian Grasslands Carbon Protocol</b><br><b>Shannon White, Alberta Biodiversity Monitoring Institute</b><br><b>Shawn Shao, University of Guelph</b><br><b>Deborah Wilson, TrustBix</b>  |
| 10:15 – 10:30 | BREAK  |
| 10:30 – 10:45 | GRASSLAND MARKET EXCHANGE DEMONSTRATION<br><b>Toni Anderson, Silvacom</b>  |
| 10:45 – 11:30 | MUNICIPAL AND LANDOWNERS PERSPECTIVES AND RESPONSE TO PARTICIPANTS<br><b>Lara Ellis, ALUS Canada</b><br><b>Paul McLauchlin, Rural Municipalities of Alberta</b><br><b>Sheldon Atwood, Western Ranchlands Corporation</b><br><b>Bill Newton, Western Stock Growers Association</b><br><b>Tom Lynch-Staunton, Alberta Beef Producers</b> |
| 11:30 – 12:00 | PLENARY Q&A  |
| 12:00 – 12:15 | WRAP UP AND CONCLUDING REMARKS<br><b>Marian Weber and John Pattison Williams</b>   |
| 12:15 – 1:15  | LUNCH PROVIDED   |



## Chef Ned Bell

### ADVOCATE FOR SUSTAINABLE WATERS AND OCEANS

Ned Bell is a chef advocate, keynote speaker, educator and founder of Chefs for Oceans. Bell's interests and talents have led him to his current roles as Ocean Wise Executive Chef, Culinary Director of The Vancouver Club, Chef Ambassador for International Year of the Salmon and author of best seller *Lure: Sustainable Seafood Recipes from the West Coast*.

Bell's ability to excite, inspire and educate individuals and industry wanting to make a broader commitment to sustainable seafood has made him a much sought-after chef, speaker and change-maker. Bell effectively combines his love of great ingredients, culinary skills, and infectious enthusiasm with a passion for elevating the conversation of this crucial environmental issue. He continues to earn recognition for his ability to influence consumers, industry, media and government through clear, and often deliciously illustrated, education that supports the long-term health of the world's oceans, lakes and rivers. There's nothing he loves more than uniting and collaborating with chefs, fishermen, farmers and influencers across the globe where he has made an impact all over Canada and the USA, as well as China, Vietnam, Japan, Europe and South America.

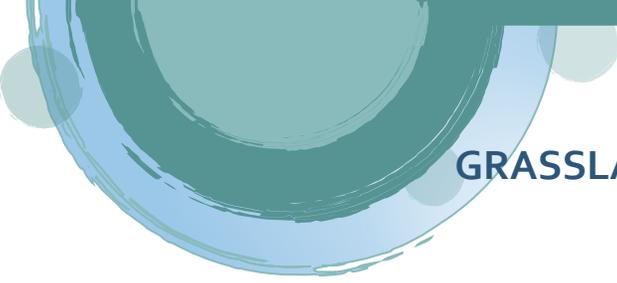
Bell most recently joined the table at the United Nations headquarters in New York to engage his Chefs for Oceans platform in awareness initiatives leading up to him cooking for the UN's General Assembly in New York this September. Bell's also on the ticket as a lead presenter at the UN's Oceans Conference in Portugal in 2020.

Through his culinary network, Bell is also working with the James Beard Foundation's Smart Catch program through their continued series of Impact Events. As a Chef Member of the Monterey Bay Aquarium's Seafood Watch, Blue Ribbon task force Bell will be a keynote speaker at events in Portland later in this year. Bell is delighted to learn he will be presented with an Honourary Doctorate degree in Technology from Vancouver Island University this summer, to recognize the exceptional leadership he has demonstrated in the sustainable seafood arena. Other significant accolades include receiving Food Service & Hospitality magazine's Pinnacle Award for Chef of the Year (2015) and leading a multi-chef sustainable seafood celebration at James Beard House (2017) and SeaWeb Seafood Summit Global Champion Award (2017)

As Executive Chef for Vancouver-based, global program, Ocean Wise, Bell makes an impact through education, advocacy and culinary experiences with his peers across North America. Ned founded Chefs for Oceans in 2014 to raise awareness and advocate for responsible seafood choices and the importance of supporting healthy oceans, lakes and rivers. He launched this commitment with an 8,700km bike ride across Canada, staging dozens of awareness building events along the way. Bell's commitment to seafood stewardship has skyrocketed ever since.

As a father of three sons, Bell has dedicated himself to inspiring and educating people to become part of the solution for healthier oceans for today's children and all the generations to come.





2019

GRASSLAND CONSERVATION MARKETS SYMPOSIUM  
**KEYNOTE SPEAKER**

## Dr. Ed Bork

UNIVERSITY OF ALBERTA

Dr. Bork is currently the Mattheis Chair in Rangeland Ecology in Management and he also serves as the Director of the Rangeland Research Institute at the University of Alberta.

He has been teaching and conducting range research for more than 20 years on a wide range of basic and applied topics, including integrated weed control, grazing systems, fire ecology, forage production dynamics, agro-forestry and, more recently, the role of rangelands in providing a variety of environmental goods and services, including carbon storage, greenhouse gas reduction and biodiversity retention.

Dr. Bork maintains close ties with the agriculture industry, and he and his students have given numerous extension talks over the last two decades.

Dr. Bork and his family continue to reside and operate a mixed farm (grain and beef) operation north east of Edmonton.



ECOSYSTEM SERVICES +  
BIODIVERSITY NETWORK

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## Aaron Anderson

### ALTALINK

Aaron Anderson is a Professional Biologist working as an Environmental Advisor for AltaLink, Alberta's largest electricity transmission company. Aaron's primary role at AltaLink includes environmental planning for new transmission line projects, permitting and compliance, and mitigation development for species of management concern and associated habitat.

The majority of Aaron's project work is located in Southeastern Alberta as he is well versed with grassland Species-at-Risk, avian protection, and mitigating impacts of transmission line developments on native prairie. Previously, Aaron has worked as a Professional Wildlife Biologist on a variety of large industrial projects all over Western Canada, such as the Energy East, Keystone XL, and Coastal Gaslink Pipeline Projects and the Frontier Oil Sands Project.

## Toni Anderson

### SILVACOM

Toni is a Senior Resource Analyst with the Energy & Environment team at Silvacom. Her work focuses on land use and environmental planning including natural capital accounting and ecosystem services assessments for government, industry and other organizations.

She is passionate about making ecosystem service concepts easy to understand and believes managing for all the benefits nature provides will be essential in land use planning into the future. Toni is a designated Environmental Professional (EP) with degrees from the University of New Brunswick including a MScF in Environmental Economics and a BBA in Economics.

## Sheldon Atwood

### WESTERN RANGLANDS CORPORATION

Founder, President and CEO of Western Rangelands Corporation, Sheldon strives to improve land management on a large scale by applying universal principles and process-level understanding to pressing issues. Sheldon has a PhD in Range Science (emphasis in integrating ecology, economics and behavior), an MSc in Rangeland Economics and a BSc in Animal Science, all from Utah State University.

Sheldon is a rancher and land manager, researcher, educator and consultant, and a private conservation developer/contractor. As a senior executive within multiple companies, his career has focused on organizations that integrate conservation values, sound social and ecological stewardship practices, and responsible revenue generation. Sheldon has also conducted inner-city restoration projects reducing urban sprawl and established a private wildlife management.



## Denise Chang-Yen

### SHELL

Based in Calgary, Denise is the Development Manager, Nature Based Solutions for Shell in Canada. She is part of Shell's global Nature Based Solutions team and is responsible for evaluating opportunities for Shell to invest in natural ecosystems in Canada. This includes forests, grasslands, wetlands and peatlands. These investments are enabled by carbon markets – both voluntary and compliance systems. Denise is a Chemical Engineer by training and has spent all of her career in the energy industry (oil & gas and power). She has held a variety of leadership and business development roles related to power (including renewable energy), carbon markets, and sustainable development at Shell. In these roles, she has integrated commercial, technical, environmental and social perspectives in business decision making. Prior to joining Shell's in 2008, she worked in the power industry as the Portfolio Manager, Power at EPCOR. Denise has been involved in the sustainable development, climate change, and carbon offsets world since the early 2000s.

## John Cross

### SOUTHERN ALBERTA LAND TRUST & RANCHER

John is a third-generation owner of A7 Ranche along the eastern slopes of the Canadian Rockies. John is the past Vice-President and director of the Southern Alberta Land Trust Society (SALTS), a non-profit dedicated to preserving southern Alberta Landscapes through conservation easements and public education.

The Cross family is committed to working with their neighbours to maintain healthy, large-scale working landscapes where humans and wildlife can peacefully co-exist. Drawing from experience, A7 Ranche business is built on the belief that a healthy ecosystem, producing healthy food, is the foundation for healthy people.

## Brad Downey

### ALBERTA CONSERVATION ASSOCIATION

Brad grew up in rural Manitoba in the small hamlet of Coulter (8 people) where he spent most of the time outside exploring the wetlands and remaining grasslands of Southwest Manitoba. He moved to Lethbridge at 19 to attend college and received his Renewable Resource Diploma and Fish and Wildlife Specialization Certificate from LCC and then obtained his Bachelor of Science Degree from Athabasca University. Brad has worked with Alberta Conservation Association for the past 17 years primarily in the grasslands around southern Alberta on collaborative projects like MULTISAR, building long-term relationships with cattle producers and other organizations. He is now involved with the SHARP Project that focuses on collaborative work with producers in the North Saskatchewan Watershed around Edmonton. He currently lives in Lethbridge with his wife Brandy and their two sons Colter and Ryder.



## Lara Ellis

### ALUS

Lara Ellis is Senior Vice-President of Policy and Partnerships of ALUS Canada. She is currently focused on the development of new ecosystem services markets, advocating for EGS policy and programs across the country, and growing the research and cross-sectoral support needed to encourage the integration of natural with built infrastructure to reduce costs and build climate resiliency.

Prior to joining ALUS in August 2015, she was Program Director at the Ivey Foundation, where she helped develop the Economy and Environment Program. Ms. Ellis is pleased to be a member of the Women for Nature network which links 150 influential Canadian women to leverage efforts to save wildlife and protect nature. Her contribution to developing innovative environmental solutions was recognized with a Clean 50 award in 2017.

## Tom Grabowski

### ALBERTA CHAMBER OF RESOURCES

Tom is a founding partner, President and CEO of Silvacom. For over 34 years, Tom has provided strategic business and technical leadership to Silvacom enabling its growth into one of Canada's preeminent natural resources consulting and data management firms that have changed the way that forestry, energy, utility, mining and other resource sector companies and government agencies conduct their activities on the land. Tom moved to Alberta in 1977 to attend the University of Alberta (B.Sc., M.Sc., and M.B.A.). Tom has served on the boards of the Alberta Land Institute and the Alberta Chamber of Resources (ACR) as well as several corporations. He serves on the ACR Executive Committee as President and he chairs the ACR's Responsible Development Committee. Tom loves the outdoors and has pursued adventures in nature from the high Arctic to the tropics. He is very passionate about building schools in Sub-Saharan Africa with [www.classroomsforafrica.org](http://www.classroomsforafrica.org).

## Kristi Hansen

### UNIVERSITY OF WYOMING

Kristi Hansen is an Associate Professor and Extension Water Resource Economist in the Department of Agricultural and Applied Economics at the University of Wyoming. She has a Ph.D. in Agricultural and Resource Economics (University of California, Davis). Prior to obtaining her Ph.D., she worked in the electricity industry in the Pacific Northwest, for a trade organization representing publicly owned electric utilities, rural electric cooperatives, and municipalities. Her research is in water resource economics, payment for ecosystem services markets, wildlife habitat conservation policy and experimental economics. Her extension programs seek to inform and improve regional decision-making in water management and allocation and terrestrial habitat conservation. Current research/extension projects focus on analyzing the risks and impacts of different ways that Wyoming and other upper Colorado River Basin states could meet their obligations to downstream states under the Colorado River Compact. Other recent studies investigate alternative groundwater management strategies and collective decision-making over the Wyoming portion of the Ogallala Aquifer and market design for a compensatory mitigation conservation program in Wyoming.



## Tom Harrison

### SOUTH OF THE DIVIDE CONSERVATION ACTION PLAN

Tom Harrison (PAg, BSA '84, MSc '93) is currently the executive Director for the South of the Divide Conservation Action Program Inc.

SODCAP Inc. delivers environmental programming through partnerships and collaboration with the agricultural and energy sectors, eNGOs, local government and First Nations. Tom has 30 years of experience in the area of agri-environmental programming both in the private and public sectors.

Tom along with his wife, Tracy, and daughter, Kaitlyn, own and manage a 250 cow-calf operation in Saskatchewan.

## Karen Haugen-Kozyra

### CANADIAN GRASSLANDS CARBON PROTOCOL

Karen is President of Viresco Solutions Inc. – network of leading advisors making sustainability real for public and private clients in the agriculture, bioenergy and sustainable food sectors across North America and globally. On the sustainability front, Karen and her firm help companies navigate the nexus between lowering their carbon footprint and developing an overall sustainability strategy.

Karen has over 25 years of experience in agricultural greenhouse gas measurement and modelling and climate change/environmental policy development – spanning her tenure at the provincial Department of Agriculture, Climate Change Central and now in the private sector. She has been involved in the development of infrastructure and protocols to support compliance level carbon credit trading in Alberta, adapting carbon offset protocols for other markets, and is currently working with various partners to pilot a carbon accounting framework.

## Brendan Hemens

### ALBERTA ENVIRONMENT AND PARKS

Brendan Hemens is Director of Biodiversity and Conservation at Alberta Environment and Parks, and a forester. He has worked across Canada in government, industry and consulting for 18 years.

Happily married for 20 years with four children, Brendan has most recently worked to stand up Energy Efficiency Alberta. He led caribou range planning for four years, including a ministerial task force and the Denhoff Mediator Report, and is now leading Alberta's work on conservation offsets, transferable development credits, and Pathway to Target 1.



## Brant Kirychuk

### SASKATCHEWAN ENVIRONMENT

Brant is currently the Executive Director; Fish, Wildlife and Lands with the Saskatchewan Ministry of Environment. Previously he has held a variety of roles with the Saskatchewan Ministry of Agriculture as well as with Agriculture and Agri-Food Canada. Throughout his career Brant has worked on a number of international development projects in Kyrgyzstan, Armenia, China and Ukraine focusing on sustainable rangeland management, agriculture extension and sustainable agriculture. He holds a Bachelor of Science in Agriculture degree specializing in Agronomy from the University of Saskatchewan, and a Master of Agriculture degree in Range Management from the University of Alberta.

## Bob Lowe

### CANADIAN ROUND TABLE FOR SUSTAINABLE BEEF

Bob is the Vice President of the Canadian Cattlemen's Association (CCA), a Council director of the Canadian Roundtable for Sustainable Beef (CRSB), and a Board member of the Global Roundtable for Sustainable Beef (GRSB). Lowe is part of a long line of ranchers that came to Alberta in the late 1800's and continues that legacy with feedlot operations based in Nanton, Alberta and a cow-calf operation in Eriksdale, Manitoba. He is an outspoken advocate for sharing information about raising cattle, feedlots and best management practices, and promotes the understanding of the stewardship and conservation that is inherent in sustainable beef production. Lowe has two children and two grandchildren, and his partner is Trish Vachon. He is focused on farming for the future generations.

## Tom Lynch-Staunton

### ALBERTA BEEF PRODUCERS

Tom grew up on and eventually co-managed the family-owned Antelope Butte Ranch (est.1885), a mixed 1000 head cow/calf operation in southern Alberta. In 2011, Tom moved to Edmonton to work as Director of Industry Relations for Livestock Gentec (livestock genetics program at the University of Alberta). Most recently he held a joint position between Alberta Beef Producers (ABP) and the Canadian Cattlemen's Association, developing the Issues Management and Public Engagement strategy and program for the Canadian beef industry, while also developing a strong relationship with the Alberta government for ABP. Tom recently transitioned to a full-time role with ABP, strengthening relationships with government and stakeholders, and developing policy solutions for Alberta's agriculture industry. Tom has a bachelor's degree in Marketing and International Business (Simon Fraser University) and an MBA in Sustainability (U of A). Tom has been a mentor in the Cattlemen's Young Leaders program and has sat on the Edmonton Food Council and the Canadian Roundtable for Sustainable Beef where he chaired the National Beef Sustainability Assessment and Science Advisory Committees. Tom also chaired the ABP Annual General Meeting and continues to speak on sustainable beef production on various panels, media and public events.



## Chad Macy

### TRANSALTA

Chad is an Environmental Advisor who leads TransAlta's environmental and permitting division for greenfield renewable projects with the Growth Team. Chad is dedicated to understanding the effects of renewable development on the environment and seeks opportunities to minimize adverse effects through the use of thoughtful planning and sustainable management practices. Recently, he and his team successfully permitted the proposed Garden Plain and Windrise Wind Farm projects near Hanna and Fort Macleod, and also the Wind Charger Battery Energy Storage Project near Pincher Creek. Previously, Chad worked for various State fish and game agencies in the western US and spent nearly a decade as a wildlife ecologist for Canadian environmental consulting companies focusing on environmental impact assessment for the energy sector in the southern prairies of Alberta and Saskatchewan. Chad has a BSc in Wildlife Biology (University of Montana) and is a registered Professional Biologist in Alberta.

## Paul McLauchlin

### RURAL MUNICIPALITIES OF ALBERTA

A professional biologist, Paul has been an environmental scientist and consultant for 25+ years, with a focus on project management, multi-stakeholder programs, predevelopment assessment/mitigation planning and conservation. He is a fourth-term county councillor and current Reeve of Ponoka County, and also a director Rural Municipalities of Alberta board. Concurrently, Paul has also spent 13 years as the facilitator for the Battle Lake Watershed Synergy Group. He has worked as a field biologist, conservation officer, environmental scientist, done public consultation and communications and as a resource/conservation management specialist. In his thesis for his MBA in Finance from the University of Leicester he researched the barriers and motives of renewable investment of households in rural Alberta. Paul's office is a hyper energy efficient standalone building on his farm where he and his wife Melinda grow hay for the equine market in their spare time.

## Cedric McLeod

### CANADIAN FORAGE AND GRASSLAND

Cedric grew up in Carleton County, New Brunswick working in the family concrete construction business. He developed an early love for agriculture with encouragement from dad and many construction jobs being in the agricultural field. In 1999, Cedric received a Bachelor of Science Degree from the Nova Scotia Agricultural College (soil science major, plant science minor), and in 2004 he completed a Masters degree in soil science at the University of Manitoba. Cedric spent four years with the Canadian Pork Council as their National Environmental Programs Coordinator. He established MacLeod Agronomics Ltd. in April 2007 offering environmental, agronomic, energy and business management services that support innovation and production advances for Canadian farmers. Cedric also actively farms with his family, managing 300-acres of pasture, forage and cash crops using intensive rotational grazing, extended grazing and no-till systems.



## Bill Newton

### WESTERN STOCK GROWERS ASSOCIATION

Bill grew up on the farm his grandfather homesteaded in 1912 near Del Bonita, Alberta. Following high school, he completed DVM and MSc degrees (University of Saskatchewan and Iowa State University). In 1983 Bill and Nancy purchased bare land in the Springpoint district west of the world historic site Head Smashed in Buffalo Jump, which they have been able to grow into a viable, standalone ranching operation. Their two grown children work with them on that operation and proximity to their grandchildren is a bonus. Bill has worked on multiple boards and committees: Western Stock Growers' Association, Livestock Identification Services, Alberta Livestock Industry Development Fund, ABMI Ecosystem Services Stakeholder Advisory Council, Lethbridge Community Foundation (Varley Fund), Porcupine Hills Stock Association, and UCVM Dean's Stakeholder Advisory Council. He has a strong desire to achieve recognition for the full suite of ES provided by managed rangelands and is a strong believer in property rights and free markets.

## John Pattison-Williams

### PATTISON RESOURCE CONSULTING LTD.

Raised on a farm in east-central Alberta, John cares deeply about conservation in Alberta and seeks to balance the often-competing interests of environmentalism and economics through his work. Specializing in ecosystem services and market-based instruments, his understanding of both agricultural and business perspectives has led to facilitation opportunities for resource-based workshops in Canada, the UK and India. John holds a Doctorate in Natural Resource Management from the Natural Resources Institute (NRI) at the University of Greenwich, United Kingdom; a Master of Science in Agricultural Economics from the University of Alberta and a Bachelor of Science from Augustana Faculty of the University of Alberta. He currently serves as a Research Fellow in the Department of Resource Economics and Environmental Sociology at the University of Alberta and Coordinator of the Prairie Habitat Joint Venture Policy Committee. His wife Naomi and their new son Micah are active on the family farm, where they raise roan quarter horses.

## Shawn Shao

### UNIVERSITY OF GUELPH

Shawn is a young, passionate environmental conservationist from China. After completing a PhD in soil and water conservation, he joined the Watershed Evaluation Group at the department of Geography, Environment and Geomatics, University of Guelph as a postdoc in March 2014. Since then, he has been dedicated to GIS software design, development, and application for integrated economic-hydrologic modeling of agricultural watersheds. He is the main developer of several agricultural Ecosystem Services (ES) assessment software which facilitate agricultural conservation management and policy design. His research on applying the policy supporting tools, e.g. Integrated Modelling for Watershed Evaluation of BMPs (IMWEBs) and Watershed Evaluation of BMPs Interface (WEBs Interface) has been published in the Journal of American Water Resources Association and Open Access Journal – Water. Currently, he is conducting research in applying IMWEBs in livestock BMPs and wetland restoration ES assessment.



## David Y. Smith

### ORION GLOBAL BUSINESS SUSTAINABILITY CONSULTANTS

David Y. Smith has over 20 years in retail and foodservice, uniquely in executive positions in all 3 of: general management with P&L responsibility; consumer marketing; and sustainability. He was VP Sustainability at Sobeys, where he led strategy and implementation across Sobeys' global supply chains. He participated in three global sustainability steering committees. He was VP/GM of Sobeys then-new urban store division and was VP Marketing for Whole Foods Market (US). He also was previously with McDonald's Canada and A&W.

His consulting work includes extensive engagement with Canadian farm sectors and a focus on transparency and public trust, including helping to launch the Canadian Centre for Food Integrity and conducting public trust/transparency projects for Agriculture and Agri-food Canada in the grains, meat, and poultry sectors, plus leading food sector traceability for GS1 Canada.

## Marian Weber

### M. WEBER RESEARCH

Dr. Weber is principal of M. Weber Research where she conducts environmental policy research. For the past 17 years, Dr. Weber was a senior researcher with Alberta Research Council, Alberta Innovates and InnoTech Alberta. In 2019, she became Chief Environmental Economist for the BC Ministry of Environment.

In her consulting role she works with industry, academic, and government partners in the municipal and resource sectors to develop market-based opportunities for managing ecosystem services including water quality, natural infrastructure, and biodiversity.

She is also Adjunct Professor in the Department of Resource Economics and Environmental Sociology at the University of Alberta.

## Shannon White

### ALBERTA BIODIVERSITY MONITORING INSTITUTE

Shannon has always been passionate about the intersection between science and policy. She is concurrently Science Centre Co-Director at the ABMI and Senior Researcher at InnoTech Alberta. At ABMI, she provides direction on the scientific aspects of biodiversity monitoring and leads a team of ecologists and statisticians dedicated to interpreting the ABMI's extensive datasets. She enjoys working with varied partners to maximize the value and impact achieved with this data, while maintaining the scientific integrity of the ABMI's work. Highlights include her previous experience at the ABMI, as an ecologist on the team she now leads, and her time as Biodiversity Specialist at Alberta Environment and Parks. Shannon's background is in grassland and global change ecology; she has a PhD (University of Alberta) and BSc (Hons) (University of British Columbia). Her current role builds upon her expertise in biodiversity science and monitoring, her understanding of environmental policy, and appreciation for the value of collaboration and innovation.



## Deborah Wilson

### TRUSTBIX

Deborah is Chief Industry Engagement Officer of TrustBIX Inc., which operates Business InfoXchange (BIX) in Canada, and ViewTrak Technologies in Canada, US, Mexico and China. Her role is industry engagement in data, agtech, sustainability and traceability including system development, blockchain applications, chain of custody in supply chains, collaborative partnerships, pilot projects, marketing and communications. She is on the National Council for the Canadian Roundtable for Sustainable Beef (CRSB), was an advisor to the CRSB Verification Committee, and serves on the MarComms and the CRSB Business Strategy Committees. She was on the project management team for the Canadian Beef Sustainability Acceleration Pilot Project. Deborah served on both the National and Provincial Boards of the Canadian Agrimarketing Association, receiving an Honor Roll Award (2013) and the President's Award for Glacier Farm Media (2012). A lifelong cattle producer, her family operation has used technology and data for production improvement, and increased profitability since the late 1980's.

## Todd Zimmerling

### ALBERTA CONSERVATION ASSOCIATION

Todd has an undergraduate degree in zoology from the University of Alberta and an M.Sc. and PhD. in population ecology from the University of British Columbia. He is a Professional Biologist with over 25 years of experience working on a wide range of wildlife and fisheries related projects across western and northern Canada. Todd started his career as an environmental consultant, founding his own company with his wife.

In April 2007, after 14 years as an environmental consultant, Todd took over the role of President & CEO of the Alberta Conservation Association (ACA), where he oversees a staff of 85 and deals closely with government, industry and community stakeholders on a wide range of conservation related issues across Alberta.

