prairie habitat joint venture

THE KITCHEN CONVERSATION

April 18-19, 2018

Finding Common Ground Between the Agriculture Industry and Wetland Policy

A two-day workshop to facilitate meaningful conversations between agricultural landowners, land managers and policy practitioners regarding the development and implementation of wetland policies throughout the PHJV.

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Front cover photo: Craig Shaw
Back cover photo: Hugh Hunt

EXECUTIVE SUMMARY

The Prairie Habitat Joint Venture (PHJV) has recognized from the outset the important role of agriculture producers in waterfowl and wetland conservation in Prairie Canada. In response to the North American Waterfowl Management Plan's (NAWMP) recent call to action to the waterfowl conservation community to further strengthen its collective human dimensions efforts, the PHJV established a People Goal: *Programs and policies are delivered and advocated that favour both conservation and long-term sustainability of rural communities. Enhanced opportunities enable people to hunt and view waterfowl, while building support for wetland conservation among a wider community including the general public.*

In order to identify and better understand the drivers of decisions made by agricultural producers in an on-farm context in relation to wetland conservation policies and programs, the PHJV Policy Committee hosted a workshop April 18-19, 2018 focused on a sharing of views and perspectives by producers, policy developers and implementers, academics and environmental conservation organizations. An overview of the PHJV's programs and successes in prairie-parkland Canada, followed by presentations on the status of government wetland-related management legislation, regulations and programs in the prairie provinces set the foundation for the workshop. Presentations on the economic, social and values drivers of producer decision-making preceded a panel of five agricultural producers describing how and why they individually make the decisions they do about wetland conservation and drainage as part of their farming and ranching operation.

In the subsequent discussion, wetland policy practitioners were able to explore the decision drivers in more depth with the producers, and to share their views about the intersection of these drivers with wetland policy development. Observations about the power and applications of a variety of models in assisting producers in their operational decisions, identifying key wetlands for conservation, and assessing environmental program acceptability for managers were presented, and then the workshop focused on examples of conservation initiatives that have delivered successful on-the-ground farm and ranch, municipal, and provincial-scale conservation outcomes.

A concluding plenary discussion reiterated the value of the producer-policy developer/deliverer conversation, verified that the diverse participants shared more common ground than many anticipated, underscored the need to integrate all views early on in policy and program development efforts, and confirmed the importance of program adjustment with experience and as new information becomes available.

the kitchen conversation

FINDING COMMON GROUND BETWEEN THE AGRICULTURE INDUSTRY AND WETLAND POLICY

INTRODUCTION

On April 18-19, 2018 the Prairie Joint Habitat Venture (PHJV) Policy Committee hosted nearly 50 people at a workshop in Leduc, Alberta. The workshop was attended by individuals representing a broad cross section of stakeholders from Alberta, Saskatchewan and Manitoba, consisting of landowners, land managers and producers; representatives from government, ENGOs and related agencies; academia and researchers; and environmental consultants. These participants, from different backgrounds and with a range of diverse perspectives, were invited to this workshop to have a conversation about and better understand how more effective approaches to engaging and encouraging wetland stewardship can be developed. The list of workshop participants is included in Appendix A.

This document provides an overview of the workshop, and captures important takeaways from the presentations and panel conversations, as well as the insight and direction gathered from participants during the breakout group discussions. The workshop agenda is included in Appendix B.

PURPOSE AND DESIRED OUTCOMES

The purpose of this workshop was to foster an understanding of the range of socio-economic factors that influence land management decisions in an effort to develop more effective approaches to wetland management and stewardship. To facilitate this, information was delivered and discussed in five key areas, which served to engage and help participants understand:

1. Provincial perspectives and the challenges associated with delivering wetland policy and programs in an agricultural landscape.
2. The economic and social drivers of landowner/producer decision-making processes from a broad-scale perspective and at an operational scale.
3. The gaps between operational decision-making and policy implementation.
4. The successes and challenges associated with the strategies, approaches and tools that can and are being used to support the delivery of wetland conservation policies and programs.
5. How to find common ground between the policy and programs of wetland conservation and the realities of the agricultural industry at the individual producer level.

SETTING THE STAGE

Presentations during the first morning of the PHJV workshop helped set the stage for creative conversations to occur between agricultural landowners/managers and wetland policy practitioners regarding the development and implementation of wetland policies throughout the PHJV region.

PHJV Wetland Conservation Programs | an introduction

Deanna Dixon (PHJV) provided a comprehensive overview of the PHJV. She gave a broad outline of the PHJV's origins (North American Waterfowl Management Plan) and history (plan delivery through regional partnerships), program focus (wetland and associated upland habitat targeted towards waterfowl and

increasingly more attention on all-bird conservation) and activities (on-the-ground habitat delivery and land use policy). She highlighted the PHJV's focus on and commitment to science and the importance of partnerships in achieving their goals and objectives. She emphasized the PHJV's achievements (6.8 M acres of habitat protected, 2.7 M acres improved, 9.5 M acres managed, improved waterfowl populations). Despite significant achievements there are still considerable challenges (large drainage networks, severe flooding), which continue to contribute to annual wetland losses. With this in mind, she pointed out that wetland conservation and sustainable landscapes can only be achieved with the cooperation of the agriculture community, and through efforts to more appropriately value ecological benefits and services of wetlands. She ended by stressing the importance of land use policies across a landscape of this magnitude.

Wetland conservation and sustainable landscapes can only be achieved with the cooperation of the agriculture community, and through collective efforts to more appropriately value ecological benefits and services of wetlands.

Provincial Perspectives | challenges in an agricultural landscape

Representatives from Manitoba, Saskatchewan and Alberta provided an overview of the current status of wetland regulation and conservation programs from a government perspective in their respective provinces. Within each of these overviews, presenters identified specific challenges their administrations have encountered in delivering wetland policy, programs and/or regulations on the agricultural landscape.

Manitoba

Andrea McLean (Manitoba Sustainable Development) focused on the proposed changes to Manitoba's drainage and wetland policies. She summarized current legislation and policy (Water Rights Act, Planning Act, Water Protection Act – IWMP, Environment Act, MOUs requiring offsets) followed by an overview of the establishment of a 'no net loss of water retention capacity' in watersheds' mandate, and the development of a new watershed-based policy framework which acknowledges that Manitoba cannot handle the implications of and costs associated with broad scale drainage. Public and stakeholder consultations informed the policy development process and, as a result, Manitoba expanded its focus to examine 'no net loss of wetland benefits' rather than 'no net loss of water retention capacity'. While specific components of the framework are still being developed, the watershed-based frameworks will include a balanced approach to incentive-based programming and regulations to retain, restore and enhance wetlands in agro-Manitoba. Despite this forward momentum, they remain challenged by limited engagement with the public and, more specifically, direct feedback from landowners, the absence of a comprehensive wetland inventory, the need for consistent classification and valuation of wetlands, and the need to balance the requirements of regulation with incentive-based programming on the landscape.

Saskatchewan

Doug Johnson (Saskatchewan Water Security Agency) gave an overview of wetland policy in Saskatchewan which includes: Water Security Agency 25 year Water Security Plan (2012), Agricultural Water Management Strategy (drainage policy), The Water Security Act, Conservation and Development Act, Watershed Association Act, Responsibility for Aquatic Habitat, Environmental Management and Protection Act (2010), and the Ministry of Environment's Standards and Principles for Fish and Wildlife Habitat Mitigation (under development). Johnson explained how, under the new Agricultural Water Management Strategy, the aim is not to eliminate drainage, but allow it to continue in a responsible manner by seeking to balance the

impacts with the benefits of drainage. This new approach is intended to mitigate or avoid the negative impacts and support responsible drainable by addressing risk in the approval process, and enabling development of sustainable drainage projects with more long-term certainty for producers. One key challenge they faced was achieving compliance, which they addressed with the establishment of drainage networks (mini-watersheds) and a peer/landowner review process for proposed drainage projects within the network. Through this approach, and with administrative support from the Agency, landowners work together to submit joint applications for all drainage works and operate coordinated drainage projects that flow to an adequate outlet, identify land control, assess risk and mitigate impact. This has evolved the regulatory process from an individual wetland approach to one which considers wetland complexes and cumulative impacts. Looking forward, key drivers that will help advance responsible drainage include further engagement of and more effective communication with landowners to ensure sound understanding of the network approach and compliance requirements, and to gather feedback to improve the program.

Alberta

Thorsten Hebben (Alberta Environment and Parks) began with a retrospective of wetland policy in Alberta from the late 20th century to the current Alberta Wetland Policy (2013). The goal of this current policy is to conserve, restore, protect and manage Alberta's wetlands to sustain the benefits they provide to the environment, society and the economy. Key policy outcomes include ensuring high value wetlands are protected, wetlands and wetland benefits are conserved and restored, and wetlands are managed from a regional context through avoidance, minimizing negative impacts and replacement. Despite all of this, unmitigated wetland loss is still occurring and the implications of continued wetland loss are significant. This continued loss may be influenced by lack of awareness or limited understanding of policy, legislation and regulation; difficulty translating wetland ecosystem services into local and financial benefits; and misconceptions around the wetland restoration program and process. Understanding this, the key to broader wetland policy implementation and success is recognizing the respective limitations faced by and balancing the needs of producers, municipalities and industry. This can be achieved through partnerships, an integrated approach to management, communication and policy implementation that will be supported by some key pieces currently under development including a wetland construction directive and guide, a wetland replacement account, a wetland education network and enhanced agriculture partnerships.

Building Collective Expertise | facilitated discussions

Responses recorded by group facilitators during this session are available in Appendix C.

What are the first words that come to mind when you think about wetlands?

Collectively, participants in each of the breakout groups identified *41 specific/distinct words* (or short phrases) that they identified with wetlands. The specific words included:

- ag production
- asset
- bank of values
- biodiversity
- birds
- challenges but opportunities
- climate (source of precipitation)
- complex ecosystem
- controversy
- depression
- difficult to manage
- drainage
- ducks
- ecosystem services
- field effect
- field obstacle
- flood risk
- forage
- wildlife habitat
- health

- life (water is life, no life without water)
- marginal
- money
- natural green infrastructure
- natural wet (value)
- nature (vista)
- neutral ground
- non-productive, obstacle, cost
- past mistakes
- pothole
- production
- reality check (tend to focus on good, not other issues)
- relationships
- resilience
- sometimes good, sometimes bad
- spring (1st life of the year we hear)
- frogs, birds
- stuck
- tunnel vision (looking at part of the landscape)
- wastelands
- water

The five most repeated words that participants associated with wetlands included: water (4); biodiversity (4); controversy (2); ecosystem services (2); and habitat (2).

What is your interaction (work or otherwise) with wetlands and wetland regulations?

Participants' responses were quite varied and ranged from farming in or around, living with and/or managing/stewarding wetlands; informing, developing and implementing wetland policy; studying, researching and modelling wetlands (loss, people's interactions with, value of); to communication and engagement.

Why did you come to this workshop?

When asked why they chose to attend this workshop, participants indicated they came to learn (from diverse individuals in different sectors and with different interests), connect and interact with peers, listen, share, discuss, get updates, understand perspectives and seek solutions.

Among your peers, how are wetlands viewed?

Again, responses to this question varied among participants from recognition of the value of wetlands to biodiversity, flood mitigation, water quality, ground water recharge, climate change and habitat, to the challenges associated with managing in or around wetlands (location of wetlands) and raising awareness for the importance of wetlands.

UNDERSTANDING PRODUCER DECISION-MAKING

Understanding Economic and Social Drivers | a broad scale perspective

Through their presentations, four experts/academics spoke to their experiences with and understanding of the social science related to range of drivers (social, economic etc.), and the perceptions and values that influence decision-making of stakeholder groups and agricultural producers. They were also asked to discuss the potential avenues for effective education, communication and implementation of policies, regulations and programs.

Ken Belcher (University of Saskatchewan) spoke to land management decision-making being influenced by markets and policies, as well as farmer attitudes to financial performance, risk and resource stewardship.

He provided an economic context for land/wetland management. In this context, land cover types change with the value of the land, and the opportunity cost of maintaining native cover (including wetlands) increases with increasing land values. Several economic drivers also influence wetland management. These include: cost of field operations (as amount of land farmed increases, size of equipment increases, and this increases the cost and nuisance of having obstructions in the field (including wetlands)); cost of wetland drainage has decreased with the advent of new, more cost-effective technology (e.g., do-it-yourself tile drainage); strong monetary drivers for wetland drainage (e.g., annual average net benefit from draining wetlands in eastern Saskatchewan at $28 - $41/ha); wetland conservation contracts, wetland easements or other restrictions to wetland removal having a negative impact on land values (e.g., average land parcel with conservation easement sells for a discount of $86/acre for every eased acre). The challenge for policy is to be informed by understanding the distribution of costs and benefits of wetland management (conversion, conservation, restoration), and balance the provision of agricultural commodities and other ecosystem services to meet social preferences. Key policy instruments such as regulatory measures, economic instruments, and extension and advisory actions need to take into account that transaction costs matter. To ensure landowner and farmer participation and compliance with wetland conservation policy, approaches must take into consideration 'fit' with a particular farming system and land management, duration and flexibility of wetland conservation contracts, environmental attitude and wetland perceptions, the type of ecosystem service targeted (e.g., water quality, water quantity, biodiversity, recreation), and the desire to retain environmental features where there is already an abundance of that feature.

Anna Kauffmann (University of Alberta) discussed the details and results of three reverse (wetland restoration) auctions that took place in Alberta and Saskatchewan between 2011 and 2015. Prospective participants for each auction were identified by the potential restorable wetlands (opportunities) on their properties (as determined by in-person visits or using aerial photography). In each case, landowner participation in the auctions was low. In subsequent interviews with participants, those who wanted to participate did so because they had conservationist tendencies (wanted to see ecosystems maintained, saw value in wetlands). When interviewed, non-participants' primary drivers for not wanting to take part included: wanting to maintain control/retain property rights, and lack of trust in/credibility of ENGOs or government. Looking forward, in order to encourage greater participation in conservation and restoration, it will be important to mitigate landowners' nuisance costs, build relationships through ongoing communications with landowners, but also ensure that non-restorative replacement measures are also implemented.

Paul Thoroughgood (Ducks Unlimited Canada) spoke about sustainable agriculture from a wetland perspective. Consumers are saying they want something 'different'; what that 'something different' is, is uncertain/they don't know. In response to this, and rather than trying to 'educate' consumers about current food production practices, food manufacturers have established sustainable sourcing programs to reassure people their food is better/different. Industry has responded by developing sustainable sourcing schemes (e.g., ISCC, FSA Bronze, Farm Sustainability Alberta). While Canada is still behind in the sustainability world, there is good evidence that there continues to be positive impacts on the landscape from sustainability practices. The farm sustainability assessment tool, developed by Alberta's crop industry groups (wheat, barley, pulse, canola), is a great step forward for the industry. At a recent crops round table meeting, a broad cross section of agriculture/ENGO/industry participants identified a vision for the future (10 years from now) of sustainable agriculture which included recommendations to intensify production, which means embracing science-based agriculture, which must be achieved on the existing land base (no new land into production). Challenges related to actioning this in reality include: economic drivers, voter pressure/alienation, lack of enforceability of policies, and accuracy and suitability of datasets for evaluation. While all of the

value chain has a role to play, the success of sustainability will ultimately depend on the agriculture industry as they are disproportionately influential across the entire value chain.

John Pattison-Williams (University of Alberta) gave an overview of his work in natural resource economics from a wetland perspective and how we consider the benefits and costs of these ecosystems. His presentation focused on addressing four key questions.

1. *What is the lens with which we view wetlands?* There is more common ground than we realize (public versus agriculture).
2. *What drives how wetlands are valued?* There is an environmental driver (services that wetlands provide) and this has social implications in urban and rural/agricultural areas. There is also an economic value to wetlands.
3. *What drives producer decision-making?* Drivers are often couched in current environmental issues – those that the general public is currently thinking about. Framing the discussion about wetland conservation between food producers and wetland advocates/policy makers through those issues can be a powerful driver for change (e.g., flooding as an issue/flooding as a driver for change).
4. *What are acceptable reasons for farmers to accept BMPs or wetland regulation?* Today, farmers' predominant decision-making driver is economics – there are financial reasons to drain them, but there are also financial reasons to retain them as well (market access, changing consumer trends). In addition to economic pressures, reasons for not adopting BMPs include lack of information or lack of trust in information and lack of time.

Pattison-Williams concluded his presentation by reiterating that while viewpoints may vary, they are not that different; communication and education is essential; wetlands are incredibly valuable ecosystems from economic, social and environmental perspectives; public demand drives valuation approaches; farmers are driven by economic incentives which often trump other values, whether they want them to or not; and private costs and public benefits can align through regulation and market-based incentives.

Gaining Insight and Understanding | drivers that influence operational decisions

A panel of five agricultural producers from Alberta and Manitoba offered insights into their operational decision-making processes and what drivers influence their choices (economic, scale, social and value-based).

Greg Bowie (cattle producer, Ponoka, AB) offered participants three key points, which included:

1. The need for environmental sustainability has been there for a long time. We (producers) have been doing things long before incentives, and we've taken advantage of these incentives since they've been brought in.
2. Economics matter, but social, economic and environmental considerations, all together, have to support equally or the system fails. We don't want society to say we aren't doing our part to protect the environment, but all producers have different ideas of what they need to make their operations economically viable.
3. Agricultural producers need to look longer term than we currently do. We see wetlands as a way of mitigating drought and we're willing to protect those areas and then do what we need to do with them. When it comes to policies, if information is not communicated clearly or well to the grassroots, it makes it challenging for producers to make good decisions. We've made progress, but there is still more work to be done.

Sustainability: the socially responsible, environmentally sound and economically viable product that prioritizes planet, people, animals and progress.

Sid Stevenson (pedigree seed grower, Kenton, MB) shared his insights about how soil conservation is an important part of his farm's history (family farm established 1882). They started zero till in 1985 and after 30 years have eliminated wind and tillage erosion, but water erosion is still a challenge. They have cut fuel consumption in half and have more consistent yields across fields, which they attribute to more soil moisture on hilltops, better soil structure and crop rotation. These conservation practices have helped define the drivers that influence their decision making. On their farm, the main drivers are: ensuring decisions made today preserve resources for future generations; ensuring an economic return on investments in time and capital; and using farming practices that are practical and scalable, especially when challenged by the need to manage variability on the landscape and limitations due to salinity, excess water/rainfalls and gully erosion. The greatest challenge with conserving wetlands in annual production systems is the need to manage or compensate for the loss of productive soil due to salinity or excess water on land immediately surrounding wetlands. The greatest challenge with implementing wetland policy is land ownership (vs. renting land). From Stevenson's perspective, the best opportunity to implement wetland conservation is to conduct effective research and extension focused on management of soil salinity and excess moisture, and tangible benefits of landscape diversity on production/economic stability.

Terry Banack (crop producer, Round Hill, AB) began her presentation by talking of the need to maintain a healthy balance between nature, technology and agriculture. She offered insight into the decision process used in determining the role of natural areas on their farm. Their farm is a business; they strive to be both viable and sustainable to achieve long-term success. To achieve sustainability, a balance is needed of productive and healthy soils; new technology and research in both equipment and cropping innovations; being a good neighbor to both rural and urban neighbors; meeting customer demands; stable governments to provide access to a world market; and profit – they cannot do this as a hobby. At the end of the day, their approach employs a moral compass and they realize that the maintenance of natural areas is vital to a productive and sustainable land base.

Craig Shaw (crop producer, Lacombe, AB) began with an overview of the realities of today's farms, which include: next generations now taking on the farm, but also taking on significant debt; higher operating costs and higher levels of risk; the need for consistent yearly returns to remain viable; poorly managed farms are more likely to fail; and financial stress can impact long-term strategies. From his perspective, some of the challenges agriculture producers face include: marginalization of the agriculture sector; wetland assessments that place zero consideration on agricultural impacts; wetland policy that does not consider water management implications; agriculture producers have not been vocal enough on water issues; individuals (farmers) are in the best position to assess environmental situations on their land. Shaw went on to suggest there is limited accountability in the current system, the regulatory environment is constrained by limited resources, and assessment costs and other expenses are unfairly placed on certain segments of the population. He concluded by suggesting improvements could be made by having better partnerships with environment (work with others to address environmental concerns without threatening economic viability); seeking solutions that work for everyone; recognizing that society is regulating both private property and rights of an individual; and understanding that agriculture producers are caring people who live and work in a natural environment.

Sean McGrath (cattle producer, Vermilion, AB) stressed that wetlands are tied to uplands and, on their farm, their approach to management takes this into consideration. Some of the challenges he faces in his operation relative to conservation include: terrain challenges and how to cost effectively manage an ecosystem or riparian area in difficult terrain; while creativity is highly valued, it is not often rewarded in conservation programs; there is no money for conservation but there is big money for restoration; and early adopters are penalized and people are paid to catch up. His suggested ways to help include: cost sharing/financial assistance; providing outside expertise but also recognizing expertise at the farm level – goes a long ways towards building trust and accountability; carrots (engagement/solutions) are better than the stick (regulation); and good partnerships and relationships are important for maintaining enthusiasm. In order to move forward, McGrath suggests that ecosystem services have to have value; it takes commitment as well as individual and community engagement (farmers and non-farmers); farmers are the best equipped to deliver ecosystem services on a local scale with global impact; we need to believe in the power of land stewardship and the land ethic, along with a little bit of humility.

Regulation is like the bottom wire of a fence; it is something you have to jump over; it is not aspirational. It will not engage producers or people on the landscape.

These producer presentations were followed by a more in-depth Q&A panel discussion which delved further into the gaps between the reality of producers' decision-making processes and policy makers' understanding of these processes. Key Q&As included:

What are the best ways to share information with producers?

Extension agents/agencies; universities and government (simplify and clarify messages; information not associated with an 'agenda'); input suppliers (have key relationship with producers); neighbour-to-neighbour (peer-to-peer); establish partnerships and approach information sharing from the perspective of being able to answer the question, "What can we do to make the process better for you (producers)?"

Who can fill in the PFRA gap?

Utilize universities to disseminate information; consider full time extension workers who can fill the gaps and barriers between farmers, scientists, policy makers (e.g., North Dakota State University extension program).

What should we look for in order to reach early adopters?

Early adopters are attempting something that no one else is doing - taking on a certain amount of risk. Biggest hurdle for early adopters is figuring out what will work; start on a small scale. Early adopters have a network of peers, but not a lot of funds to research things.

What key features push you to early adopt?

Seeing and observing what is happening around me and a desire to find a balance instead of a 'fight.' Being challenged to figure out our own problems, and being willing to figure something out in our own environment.

What recommendations would you make regarding policy? What would you incent?

Policy needs solid reason behind it; no grey areas when it comes to regulation. If information is unclear, farmers can feel misled. Include clear expectations of outcomes and incentivize the outcomes. Policy needs to

be a collaborative effort and it needs time to evolve. Too many regulations will drive people off the land. Use incentives to keep producers on the land. Preserve 'natural areas' not just wetlands.

Final thoughts from the producer panel:

It is appreciated that you've engaged agriculture producers in this conversation. Most landowners are approachable: go have that 'kitchen conversation' in an actual kitchen; learn about them and let them learn about you.

Identifying Gaps and Challenges | gaining a deeper understanding

Policy practitioners – what did you learn from producers?

A top-down approach is not sustainable; engage producers at the onset. An incentive-based approach to advancing conservation goals will move us further than policy; more effective, faster. Farmers don't get rewarded for having wetlands but they get rewarded for draining them – this is backwards! Recognize the early adopters. We have incentive-based programs, but clearly we are not communicating well enough with landowners; we need to make the information and resources readily available to them.

Producers – what have you learned today?

We have to share information more; help spread the word. The problem is communication – both up and down the stream; it is a challenge to figure out the best way to communicate. We don't have to be scared of 'non-farmers'; there is a civil conversation taking place and the people having that conversation have a lot in common. Policy making is more difficult than farming; we respect that. It is refreshing in a group to gain understanding; we have a lot in common but are all the right people here? We appreciate how complex the issue is (different locations, different situations and different needs) and regulation tends to be one size fits all.

What are the gaps?

Lack of political will to change things (not a priority for Ministers); politicians too vague; harness public will to make this an 'agenda' item. Identifying common outcome targets that producers and stakeholders alike can live with is a challenge. There needs to be some sort of mechanism to show value for money spent (e.g., an incentive to do good). There needs to be a mechanism that producers can live with (e.g., conservation easements (CEs) may not work for all). How we measure and understand risk; risk vs. benefits accrue at different scales - some decisions are hard to incentivize based on their level of risk. A lack of a consistent approach to engagement; there needs to be integration in consistent and meaningful ways. From the government perspective: we're not getting clear signals from the agriculture industry; there is no common voice.

**We have to share information more; help spread the word.
The problem is communication, both up and down the stream; it is a challenge to figure out the best way to communicate.**

APPLYING THE STRATEGIES AND TOOLS

The intent of the following presentations was to provide workshop participants with information about approaches or tools that help support or enhance the development of effective delivery of wetland-related policies with the agricultural industry.

Programs in Action | proven approaches to wetland conservation

Graham Strickert (University of Saskatchewan) provided an overview of his research into understanding farmers' viewpoints of water quality and how they shape their decision-making. His team conducted workshops with 28 stakeholders (agricultural producers and resort village residents) to understand their viewpoints about agricultural drainage impact on water quality, and their viewpoints about the impact on water quality of corrals near creeks. While prioritization of Best Management Practices (BMPs) differed between the two groups, there was general agreement among participants that there is a negative impact of draining wetlands, a need for controlled drainage work and the importance of relocating corrals away from creeks, but that represents a significant capital cost (barriers), and that 'do nothing' is not an option. The results of the workshops contributed to the development of a water quality model, which was brought back to producers who used it to understand the impact of nutrient exports from a catchment, under current conditions and after implementing BMPs. Key learnings from the workshops and modeling exercises included cumulative effects of BMPs need consideration; wetland restoration not seen as realistic but retention was; incorporate gradients of BMPs; fixed numbers of livestock not representative/realistic; place-based approach at the farm scale is needed; economics is the primary driver of decisions and the model should reflect this; nutrients don't drive decisions, but producers want to know the decreased load from investment in BMPs. Next steps in this research include development of a water quality app that would enable producers to capture and selectively share data directly from the field.

Use the tools and enforce the rules.
Tools need to be provided and rules need to be enforced.

Wanhong Yang (University of Guelph) explained the approach he has taken to developing spatially explicit modelling for examining water quantity and quality effects of individual wetlands at site, field, farm and watershed scales. The cell-based IMWEBs model was developed and applied to a representative watershed to evaluate the water quantity and quality effects of wetland loss and restoration. Through his collaborative research this model was used to rank wetlands based on their Total Phosphorus (TP) reduction efficiency and spatially target the top 10 wetlands for retention and the top 10 wetlands for restoration in the Broughton's Creek watershed in Manitoba. Through this comprehensive process, it was concluded that the IMWEBs is a unique watershed model that is capable of evaluating numerous agricultural BMPs including wetlands at site, field, farm and watershed scales, and that the IMWEBs model can be further developed to support decision-making in landscape conservation programs.

Agriculture is an interconnected landscape and people have different ways to approach how they manage it.

Marian Weber (Innotech Alberta) spoke to enhancing effective delivery of wetland programs through the use of the INFFER (Investment Framework for Environmental Resources) assessment tool, in the context of adoption behavior. INFFER is a comprehensive valuation tool that generates greater understanding of the feasibility and effectiveness of program delivery from a cultural and economic perspective (i.e., are we selecting appropriate/acceptable delivery mechanisms and are we getting value for money from environmental investments). The INFFER tool enables the consistent evaluation and assessment of projects across a range of assets and attributes by:

- defining the asset and its significance,
- defining project goals/works (e.g., SMART – specific, measurable, achievable, relevant, time bound),
- defining actions and desired practice change (e.g., BMPs),
- ranking projects on a benefit: cost index (a mathematical equation that quantifies asset value and effectiveness of proposed work), and
- evaluating interventions on a Public/Private Benefits Framework.

She indicated that behavioral factors that influence practice change must be understood in order to develop effective strategies and programs and concluded by recommending better framing of SMART goals for wetlands; engaging in broader dialogue about the values in setting these goals; education about the efficacy of farmer action in meeting these goals; focusing on local impacts and wetland values; and finally, understanding the different farm styles and where to invest effort is as important as prioritizing based on biophysical attributes – these are elements that economists need to find better ways to build into their models.

Brad Downey (Alberta Conservation Association) spoke about MULTISAR, a collaborative, partnership-based program that engages landowners about species at risk. He highlighted how the MULTISAR approach and the program's success is rooted in four key pillars:

- *Engagement* (regular, open and honest communication),
- *Respect* (for people and the land; it is earned and goes both ways; remove negative connotations/liabilities and focus on the positive, and preserve economics, property rights and freedoms),
- *Empowerment* (utilize experts, make recommendations and provide information; discuss options and determine if they are acceptable to the landowner; understand if the options are beneficial to their operation or their environmental values), and
- *Monitoring and evaluation* (going back to and working with producers to determine what is and is not working; an adaptive management approach and continuing the conversation are important).

Continuous communication, solid partnerships and long-term funding commitments are crucial to the success of stewardship programs.

Lara Ellis (ALUS Canada) shared the ALUS approach to stewardship program delivery, outlining why it works on the landscape and in communities. Her first key advice was to focus on making the environment an asset and not a liability for farmers - making nature part of producers' bottom line. ALUS supports and incents a variety of environmental projects on farmland (conservation, enhancement and restoration) but while

projects are important, people are really the focus of the program. This includes farmers as well as the people who work for ALUS and bring the programs to communities, getting things started and ensuring they stay on track. ALUS is an environmental stewardship program, developed and implemented by farmers, with a philosophy that the production of ecosystem services has real value and the program is trying to translate that value into dollars for farmers across the country. Projects are targeted, market-driven, voluntary, flexible, integrated, accountable, community-led, and measurable. ALUS Canada supplies the operational framework, funding, communication support, and provincial and federal government relations, and empowers communities to implement the program according to their priorities and needs. Farmers should be rewarded and recognized for the production of ecosystem services and not have to bear the costs themselves. ALUS works with farmers to identify where their priorities and societal priorities overlap.

Shari Clare (Fiera Biological Consulting) began by commenting on the significance of the policies, programs and the investments – the collective effort – being made in wetlands and water management to date. That said, much of what is happening is not coordinated, which means opening a dialogue about how to coordinate these efforts in more meaningful ways. Noticeably absent from the discussion are municipalities, the 'forgotten warriors' on the landscape, who are central to the land-use decision-making conversation and have an important role to play in the process. Engagement of municipalities is also important because much of the wetland loss in the province is currently being driven by urban development. More municipalities are starting to understand the role they have in addressing these important environmental questions, as well as the power they have. When it comes to implementation of wetland policy, jurisdictional fragmentation between provincial and municipal governments is an issue/concern which spatial targeting can help to address. The tools and technology to enable spatial targeting are constantly improving – which allows for more efficient use of resources, and theoretically produce better results than less targeted management approaches. Clare provided examples of their extensive wetland inventory/historical loss work with two Alberta municipalities (Parkland County and Chestermere), the results of which enabled these municipalities to, according to their needs and political will, develop policies to prioritize wetlands and conservation, make more informed land-use and development decisions (e.g., subdivision requests), and be thoughtful about directing resources into areas of greatest need.

It is important to share ideas and think about problems from different perspectives in order to find synergies and collaborate in a way that helps us tackle problems that, individually, we would have a hard time solving.

Karen Raven (Alberta Agriculture and Forestry) gave an overview of several projects as examples of innovative approaches/strategies to support conservation outcomes.

- *Renewable Energy Strategy* – multi-stakeholder workshops were held to look at gaps, opportunities and best practices relating to renewable energy project BMPs and how to reduce the footprint in Alberta's native grassland, parkland and wetland ecosystems.
- *Southeast Alberta Conservation Offset Pilot* – this multi-stakeholder collaboration developed an integrated habitat-based approach to target voluntary offsets on private agricultural land parcels with the best potential to improve landscape level native wildlife habitat. Datasets and expertise from collaborating partners created a more robust, integrated and habitat-based result/approach.
- *ALUS Prioritization Tool* – working with Parkland and Red Deer Counties, this project evaluated project (priority) areas for cost-share purposes. For Red Deer County, the ultimate goal was to target

the program on riparian areas on agricultural lands with the greatest potential to increase ecosystem services.

- *Alberta Peas Project* – partner groups undertook a lifecycle (nutritional and environmental) assessment of Alberta peas to understand and quantify the overall greenhouse gas production of peas in an effort to improve processes, support policy and provide a sound basis for informed product production decisions. As a result of this project, this is the first product (in North America) to receive an international Environmental Product Declaration.
- *Winter Feeding of Pregnant Cows* – with concerns raised by consumers and multi-nationals about the carbon footprint of beef production, and with farmers' desire to remain in business and demonstrate their stewardship ethic, this project served to test and understand the economic and greenhouse gas (GHG) impacts of winter feeding. The goal of the project was to identify management options for cow-calf producers that can increase productivity and reduce GHGs.

Don't wait for perfection because we won't get there.
Learn from outcomes and understand that managing risk is essential.

Warren Robb (Ducks Unlimited Canada) discussed how wetland policy can be beneficial to producers for the provision of ecosystem services, citing the example of Alberta's Wetland Policy and DUC's incentive programs at the field level (e.g., voluntary wetland restoration projects). Alberta's Wetland Policy is the first policy to establish a conservation offset market achieving true additionality (a conservation offset that should deliver environmental gains over and above what is already taking place) on wetland objectives. Producers receive financial and other benefits (e.g., forage production, water for livestock, on-farm water management) for the provision of ecosystem services (facilitated through initiatives such as DUC's Wetland Restoration Lease Program). DUC's 'new' wetland restoration program features a 10-year term and more flexible conditions/fewer restrictions, pays landowners based on appraised fair market value of area land (there is a differential between fair market value of land and what the actual value of a wetland is) and compensates landowners based on the 'restored area' (50% payment up front; remaining 50% in annual payments). While successful, these projects are often complex and time consuming as there are many variables and many stakeholders that need to be considered. Wetland restoration also benefits municipalities, reduces impacts to municipal infrastructure, provides natural green infrastructure, and stores water and releases it slowly into the watershed. DUC's wetland restoration achievements in Alberta to date have been significant: 184 projects (71 on private land), 5700 acres restored. DUC has also had success with upland restoration through their forage program (401 private landowner partners and 56,000 acres of uplands restored). Despite all of these efforts, wetland loss continues. To address this Robb suggests we need more emphasis on wetland avoidance, assurance that all wetland impacts are subject to approvals, and landowners to be more aware of and utilize the financial opportunities (incentives) available to them.

Rural agricultural landowners are the primary beneficiaries of the Alberta Wetland Policy.
Virtually all mitigation dollars are paid to rural agricultural landowners.

FINDING COMMON GROUND AND LOOKING AHEAD

Guided by a moderator, this final session engaged all workshop participants in a broader conversation about finding common ground/solutions to bridge the gaps between policy components and policy implementation, and policy practitioners and producers.

What policies/tools/approaches hold the most promise to address wetlands and related issues?

The key points arising out of participants' responses included:

- look beyond wetlands and include the associated uplands,
- differentiate between wetlands and 'wet (farm) land',
- keep things simple and flexible and focus on implementation (implementable vs. symbolic),
- have a range of options with consideration given to impacts on productivity, the variability in agriculture (agronomics), and the variability of agricultural producers,
- seek opportunities to integrate/work with other organizations/initiatives/programs, and
- consider how technology (e.g., an app) could better inform/engage/empower producers.

How do we collectively move forward?

A broad range of suggestions were offered and included:

- engage producers in their communities/at their kitchen tables,
- seek out and enable influencers and leaders in the agricultural community, potentially using social networking tools,
- farmers and other interested groups need to be actively consulted and engaged,
- engage beneficiaries of wetland stewardship (e.g., the public) by communicating good news stories featuring land managers and partners, as well as showcasing the public benefit and marketing the stewardship taking place,
- identify who is responsible for 'leading the charge',
- integrate and manage agriculture risks alongside environmental risks (complementary agricultural policy/meaningful insurance options that enable producers to manage risk through a single approach),
- program consistency and stability to increase producer uptake,
- integrated, cross-ministry approaches, and
- ensure policies (federal/provincial) are complementary.

Policy is an 'ecosystem'; we need to think of it from that perspective in order to move forward.

What are the common goals we are trying to achieve/our common ground?

Commonalities/common ground were identified across several key areas, including:

- managing variability and the need for adaptive responses,
- conservation is important to maintain resilience,

- if you want change to occur you have to communicate – extension is the bridge that supports change and the quality of extension efforts determines uptake,
- learning from the experiences of others,
- a recognized need to work across the prairie provinces/trans-border, integrated approaches and long-term solutions,
- increasing public investment in research,
- translating research and information to a farm scale,
- current market structure (demand) incents farmers for how much they produce vs. how they produce it – policies need to operate within this framework, and
- market incentives and certifications can address some of the concerns the public/consumers have about how food is produced, (re)building trust in agriculture and food.

What have we missed?

Responses to this question included:

- imparting a sense of urgency to these efforts – we are losing wetlands faster than rainforest,
- ensuring we are asking the right questions,
- how we translate this conversation into action (a clear path forward) and a vision for a common future,
- engaging First Nations in the broader conversation,
- developing a communication strategy to get relevant key messages out to producers and the public,
- need for a communication network to develop common messages and enable sharing of information of the benefits of conservation (natural benefits), and
- integrate and leverage relationships with 'big-tent' groups (broader reach).

Ask questions, listen actively, learn about others, make an effort to understand different perspectives – this is how you build common ground.

THE WAY FORWARD

The PHJV Policy Committee, in collaboration with the PHJV Science and Communications committees, should:

- actively support the engagement of wetland policy practitioners and agriculture producers, working together regularly and collaboratively in a wide variety of forums, seeking to develop common approaches/solutions to wetland conservation issues,
- endorse active participation of agricultural producers in conservation program design, development and delivery,
- involve a wide array of partners in developing common messages and information about wetland conservation and the pivotal role of agriculture in successful conservation initiatives,
- further strengthen policy and information sharing processes across the three prairie provinces and associated federal agencies, and
- continue to assess the efficacy of on-farm conservation incentive programs and adjust as needed.

APPENDIX A: WORKSHOP PARTICIPANTS

Allan Preston, Assiniboine River Basin Initiative
Andrea McLean, Manitoba Sustainable Development
Anish Neupane, Alberta Environment and Parks
Anna Kauffman, University of Alberta
Bob Clark, Environment and Climate Change Canada
Brad Downey, Alberta Conservation Association
Christine Campbell, ALUS Canada
Chrystal Mantyka-Pringle, University of Saskatchewan
Corie White, Saskatchewan Water Security Agency
Craig Shaw, Agri-Environmental Partnership of Alberta (AEPA)
Dean Smith, Association of Fish and Wildlife Agencies
Deanna Dixon, Environment and Climate Change Canada
Deepak Muricken, Alberta Environment and Parks
Doug Johnson, Saskatchewan Water Security Agency
Eric Asare, University of Saskatchewan
Glynis Frey, Alberta Agriculture and Forestry
Graham Strickert, University of Saskatchewan
Greg Bowie, Alberta Beef Producers
Howie Bjorge, ALUS Canada
Howie Harshaw, University of Alberta
Hugh Hunt, PHJV Policy Committee
Janet Dietrich, Agri-Environmental Partnership of Alberta (AEPA)
John Pattison-Williams, University of Alberta
Karen Raven, Alberta Agriculture and Forestry
Ken Belcher, University of Saskatchewan
Lara Ellis, ALUS Canada
Marian Weber, Innotech Alberta
Pat Kehoe, Ducks Unlimited Canada
Paul Jungnitsch, Agri-Environmental Partnership of Alberta (AEPA)
Paul Thoroughgood, Ducks Unlimited Canada
Peter Joyce, Saskatchewan Ministry of Environment
Ron Bennett, Environment and Climate Change Canada
Sean McGrath, Round Rock Ranching, Vermilion, AB
Shane Gabor, Ducks Unlimited Canada
Shari Clare, Fiera Biological Consulting
Sid Stevenson, Kenton, MB
Stephen Carlyle, Manitoba Habitat Heritage Corporation
Terra Simieritsch, Alberta NAWMP Partnership
Terry Banack, Gumbo Hills Farm, Round Hill, AB
Thorsten Hebben, Alberta Environment and Parks
Tom Goddard, Alberta Agriculture and Forestry
Tracy Scott, Ducks Unlimited Canada
Wanhong Yang, University of Guelph
Warren Robb, Ducks Unlimited Canada

APPENDIX B: WORKSHOP AGENDA

DAY 1 | WEDNESDAY, APRIL 18

8:45 - 9:15 Welcome, Opening Remarks and Introductions
Terra Simieritsch, AB NAWMP

Facilitator Remarks: Workshop objectives, anticipated outcomes, processes, and ground rules
Terra Simieritsch and Hugh Hunt, co-facilitators

INTRODUCTION TO THE PRAIRIE HABITAT JOINT VENTURE (PHJV) WETLAND CONSERVATION PROGRAMS

9:15 - 9:45 Prairie Habitat Joint Venture (PHJV) Overview
Deanna Dixon, Coordinator, Prairie Habitat Joint Venture

9:45 - 10:00 Health Break

PROVINCIAL PERSPECTIVES: IDENTIFYING CHALLENGES TO THE DELIVERY OF WETLAND POLICY AND PROGRAMMING OR REGULATION IN AN AGRICULTURAL LANDSCAPE

10:00 - 11:30 Provincial Perspectives
Manitoba – Andrea McLean, Manitoba Sustainable Development
Saskatchewan – Doug Johnson, Saskatchewan Water Security Agency
Alberta – Thorsten Hebben, Alberta Environment and Parks

11:30 - 12:00 Building Collective Expertise: Facilitated breakout discussions

12:00 - 1:00 Lunch

UNDERSTANDING PRODUCER DECISION-MAKING: EXPLORING THE RANGE FOR DRIVERS (FROM ECONOMIC TO CULTURAL) THAT INFLUENCE OPERATIONAL DECISION-MAKING

1:00 - 2:30 Understanding the economic and social drivers from a broad scale perspective

Drivers and Resistors – Unpacking Land Use Decision Making Part I
Ken Belcher, University of Saskatchewan

Low Participation in Wetland Restoration Auctions: What Gives?
Anna Kauffman, University of Alberta

Sustainable Agriculture – Hope, Hype or Smoke and Mirrors?
Paul Thoroughgood, Ducks Unlimited Canada

The Business Case for Canadian Wetlands: Private and Social Returns on Investment
John Pattison-Williams, University of Alberta

2:30 - 2:45 Health Break

2:45 - 4:15 Producer Perspectives: Gaining insight and understanding of the diversity of drivers that influence decision-making at the operational scale

Greg Bowie, Ponoka, AB
Sid Stevenson, Kenton, MB
Terry Banack, Gumbo Hills Farm, Round Hill, AB
Craig Shaw, Lacombe, AB
Sean McGrath, Round Rock Ranching, Vermilion, AB

4:15 - 4:45 Identifying the primary drivers and gaps between operation decision-making and implementation of policy

Breakout session to identify gaps and challenges in implementing policy and gaining a deeper understanding of the drivers that influence decision-making and the adoption of policy tools

4:45 - 5:00 Facilitator Recap

Recap of messages heard during the day and from discussions
Identify list of gaps that may exist
Introduction of topics for Day Two
Adjourn for the day

DAY 2 | THURSDAY, APRIL 19

8:30 - 8:45 Day One Review and Format for Day Two

Recap from Day One: PHJV Policy Committee
Workshop Format for Day Two: Facilitators

WETLAND POLICY, REGULATORY AND CONSERVATION PROGRAMS IN ACTION
WHAT ARE THE POSSIBLE APPROACHES TO WETLAND CONSERVATION?

8:45 - 9:05 Understanding the economic and social drivers from a broad scale perspective (continued from Day One)

Drivers and Resistors – Unpacking Land Use Decision Making Part II
Graham Strickert, University of Saskatchewan

9:05 - 9:25 Application of policy tools in real life

Spatially Explicit Modelling for Examining Water Quantity and Quality Effects of Individual Wetlands at Site, Field, Farm, and Watershed Scales
Wanhong Yang, University of Guelph

9:25 - 10:05 Becoming familiar with the toolbox: what are the strategies, approaches and tools that support or enhance effective delivery of policy and programs

Strategies to Evaluate and Scale up Voluntary Participation in Agri-environmental Programs
Marian Weber, Innotech Alberta

MULTISAR - 15 Years of On-the-Ground Collaboration with Producers: Moving Away from "S-S-S" to the "L-L-L" Approach to Managing Species at Risk
Brad Downey, Alberta Conservation Association

10:05 - 10:20 Health Break

SHARING TRANSFERABLE IDEAS

10:20 - 11:45 The application of policy tools in real life: successes and challenges (continued)

ALUS Canada - Providing Grassroots Solutions in a Top Down World
Lara Ellis, ALUS Canada

Practical Challenges and Potential Tools for Improving Wetland Policy Outcomes
Shari Clare, Fiera Biological Consulting

Innovative Approaches to Support Conservation Outcomes; Examples from Collaborative Initiatives in Alberta
Karen Raven, Alberta Agriculture and Forestry

Implementing the Alberta Wetland Policy: Landowner Opportunities
Warren Robb, Ducks Unlimited Canada

11:45 - 12:00 Facilitator Check-in: key messages from the morning's presentations

12:00 - 1:00 Lunch

FINDING COMMON GROUND

1:00 - 1:30 Working towards common ground: Finding solutions to bridge the gaps

Facilitated breakouts to start to combine the information presented in Day One with that from Day Two

1:30 - 3:15 Finding common ground: where is it and how do we get there?

Moderated discussion between producers and policy leads to find common ground between policy implementation and policy/program components

3:15 - 3:30 Health Break

MOVING FORWARD

3:30 - 3:45 Where to next? Summary of key messages from the workshop and next steps
Facilitators

CLOSING REMARKS

3:45 - 4:00 PHJV Policy Committee

APPENDIX C: BREAKOUT SESSION

Day 1 | Breakout Groups (morning session) | Verbatim Reponses

What are the first words that come to mind when you think about wetlands?

Health
Asset
Depression
Water
Biodiversity
Controversy
Difficult to manage
Birds
Nature – vista
Controversy
Habitat
A "neutral" ground (most of the time)
Water
Drainage
Reality check (tend to focus on good, not other issues)
Diversity
EGS
Field obstacle
Water; clean/adequate
Life – water is life, no life without water
Bank of values
Natural green infrastructure
Wildlife habitat
Ag production
Sometimes good, sometimes bad
Forage/water/flood risk field effect
Ecosystem services
Marginal
Complex ecosystem
Tunnel vision (looking at part of the landscape)
Money
Natural wet (value)
Pothole
Ducks
Ecosystem services
Wastelands
Stuck
Production – biodiversity, waterfowl
Non-productive, obstacle, cost
Challenges but opportunities
Spring – 1st life of year we hear; frogs, birds
Climate – source of precip

Resilience
Past mistakes
Relationships

What is your interaction (work or otherwise) with wetlands and wetland regulations?

Ag and environmental stewardship (needed for balance)
Daily management (fencing, water pumping)
Develop regulation and policy – getting to acceptable approaches with land managers
Duck production for hunters
Dysfunctional (everyone unhappy)
Engage landowners
Farm and managed group looking at managing wetland issues across prov and N. Dakota
Farm around wetlands
Government development, policy, communication (4)
Implement Alberta Wetland Policy – deliver offset at farm level through incentives
In with regs (1)
Landowner – beef production interest; beef production voice
Landowner, multi-stakeholder group looking at water from a policy perspective
Landscape
Liaison – inform policy development
Live with wetlands – understand links between ag operation and effects both positive and negative
Look for solutions; win-win; partnerships
Modelling (loss, TP, TN, Q, $)
Municipal liaison; efforts to comply with regs
Personal land management
Personal; nostalgia
Policy dev perspective
Policy development/evaluation
Policy directives
Policy implementation (Value proposition; Negative views – positive views)
Positive progressive – policy/regulation dev
Research broad values of wetlands
Research people's interactions with wetlands particularly wildlife related
Science (1)
Science of wetlands
Sustainable conservation
Translating the policy (complex!)
Wetland perception (academic study)
What are issues with regs/gov neighbour distrust/conflict
Work policy
Work with producers to restore, secure and enhance wetlands
Work, recreation
Workable with different sectors

Why did you come to this workshop?

Asked/learn – give a voice to others
Beyond wetlands
Collective understanding
Constructive discussion
Equitable solutions
Find inroads and acceptable compromise solutions for policy
Find the balance
Finding peers
Info, producer perspective
Interaction
Interest in how other provinces implement and manage wetlands
Invited, complements initiatives, interest in other jurisdictions approaches
Invited, producer perspective
Learn
Learn (regional perspectives)
Learn about ag context
Learn from individuals and other jurisdictions
Saw agenda; liked the diverse group and perspectives, interactions with other groups, producer perspectives
Seek solutions, listen to land managers
Share
Update on policy

Within your peers, how are wetlands viewed?

Changing (gradient – nuisance)
Religious fervor
Critical habitat
Increased awareness of importance
Most divisive issue is water
In policy – don't fully understand the societal and land management demands; how to manage wetlands on ag lands especially private costs and benefits; compliance
Diverse broad (spectrum of opinion) distain to embracing full value
Climate change
Marginal zone – salts, weeds, productivity; variability (major challenge, water margins expanding salts, acres lost to growing outside of margins)
Broad views
Some wetlands highly beneficial, others not
How can wetlands fit into a sustainable farm
Producers recognize value but location matters
Range land; viewed positively; water security, etc.
Food production; more incompatible; production and operational issues; inconvenience factor
Common denominator or ground water recharge
Mitigates flooding
Indicator of water quality
Biodiversity

prairie habitat
joint venture

For more information about the PHJV visit www.phjv.ca