



**10th Annual Conference &
AGM 2023**





Thanks for attending the Alberta Invasive Species Council's 10th Annual General Meeting & Conference!

We hope you enjoy a variety of talks this year with topics including aquatic and terrestrial invasive species, biocontrol, herbicides, animal diseases and so much more! These sessions are scheduled to run from March 7th to 8th, 2023. Certified pesticide applicator credits will be offered.

Thank you for joining us in-person this year!!



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Alberta Certified Weed Free Forage



Contaminated hay is one-way invasive plants are spread across the province, between provinces and around the world. To address this, the [North American Invasive Species Management Association](#), has set industry guidelines and minimum standards for certified weed free products recognized across North America.

The AISC is thrilled to have received funding from the Canadian Agriculture Partnership to help promote and revitalize this important program. It is our intention to work with producers, municipalities, and the province to facilitate, promote and revitalize the Alberta Certified Weed Free Forage program resulting in more weed free forage on the market in Alberta.

If you are a producer interested in having your forage certified weed free, contact the [AISC](#) or your [local Weed Inspector](#). Inspectors have the authority to certify portions of fields or even fields with weeds present, provided that no invasive plant propagules will enter the baled forage. Inspections must be conducted within ten days of cutting, if the crop is not cut within ten days of cutting, a new inspection must be conducted to certify the forage as weed free.

If you are interested in purchasing Certified Weed Free Forage, see the [AISC webpage](#) for a list of producers or contact the AISC by phone (587 999 0954) or email (info@abinvasives.ca).

Applicator Credit Instructions

ATTENTION APPLICATORS. Please review the following to receive Certified Pesticide Applicator Credits:

1. See the [agenda](#) (or table below) for sessions that are approved for applicator credits.
2. In order to receive a pesticide applicator credit, you must:
 - a. Be present for the **entirety** of the session. See below for credit classes and concepts.
 - b. Answer **all** polling questions.
 - c. Record your **name and birthdate** (month and year) on the Attendance List. Applicators not included on the Attendance List will NOT be recognized for credit.

Session Name	Presenter & Title	Concept Covered	Classes	Date
IPM and Prevention	Early Detection Rapid Response – a Wyoming Case Study Mark Daluge, Teton County Weed and Pest District Partnership – The Key to Weed Control on Vacant Crown Land Natasha Rinas, Government of Alberta	Pest Management	Agriculture, Industrial, Forestry, Landscape	March 7
Herbicides	Pesticide Registrations: Leaving, New and Coming Soon Andrea Sawatzky, Health Canada Environmental Monitoring Vivianne Servant Efficacy of Indaziflam for the Control of Invasive Annual Grasses Victoria Maloney, Envu	Environment	Agriculture, Industrial, Forestry, Landscape	March 7
Aquatic Invasive Species	AEP Aquatic Invasive Species Update Nicole Kimmel, Government of Alberta Searching for Invasive Species in Alberta’s Lakes Bradley Peters, ALMS Functional eradication as a framework for invasive species control Stephanie Green, University of Alberta	Pest Management	Aquatic	March 7
Forest Health	Forest health in Alberta: native insects and diseases, and potential invaders Caroline Whitehouse, Alberta Agriculture, Forestry and Rural Economic Development Forest Health in a Changing Climate Mike Undershultz, Government of Alberta Invasive Species Surveillance of Tree-attacking Insects in Alberta: A collaboration between the Canadian Food Inspection Agency, The Society to Treat Dutch Elm Disease, and Olds College Ken Fry, Olds College	Pest Management	Industrial, Forestry, Landscape	March 8
Terrestrial Invasive Species	Taking a long-term approach: a case study of non-chemical noxious weed management on an in-situ facility soil stockpile Dr. Amanda Schoonmaker, Northern Alberta Institute of Technology Non-Native Plant Invasions in Prairie Grasslands Zoey Archibald, University of Alberta	Pest Management	Agriculture, Industrial, Forestry, Landscape	March 8

Terrestrial Invasive Species	Wetlands, Streams and Weeds, Oh My! Kerri O'Shaughnessy, Cows and Fish New Invaders – Invasive Annual Grasses Chris Neeser, Government of Alberta	Pest Management	Aerial, Agriculture, Industrial, Forestry, Landscape, Aquatic	March 8
Animals Diseases	Wild pigs and disease risks: what we know, what we don't, and what we do about it Mathieu Pruvot, University of Calgary White-nose syndrome and the invasion of <i>Pseudogymnoascus destructans</i> into Alberta Cory Olson, Wildlife Conservation Society Canada How ducks survive bird flu; secrets of the reservoir host Kathy Magor, University of Alberta	Pest Management	Aerial, Agriculture, Industrial, Forestry, Landscape, Aquatic	March 8

Conference Details

March 7, 2023

Conference Welcome and Announcements – 10:00AM to 10:10AM

30 Years of Biological Control of Invasive Spotted Knapweed in British Columbia – 10:10AM to 10:45AM

Dr. David Ensing, Agriculture and Agri-Food Canada

Spotted knapweed (*Centaurea stoebe* ssp. *micranthos*) is a widespread and problematic invader of rangelands in southern British Columbia and much of the Pacific Northwest. Together with diffuse knapweed (*C. diffusa*), spotted knapweed has been the subject of a North American biocontrol programme since the 1970s, resulting in the release of 13 insect agents. Despite effective biocontrol of diffuse knapweed in BC, and widespread reductions in the density and fecundity of spotted knapweed across the province, pockets of abundant spotted knapweed remain with considerable costs to rangeland tenure holders. To investigate biocontrol efficacy across the invaded range, we sampled more than 20 long-term monitoring sites across southern BC for abundance and density of spotted knapweed and



its control agents. We dissected 850 individual knapweed plants, and more than 7500 seed heads to quantify plant morphology, fitness, and control agent presence and abundance. We will present our latest results showing, on average, a long-term decline in spotted knapweed under biological control. We augment this finding with demonstrated fitness reductions due to biological control agents across the range, in most cases lowering fecundity below self-sustaining population levels. Despite these findings, robust populations remain. We identified spotted knapweed life history traits, short-growing season sites as refugia from a key control agent species, and diverse land use practices as key predictors of knapweed success. Taken together, the longer-term successful control of spotted knapweed in BC will require an integration of control efforts and revised land use to reduce this species' abundance to non-problematic levels province-wide.

Dr. Ensing is a Research Scientist in Vegetation Ecology with Agriculture and Agri-Food Canada (AAFC) in Summerland, BC, Canada. His research interests centre on explaining why species occur where they do, and not where they don't. His research program at AAFC includes weed biological control, Indigenous food security and sovereignty, rangeland ecology, and vegetation management in managed and unmanaged agro-ecosystems.

[Leafy Spurge Integrated Pest Management Video](#) – 10:45AM to 11:00AM

Video by: Lethbridge County

Collaboration of various municipalities and organizations to inform viewers of the noxious weed, leafy spurge (*Euphorbia esula*), and control of this invasive plant using an integrated plant management approach within Alberta.

Early Detection, Rapid Response – A Wyoming Case Study – 11:00AM to 11:30PM

Mark Daluge, Teton County Weed and Pest District

Over the last decade in Teton County, Wyoming, an Early Detection Rapid Response program has been tracked. From implementation of priorities to eradication of infestations, this presentation will guide the attendee through the process, and dive deeper into a few specific species to evaluate success. By tracking success, managers can confidently tell their story for grant reporting, funding requests, and general public inquiries. Armed with this information, we can finally answer the question of “are we making a difference”!

Mark is the Assistant Supervisor for the Teton County Weed and Pest District located in Jackson, Wyoming. Following the receipt of a Bachelor of Science degree in Agricultural Business Management from the University of Wisconsin in 2003, he moved to Jackson and has been working in the invasive species industry ever since. He received the Rita Beard Visionary



Leadership Award in 2019, given annually in recognition of an early-career individual who has shown exceptional dedication and accomplishments regarding invasive species management or educational activities. He is a State of Wyoming Certified Weed & Pest Control District Supervisor, is a Past-President of the North American Invasive Species Management Association (NAISMA), is an active member on the NAISMA Weed Free Products, Standards and Technology, and Membership/Marketing/Communications, and the PlayCleanGo Committees. He oversees the yearly treatment operations, is a licensed drone pilot, and oversees the Districts GIS efforts. Mark takes pride in having a “can do” attitude and likes a challenge. In his free time, he enjoys rafting, skiing, and camping with his wife and two children.

Partnership: The Key to Weed Control on Vacant Crown Land – 11:30AM to 12:00AM

Natasha Rinas, Government of Alberta

The Terrestrial Invasive Species Program with the Ministry of Forestry, Parks and Tourism has been one which has approximately 25 years of vacant crown land weed control under its belt. Partnerships between the Ministry and Counties and Municipal Districts has been a key component to the program. The Ministry endeavours to be an engaged partner and landowner by striving to implement a program that can endure the ebb and flow of Government programs. Partnering with AISC on the EDDMapS Pro app has allowed the Ministry to better integrate our data management strategy and expand our program deliverables.

Natasha has been working in the rangeland management field for over 7 years. Having worked for years as a rangeland agrologist with both the Government of Alberta and Nongovernment Organizations she is now a Rangeland Program Specialist with the Ministry of Forestry, Parks and Tourism. She leads the Terrestrial Invasive Species Program on vacant crown land and conservation land. In this role, she collaborates extensively with municipalities and not-for-profit organizations. As a prairie girl, she has a love for the subtle beauty of prairies and the beautiful plants that grow there. She enjoys her role in the conservation efforts that are intertwined in her role as the program lead and the collaborative nature of the program.



--- 1 HOUR LUNCH BREAK ---

AISC's Annual General Meeting (AGM) – 1:00PM to 1:45PM

- Adoption of Agenda and 2022 AGM Minutes
- Chair Report
- Financial Report

- Appointment of Auditor
- Operations Report
- Communications Report
- New Business
- Elections
- Big EDD Award
- Adjournment

Pesticide Registrations: Leaving, New and Coming Soon – 1:45PM to 2:10PM

Andrea Sawatzky, Health Canada

New pesticide registrations (both recent and coming soon), as well as the new opportunities these registrations bring with them will be discussed. A brief overview on registrations that are on their way out will be reviewed.

Andrea was born in Thompson, MB, and spent six of her childhood years in Indonesia and Singapore. She attended the University of Manitoba and obtained a Bachelor of Science with a major in Zoology and a Bachelor of Science in Agriculture. After graduation, she moved to Alberta where she started working for the Federal Government. Her first job was as a Primary Products Inspector/Grader for the Meat Hygiene department of what is now called the Canadian Food Inspection Agency (CFIA). Andrea then switched agencies and has been working with Health Canada's Pesticide Compliance Program as a Pesticide Compliance Officer in Calgary for the past 20+ years.



Environmental Monitoring – 2:10PM to 2:35PM

Vivianne Servant, Government of Alberta (Emeritus)

Alberta Environment and Parks has monitored pesticide levels in surface water and drinking water for many years throughout Alberta. This presentation discusses the results of this monitoring and the implications this has on water quality in Alberta and pesticide applications near water.

Vivianne holds a Bachelor of Science Degree and a Teaching Certificate in Adult and Continuing Education (both from the University of Alberta). She also holds both an Alberta Pesticide Applicator Certificate and an Alberta Pesticide Applicator Trainer Certificate. She has worked for Alberta Environment and Parks (AEP) for many years and retired in 2019. While working with AEP, she worked as an inspector and then an investigator for 12 years and then was the Alberta Pesticide Certification Specialist for 18 years. She developed and approved all classes of pesticide applicator training manuals and certification exams in Alberta, the Authorized Assistant and Applicator Train the Trainer Programs and the Farmer Pesticide Certificate program in Alberta. She was also a member and later Co-chair of the Canadian Federal, Provincial, Territories Standing Subcommittee that establishes pesticide education, training and certification standards in Canada for 30 years.



Since retirement, Vivianne has continued to research published reports of pesticide effects on the human health and the environment and has conducted many online and in-person presentations to report these findings to pesticide applicators and industry associations. She also developed (under contract) a Canadian Structural Applicator Training Manual and a Canadian Fumigation Applicator Training Manual. She is currently contracted to update the Alberta applicator training manuals and examinations offered through Lakeland College.

Efficacy of Indaziflam for the Control of Invasive Annual Grasses – 2:35PM to 3:00PM

Vicki Maloney, Envu

Canadian natural grasslands, or native rangelands, are under constant threat from urban sprawl, conversion to cropland, and the spread of invasive species. In recent years the increased introduction of invasive species, including invasive annual grasses, is having a larger and larger impact on species diversity and forage value within Canada's native rangelands. The key to understanding how to control the spread of annual grasses is to understand the physiology of the grass itself. Most invasive annual grasses rely on seed production to reproduce. Yet, seeds can survive in the soil for up to five years. Therefore, management goals should be focused on eliminating seed production and exhausting the soil seed bank. To this end, preemergent herbicide treatments are often used to control annual grasses.



However, in Canada, there are currently no preemergent herbicides that are registered for use in native rangelands. In the US, the chemical indaziflam has shown

great promise in controlling annual grasses in rangeland and pastures. Additionally, research has shown that indaziflam will control downy brome for multiple years without a reduction in perennial species richness or abundance. In Canada, indaziflam is currently registered by Envu™ under the trade name Esplanade™SC and has been approved for the control of annual grasses in non-residential non-crop areas but not for range and pasture. Data from trials throughout the western US and Canada will be presented to provide evidence for the efficacy of indaziflam in controlling annual grasses in rangeland and pasture.

Vicki is the Stewardship and Development Manager for Envu Canada. Vicki received her PhD from the University of British Columbia's faculty of Forestry where her research revolved around understanding the intricacies of cellulose biosynthesis in plants. Since graduating in 2010, she has completed two post-doctoral research positions - one at the University of British Columbia and one at the University of Pretoria in South Africa - along with stints as a university lecturer and as a scientific digital marketing strategist. Since starting her role with Envu, she has been able to further foster her passion for research and science communication as Envu is committed to working with customers and researchers to come up with innovative solutions for land care and the control of invasive species. Vicki currently resides in Calgary, Alberta where she enjoys hiking, skiing, and pretty much any other outdoor activity as long as it is spent with her family and friends.

--- 30 MINUTE BREAK & POSTER SESSION ---

Aquatic Invasive Species Update – 3:30PM to 4:00PM

Nicole Kimmel, Government of Alberta

Hear about the new developments in the Aquatic Invasive Species program from 2022. New challenges and continuing to build success stories. All Albertans still have a critical role to play, come find out what you can do to help protect Alberta waters.

Nicole received a BSc of Environmental Conservation Sciences from the University of Alberta in 2000 with a Specialization in Wildlife and Rangeland Sciences. She began working with invasive plants upon graduation, as a research assistant. After 10 years in research, her role evolved to Weed Specialist, for an additional 7 years of employment. In 2018, she moved to Environment & Protected Areas as the Aquatic Invasive Species (AIS) Specialist. There she supports the five elements of the AIS program (Policy & Legislation, Education & Outreach, Monitoring, Watercraft Inspections/Decontamination and Response). Nicole has near 23 years of service with the Government of Alberta.



Searching for Invasive Species in Alberta's Lakes –4:00PM to 4:30PM

Bradley Peter, Alberta Lake Management Society

Since 1996, the Alberta Lake Management Society (ALMS) has been delivering community-based monitoring programs on lakes throughout Alberta. Specifically, this presentation will highlight the utility of community-based monitoring programs in monitoring Alberta's Lakes for aquatic invasive species. Topics discussed will include Eurasian watermilfoil monitoring, community macrophyte bioblitzes, and zebra and quagga mussel monitoring. Successes and gaps in Alberta's community-based monitoring programs will be explored. The ALMS field guide *Aquatic Plants of Alberta: A Collection of Native and Invasive Species* will be highlighted as an educational tool arising from ALMS' community bioblitz events.

Bradley is the Executive Director of the Alberta Lake Management Society. He has spent 12 years delivering and developing community-based monitoring programs focused on improving our understanding of Alberta's Lakes.



Functional Eradication as a Framework for Invasive Species Control – 4:30PM to 5:00PM

Dr. Stephanie Green, University of Alberta

Most aquatic invasive species (AIS) managers in the US and Canada indicate that priority invasions within their jurisdictions have spread beyond the scale at which eradication is feasible. Yet most programs also lack quantitative targets focused on alternate strategies such as containment and suppression. This talk will outline how 'functional eradication', a framework focused on suppression of invaders below population levels that result unacceptable ecological impacts, can be a viable option for managing the impacts of harmful, widespread AIS. Key ecological information needed to develop quantitative goals for functional eradication, and illustrate the application of this approach for several AIS in freshwater and marine systems will be highlighted. Finally, new research on the ecology and management of two AIS in Alberta—the Northern Crayfish and Prussian carp—and how the approach could be used to limit their effects on freshwater systems in the province will be discussed. Ultimately, identifying realistic targets for suppression allows managers to estimate the removal required to mitigate ecological impacts, and the management resources needed to achieve these levels within high-priority management locations.



Dr. Green is an Associate Professor and the Canada Research Chair in Aquatic Global Change Ecology and Conservation at the University of Alberta. Her lab investigates the causes and consequences of biodiversity change in marine and freshwater ecosystems. Dr. Green's research uses field studies and experiments, quantitative models, and stakeholder surveys to understand how biological invasions impact natural resources. For the past 15 years, she has worked collaboratively with non-profit and government partners on the ecological effects and management of prolific aquatic invaders including Northern Crayfish and Prussian carp in Alberta, Indo-Pacific lionfish in the Western Atlantic Ocean, and European green crab on Canada's Pacific coast.

Pint-Sized Solutions to Aquatic Invasive Species: Can We Drink our Problems Away? – 5:00PM to 5:20PM

Sara Stahlman, Pennsylvania Sea Grant

Education, outreach, and community engagement associated with the prevention, early detection, and reporting of aquatic invasive species (AIS) are paramount in protecting water resources. Pennsylvania Sea Grant and Penn State University researchers partnered with a local brewery in Erie, Pennsylvania, to create a unique project that integrates AIS outreach with a social activity that brings large groups of people together and supports the local economy: drinking beer! Through this partnership, the "Unwanted, Dead or Alive" draft series was created. Invasive species-themed beers were developed by the Erie Brewing Company focusing on AIS with a significant impact



to the region. This project engaged members of the public and drew the connection between needing good water quality to brew delicious beers. To date, this partnership has brewed eight beers including the Mystery Snail Ale, Round Goby Rye, Sea Lamprey Lager, Hazy Hydrilla, Zebra Mussel Maibock, and more. To promote this beer and create engagement with the public, the project team hosted launch events at the brewery that brought in over 350 individuals to sample the beer, participate in AIS-themed games, and learn about the impacts of AIS to the region. Outreach materials such as posters, beer coasters, and tap stickers were developed, and creative evaluation strategies were employed to assess increases in awareness, as well as interaction with AIS resources. This presentation will share the successes of this project as a fun and translatable way to raise awareness about AIS.

Sara is the extension leader for Pennsylvania Sea Grant. She joined Pennsylvania Sea Grant in 2006 and became extension leader in July 2017. Sara provides statewide leadership and management of the Pennsylvania Sea Grant extension program in several key areas including community resilience, invasive species, water quality, fisheries, watershed restoration, and land-use planning. She has extensive experience engaging with local, national, and international audiences through dynamic presentations, hands-on experiences, and developing novel tools and resources to support sustainability of Pennsylvania's water resources. Sara earned her bachelor's in biology with a minor in psychology from Penn State Behrend, and her master's degree in biology from Shippensburg University of Pennsylvania.

Closing Remarks for Day 1 – 5:20PM to 5:30PM

--- OPTIONAL BREWERY TOURS (5:30PM to 6:30PM) ---

PRE-REGISTRATION REQUIRED

Mixer and Dinner at The Crossing Pub – 6:30PM

March 8, 2022

Welcome and Announcements – 8:55AM to 9:00AM

Non-Native Plant Invasions in Prairie Grasslands – 9:00AM to 9:30PM

Zoey Archibald, University of Alberta

Native prairie grasslands are a fundamental part of Canada's natural heritage, but these formerly extensive ecosystems have undergone massive declines. One threat to grassland integrity is invasion by non-native plants. This talk is based on our investigative study of plant invasions in prairie grasslands across a 938-km spatial gradient within Alberta, Canada. We 1) identified the most frequent and abundant non-native plants, 2) tested whether levels of invasion are linked to environmental or anthropogenic factors, and 3) inspected whether these relationships differed between mesic and semiarid grasslands. We found that Kentucky bluegrass (*Poa pratensis* subsp. *angustifolia*) is by far the most common non-native plant in Alberta's prairie grasslands. Climatic conditions, agricultural activity, and topography best explained non-native plant



patterns, though the strength of these predictors differed between mesic and semiarid grasslands.

Zoey Archibald has a wide range of experience in environmental consulting and public rangeland management. Her knowledge and passion for rangelands guided her graduate studies on invasive plant patterns in Alberta's grasslands. Since completing her MSc from the University of Alberta in 2021, Zoey has been an instructor at the Northern Alberta Institute of Technology where she teaches introductory botany, plant identification, and rangeland management.

Taking a Long-Term Approach: A Case Study of Non-Chemical Noxious Weed Management on an In-Situ Facility Soil Stockpile – 9:30AM to 10:00AM

Amanda Schoonmaker, Northern Alberta Institute of Technology

Industrial disturbances, whether in the mining or oil and gas sector, typically result in the clearing of forests and stockpiling of surface soils during the construction and operating phases of industrial activity. Management of these stockpiles is required until final reclamation activities after facility removal, the site is re-contoured and stockpiled soils are spread. Historical (and present) practices include seeding with grasses and use of chemical herbicides to control establishment of noxious weeds. However, temporary reforestation of soil stockpiles, is an alternative, though not widely utilized practice that may better fit the fundamental long-term final reclamation goals in forested settings (restoring a functional forest). Potential benefits of temporary reforestation of stockpiled soil include long-term erosion control, reduced invasion of weedy vegetation through increased forest cover and shading and increased habitat availability for wildlife. In addition, temporary reforestation is also likely to enhance the root and seed propagule bank and provide coarse woody material final reclamation.



This presentation will explore key results from an ongoing case study that was initiated in 2016 to demonstrate the potential for temporary reforestation on industrial soil stockpiles. The study site is located within an operating in-situ facility SE of Fort McMurray AB and is approximately 8 hectares in size. The key purpose of the study is in evaluating variation in plant establishment density and understanding how density impacts the pace of forest re-establishment. However, a unique feature of this study is that both the AER and the regional municipality agreed to accept the use of native plant communities as a weed control strategy. This is an approach that is generally not widely implemented as it tends to run counter to prevailing practices for noxious weed management. This non-chemical strategy involves allowing for forest canopy cover to do the work of weed management, however, this requires time for the forest canopy to develop and buy in from regulatory authorities.

This presentation will focus on changes in the understory plant community, with particular emphasis on non-native plant development, over a 6-year period. These results will be applicable to practitioners

considering alternatives to chemical weed management and where growing native forest (woody) vegetation is a goal.

Dr. Schoonmaker obtained a BSc in Forest Sciences from the University of British Columbia in 2006 and completed a PhD in Forest Biology and Management at the University of Alberta in 2013. She joined the NAIT Centre for Boreal Research in 2011 as a Reclamation Field Research Coordinator. In 2015, she was awarded a 5-year renewal federal research chair grant by the National Sciences and Engineering Research Council (NSERC). Her research program is focused on methods and practices of reclamation and reforestation of upland forest landscapes that have experienced anthropogenic disturbances.

--- 30 MINUTE BREAK ---

Forest Health in Alberta: Native Insects and Diseases, and Potential Invaders – 10:30AM to 11:00AM

Caroline Whitehouse, Government of Alberta

The Forest Health and Adaptation section, as part of Alberta Forestry, Tourism and Parks, monitors the state of forest insects, diseases, in addition to tree health. These surveys provide a coarse snapshot on the state of Alberta's forest and can be used to assess changes in the status of these damage agents. Additionally, the section works closely with external partners to detect, monitor, and manage invasive forest pests. Exotic species can be introduced to our forests through a number of pathways, which are most often mediated by humans. While not all of these exotic species become established, some do and their negative impact can have far-reaching effects. In this talk, Caroline will discuss the monitoring program, the current status of forest health damage agents, and the invasive forest pests that are of greatest concern.



Caroline is a forest entomologist with Alberta Agriculture, Forestry and Rural Economic development. Prior to joining the government, she worked at the University of Alberta in a lab focused on the ecology of insects such as mountain pine beetle, forest tent caterpillar, and numerous agricultural pests. Her MSc was focused on the reproductive biology of a cone-feeding insect pest in conifer seed orchards. Her forest entomology background provided the knowledge needed for her first role with the Government of Alberta as a Forest Health Officer in northwest Alberta. Her current role is provincial in scope and uses her operational experience to complement her academic background. She helps to deliver comprehensive forest health program focused on forest insects, diseases, and climate change.

Forest Health in a Changing Climate – 11:00AM to 11:30AM

Mike Undershultz, Government of Alberta

Climate plays a significant role in determining the health and productivity of trees, and is a primary driver of insect development and population dynamics. In Alberta, the future climate is expected to be more variable with more frequent extreme weather events and increases in water scarcity. These predicted conditions will likely result in a general decline of native tree health and productivity. These same conditions will also benefit many forest damage agents in the coming decades. This presentation will identify some forest health challenges posed by climate change, and adaptation measures that can be taken to mitigate damage and take advantage of opportunities that arise.

Mike began his career in Alberta's forest health program as a forest health field technician in the northern boreal forest in 1994; he is now stationed in his home town of Edmonton. He received his BSc - Environmental and Conservation Sciences from the University of Alberta in 1996, and is a registered professional biologist. Mike's work experiences include coordinating Alberta's mountain pine beetle management program, survey and assessment of a multitude of forest pests and invasive species, and monitoring climate change impacts on the health and productivity of Alberta's forests.



Invasive Species Surveillance of Tree-Attacking Insects in Alberta: A Collaboration Between the Canadian Food Inspection Agency, the Society to Treat Dutch Elm Disease and Olds College – 11:30AM to 12:00PM

Ken Fry, Olds College

The collaboration between the CFIA, StopDED, and Olds College to surveil for invasive species affecting trees in Alberta will be discussed. This program has been in place for 12 years and has accumulated species diversity and abundance data on 62 native and naturalised insect species affecting Alberta's natural and urban forest trees. To date, no invasive species have been detected. However, a robust database of native and naturalised species has been amassed providing distribution and phenological information.

Dr. Fry, Entomology Instructor in the School of Life Science & Business at Olds College of Agriculture & Technology, has been involved in insect pest management research, teaching, and



extension for over 30 years. His research is focused on biological control of insect pests and integrated pest management. Current research projects include the introduction of a parasitic wasp to manage the lily beetle, surveillance of invasive species affecting the urban forest, and evaluating the effects of Aphodiine beetles on turfgrass. Dr. Fry's "happy place" is in the Olds College Insect Collection where he serves as curator for 100,000 specimens. Dr. Fry is co-author, with Doug Macaulay and Don Williamson of "Garden Bugs of Alberta" and a contributing author to "Organic Farming on the Prairies".

--- 1 HOUR LUNCH BREAK ---

Wetlands, Streams and Weeds, Oh My! – 1:00PM to 1:30PM

Kerri O'Shaughnessy, Cows and Fish

Wetlands, streams and weeds oh my! What is the connection? We know that invasive plants (often also referred to as weeds) contribute to an overall decline in landscape health and pose economic, social or environmental risk, as indicated by the Alberta Weed Control Act. The unique soils and growing conditions of riparian zones next to, and influenced by water, can be a great place to grow all kinds of plants, even invasive ones. So, can we identify any trends regarding weeds and wetlands in Alberta? Do healthy riparian sites have fewer weeds than unhealthy sites? Are there really any sites without Canada thistle present? Can we identify any trends based on natural region?

The Cows and Fish Riparian Health Inventory and Assessment (RHI/A) database contains information pertaining to riparian health and function for 3,168 sites on lentic (non-flowing) and lotic (flowing) waterbodies in Alberta between 1996 and 2021. This data includes presence, abundance (canopy cover), density and distribution of invasive plants (i.e. prohibited noxious and noxious weeds and other plants that are problematic in riparian areas). We will examine and share trends in invasive plants for both lentic and lotic riparian areas based on this data as summarized over the past 25 years.

Kerri is a Riparian Specialist for Cows and Fish and has been doing this type of work for 24 years with Cows and Fish. In her job, she works with individuals, communities, agencies and organizations on better understanding our watersheds and the riparian areas within them. She is based in Edmonton but her time with Cows and Fish has allowed her to explore many of the natural regions of Alberta (and beyond) and meet many people stewarding our lands and water. Kerri has a Bachelor of Science in Environmental and Conservation Science from the University of Alberta; is a Professional Agrologist and is a bit of a self proclaimed 'data hound' and excited to share what she and her colleagues have learned about invasive plants in Alberta.



New Invaders – Invasive Annual Grasses – 1:30PM to 2:00PM

Chris Neeser, Government of Alberta

Introduced grasses with annual life cycles have invaded large areas of the Western US and are in the process of doing so in the Prairie Provinces and much of interior British Columbia. In this presentation the author will give an overview of the five most damaging species, how to identify them, their current distribution in Canada and adjacent states, control options, as well the anticipated effect of climate change on these species.

Chris has been with the Ministry of Agriculture, Forestry and Rural Economic Development since May of 2000. At first as the Special Crops Weed Control Specialist, then as the Fruit and Vegetable Specialist, and for the last 15 years as the Weed Surveillance Lead. Previous work included postdoctoral weed ecology research at the University of Nebraska, teaching botany at the undergraduate level, and the supervision of reforestation projects. In 1990, Chris completed a BSc in Agriculture, and in 1992 an MSc in Plant Science, both at McGill University. He obtained his PhD in Agricultural Production and Agroecosystems in 1997 from the University of Guelph.



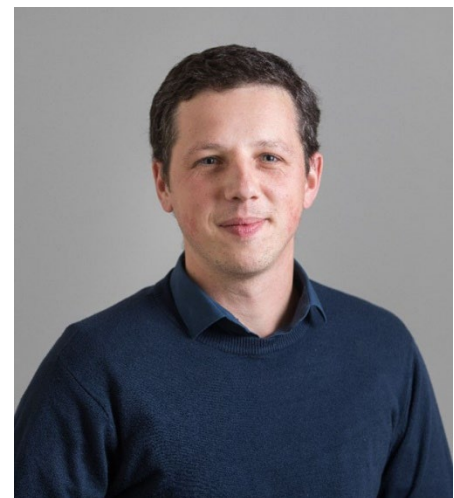
--- 30 MINUTE BREAK & POSTER SESSION ---

Wild Pigs and Disease Risks: What We Know, What We Don't and What We Do About It – 2:30PM to 3:00PM

Mathieu Pruvot, University of Calgary

Wild pigs are potential hosts for a large number of infectious agents that can affect livestock, humans, and other wildlife. Thus, in addition to ecological and agricultural damages, wild pigs are likely to considerably change what we previously knew about epidemiological risks in the province. In this presentation, we review what we currently know about wild pigs as hosts of infectious diseases, existing gaps in our ability to predict and control these risks, and on-going research projects addressing these gaps.

Dr. Pruvot is a veterinary epidemiologist and disease ecologist whose primary focus has been to understand the risks of disease transmission between wildlife and livestock in a diversity of local



and international contexts. Following a DVM degree from France, a MSc in epidemiology and biostatistics, and a PhD at the University of Calgary, Faculty of Veterinary Medicine (UCVM), Dr. Pruvot worked for 6 years as a wildlife epidemiologist for the Wildlife Conservation Society in Southeast Asia and in the United States. Dr. Pruvot returned to UCVM in 2020 as assistant professor where he leads research on Health at the interface of livestock, people, and wildlife in Alberta and internationally.

White-Nose Syndrome and the Invasion of *Pseudogymnoascus destructans* into Alberta – 3:00PM to 3:30PM

Cory Olson, Alberta Community Bat Program

White-nose syndrome is a disease of bats caused by *Pseudogymnoascus destructans* (Pd), which is an invasive fungus of Eurasian origin that was accidentally introduced to eastern North America about 17 years ago. The disease has already killed millions of bats in affected regions and is causing precipitous population declines as it spreads across the continent. Wildlife Conservation Society Canada, in partnership with numerous volunteers, government agencies, and non-profit organizations, has been collecting samples from across Alberta, Saskatchewan, and the Northwest Territories to monitor the spread of Pd in western Canada. While this fungus does not appear to be well established in Alberta, we may now be at the start of its invasion into the province. In this talk, we'll summarize what we know about this disease, its spread into Alberta, and what we are doing to prepare for its arrival.



Cory is a Professional Biologist who has been studying bats in Western Canada for over 14 years. He has led several bat inventories across western Canada, authored numerous reports, and has been actively engaged in bat conservation and recovery through his work with Wildlife Conservation Society Canada. He is Program Coordinator for WCS Canada's Alberta Community Bat Program, which is helping lead Alberta's efforts to prepare for the arrival of white-nose syndrome in the province.

How Ducks Survive Bird Flu; Secrets of the Reservoir Host – 3:30PM to 4:00PM

Kathy Magor, University of Alberta

Ducks are the natural host and reservoir of influenza A viruses (IAV), and permit replication while being unharmed by most strains. Why ducks survive infection with strains that can kill everything else remains unclear. We have used a variety of genetic approaches to understand what happens in the duck response to flu. We showed that ducks, but not chickens, have the detector for flu. Our data shows that this early detection and a robust interferon response turn on protective antiviral genes in the tissues where replication occurs. We also noted downregulation of mediators of inflammation to prevent tissue

damage. Global gene changes indicate that both turning on immune genes for protection, and turning off genes promoting inflammation are key to survival.

Dr. Magor is a Professor in Biological Sciences at the University of Alberta. She received her BSc in Biochemistry (1986) and MSc in Biology (1989), both from Dalhousie University in Nova Scotia, and PhD in Immunogenetics (1995) from the Medical University of South Carolina. Dr. Magor did postdoctoral fellowships at University of Hong Kong (1994-1995), and Stanford University (1995-1999).

In 1999, she joined the University of Alberta, where she established her research program on immune responses to influenza virus in the natural host, the duck. The lab explores both innate and adaptive immune genes and their involvement in perpetuation of low pathogenic influenza viruses in ducks, and immune protection against highly pathogenic strains. Dr. Magor hopes to learn from the reservoir host ways to mitigate damage from influenza viruses. Currently her research team includes a technician, 3 graduate students (1 PhD, 2 MSc) and is funded by both CIHR and NSERC. She has mentored 25 graduate students who continue in careers in science or medicine. In 2006, Dr.



Magor did a sabbatical with Robert Webster to learn influenza work. In their containment labs in Memphis, TN they did several experiments with bird flu and ducks to examine duck immune responses. They continue to examine components of the duck immune response from these experiments, to try to understand why ducks are unharmed by strains of flu that kill everything else.

Closing Remarks for Day 2 – 5:20PM to 5:30PM

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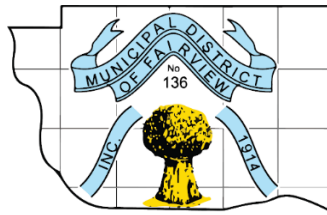
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