

F THE WEEK



ALBERTA  
invasive species  
COUNCIL

Virtual Conference & AGM  
2021







Thanks for attending the Alberta Invasive Species Council's 8<sup>th</sup> Annual General Meeting and Conference!

We hope you enjoy a variety of talks this year with topics including Aquatic Invasive Species, Biocontrol, Terrestrial Invasive Species, Invasive Plants and Invasive Insects and Disease. These sessions are scheduled to run each afternoon from March 15-19<sup>th</sup>, 2021 throughout the week for 3 to 3.5 hours. Applicator credits will also be offered.

Thank you for joining us virtually this year and we can't wait to see you in person in the future!



## Contact Us



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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](mailto:info@abinvasives.ca)).

# Conference Details

March 15, 2021

AGM and Aquatic Invasive Species Sessions

Session Sponsor:



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Knights Spraying Inc. shields customers from the risks associated with vegetation growing along the green spaces of infrastructure by providing risk assessments, integrated vegetation management programs and detailed reporting.

Thank you for sponsoring day one of the AISC conference!

## Annual General Meeting (AGM) – 1:00PM to 1:45PM

- Welcome – Jay Byer, AISC Chair
- 2020 AGM Minutes – Jay Byer, AISC Chair
- Chair Report – Jay Byer, AISC Chair
- Financial Report – Matthew Gibson, AISC Treasurer
- Appointment of Auditor – Matthew Gibson, AISC Treasurer
- Operations Report – Megan Evans, AISC Executive Director
- Special Resolution – Megan Evans, AISC Executive Director
- Big EDD Award – Doug Macaulay, AISC Vice Chair
- Elections of Directors – Doug Macauley, AISC Vice Chair

## Conference Welcome and Announcements – 1:45PM to 1:50PM

## Occupancy and Impacts of Invasive Northern Crayfish (*Faxonius virillis*) on Native Fish Species in North Saskatchewan River Basin – 1:50PM to 2:05PM

Victoria Van Mierlo<sup>1\*</sup> (Student Presentation), Cristina Buendia-Fores<sup>2</sup>, Stephanie Green<sup>3</sup>, and Mark Poesch<sup>1</sup>

<sup>1</sup>Department of Renewable Resources University of Alberta \*Presenting Author, <sup>2</sup>Government of Alberta Environment and Parks, <sup>3</sup>Department of Biological Science University of Alberta

Victoria is an MSc graduate student in conservation biology at the University of Alberta. In 2018 she earned a BSc with honours in molecular biology and ecology from McMaster University in Hamilton, Ontario. In her senior year, she investigated the robustness of the invasive marmorated stink bug's immune response and the effect of invasive lionfish on species assemblages of patch reefs through her senior thesis and an Eleuthera based field biology course, respectively. These experiences made her passionate to study the invasive northern crayfish in her current degree program.



Victoria will discuss her current study with the AISC conference attendees. Invasive species are the second largest threat to biodiversity, globally. Crayfish are especially robust invaders due to their omnivorous nature and ability to compete directly (resource procurement) and indirectly (habitat occupation and modification) with native species. In the North Saskatchewan River (NSR) basin, the Northern Crayfish, *Faxonius virillis*, was introduced and has persisted since the early 1990s. Despite the NSR being an ecologically, economically, and culturally valuable watershed and home to multiple sensitive and at-risk fish species, the crayfish's impacts on Alberta's native fish communities have yet to be assessed. This study's aims are to (1) create an occupancy model of *Faxonius virillis* in the NSR, (2) identify tributaries at highest risk for subsequent invasion, and (3) use isotope analysis and condition to determine if there is evidence of crayfish and native fish niche overlap indicating potential competition for resources. To determine occupancy, 24-hour baited crayfish traps were deployed and environmental measurements were made at 43 sites along the Alberta portion of the NSR basin. Six native fish species (2 detritivorous, 2 insectivorous and 2 piscivorous) were captured from the same sites by electrofishing and euthanized humanely. Crayfish tail muscle tissue and fish dorsal muscle tissue were used for stable isotope analysis. The information gained from this study will be useful for the management of *Faxonius virillis* in the NSR to prevent further spread of the species into un-occupied tributaries and protect native fish species.

--- 15 MINUTE BREAK ---



## **Aquatic Invasive Species (AIS): Alberta Update 2020 – 2:20PM to 3:10PM**

Nicole Kimmel, Alberta Environment and Parks

Nicole received a B.Sc. of Environmental Conservation Sciences from the University of Alberta in 2000 with a Specialization in Wildlife and Rangeland Sciences. She began working with Alberta Agriculture upon graduation, as a research assistant. Her work involved addressing weed management issues in forages and non-traditional crops. After 10 years in agricultural research, her role evolved to Weed Specialist, for an additional 8 years of employment. In 2018, she moved to Environment & Parks 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 now has 20 years of service with the Government of Alberta.



Nicole will update AISC conference attendees to the activities undertaken by the AIS program staff and valued partners in response to the following species: koi, oriental weather loach, goldfish, flowering rush, Phragmites, purple loosestrife and Chinese mystery snail.

## **Using Environmental DNA to Track Chinese Mystery Snail Invasion in Alberta Lakes – 3:10PM to 4:00PM**

Patrick Hanington, University of Alberta

Patrick is an associate professor in the School of Public Health at the University of Alberta. He is a parasitologist and immunologist by training and his research focuses on studying the interface between animals, parasites/pathogens and freshwater environments. This broad research focus often focuses on understanding three aspects of biology: the specific interactions that underpin host and parasite/pathogen compatibility, how populations of host and parasite influence each other within a freshwater ecosystem, and how species invasions can disrupt the balance between hosts and parasites. Patrick and his research group often approach these topics using multiple approaches that combine large-scale field surveys with large-scale spatial and temporal studies, molecular biology and specific host-parasite association investigations. In order to undertake these ambitious studies, Patrick and his team have relied on forming partnerships with Government of Alberta, non-government organizations, industry, education and community partnerships. These partnerships have coalesced into an incredible collaboration that advances research objectives, our understanding of important issues related to freshwater ecosystems in Alberta and promotes healthy aquatic ecosystems for all.



Patrick's research interests focus on advancing our understanding of the biology of waterborne parasites and aquatic invasive species in Alberta. Much of the work undertaken in Patrick's research group

involves development, validation and implementation of DNA-based tests to detect organisms and environmental DNA that allows for sensitive and specific monitoring efforts. In October 2019, Patrick's group was part of the team that first identified the invasive snail *Cipangopaludina chinensis* also known more commonly as the Chinese Mystery Snail at Lake McGregor in Alberta. Since this first identification, Patrick and his team have worked to develop eDNA-based tools to detect the Chinese Mystery Snail in order to determine if it has spread beyond Lake McGregor into surrounding reservoirs/lakes. Results from the implementation of this test in the spring/summer of 2020 will be the focus of Patrick's talk for AISC attendees.

**March 16, 2021**  
**Biocontrol Sessions**  
**Session Sponsor:**



**Cortex Management Inc. is an industrial vegetation control company, dedicated to your business. They work with land, maintenance and operations managers in a multitude of industries. Vegetation control is usually a reactive and overlooked aspect of site maintenance. While they work to help you get the job done now, they also want to help you plan for the future. Proactive planning for clients allows them to deliver timely and efficient management programs. This approach ensures managers have few surprises in terms of product, service, delivery and budget.**

**Thank you for sponsoring day two of the AISC conference!**

**Welcome and Announcements – 1:00PM to 1:05PM**

## Update on Weed Biological Control Research at CABI Switzerland – 1:05PM to 1:45PM

Sonja Stutz, CABI

Sonja is a research scientist with CABI in Switzerland. She did her PhD at CABI and the University of Fribourg, Switzerland investigating the potential invasion mechanisms of oxeye daisy in North America. For the last ten years she has been working at CABI on several biological control projects for North America, Australia and New Zealand, including oxeye daisy, common tansy, perennial pepperweed and lesser calamint.



CABI is an international, intergovernmental, not-for-profit organization with over 60 years of experience in developing biological control agents for exotic invasive plant species. Their work includes field surveys to search for natural enemies in the weeds native range and studies to see which of the natural enemies would be safe and effective biological control agents if released in the invaded range. Many of the biological control agents that are currently contributing to the successful control of important North American weeds such as leafy spurge, toadflax, knapweeds, hounds tongue and purple loosestrife have been released based on the work carried out at CABI in Switzerland. Currently, we are working on 18 weed biological control projects for North America. In this presentation Sonja will give an update about our work on candidate biological control agents for oxeye daisy, common tansy, flowering rush and field bindweed.

## Update on Weed Biocontrol Research in Alberta – 1:45PM to 2:25PM

Rosemarie De Clerck-Floate, Agriculture and Agri-Food Canada

Rose has been studying the use of foreign insects in the biocontrol of invasive plants for 29 years in her position as a Research Scientist with Agriculture and Agri-Food Canada in Lethbridge. She 'introduced' herself to Alberta, having grown up in a small town in Northern Ontario, where she began developing her interests in entomology and botany. These interests, along with some much-appreciated mentoring along the way, led her to complete a M.Sc. in Biology at the University of Saskatchewan (1987) and a Ph.D. in Botany from Northern Arizona University (1991). Now she is paying it forward by helping mentor the next generation of biocontrol researchers, while working on the newest crop of weeds to arrive on Canadian soil.



Beginning with a brief overview of Canada's weed biocontrol program that highlights our general procedures, ongoing research and recent successes, the presentation to AISC attendees will then zero in on our lab's current projects involving a few weeds of interest to Alberta (e.g., yellow toadflax, hawkweeds, Russian olive). Key to our research is striving to understand and accurately predict how candidate biocontrol insects will behave upon release so that



they can be used safely and effectively by those that need them. This includes knowing how well they do under variable environmental conditions. Some new projects to study the effects of climate on weed biocontrol will be discussed.

--- 15 MINUTE BREAK ---

### **Effective Biological Control of Canada Thistle, *Cirsium arvense*, Using its Rust Fungal Parasite, *Puccinia punctiformis* – 2:40PM to 3:20PM**

Chris Saunders, Strategic Weed Management Consulting

Chris retired in 2018 from a 37-year career specializing in the development of a wide variety of Integrated Pest Management programs at the City of Edmonton. He has since started a small company to support invasive species management through training in strategic weed management practices and is also a practitioner of weed biological control, currently procuring CFIA-approved insect biocontrol agents for scentless chamomile and yellow toadflax.

Although numerous leaf, shoot and flower feeding insects have been introduced to Alberta to help restore some of Canada thistle's natural enemies, these have shown little evidence of population control of this regulated invasive weed. The rust fungus, *Puccinia punctiformis*, occurs throughout the North American distribution of its only host, Canada thistle, and has been recommended as a biocontrol agent for more than a century. Only in the past decade has the complex life cycle of this rust fungus been understood well enough to harness its ability to create a lethal systemic infection in Canada thistle's deep, horizontal, creeping root system. The Colorado Dept. of Agriculture's multi-state program distributes an inoculum of *P. punctiformis* to farmers and fieldmen who initiate the lethal infection in rosette stage Canada thistle plants, achieving on average a 60% reduction in stem density over two years.



*P. punctiformis* infected Canada thistle

### **AISC's Biocontrol Release Program – 3:20PM to 4:00PM**

Tim Skuse, AISC

Tim is the coordinator for Alberta Invasive Species Councils' biocontrol release program. He holds a Master's Degree from the University of Toronto in researching release strategies for biocontrol agents. When he is not in the field, he continues to research best practices for current biocontrol agents.

Tim will update AISC attendees with an overview of the biological controls offered by AISC's biocontrol release program along with a discussion of the results from long-term biocontrol monitoring data collected by the program.



**March 17, 2021**  
**Terrestrial Invasive Species Sessions**  
**Session Sponsor:**

# **LONSBURY**

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Lonsbury Applications Ltd. is a complete commercial and residential weed management company operating in both Alberta and BC. They can help you with any application needs from fertilizer applications and scheduled lawn maintenance to spring dethatching, aeration and winter snow removal.

Thank you for sponsoring day three of the AISC conference!

**Welcome and Announcements – 1:00PM to 1:05PM**

**Earthworm Invasions in Alberta – 1:05PM to 1:55PM**

Erin Cameron, Saint Mary's University

Dr. Cameron's research focuses on invasive species, climate change, and soil biodiversity. She has been studying earthworm invasions since 2004 and completed her graduate research at the University of Alberta on spread and impacts of non-native earthworms in the boreal forest. After doing some



research in Finland, Denmark, and Germany, she is now an Assistant Professor at Saint Mary's University in Halifax and is working on earthworm invasions in Canada again.

In most of Canada and the northern United States, earthworms were extirpated during the last ice age. However, non-native earthworms were introduced with the arrival of European settlers and have since been spreading across Canada. This has led to substantial impacts on community composition and ecosystem functioning in invaded forests. In this presentation, Erin will discuss her research on the spread and effects of non-native earthworms in the boreal forest of northern Alberta. She will also discuss management implications and highlight key gaps in our knowledge of these invasions.



### **The Cautionary Tale of Scotch Broom in Washington State: Identification, Impacts, and Mobilization to Address *Cytisus scoparius* – 1:55PM to 2:45PM**

Justin Bush, Washington Invasive Species Council

Justin was hired as executive coordinator of the Washington Invasive Species Council in 2016. He has worked on invasive species issues since 2008 with federal, state, regional, and local organizations including King County and the Lady Bird Johnson Wildflower Center at the University of Texas at Austin where he managed the [TexasInvasives.org](http://TexasInvasives.org) statewide partnership. During these years, he has been involved in various projects to prevent, detect, and control both aquatic and terrestrial invasive species and is passionate about reducing the threat they pose to the economy and ecosystems. When not battling invasive species, he can be found traveling, SCUBA diving, or enjoying Washington's rivers in a raft or kayak.



Scotch broom is a perennial, many-branched, shrub in the pea family. Flowers are bright yellow, less than an inch long, and have 5 petals—this innocuously sounding plant is the scourge of Washington State, with impacts of continued spread projected to cause more economic harm to Washington than introduction of invasive quagga and zebra mussels. Justin will share the cautionary tale of Scotch broom in Washington. This tale will include Scotch broom identification, spread over time, direct and indirect impacts, and economics. Following this introduction, Justin will share successful strategies to prevent the introduction and spread of Scotch broom, rapidly respond to pioneering infestations, and mobilize the public as citizen scientists and removal volunteer

--- 15 MINUTE BREAK ---

### Tracking the Spread of Invasive Wild Pigs in Canada – 3:00PM to 3:50PM

Ryan Brook, University of Saskatchewan

Dr. Brook is an Associate Professor in the College of Agriculture and Bioresources at the University of Saskatchewan. Raised on a farm near Winnipeg, he did his undergrad, masters, and PhD at University of Manitoba and his postdoc in caribou health at the University of Calgary Faculty of Veterinary Medicine. His group the 'Wildlife Ecology and Community Engagement' (WECE, pronounced 'we see') works primarily on issues at the wildlife-livestock interface on the Canadian Prairies in collaboration with Rural and Indigenous People, but has side hustles in the arctic and jungles of Sri Lanka.



Free-ranging invasive wild pigs are a global problem across all continents except Antarctica. They are not native to North America but were introduced to Canada in the 1980's as domestic stock that were released or escaped at numerous points across the country and became established in the wild. These 'wild pigs' include a complex mix of (1) true Eurasian Wild Boar, (2) feral domestic pigs, (3) hybrids of #1 and #2, and (4) pot-bellied pigs that are all in the same species *Sus scrofa*. Occurrences of wild pigs were rare in 1990's but have increased exponentially during the last decade, especially in the three Prairie Provinces, Alberta, Saskatchewan, and Manitoba. Wild pigs currently occupy over one million km<sup>2</sup> across Canada and are expanding their range at >90,000 km<sup>2</sup> each year. Eradication of wild pigs from all of Canada is no longer realistic but control over large areas is possible using a community-engaged, science-based approach that includes a full tool box of options implemented collaboratively.

### 'Squeal on Pigs!' Campaign in Alberta – 3:50PM to 4:10PM

Megan Evans, AISC

Megan started her invasive species career working with the provincial Forest Health program. While there she oversaw a regional invasive plant management program, implemented education and outreach initiative and was responsible for survey and control of forest insects and disease. She then worked as an Ecologist with Alberta Parks where she established a holistic in-house invasive plant management program, which included native seed harvesting, restoration work and an integrated approach to invasive plant management. Throughout this time, she participated as a board member for the Alberta Invasive Species Council and the Entomological Society of Alberta. Megan is currently the Executive Director for the Alberta Invasive Species Council and the President of the Alberta Native Bee Council.





Megan will provide a quick overview of AISC's new 'Squeal on Pigs!' campaign, aimed at raising awareness of the issues of wild boar at large in Alberta.

**March 18, 2021**  
**Invasive Plant Sessions**  
**Session Sponsor:**



West Country Energy Services just celebrated its 20<sup>th</sup> year of continuous operation last year. They have been on the front lines of invasive plant control in the Western Canada from the beginning. The vision of the company is that "West Country will be the preferred provider of infrastructure services; committed to positive client and public partnerships".

Thank you for sponsoring day four of the AISC conference!

**Welcome and Announcements – 1:00PM to 1:05PM**

**Weed Free Forage Program – 1:05PM to 1:55PM**

Kelly Cooley, CoolPro Solutions and Megan Evans, AISC

Kelly just completed his term on the North American Invasive Species Management Association Board of Directors (2015-2020), including service as NAISMA President. He continues on most of NAISMA's committees. Kelly lends his experience to several organizations, including the Crown of the Continent Manager's Partnership (Crown Terrestrial Invasive Plant Network and Landscape Conservation Design Team), South West Invasive Managers, and the Alberta Conservation Advisory Committee for the Nature Conservancy of Canada. Kelly served as Agricultural Fieldman for the MD of Pincher Creek (1993-2010),

managing agricultural and environmental programs. During that time, he took on leadership roles with: Executive of the Association of Alberta Agricultural Fieldmen (2002-2006) including AAAF President and as Executive of the North American Weed Management Association (2004-2008). Kelly grew up on the family farm in southwest Alberta. Their mixed operation included native prairie, with a view of the Canadian Rockies Eastern Slopes. Kelly and his family are active in local recreational sports and community organizations, share a love for music, and enjoy raising their four children. They maintain 'country roots' on 80 acres south of Pincher Creek, escaping to hike in the mountains whenever possible.



Contaminated hay is one means by which invasive plants are spread, which is why the province initiated the Alberta Certified Weed Free Forage Program in 2000. However, there has been dwindling participation in the program, which is largely attributed to lack of awareness of the program itself. The AISC has received funds to revitalize this program, where they will work to break down barriers to success by providing training, administration, program promotion and facilitate linking buyers with sellers. This program utilizes the North American Invasive Species Management Association's Minimum Standards for Certified Weed Free Products. Kelly and Megan Evans (AISC, Executive Director) will provide an overview of this program, the standards and inspection protocol.

### **Nobody Can Achieve Assurance Alone: "We Are All Making a Difference Here" – 1:55PM to 2:45PM**

Krista Zuzak, Alberta Agriculture and Forestry

Krista is the Chief Provincial Plant Health Officer (CPPHO), with Alberta Agriculture and Forestry. She has been with Alberta Agriculture and Forestry for close to five years. She spent her first three years in the Alberta Plant Health Lab working on crop pest diagnostics, transitioning to the role of CPPHO. She is from the Edmonton, AB region where she attended the University of Alberta. She completed her Bachelor of Science degree in biology and her MSc in plant pathology. Krista has a passion for pest management and market access assurance, and looks forward to sharing this through her position with the Plant and Bee Health Policy Section.



We are living in a world where market access assurance is crucial. International scrutiny on plant pests is increasing as the demand grows for safe, high quality agricultural and food products. The daily work of assurance partners in managing the introduction and spread of invasive plant pests plays an important role in international market access protection. For example, the control of weeds can limit seed production and introduction into export markets down the line, protecting Alberta's and Canada's reputation for producing high, quality and safe products. Together, we will explore the importance of our network relationships in working together to achieve these goals, using examples from the last few years.



--- 15 MINUTE BREAK ---

### **Drone Application Technology for Invasive Species Control – 3:00PM to 3:50PM**

Wade McLean and Cory Southam, Strongfield Environmental Solutions Inc.

Wade is the President and CEO of Strongfield Environmental Solutions Inc. which he founded in 2006. Originally from Strongfield, Saskatchewan Wade attended the University of Saskatchewan graduating with a Bachelor of Science in Agriculture in 2003. Wade has been working in the Environmental Industry since 2006 focusing on developing the most innovative and advanced integrated pest management and reclamation plans for clients across Western Canada. With a continuous effort to adopt and introduce new technologies into the Environmental Industry, Strongfield Environmental Solutions partnered with both Croplands and TTA in 2019. These partnerships further increase the ability to provide the most comprehensive and state of the art IPM and reclamation plans by incorporating the latest autonomous technologies. Introducing UAV Inspections, Precision Spot Spraying, Drone Seeding and Chlorophyll-Sensing targeted spraying will further advance IPM programs throughout the Environmental Sector.

Cory is also from Strongfield, Saskatchewan and has a Bachelor of Science in Earth Sciences from Simon Fraser University. Graduating in 2014, he found his way into the reclamation industry with Strongfield Environmental Solutions, where he has been for 5 years and is now the Operations Manager. Always looking for innovative ways to improve operations, Cory has been busy over the past 2 helping to build Strongfield Environmental's drone program and sits as the moderator in their newly formed Remotely Piloted Aerial Application Systems (RPAAS) Working Group. This group is made up of over 50 individuals from Health Canada, Transport Canada, the United States Department of Agriculture, 6 major chemical companies and several industry representatives. Working with Health Canada and Transport Canada, Cory's main goal for the group is to find the proper set of regulations to satisfy Health Canada's concerns around including RPAAS platforms as a recognized aerial application method for Canada's vegetation management industry.



People are familiar with seeing drones flying around taking pictures and video; but drones can also be used to help combat invasive species populations. During this presentation, Wade and Cory will dive into the different uses of drone technology for invasive species management - this can include both scouting as well as precision spot treatments and introducing competitive species. We will also touch on the current regulatory environment surrounding drone spraying in Canada and when you might be able to expect widespread adoption of the technology near you.

March 19, 2021  
Insect and Disease Sessions  
Session Sponsor:



Showcasing thousands of products, including hunting, fishing, camping, hiking, boating and wildlife-watching gear, as well as outdoor clothing and outdoor-themed gifts and furnishings, Cabela's is famous for its strong brand and world-renowned reputation for delivering quality merchandise, value and legendary customer service.

Thank you for sponsoring the last day of the AISC conference!

**Welcome and Announcements – 1:00PM to 1:05PM**

**Pollen Foraging Preferences: *Apis mellifera* and *Bombus* spp. – 1:05PM to 1:20PM**

Ron Miksha<sup>1\*</sup> (Student Presentation) and Lawrence Harder<sup>1</sup>

<sup>1</sup>*University of Calgary \*Presenting Author*

Ron was a commercial honey-bee farmer and is a frequent contributor to beekeeping media, journals, and conferences. As a beekeeper, he mused about the potential disruption caused by his non-native honey bees with respect to native bee welfare. This led to pursuit of a Masters in bee ecology at the University of Calgary, where Ron is researching competition between honey bees and native wild bees.

Ron will discuss his current study with the AISC conference attendees. The western honey bee, *Apis mellifera*, is invasive in many regions and can compete with native bees. Honey bees were introduced into Alberta in the late 19th century as agricultural livestock. Subsequently, alfalfa (*Medicago sativa*), sweet clover (*Melilotus officinalis*), and canola (*Brassica napus*) were introduced. These three non-native plant species are prolific nectar-producers, readily foraged by



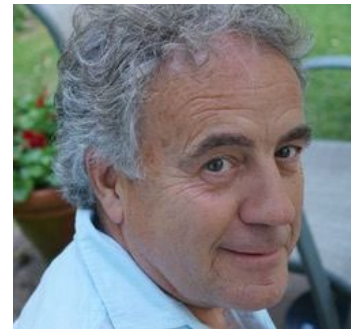
honey bees. Approximately 80% of Alberta's honey production is from canola; the balance is largely from clover and alfalfa. In July and August 2019, we collected pollen from Calgary honey-bee hives at nine locations (n=19), and from nine bumble bee nests (n=9). Pollen samples were identified at a palynology laboratory. The pollen grains (honey bee, n=6443; bumble bee, n=2499) originated from 37 floral species.

We found that 96% of pollen retrieved from honey bee nests came from three species groups (clovers, 70.0%; canola, 21.3%; willow, 4.5%). Honey bees collected 4.2% of their pollen from 19 other species. Bumble bee pollen included neither canola nor willow, and just 0.4% clover pollen. Pollen collected from bumble bee nests was primarily *Spiraea* or *Rubus* (76%), floral sources not present in honey-bee pollen samples. Bumble bees collected 24% of their pollen from 23 other species. We conclude that there was no significant overlap between honey bee and bumble bee pollen floral sources for samples collected from the investigated pollinator nests during July and August, 2019, in Calgary. Over 91% of pollen gathered by honey bees originated from introduced agricultural floral sources, which were not frequented by bumble bees.

### **The Asian Giant Hornet; The Apex-predator of the Insect World – 1:20PM to 2:10PM**

Paul van Westendorp, Government of British Columbia

Paul was first introduced to bees and beekeeping at the age of eight. His ongoing fascination with bees and their critical role in agriculture and the environment led to my agricultural studies at UBC with employment as summer student with the BC Ministry of Agriculture during the 1970s. Following UBC, he had the opportunity to become involved in apiculture research at the Agriculture Canada research station at Beaverlodge Alberta for several years. An opportunity arose to manage an apiculture development project in Uganda under the auspices of CARE International for several years with the objective to generate supplemental income for subsistence farmers. Political unrest and security issues continued to challenge the implementation of the project. After two years, Paul returned to Canada where he was appointed Provincial Apiarist of Alberta. When the equivalent BC position became available in 1989, Paul made the move where he was appointed BC's Provincial Apiarist and has been since.



The Asian Giant Hornet (AGH) was first diagnosed in North America in Nanaimo in 2019. A single nest was found and eradicated. Since then, the pest was confirmed in the Fraser Valley and Washington State in late 2019 and 2020. This apex predator of the insect world poses a threat to honeybee colonies, local ecosystems and the public. Surveillance and eradication programs took place in 2020 and will continue for several years to prevent the establishment and spread of this invasive species. Public participation of reporting suspect insect sightings plays a key role in the success of these control efforts. Coastal BC and the Pacific Northwest are expected to experience incidental introductions of Asian hornet species in the future.



## Forest Health and Invasive Species in Alberta – 2:10PM to 3:00PM

Caroline Whitehouse, Alberta Agriculture and Forestry

Caroline is a Forest Health Specialist with Alberta Agriculture and Forestry. Prior to joining the government, she worked at the University of Alberta in a lab focused on the ecology of insects including mountain pine beetle, forest tent caterpillar, and numerous agricultural pests. Her M.Sc. 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 northwestern 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.

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. Climate change and other disturbances can favour the establishment of invasive species in our forests. Forest Health and Adaptation works closely with partners to detect, monitor, and manage invasive forest pests. In this talk, Caroline will discuss our role in managing the risk that invasive forest pests pose, and talk about some of the species of greatest concern.



*Asian long-horned beetle, USDA*

--- 15 MINUTE BREAK ---

## Overview of Alberta's Dutch Elm Disease Prevention and Control Program – 3:15PM to 3:55PM

Janet Feddes-Calpas, Society for the Prevention of Dutch Elm Disease

Janet is the Executive Director of the Society to Prevent Dutch Elm Disease (STOPDED) and has 27 years of experience administrating and operating the Provincial Dutch Elm Disease Prevention program in Alberta. Ten of these years was with Alberta Agriculture when the province administered the program. In addition to leading the operations of the Society, Janet is responsible for coordinating the provincial monitoring programs for elm bark beetles and surveillance for DED in the province. She also coordinates and conducts public awareness campaigns to support control efforts of these invasive species, this includes handling media enquiries and operating the DED hotline. In addition, Janet coordinates the provincial survey for the emerald ash borer and



works closely with CFIA and Olds College in support of CFIA's annual surveys for invasive wood boring insects in Alberta.

Janet will discuss how the Society to Prevent Dutch Elm Disease (STOPDED) has been leading the efforts to keep Alberta Dutch elm disease (DED) free for 17 years by operating and administering a provincial DED prevention program. Before establishing a partnership with STOPDED, Alberta Agriculture had led these efforts directly. Alberta has the largest stand of DED-free elms in the world valued over two billion dollars. Alberta has placed so much emphasis on preventing DED because elm is one of the very few trees that thrive under Alberta conditions. All American elms have been planted, there are no native stands of elm in the province and represent up to 50% percent of the rural and urban treescapes. To ensure that its elms could be protected Alberta named DED and its major vectors as declared pests under the Alberta Agricultural Pests Act and Nuisance Control Regulation in 1975 when the disease was first found in Manitoba. This Act requires that all urban and rural municipalities have the responsibility to actively control DED and its vectors.

### **Dutch Elm Disease, More Than Prevention – 3:55PM to 4:35PM**

David Ellis, City of Lethbridge

David has been the Parks Manager in Lethbridge for the past 15 years. Prior to working in Lethbridge his background include working in Regina, Calgary and as an Ag Fieldman in the MD of Foothills. He is currently serving on the Board of Directors for Alberta Recreation and Parks Association and a past member of the Alberta Weed advisory committee.

Late in 2020 two Elm trees tested positive for Dutch Elm Disease in Lethbridge. Alberta had previously been free of the Disease thanks largely to the efforts of the Stop DED society who have been vigilant for years in keeping the disease out of Alberta. The discovery triggers a sharp transition from prevention to management in an attempt to save the Elm tree population in the City. David will share his management experience to date and plans moving forward.



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