

National Invasive Species Forum
Presentation Abstracts & Speaker Biographies
February 12-14, 2019

DAY 1 OPENING REMARKS

An Invasive Alien Species Strategy for Canada - Key Emerging Priorities *Basile Van Havre, Environment and Climate Change Canada*

Addressing the threat to biodiversity caused by invasive alien species is a high priority for Canada, not only for the health of our country's environment and economy, but also for our contribution globally. Mr. Van Havre will discuss some of the approaches being taken internationally and in Canada to address the threat of invasive alien species and the importance of collaboration at all levels.

BIO: Basile van Havre was appointed to his current position as Director General for Domestic and international Biodiversity Policy in 2016. In this role, he provides horizontal coordination of major biodiversity issues including Invasive Alien Species and Canada engagement in international Biodiversity Fora leading Canada participation to CBD, CITES, IUCN and other biodiversity related fora. Most recently he has been asked to co-chair the CBD post 2020 negotiation. Basile also chairs CITES Elephant working groups and CBD discussion on indigenous knowledge repatriation. He also leads engagement on biodiversity with indigenous people and provinces and territories.

ACROSS THE COUNTRY & BEYOND

DAY 1 KEYNOTE SPEAKER

Australia's evolving biosecurity - Integrating the environment into an agricultural-based system *Andrew Cox, Invasive Species Council of Australia*

Australia's decline in its natural environment is largely a story of biological invasions. Most extinctions of mammals, bird, frogs and reptiles were caused by invasive species and invasive species now imperil more native species than any other type of threat. Initially the introductions were deliberate, by acclimatization societies, fervent gardeners, hunters and pet keepers and even scientists. While the most obvious transgressors have been stopped, there remains a high rate of invasive species arrival and establishment.

Biosecurity systems in Australia operate at the federal and state levels and are predominantly agricultural focused. Improvements to the system were triggered by major agricultural pest and disease outbreaks, further entrenching this emphasis. The arrival of new environment pests or diseases were of little interest to governments and conservation organizations and failed to generate significant reform.

The publication of the book *Feral Future* in 1999 and the subsequent formation of the Invasive Species Council of Australia was a major turning point and the start of systematic efforts to keep environmentally harmful invasive species from arriving in Australia.

The increased awareness about the extent of the problem and the creation of an advocacy group identifying and actively promoting reform solutions precipitated significant progress.

Recent advances at the federal level include the commitment of AU\$411 million over ten years to eradicate red imported fire ants, the creation of a permanent Chief Environmental Biosecurity Officer to oversee outbreak responses and prevention measures, a shipping container levy to fund new biosecurity measures and research to determine priority pests and diseases. A high-profile government-run campaign run to address impacts from feral cats was also successful in changing community attitudes.

At the provincial level, progress has been less systematic and patchy. Some major achievements include the country's first State of Biosecurity report, a stakeholder co-written biosecurity strategy and new dynamic biosecurity legislation that includes a 'general biosecurity duty'.

Major changes to biosecurity to benefit the environment will not necessarily come about through improved laws. More important is the nature of the biosecurity institutions and whether they incorporate ecologically-based thinking and actively engage the community environmental sector.

BIO: Andrew has more than 25 years' experience serving the natural environment and leading environmental organizations. He has led community-based campaigns to protect threatened bushland areas, worked for the National Parks Association of NSW as its executive officer, the NSW National Parks and Wildlife Service and Trust for Nature (Victoria) and is a respected participant in Australia's conservation sector. Andrew believes that invasive species, along with climate change, is one of this century's two greatest threats to Australia's natural environment yet invasive species are without the high-level attention they deserve. He is confident that if we learn from the litany of invasive species disasters of the past and bring a science-based approach to the complex and seemingly daunting threat of invasive species, we can make progress. He believes in the value of involving the community in tackling complex environmental issues. Andrew was appointed as CEO of the Invasive Species Council in 2013 after serving as its president for two years.

SESSION 1: SETTING NATIONAL INVASIVE SPECIES PRIORITIES AND COORDINATION EFFORTS

2020 Biodiversity Goals and Targets for Canada: Update for Canada and Beyond ***Kelly Torck, Environment and Climate Change Canada***

In 2015, Canada adopted national biodiversity targets in support of the global 2011-2020 Strategic Plan for Biodiversity under the UN Convention on Biological Diversity. Kelly will provide an overview of Canada's biodiversity targets, with a focus on those related to invasive alien

species. Her presentation will also highlight the results of a recent assessment of progress, and opportunities to maximize results to 2020 and beyond.

BIO: Kelly Torck is the Manager of National Biodiversity Policy in Environment and Climate Change Canada's Canadian Wildlife Service. Kelly has been with Environment and Climate Change Canada for over 25 years, working on a range of issues including greening government operations, climate change, sustainable production and consumption, and international environmental policy. Over the last decade, her work has focused on programs and strategies related to ecosystems and biodiversity, supporting domestic implementation of the Convention on Biological Diversity and also advancing the Invasive Alien Species Strategy for Canada.

National Initiatives and Priorities for Plant Health

Bill Anderson, Canadian Food Inspection Agency

BIO: Bill received his Ph.D. degree in Biochemistry in 1993 from the College of Medicine at the University of Saskatchewan. After working as a Research Associate at the National Research Council's Plant Biotech Institute in Saskatoon, he left the laboratory setting to work in the ag-biotech private sector. Bill joined the Canadian Food Inspection Agency (CFIA) in 2002 and has held various management positions working on programs and policies in areas related to plant health, animal health and food safety, including substantive acting roles as Associate Vice-President and Chief Science Operating Officer in Science Branch. Bill is currently the Executive Director, Plant Health and Biosecurity Directorate in the Policy and Programs Branch at the CFIA and the Chief Plant Health Officer of Canada.

An Assessment of Invasive Alien Species and their Control by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)

Brenda McAfee, Environment and Climate Change Canada

The IPBES is an independent body that provides scientific information in response to requests from policy makers on the planet's biodiversity and its contributions to people and on tools and methods to protect and sustainably use nature. The thematic global assessment of invasive alien species and their control, initiated in 2018, will consider: the array of invasive alien species (IAS) that affect biodiversity and ecosystem services; the extent of their threat; the major pathways for and drivers of the introduction and spread of IAS between and within countries; the global status and trends of impacts and associated management interventions by region and sub-region; the level of awareness of the extent and impacts of IAS; and, the effectiveness of current control measures and associated policy options that could be employed to prevent, eradicate and control IAS.

BIO: Brenda McAfee is a senior science advisor at Environment and Climate Change Canada and is the national focal point for the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Prior experience includes coordinating the national biodiversity science program at Natural Resources Canada and advising on issues related to conservation and sustainable use of biodiversity.

Invasive Alien Species National Committee (IASNC)

Francine McDonald, Ontario Ministry of Natural Resources and Forestry

In July 2017, the federal-provincial-territorial (FPT) ADM Conservation, Wildlife and Biodiversity Steering Group, approved the Terms of Reference for the creation of an FPT Invasive Alien Species National Committee (IASNC). The IASNC's role is to help support inter-jurisdictional coordination and collaborative efforts to address invasive species in Canada. The IASNC is guided by the strategic goals of *An Invasive Alien Species Strategy for Canada* and is tasked with advancing the *Recommendations to Improve Invasive Alien Species Prevention and Management in Canada* that were endorsed by FPT Conservation, Wildlife and Biodiversity Ministers in February 2017.

The IASNC has established a 5-year workplan (2018-2023), composed of activities that were identified as high priority, focusing on the thematic areas of 1) improving national leadership and coordination, 2) improving response to invasive species, and 3) enabling action by Canadians. An important role of the committee includes liaison with other national inter-jurisdictional committees to promote complementary policies and strategies. The presentation will provide an overview of the workplan, and progress on key activities that are underway.

BIO: Francine MacDonald, is a Senior Invasive Species Biologist, for the Ontario Ministry of Natural Resources and Forestry. She currently serves as an Ontario representative on the Federal Provincial Territorial Invasive Alien Species National Committee, along with several other national and binational committees dedicated to invasive species prevention and management. When she is not fighting invasive plants at work, she keeps a low profile at home and only occasionally picks up a rake to battle the weeds in her vegetable garden.

National Aquatic Invasive Species Committee (NAISC)

Nicole Kimmel, Alberta Environment and Parks

Addressing the threats of aquatic invasive species is a shared responsibility across all levels of government. The National Aquatic Invasive Species Committee (NAISC) brings together federal, provincial and territorial representatives to provide leadership and strategic advice, strengthening collaboration and action. NAISC encourages consistent and coordinated management of aquatic invasive species and information sharing across Canada. NAISC undertakes strategic planning and priority setting for national aquatic invasive species issues through the development of an annual work plan with specific initiatives and projects. NAISC also implements strategies and actions plans, such as the Canadian Action Plan to Address the Threat of Aquatic Invasive Species. Besides Fisheries and Oceans Canada, numerous other federal departments are involved in aquatic invasive species management and participate on NAISC. This includes, but is not limited to: Canada Border Services Agency, Environment and Climate Change Canada, Health Canada's Pest Management Regulatory Agency, Parks Canada Agency and Transport Canada.

BIO: After 18 years of service with the Government of Alberta, Nicole has joined the fight focusing on aquatic invasive species with Alberta Environment & Parks. She now oversees the Aquatic Invasive Species Program elements for Alberta (Policy & Legislation, Education & Awareness, Monitoring, Inspections and Response). She covers everything described as aquatic invasive species, including fish, mussels and plants to name a few. Invasive species can easily be seen as her passion, she looks forward to sharing that passion with you. Nicole is currently the provincial co-chair of the National Aquatic Invasive Species Committee.

Forest Pest Working Group (FPWG)

Jean-Luc St.Germain, Natural Resources Canada

In 2007, the Canadian Council of Forest Ministers (CCFM) supported the vision and principles of a National Forest Pest Strategy (NFPS). The CCFM Forest Pest Working Group (FPWG) has since been the main vehicle for advancing the Strategy and one of the few national forums for ongoing idea generation and information exchange about forest pest management among government agencies.

The goals of the NFPS include:

- The development of concerted, proactive approaches to deal with forest pests across jurisdictions;
- An enhanced ability to make decisions regarding management of forest pests, based on a comprehensive analysis of the risk to forest values including economic, environmental and social factors; and
- Efficient sharing of information and resources, and collaboration among all concerned agencies.

This presentation will outline recent achievements of the FPWG and will discuss emerging issues and avenues for future collaboration in forest pest risk management.

BIO: Jean-Luc is a Science Policy Analyst with the Canadian Forest Service of Natural Resources Canada. He is responsible for strategic analysis and coordination in support of the Department's Forest Pest Risk Management Program. His roles extend to strategic partnership development and support in the area of forest pest management and science.

Aquatic Invasive Species National Core Program at DFO

Susan Roe, Department of Fisheries and Oceans

That Aquatic Invasive Species National Core Program at Fisheries and Oceans Canada began in 2017 and it complements two other existing programs; Asian Carp and Sea Lamprey. The National Core Program is responsible for implementing the federal *Aquatic Invasive Species Regulations*, collaborating with partners, reporting on AIS activities and coordinating activities across the department. Over the past 18 months, the program has been working to develop regulatory processes and tools; strengthen partnerships; undertake control activities; and, support monitoring and science activities.

BIO: Susan Roe is the National Manager for the Aquatic Invasive Species Program at Fisheries and Oceans Canada, since the program's inception in 2017. She worked previously at Environment and Climate Change Canada, for almost 20 years, in several programs including Water Quality Monitoring, Environmental Emergencies, and Environmental Quality Guidelines. She's an avid cyclists, hiker, and canoeist and a chocolate lover.

Canadian Council on Invasive Species

Barry Gibbs, Canadian Council on Invasive Species

Canadian Council on Invasive Species (CCIS) is a national voice and hub to protect Canada from the impacts of invasive species. With members and chapters from all corners of Canada, along with governments, indigenous organizations and businesses, the CCIS brings people together to build practical solutions to prevent the spread of invasive species. This presentation will review CCIS highlights and successes from the past year, as well as key priorities moving forward.

BIO: Barry Gibbs is the Executive Director of the Canadian Council on Invasive Species He has worked with invasive species organizations in a variety of roles, most notably the Invasive Species Council of British Columbia and the Alberta Invasive Species Council. He resides in Claresholm, Alberta.

SESSION 2: WHAT IS NEW AND WHAT IS WORKING IN PATHWAYS AND VECTORS

Firewood Regulations and Outreach - Risk Managing Invasive Species

Arvind Vasudevan, Canadian Council on Invasive Species

Firewood is a pathway for introduction and the spread of invasive forest pests. Firewood is regulated in Canada by the Canadian Food Inspection Agency (CFIA) under the *Plant Protection Act and Regulations*. Import, export and domestic movement of firewood must comply with the phytosanitary requirements to mitigate the risk of plant pest introductions and spread of pests by controlling or eradicating pests in Canada. The firewood industry is diverse with small scale to large scale operators in addition to the general public that procure and move firewood for their own use which makes regulation and enforcement difficult. One of the main challenges for the firewood pathway is domestic regulation and movement which requires a collaborative approach with partners and stakeholders for continued outreach and education. An Important component of the CFIA's outreach includes partnerships with other regulatory bodies, industry, universities, research institutions and not for profit organizations such as the Canadian Council on Invasive Species. Preventing the introduction of invasive species by outreach, promoting best management practices and voluntary compliance are key aspects of regulating firewood.

BIO: Arvind Vasudevan is currently the A/Senior Specialist for the Forestry program at the Canadian Food Inspection Agency (CFIA), he has over 10 years of experience with the Plant Health Program at the CFIA in various roles. Prior to the Federal Government he worked as a research coordinator with the Lake Abitibi Model Forest in Cochrane, Ontario. Arvind has master's degree

in Botany from the University of Madras, India and a Masters in Natural Resource Management from the University of Manitoba, Canada.

Sea Containers and Invasive Species: A joint Initiative between the CFIA and USDA-APHIS
Wendy Asbil, Canadian Food Inspection Agency

Invasive alien species are a shared risk and risk mitigation is a shared responsibility. Managing the pathways through which invasive alien plant pests can be introduced to and spread in North America is an effective preventative measure to protect North American agriculture, forestry and the environment from the adverse impacts of those pests. Application of biosecurity measures along the supply chain from origin to destination contributes to minimizing the plant health risk of pathways such as marine vessels, packaging materials, shipping containers and shipments that are not plants or plant products. Invasive pests such as mollusks, insects and weeds can travel in or on sea containers. Once introduced, invasive pests are very difficult and expensive to eradicate or control. This is considered a global issue and threats to plant health from container traffic will only increase with the growing volume and diversity of trade, speed of transport and expansion of trade routes and increasing port capacity. Every day, thousands of containers enter and are transported throughout North America by rail and truck. Containers and cargo that are contaminated can pose plant health risks to North America. This presentation will focus on the North American Sea Container Initiative which is a joint Canada-United States government and industry effort to reduce those risks.

BIO: Wendy is the National Manager of the Invasive Alien Species and Domestic Programs Section in the Plant Health and Biosecurity Directorate at the Canadian Food Inspection Agency. The section is responsible for programs related to limiting the introduction to and spread of invasive plant pests in Canada. This includes challenging and exciting work with domestic and international partners on specific invasive pests such as Asian gypsy moth and invasive plants, pathways of invasive alien species introduction such as sea containers, in-transit shipments and cargo that is not plants or plant products as well as on the growing challenges related to e-commerce.

Amending Canada's Ballast Water Control and Management Regulations
Colin Henein, Transport Canada

This presentation will provide an update on Transport Canada's work to further address the issue of the introduction and spread of invasive aquatic species through ship ballast water. It will describe Transport Canada's proposed approach for giving effect to the *International Convention for the Control and Management of Ships' Ballast Water and Sediments*.

BIO: Colin Henein is a Manager and Senior Policy Advisor at Transport Canada with responsibility for ballast water policy. Colin represents Canada on this subject at the Marine Environment Protection Committee of the International Maritime Organization.

PlayCleanGo Partnership In Canada
Barry Gibbs, Canadian Council on Invasive Species

Healthy ecosystems provide the foundation for Canada’s natural diversity and promote the health and well-being of residents and visitors. Invasive plants can threaten ecosystems, as they often displace native species and disrupt natural ecological processes. There are numerous pathways of introduction and vectors of spread for invasive plants. Many of these pathways and vectors are man-made such as recreation, boating, the movement of firewood, road construction and horticulture. To reduce the spread of invasive species through these pathways and vectors, the CCIS believes in the adoption of changing behaviour marketing, which means to deliver initiatives at the community and local level that focus on removing barriers to a certain activity while at the same time enhancing the benefits of that activity. Learn about how the Canadian Council on Invasive Species is helping to protect valuable natural resources while encouraging folks to enjoy the great outdoors through the implementation of the PlayCleanGo campaign. Our objective is to slow the spread of invasive species by changing behaviors at risk of spreading harmful pests living on land. Learn about how to join forces with like-minded organizations and how you can become a partner in implementing this campaign.

BIO: Barry Gibbs is the Executive Director of the Canadian Council on Invasive Species He has worked with invasive species organizations in a variety of roles, most notably the Invasive Species Council of British Columbia and the Alberta Invasive Species Council. He resides in Claresholm, Alberta.

DAY 2 OPENING REMARKS

“One for all and all for one!” in protecting Canada Against Invasive Species
Pierre Bilodeau, Canadian Food Inspection Agency

When it comes to fight against Invasive Alien Species (IAS), the key to success resides in partnerships. The size of our country, the number of stakeholders, and the opportunity from citizen science engagement dictate that resources must be coordinated effectively to maximize benefits from existing expertise and capacity. Governments (all levels), academia, private and not-for-profit sectors must all work collaboratively to achieve our common goals: to understand, predict, prevent, monitor and ultimately manage IAS incursions.

BIO: In his current position, Dr. Bilodeau is responsible for plant health science leadership in protecting Canada's plant resource base. His Directorate provides a valued source of scientific knowledge, analysis, risk assessment, and advice for stakeholders to support policy making, program design and program delivery.

Dr. Bilodeau has 20 years of experience in managing S&T partnerships, program delivery, and R&D activities. He previously served in various senior management positions including Chief Operating Officer at International S&T Partnership Canada, an Ottawa-based national not-for-profit organization, Director in Research Partnerships and Research Grants & Scholarships

directorates at the Natural Sciences and Engineering Research Council (NSERC) a federal granting agency, and prototype/research manager at Medicago Inc, a clinical-stage biopharmaceutical company.

Pierre was awarded a Commonwealth Scholarship to attend the Australian National University for his PhD (1997) in plant sciences. He holds a bachelor's degree (1990) and a Master's degree (1992) in biochemistry from Université Laval in Quebec City.

DAY 2 KEYNOTE

What Canadians told us about how to improve their invasive species behaviours ***Ken Donnelly, Beyond Attitude Consulting***

In 2018 CCIS commissioned a survey of 1,860 Canadians on outdoor behaviours related to invasive species. The findings provide valuable insights in how we can better foster behaviours that prevent the spread of invasive species. The presentation includes recommendations on how to adjust existing communications approaches to take best advantage of these recent discoveries.

BIO: Ken is a consultant, specializing in Behavior Change, Community Engagement, Public Policy and Strategic Planning across many topics, especially sustainability. He is also a public speaker, trainer and blogger, making a difference by inspiring many people to make simple, sustainable choices.

SESSION 4: INVASIVE SPECIES SUCCESS STORIES AND LESSONS LEARNED

Great Lakes St. Lawrence Governors and Premiers – Aquatic Invasive Species Partnership Resolution – An Example of Regional Cooperation to Address Threats to Shared Waters ***Michael Piskur, Great Lakes St. Lawrence Governors and Premiers***

Great Lakes St. Lawrence Governors and Premiers – Aquatic Invasive Species Partnership Resolution - An Example of Regional Cooperation to Address Threats to Shared Waters
Michael Piskur, Great Lakes St. Lawrence Governors and Premiers

The Great Lakes and St. Lawrence Governors' and Premiers' Aquatic Invasive Species Task Force works to stop the introduction and spread of AIS into the Great Lakes St. Lawrence River Basin and protect the region's \$7 billion fishery. Since its inception, the Task Force has coordinated state and provincial efforts to combat AIS through strategic regional action. The Governors' and Premiers' priorities include:

- Taking aggressive action against high-risk AIS
- Promoting regional cooperation across borders
- Fostering collaboration among AIS experts, fisheries experts, and law enforcement officials

BIO: Mike Piskur serves as Program Manager with the Great Lakes and St. Lawrence Governors and Premiers. He manages regional environmental and economic development programs, including the Governors' and Premiers' Aquatic Invasive Species initiative. Mike holds degrees in political science and environmental planning from the University of Illinois.

Water Chestnut and Parrot Feather Management in Ontario

Kyle Borrowman, Ducks Unlimited Canada

Over the years, Ducks Unlimited Canada (DUC) has actively partnered with various organizations, landowners and regulatory agencies to tackle invasive plant control using a wide range of mechanical, chemical and biological methods. As invasive species continue to create challenges to restoring wetland habitat, new and novel approaches need to be explored to make new tools available to wetland managers. This presentation will provide an overview on two new projects undertaken by DUC in response to controlling two species that have recently been designated as "prohibited species" under Ontario's Invasive Species Act, 2015. These projects include the eradication of parrot feather (*Myriophyllum aquaticum*) from an isolated private pond and the first known herbicide treatment for European water chestnut (*Trapa natans*) in Canada.

BIO: Kyle has been involved with various aquatic plant management projects and programs within the academic, non-profit and private sectors. This work includes the use of mechanical, chemical and biological control techniques to manage invasive macrophytes. He continues this passion with Ducks Unlimited Canada as Coordinator of the European Water Chestnut Program based out of Kingston, Ontario.

Japanese Beetle Detection and Collaborative Response in British Columbia

Patricia McAllister, Canadian Food Inspection Agency and Gail Wallin, Invasive Species Council of BC

The arrival of the Japanese beetle in Vancouver in 2017 posed significant challenges to British Columbia's environment and economy. No one agency had the tools or ability to solely and effectively manage for this regulated pest. Multiple challenges were encountered including communication with the public and industry, containment of the pest, treatment of affected areas and who would foot the bill! Swift action and collaboration on the part of multi-agencies and organizations enabled a collective call to action for treatment and subsequent eradication efforts. This presentation is a retrospective look at the Japanese beetle management efforts over the past year, the challenges and successes encountered, and key recommendations for 2019.

BIO: Patricia McAllister is the acting director of the Plant Protection Division of the Plant Health and Biosecurity Directorate at the Canadian Food Inspection Agency (CFIA). Patricia attended the University of Guelph where she obtained a BSc. in horticulture and a MSc. In plant biochemistry. Prior to joining the CFIA in 2009, Patricia spent almost twelve years as the seed potato specialist with the Province of Alberta. While at the CFIA she has worked with the Potato Section, the Plant Biosafety Office and the Horticulture Section and is now responsible for leading the Plant

Protection Division which focuses on plant phytosanitary import requirements and domestic programs.

Emerald Ash Borer Detection and Response in New Brunswick
Steve Gordon, Government of New Brunswick

In early spring 2018, emerald ash borer, *Agrilus planipennis* Fairmaire was detected for the first time in New Brunswick near the Quebec and USA borders. This detection was quickly followed by positive detections in northern Maine, USA and later in both southern Maine and near Halifax, NS. The NB site characterization and response to date, including site sanitization efforts, monitoring and awareness, as well as the implications of the finds in Maine and Nova Scotia are discussed along with potential strategic options for the management of EAB in NB in 2019.

BIO: Steve is manager of the Biodiversity Conservation Section with the New Brunswick Dept. of Energy and Resource Development in Fredericton. The sections responsibilities include: biodiversity, wildlife habitat, protected natural area and species at risk conservation. Steve holds a BSc. in Forestry (UNB'85) and has been with the Department since 1988.

Catching the “unicorn”: using public, private and non-profit partnerships to help tackle aquatic invasive species
Edgar Rudberg, CD3, General Benefit Corporation

Due to the high cost of high pressure, heated water decontamination, reducing the spread of aquatic invasive species (AIS) often relies upon the adoption of best management practices at the individual level. Wildlife Forever has a long history of being a national leader in AIS education and outreach via the Clean Drain Dry Initiative. However, until our 2017/2018 CD3 Waterless Cleaning Station Pilot, tools to implement best management practices were unavailable to boaters. The process for developing these tools was an example of how we caught a “unicorn,” via the elusive private, public and non-profit partnership. This presentation will outline the results of the pilot including usage rates, lessons learned, and outline the future direction of the project.

BIO: As the third generation of his family in the boating industry, Dr. Rudberg has a passion for outdoor recreation and conservation. His Ph.D. in Natural Resources Science and Management blended communication and psychological theory to catalyze individuals' adoption of conservation behaviors on lakes. As an entrepreneur of over a decade, he has developed numerous conservation focused products which grew to national distribution. He is formally trained in qualitative and quantitative research methodologies, project management, and various behavioral metrics. He is an avid angler, bow fisherman, hunter and boater.

SESSION 5: INDIGENOUS PERSPECTIVES ON INVASIVE SPECIES

Panel style session with indigenous representatives

Presenters:

Chris Craig, South Nation Conservation

BIO: Chris Craig a member of the Algonquins of Pikwákanagán (formally Golden Lake) and Senior Forestry Technician for South Nation Conservation. He has completed his Forestry technician diploma at Sir Sandford Fleming College. He has worked for South Nation Conservation (SNC) since the ice storm of 98. He is certified as: Chainsaw cutter, Tree marker, Ecological Land Classification, Butternut assessor, Seed and stock collector and much more. He has been working on projects on behalf of the South Nation Conservation Authority such as Invasive species management, the black ash inventory and medicinal plant inventory project and numerous species at risk projects to protect and enhance First Nation values and interests international and locally. He also sits on the OIPC as the aboriginal chair as well as the National Risk Assessment for Forest Stewardship Council of Canada and has worked with Ontario Nature for Biodiversity Offsets and Pathways one, Indigenous perspective on protected areas.

Larry McDermott, Plenty Canada

Henry Lickers, Mohawk Council Of Akwesasne

DAY 2 AFTERNOON OPENING COMMENTS

Invasive Alien Species in Agriculture: where are we at, how do we control them, and what does the future hold?

Michele Marcotte, Agriculture and Agri-Food Canada

This presentation will highlight the importance of Invasive Alien Species for Agriculture and how it is being addressed by AAFC, the sector, and others in Canada. The presentation will also feature some examples of successes related to biological control of IAS and the importance of working together nationally as well as with international partners such as the Centre for Agriculture and Biosciences International (CABI) and the Global Biodiversity Information Facility.

BIO: Dr. Michèle Marcotte is currently the Director Research, Development and Technology (DRDT) at the Ottawa Research and Development Centre (ORDC), located in Ottawa at the Central Experimental Farm (CEF). The Centre is part of the Ontario-Quebec Region of the Science and Technology Branch (STB) of Agriculture and Agri-Food Canada (AAFC).

SESSION 6: EMERGING ISSUES, THREATS AND IMPACTS

Species in the Balance: Partnering on tools and incentives for recovering Canadian Species at Risk

Scott McFatridge, Smart Prosperity Institute

Species at risk populations continue to deteriorate in Canada, and invasive and problematic species, genes and pathogens are a key driver of these trends. In the absence of collective action, this sobering trajectory is likely to persist. The good news is that we have strong grounds for believing that managing invasive species is highly effective in stabilizing and recovering species at risk populations. But in order to navigate trade-offs and make informed policy choices, biological effectiveness needs to be assessed alongside broader economic and social concerns.

This presentation briefly outlines the current knowledge of invasive species and their effects on species at risk populations, as well as the effectiveness of interventions for managing or eliminating invasive species populations. It then outlines a framework for prioritizing conservation interventions, as well as a menu of policy tools for incentivizing the removal or management of invasive species populations (and/or discouraging their introduction) among public and private actors.

BIO: Scott McFatridge is the lead author of Smart Prosperity Institute's report, *Species in the Balance: Partnering on tools and incentives to recover species at risk*, which emphasized the importance of promoting species at risk conservation on private land through incentives and outreach, among other issues. Scott's research at SPI focuses on biodiversity conservation, natural capital and ecosystem services, and policies for a resource-efficient, 'circular' economy. He holds a Master's degree in Public Administration from the Queens School of Policy studies. When he's not chasing his four-year-old son, Scott enjoys hiking, checking out live music, and diving into a good book.

Economic Impact of Invasive Species to Ontario Municipalities

Tracey Cooke, Invasive Species Centre

In 2017 -18, at the request of the Ontario Ministry of Natural Resources and Forestry (OMNRF), the Invasive Species Centre (ISC) conducted a survey of Ontario municipalities to assess their annual direct expenditures on invasive species prevention, detection, control and management. Analysis and projection on this accumulated data indicate that Ontario municipalities are collectively spending \$36.4M/year, or an average of \$381,403/year individually on invasive species. This presentation will give an overview of methodologies and discuss results and next steps for the project.

BIO: Through her work with the Ontario Ministry of Natural Resources and Forestry, Ducks Unlimited Canada and consulting in the private and not-for-profit sectors, Tracey Cooke brings expertise in partnership development and stakeholder relations. Tracey is skilled at forging and nurturing partnerships through collaboration, and is an enthusiastic communicator, facilitator

and fundraiser. Her strong track record of managing complex programs with diverse partners makes Tracey uniquely qualified to lead the Invasive Species Centre as it grows existing relationships and seeks out new partners to work together on priority projects. Tracey holds a Bachelor of Environmental Studies in Environment and Resources Studies from the University of Waterloo. A native of Thessalon, Ontario, she lives on the North Channel of Lake Huron with her husband and three children.

The cumulative effects of natural dispersal, human movement, and climate change on the vulnerability of aquatic invasive species in Ontario

Tim Johnson, Ontario Ministry of Natural Resources and Forestry

T.B. Johnson¹, J. D. Buckley¹, L. M. Hunt², D. A. R. Drake³, J. A. Rodgers²

1 Ontario Ministry of Natural Resources and Forestry (OMNRF), Aquatic Research and Monitoring Section, Picton, ON

2 OMNRF, Centre for Northern Forest Ecosystem Research, Thunder Bay, ON

3 Fisheries and Oceans Canada, Great Lakes Laboratory for Fisheries and Aquatic Sciences, Burlington, ON

We are developing a decision support tool to help identify areas of the Province of Ontario most susceptible to the arrival and establishment of aquatic invasive species. Our framework combines habitat suitability assumptions for aquatic invertebrates, plants and fish with risk based assumptions for prominent pathways (recreational boating, recreational fishing / bait buckets, aquarium trade / water gardens, commercial navigation) to generate a landscape of relative likelihood for species establishment. To provide maximum understanding of species distribution on future landscapes, we have utilised guilds and functional groups, in addition to individual species of concern, and simulated scenarios of climate change and population growth for decadal periods through 2100. Collectively our tool will provide resource managers with a better understanding of spatial patterns (hotspots and coldspots) for individual species, pathways, and aggregate response of multiple AIS on the provincial landscape that can inform surveillance, outreach and enforcement activities to mitigate the effects of AIS.

BIO: Tim Johnson is a Senior Research Scientist with the Ontario Ministry of Natural Resources and Forestry, based at the Glenora Fisheries Station in eastern Lake Ontario. Tim holds a Ph.D. in Zoology with a minor in Limnology and Oceanography from the University of Wisconsin – Madison, in addition to his BSc (Marine Biology – Guelph) and MSc (Biology – York) here in Ontario. Tim’s research focus is the structure and efficiency of aquatic food webs, including the effects of aquatic invasive species, climate change, and habitat alteration on growth and production of fishes and other aquatic organisms. Tim has co-authored over 80 peer-reviewed publications largely addressing ecological issues within the Great Lakes basin. Tim is a former president of the International Association for Great Lakes Research, an Associate Editor for the Journal of Great Lakes Research, and represents the Province’s interests on numerous bi-national boards and committees.

Collaborative Approaches to Pest Response and Pests to Watch For **Patricia McAllister, Canadian Food Inspection Agency**

The Canadian Food Inspection Agency (CFIA) is Canada's national plant protection agency and as such has international obligations related to regulated pests. Domestic regulation of pests to support eradication or to maintain official control can be challenging and in more recent years the CFIA has partnered with provinces and other stakeholders to respond to pest incursions (e.g. Asian long horn beetle in Mississauga, hemlock woolly adelgid in NS, Japanese beetle in BC). This presentation will highlight some of the lessons learned from these collaborative approaches and highlight possible next steps for future pest responses. Pests that the CFIA is closely monitoring will also be highlighted as areas for possible future collaboration.

BIO: Patricia McAllister is the acting director of the Plant Protection Division of the Plant Health and Biosecurity Directorate at the Canadian Food Inspection Agency (CFIA). Patricia attended the University of Guelph where she obtained a BSc. in horticulture and a MSc. In plant biochemistry. Prior to joining the CFIA in 2009, Patricia spent almost twelve years as the seed potato specialist with the Province of Alberta. While at the CFIA she has worked with the Potato Section, the Plant Biosafety Office and the Horticulture Section and is now responsible for leading the Plant Protection Division which focuses on plant phytosanitary import requirements and domestic programs

Climate Change, Invasive Species and Prospects for Canada's Ecosystems

Ken Farr, Natural Resources Canada (Dan McKenney, John Pedlar and Ken Farr, Natural Resources Canada)

Climate is changing and prospects for further rapid climate change over the course of this century suggest considerable pressures ahead on Canada's forest ecosystems, including new and expanding invasive species. In this talk, we will provide a brief overview of climate change and describe several NRCan online "species modeling" tools which help quantify species' potential distributions, both now and into the future. Specifically, we will discuss "Canada's Plant Hardiness" web site and a new companion site that provides similar information for forest insects and diseases. These tools, which make use of increasingly available global datasets, have been used by CFS, CFIA, and other groups to support invasive species pest risk assessments.

BIO: Ken Farr is a science manager and senior policy advisor with the Canadian Forest Service, Natural Resources Canada. His current files include international trade in forest products, invasive forest pests and plant quarantine issues, and endangered plant species. He is the Canadian Forest Service Scientific advisor for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Ken taught horticulture, urban forestry and arboriculture in the Horticulture Department of Algonquin College, Ottawa, Ontario and taught dendrology at the University of Toronto School of Architecture and Landscape Architecture. He was project dendrologist for the well-known reference text *Trees in Canada* by John Laird Farrar, and is author of the Canadian Forest Service publication *The Forests of Canada*.

Global impact of invasive alien species and expected actions *Junko Shimura, International Union for Conservation of Nature*

In accordance with Article 8h of the Convention on Biological Diversity, alien species which threaten ecosystems, habitats or species (invasive alien species) should be prevented their introductions, and control or eradicate, where established, as much as possible and as appropriate. Those vulnerable ecosystems, e.g. islands and habitats of endangered species are gradually designated as prioritized conservation areas, globally since the CBD entered into force. However, the increase of international trade in live organisms and their rapid translocation via various new means e.g. e-commerce and delivery services, the impact of invasive alien species that include emerging pests and pathogens is no longer the matter of only biodiversity conservation but also a problem for production systems in land and aquatic environments, as well as health issues for both human and animals. Economic loss and increasing control costs are becoming huge burden for broader sectors than the environment. The CBD and international organizations for trade and transport regulations have strengthened the collaboration and at the last Conference of the Parties adopted a new voluntary guidance for avoiding unintentional introduction of invasive alien species associated with trade in live organisms. This guidance provides a basis for States and relevant sectors to address the issue of commodity and pathways, e.g. shipping pets and other live organisms, various shipping containers, carrier conveyances, and encourage appropriate monitoring at susceptible areas such as ports of entry are described. In the era of global economy and growing e-commerce the new guidance assists to take a new step to address invasive alien species spread as contaminants and stowaways.

BIO: Dr Junko Shimura has served the United Nations Secretariat of the Convention on Biological Diversity overseeing the programmes on taxonomy and invasive alien species. Prior to joining the UN secretariat, she was a senior scientist at the National Institute for Environmental Studies and Riken Institute in Japan, worked on microbial collections and bioinformatics. Currently, she coordinates inter-agency collaborations among the international regulatory bodies to set a normative on live organisms' trade and transport to manage invasive alien species which are the major threats to biodiversity. She also facilitates international collaboration in biodiversity envisioning the post-2020 biodiversity framework to be evidence based and in participatory manner from all relevant communities.

DAY 3: COMMUNICATIONS WORKSHOP

Applying Behavioural Psychology to Invasive Species Communications Strategies *Ken Donnelly, Beyond Attitude Consulting*

There is a gulf between the intentions people have, and the actions they take. Behavioural Psychologists call it the intention-behaviour gap. There is a common phrase that describes the same thing: "Despite best intentions...". Invasive species communications strategies must bridge this gap in order to successfully foster effective behaviours to prevent the spread of invasive species.

BIO: Ken is a consultant, specializing in Behavior Change, Community Engagement, Public Policy and Strategic Planning across many topics, especially sustainability. He is also a public speaker, trainer and blogger, making a difference by inspiring many people to make simple, sustainable choices.

Building National Campaigns for Invasive Species across Canada

Kellie Sherman, Canadian Council on Invasive Species

This presentation will review the existing National Taking Action and Behaviour Change Programs that the CCIS coordinates that utilize Community Based Social Marketing techniques, how they were developed and how they are being implemented across Canada. The main programs include Play Clean Go, Clean Drain Dry and the National Firewood Campaign. The intent of these programs is to create a hub of information for provinces and territories to access and utilize to spread a consistent message across Canada about actions people can take to reduce the spread of invasive species in the program area that pertains to them. The CCIS depends on partners across Canada to assist in implementing these programs by supporting them with easy to access resources and tools to do so. Learn more about how these programs can be adapted and implemented in your province or territory. By working together to spread consistent messaging about invasive species and actions that can be taken to reduce their spread, economic and environmental costs can be avoided.

BIO: Kellie is the Communications Coordinator of Canadian Council on Invasive Species; a non-profit organization that works collaboratively across jurisdictional boundaries to support actions and information that can help reduce the threat and impacts of invasive species. She has worked in the natural resource sector for over six years and lives in Peterborough, Ontario.

But It Was Just One Tweet: Building Strong Social Media Policy

Heather Badenoch, Village PR

Your staff's posts from their *personal* social media accounts can hurt your organization's reputation—from violating privacy, to disparaging remarks about a colleague to hate speech. The employee's discipline or termination may follow. Hear local examples and learn more about social media policy based on current Canadian employment law.

BIO: Heather Badenoch believes in the power of not-for-profits and the strength they have to effect change for people, animals and our environment. As the Chief Strategist at Village PR (villagepr.ca) she provides communications planning and implementation, public relations, social media engagement, and training to not-for-profits across Canada. She works strategically and creatively with her clients to accomplish their communication goals. In 2018 Heather became a living liver donor to a stranger—to a child whose identity she does not know.

Raising awareness of invasive pests: the CFIA's social media campaigns and key lessons learned ***Ifi Chafy, Canadian Food Inspection Agency***

The CFIA has run a series of social media advertising campaigns over the past 10 years to raise awareness and promote action on invasive species, supporting the Agency's strategic priority of integrated risk management. Don't Move Firewood continue to be one of the Agency's primary messages. Educating the public about the risks of moving firewood is crucial to creating awareness about the potentially devastating effects of plant pests and the public's role in prevention. This presentation will provide an overview and lessons learned from the Agency's most recent online campaigns. It will also share some insights into behavioural change, the use of partnerships to expand communications reach, and look ahead at the Agency's preliminary plans for 2019.

BIO: Ifi Chafy has been a communications professional in the Government of Canada for close to 20 years, with experience in all areas of communications and stakeholder engagement. She is particularly interested in exploring how government and non-government organizations can work together to extend the reach and increase the effectiveness of communications on shared priorities.

Communication Strategies and Tools used for invasive species management at Parks Canada: the case of the invasive Brown Spruce Longhorn Beetle in Kouchibouguac National Park, New Brunswick, Canada ***Philippe St-Onge, Parks Canada***

The Brown Spruce Longhorn Beetle (BSLB) was originally detected in 2011 along the Saltmarsh Trail within Kouchibouguac National Park with a pheromone-baited trap; which was also the first detection of this invasive alien forest insect in New Brunswick. This discovery triggered the design of a complex and coordinated action plan through the establishment of a cross-functional BSLB Steering Committee including various Federal departments or agencies (*i.e.*, PCA, CFIA, NRCan), the Province of New Brunswick, local First Nations communities, as well as the forest industry in order to gain knowledge on the consequences of this introduction and efficiently manage the situation. This action plan involved the development of a Risk Analysis (RA), a monitoring protocol, along with a communication strategy that used different tools to reach a wide variety of audiences and targeted groups. For example, corporate briefing notes, committee meetings, and conference calls were the main means of communication to exchange information for decision-making between government departments or agencies while traditional and social media strategies were used to communicate with the general public. The specific communication products that were developed for the education and outreach of Park visitors will be explained in this presentation. As with many other environmental issues, these effective communication strategies and tools were instrumental to the successful outcomes or results we experienced for the control and management of this invasive pest. These will continue to be used to inform visitors and stakeholders of more recent invasive species threats currently affecting the ecological integrity of Kouchibouguac National Park ecosystems.

BIO: Philippe St-Onge has B.Sc. and M.Sc. degrees in marine ecology from l'Université de Moncton (2003; 2006), and a PhD in biological oceanography from the Université du Québec à Rimouski (2013), where he specialized in population dynamics of marine invertebrates. He currently holds the position of Resource Conservation Manager for the Northern New Brunswick Field Unit at Parks Canada since 2015, which includes Kouchibouguac National Park. This park currently manages several invasive species files, including the Brown Spruce Longhorn Beetle (BSLB), European green crabs, and alien invasive plants.

No More Willy-Nilly: ISAP's Endeavour to Communicate with the Right People, the Right Way
Sophie Monfette, Invading Species Awareness Program, Ontario
Federation Anglers and Hunters

Whether they are competing with native fishes for food/habitat or decreasing biodiversity in our forests, invasive species are impacting lands and waters across Ontario. The Invading Species Awareness Program (ISAP) has been engaging people in awareness and prevention efforts since 1992; however, recently endeavoured to refine their approaches by working with a communications consultant. Over the past year, the ISAP has been working with Village PR to prioritize target audiences (RIGHT PEOPLE) and better understand each audience's communication preferences (RIGHT WAY) in order to increase the likelihood that they *take action*.

BIO: Sophie Monfette is the Coordinator of Ontario's Invading Species Awareness Program, a long-standing partnership of the Ontario Federation of Anglers and Hunters and the Ontario Ministry of Natural Resources and Forestry. From its humble beginnings in 1992, the ISAP has grown into a large scale, multi-faceted program promoting invasive species awareness, understanding, and accountability to key audiences contributing to introduction and/or spread. Critical to the success of the ISAP are the staff that develop and deliver on the wide range of projects the ISAP tackles each year. Collectively, the ISAP team has extensive experience in communicating the importance of preventing the introduction and spread of invasive species to a range of audiences and works with numerous partners every year to deliver one of the most comprehensive invasive species awareness programs in Canada.