

Recommendations to Improve **INVASIVE ALIEN SPECIES** Prevention and Management in Canada

Prepared by the Federal-Provincial-Territorial Invasive Alien Species Task Force

Approved by the Conservation, Wildlife and Biodiversity Steering Group on January 5th, 2017

For consideration by the Federal, Provincial and Territorial Conservation, Wildlife and Biodiversity Ministers





Cover: European water chestnut (*Trapa natans*)
in the Ottawa River, Ontario
Photo: F. MacDonald, Ontario Ministry of Natural
Resources and Forestry

Inside Cover: Purple loosestrife (*Lythrum salicaria*)
Photo: W. Bakowsky, Ontario Ministry of Natural
Resources and Forestry

List of Acronyms:

CCIS: Canadian Council on Invasive Species
CWBSG: Conservation, Wildlife and Biodiversity
Steering Group
ECCC: Environment and Climate Change Canada
EDRR: Early Detection and Rapid Response

FPT: Federal-Provincial-Territorial
FPWG: Forest Pest Working Group
IAS: Invasive Alien Species
NAISC: National Aquatic Invasive Species Committee

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Zebra mussels (*Dreissena polymorpha*) encrusted
on native clam in Lake Winnipeg, Manitoba
Photo: C. Parks, Manitoba Sustainable Development

Executive Summary

Invasive Alien Species (IAS) are harmful organisms whose introduction or spread threatens Canada's environment, economy, or society. IAS pose a significant and growing threat in Canada, causing ecological impacts that are often irreversible. Once established, they are extremely difficult and costly to control and eradicate. Canada has recognized the importance of this issue through endorsement of a variety of international accords. An *Invasive Alien Species Strategy for Canada* (the Strategy) was released in 2004, and provided a foundation on which to develop complementary national, federal, provincial and territorial action plans, strategies, legislation, and supporting partnerships. Yet provincial and federal approaches and tools to address IAS threats have been challenged to keep pace and evolve as the threat grows. For that reason, it is important to strengthen and enhance mechanisms that support implementation of the Strategy, and its objectives of prevention, early detection, rapid response and management of IAS.

In February 2015, the federal, provincial, and territorial Conservation, Wildlife and Biodiversity Ministers renewed their commitment to work towards the strategic goals of the Strategy and established an ad hoc Federal-Provincial-Territorial IAS Task Force. The charge to the Task Force was to identify key actions to support continued progress on the implementation of the Strategy. Over the past 18 months, the Task Force has compiled evidence and sought the advice of a broad range of stakeholders, culminating with a National Workshop in February 2016. On the basis of that work, they have developed three broad recommendations. This report presents those recommendations, with focus areas and example priority tasks identified for each.

The three recommendations are:

RECOMMENDATION 1

Improve National Leadership and Coordination of IAS Actions in Canada: *Formalize the Federal-Provincial-Territorial Invasive Alien Species Task Force*

FOCUS AREAS:

Strengthen policy frameworks to address IAS; coordinate national studies and analysis; encourage collaboration and partnerships

RECOMMENDATION 2

Improve Emergency Response to IAS Incursions: *Develop a National Framework for Early Detection and Rapid Response (EDRR) Initiatives*

FOCUS AREAS:

Provide guidance on how to respond to new invasive species; encourage development of Early Detection and Rapid Response (EDRR) Plans; share EDRR experiences and build on lessons learned

RECOMMENDATION 3

Enable Actions by Canadians: *Join Forces to Combat IAS*

FOCUS AREAS:

Build strategic partnerships; communicate and educate; build capacity; share information and data; strengthen funding



Vase tunicate (*Ciona intestinalis*)
Photo: A. Ramsay, PEI Department of Agriculture and Fisheries



Giant hogweed (*Heracleum mantegazzianum*)
Photo: L. Assinck, Ontario Ministry of Natural Resources and Forestry



Japanese beetle (*Popillia japonica*)
Photo: C. Picard, Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques



Hawkweed (*Hieracium spp*) invades a forest cut block in British Columbia

Photo: V. Miller, British Columbia Ministry of Forests, Lands and Natural Resource Operations

Background

Invasive Alien Species (IAS) pose a significant and growing threat to Canada's environment, economy, and society. Alien species are plants, animals, and micro-organisms introduced by human action outside their natural past or present distribution. Invasive species are harmful alien species whose introduction or spread threatens the environment, the economy, or society. The ecological effects of invasive species are often irreversible and, once established, they are extremely difficult and costly to control and eradicate. Next to habitat loss, invasive species are the leading cause of species becoming at risk of extinction. They clog infrastructure, foul beaches, and interfere with recreational activity. The economic impact of just 16 species found in Canada ranges from \$13.3 to \$34.5 billion annually to fisheries, agriculture and forestry resources, with significant economic impacts to trade as a result of controls and quarantine. Media focus on invasive species is growing. High profile species such as Asian carps dominate headlines, and public awareness and expectations are increasing.



An Invasive Alien Species Strategy for Canada was developed by federal, provincial and territorial resource ministers in 2004. The goal of the Strategy is to protect Canada’s aquatic and terrestrial ecosystems, and their native biological diversity and domestic plants and animals, from the risks of invasive alien species. The Strategy seeks to minimize the risk of invasive alien species to the environment, economy and society through a hierarchical approach that prioritizes prevention, early detection, rapid response and management.

Canada has recognized the importance of this issue through endorsement of the Convention on Biological Diversity, the International Plant Protection Convention (IPPC), and other international agreements. Canada has also recently engaged with neighboring countries in the development of regional strategies. Under the Conservation of the Arctic Fauna and Flora (CAFF) of the Arctic Council, the Arctic Invasive Species project is a multi-phase project with the first phase directed towards developing an Arctic Invasive Alien Species Strategy and Action Plan. The North American Climate, Clean Energy, and Environment Partnership Action Plan, approved at the 2016 North American Leaders’ Summit, also includes a commitment to explore the development of a high level joint Strategy and Action Plan.

In 1995, the federal government released the Canadian Biodiversity Strategy, which called for the development and implementation of measures such as policies, plans, legislation and programs to prevent invasive alien species from adversely affecting biodiversity. Release of *An Invasive Alien Species Strategy for Canada* (the Strategy) in 2004 was an important step toward that goal, and was followed by the development of complementary national, federal, provincial and territorial action plans, strategies, legislation, and supporting partnerships.¹ Yet territorial, provincial and federal approaches and tools to address IAS threats have been challenged to keep pace and evolve as understanding of the threat grows. For that reason, it is

¹ Québec is working with the federal government and the provinces and territories on biodiversity issues, including invasive alien species. Québec acknowledged the Canadian Biodiversity Strategy, the Invasive Alien Species Strategy for Canada, as well as the 2020 Biodiversity Goals and Targets, but does not adhere to these initiatives as it develops and implements its own instruments for the conservation of biodiversity on its territory.



Emerald ash borer (*Agrilus planipennis*)
Photo: E. Czerwinski, Ontario Ministry of Natural Resources and Forestry



Aerial photo of an ash stand severely damaged by emerald ash borer
Photo: T. Kimoto, Canadian Food Inspection Agency

important to strengthen and enhance mechanisms that support implementation of the Strategy, and its objectives of prevention, early detection, rapid response and management of IAS.

Climate change significantly increases the urgency of this challenge for Canada as it can increase the likelihood that introduced organisms will establish and spread, and foster further northward spread of already-established invasive alien species, increasing their impact in Canada.



Silver carp (*Hypophthalmichthys molitrix*) an invasive fish, seen here in the U.S. waters of the Mississippi River, is the focus of a bi-national effort including the U.S. and Canadian federal, state and provincial agencies to prevent its introduction to the Great Lakes basin

Photo: R. Hagerty, US Fish & Wildlife Services

The Challenge

Coordination and Value Added

Since the release of the Strategy in 2004, federal, provincial, and territorial agencies have made good progress in many initiatives related to prevention and control of IAS (see text box on next page). In certain activity areas, new coordination mechanisms have been developed to encourage collaboration and information sharing. Some are regional (e.g., the Pacific North West Economic Region AIS Group, the Inter-Provincial-Territorial Agreement for Coordinated Regional Defense Against Invasive Species, and the Conference of Great Lakes and St. Lawrence Governors and Premiers' AIS Task Force), while others focus on particular species groups (e.g., the Council of Fisheries and Aquaculture Ministers' National Aquatic Invasive Species Committee (NAISC) and the Council of Canadian Forest Ministers' Forest Pest Working Group (FPWG)). Much has been achieved through these mechanisms, but much remains to be done.

Example achievements toward implementation of the Strategy

- Development of sub-national plans and strategies (e.g. Ontario Invasive Species Strategic Plan, Invasive Species Strategy for British Columbia)
- Improvements of the regulatory framework at the federal level (e.g., phytosanitary requirements to prevent the introduction of plants regulated as pests in Canada, Aquatic Invasive Species Regulations) and provincial/territorial level (e.g., Ontario Invasive Species Act, Manitoba Aquatic Invasive Species Regulations, amendments to Alberta Fisheries Act)
- Risk assessments conducted for many potential invasive species and pathways (e.g., wood packaging material, ballast water, recreational boating)
- Outreach activities developed at the national and provincial/territorial level (e.g., education campaigns such as “Don’t move firewood” and “Clean-Drain-Dry”)
- Monitoring networks established in many provinces (e.g., EDDMapS, Sentinelle)
- Development of systems for rapid decision, communication and implementation of response plan (e.g., Asian Carp Incident Command)

In February 2015, the federal, provincial, and territorial Conservation, Wildlife and Biodiversity Ministers renewed their commitment to work towards the strategic goals of the Strategy and established an ad hoc Federal-Provincial-Territorial IAS Task Force. The charge to the Task Force was to identify key actions to support continued progress on the implementation of the Strategy, and report those proposals to the Conservation, Wildlife and Biodiversity Ministers at their next meeting.

The mandate of the IAS Task Force is:

- 1) To identify key gaps, priority actions and best practices, to better position Canadian efforts in the fight against invasive alien species, and
- 2) To identify opportunities for:
 - strengthening the policy framework,
 - improving leadership, coordination and collaboration and
 - development of strategic partnerships

The work of the IAS Task Force is intended to build on the Strategy, not replace it, and the key actions and priorities identified in other intergovernmental national and regional platforms remain valid. The focus of the Task Force is therefore on cross-cutting issues and opportunities that add value to existing federal, provincial, and territorial initiatives.

Membership of the Task Force includes representatives from federal, provincial and territorial governments, including Environment and Climate Change Canada, the Canadian Food Inspection Agency, and the various provincial and territorial ministries responsible for IAS. Additional members on the Task Force include the federal co-chairs of the NAISC (Fisheries and Oceans Canada) and the FPWG (Natural Resources Canada), to ensure cross-sectoral representation and coordination. To ensure horizontal integration, each member is responsible for linking with other interested agencies within their own jurisdiction. The Task Force has also engaged non-government partners and other stakeholders, to obtain their perspectives on opportunities to develop or enhance strategic partnerships to address IAS. To that end, the Task Force organized a national stakeholder workshop in February 2016 as a key element of its work plan. This workshop is discussed in more detail in the next section. A list of Task Force members is provided in Appendix 1 and major Task Force work products are listed in Appendix 2.



Hawkweed (*Hieracium spp*)

Photo: J. Leekie, British Columbia Invasive Species Council

Process

Since February 2015, the IAS Task Force has undertaken a number of activities to support the development of recommendations. The first step was to conduct a comprehensive review of progress in implementing the Strategy. Task Force members identified achievements, gaps and emerging issues related to their respective mandates against the priority actions and pathways listed in the Strategy. In keeping with the four strategic goals identified in the Strategy (prevention, early detection, rapid response and management), Task Force members also noted the need for continued work on issues such as pathway prioritization and management, coordination and legislative framework for IAS.

From November to December 2015, jurisdictional interviews were conducted with Task Force members to further develop and refine the findings of the stock-taking exercise. Members were invited to identify key actions that are national in scope; relevant and beneficial to more than one jurisdiction; strengthen the IAS policy framework in Canada; encourage collaboration; and are cost effective and sustainable over the long term. This step produced a jurisdictional scan report summarizing Canadian IAS priorities as viewed by Task Force members (see Appendix 3).

A parallel process was then conducted with the Canadian Council on Invasive Species (CCIS). CCIS is a “council of councils”, with members representing invasive species councils, committees and coalitions in most of the provinces and territories of Canada. CCIS produced its own jurisdictional scan of Canadian IAS priorities (Appendix 4) within its provincial/territorial council membership. There were striking similarities between the Task Force and CCIS reports, with many common priorities identified.

In February 2016, the Task Force in collaboration with CCIS hosted a National Workshop in Ottawa to discuss priority actions. Attendees included over 50 individuals representing governments, non-governmental organizations and industry. Discussion at the workshop overwhelmingly supported the conclusions of the Task Force and CCIS. Participants recognized that prevention and management of IAS is a shared responsibility: no single agency or interest can solve the problem on its own. It was especially encouraging to hear participants express a sense of renewed excitement and enthusiasm that this daunting issue can in fact be tackled through collaborative action and their heartfelt willingness to work hard toward that goal.

Five key areas for collaborative actions emerged from this workshop, and are summarized in a National IAS Workshop Report.

The five key themes were:

- The importance of further inter-jurisdictional coordination,
- The need for increased funding,
- The importance of stronger education and awareness,
- The need for enhanced emergency response actions, and
- The value of facilitating more collaboration and strategic partnerships.

The Workshop Report was also sent to more than 135 additional stakeholders for review and comment. The executive summary from the report is presented in Appendix 5.



National IAS workshop
Photo: Canadian Council on Invasive Species



Watercraft inspection stations to prevent the introduction and spread of zebra mussels to Alberta
Photo: Alberta Environment & Parks

Task Force Recommendations

The Task Force activities described previously, and in particular the National Workshop and associated report, provided reaffirmation for the Task Force that the National Strategy is still relevant, and that future efforts should focus on **prevention** of new IAS introductions into Canada, and identifying and addressing the **pathways** of introduction and spread of IAS. The work also confirmed that there have been a number of significant accomplishments since the release of the Strategy in 2004, although there are some key areas where more progress is needed. The jurisdictional scan report and the National Workshop revealed several recurring themes and interrelated actions, and confirmed that there is a strong desire for a FPT national coordinating committee.

In light of these findings, the IAS Task Force recommends action in three strategic focus areas to support future collaborative work on IAS:

RECOMMENDATION 1

Improve National Leadership and Coordination of IAS

Actions in Canada: *Formalize the Federal-Provincial-Territorial Invasive Alien Species Task Force*

FOCUS AREAS:

Strengthen policy frameworks to address IAS; coordinate national studies and analysis; encourage collaboration and partnerships

RECOMMENDATION 2

Improve Emergency Response to IAS Incursions:

Develop a National Framework for Early Detection and Rapid Response (EDRR) Initiatives

FOCUS AREAS:

Provide guidance on how to respond to new invasive species; encourage development of Early Detection and Rapid Response (EDRR) Plans; share EDRR experiences and build on lessons learned

RECOMMENDATION 3

Enable Actions by Canadians: *Join Forces to Combat IAS*

FOCUS AREAS:

Build strategic partnerships; communicate and educate; build capacity; share information and data; strengthen funding

Each of these recommendations is described in more detail in the following sections. Each provides important opportunities to leverage existing jurisdictional and sectoral activities by encouraging national collaboration and coordination on IAS prevention and control, according to the federal, provincial and territorial governments' specific interests and capacities.

Under each recommendation, the Task Force has identified key activity areas and a number of examples of priority tasks that would help to address high-risk activities, pathways, or geographic locations. These are based on the priorities identified by the Task Force and on feedback from partners and stakeholders, and will need to be confirmed and prioritized by the CWBSG and are conditional on the approval of work-plans and associated budgets by each government.



Fanwort (*Cabomba caroliniana*) on boat motor
Photo: Ontario Federation of Anglers and Hunters



Yellow iris (*Iris pseudacorus*) removal by volunteers in Ontario
Photo: F. MacDonald, Ontario Ministry of Natural Resources and Forestry

Recommendation 1

Improve National Leadership and Coordination of IAS Actions in Canada

Formalize the Federal-Provincial-Territorial Invasive Alien Species Task Force

One of the most common recurring themes emerging from the jurisdictional scan and National Workshop was that to be effective, the fight against IAS would need to move beyond sectoral and jurisdictional approaches, and would therefore require an ongoing national, over-arching, inter-jurisdictional coordination mechanism for IAS issues. There was broad support among FPT IAS Task Force members and key partners and stakeholders for the creation of a permanent body based on the Federal-Provincial-Territorial Invasive Alien Species Task Force to address this need.

The proposed IAS National Committee could build on the ad hoc IAS Task Force to provide a permanent FPT national coordination mechanism to support collaborative efforts to fight against invasive species in Canada. Its mandate would span all three of the Task Force's recommendations. Such an inter-jurisdictional co-ordination mechanism was indeed envisioned in the Strategy but was never implemented.

The proposed National Committee would not replace other inter-governmental national platforms such as the FPWG or the NAISC, but rather would provide a mechanism to explore cross-cutting issues and opportunities for collaboration on common priorities for common benefit. As a permanent platform for exchange of information on current programs, it will also encourage jurisdictions to benefit from the experience of others, reducing duplication of effort and improving outcomes.

The National Committee would report to the ADM Conservation, Wildlife, and Biodiversity Steering Group (CWBSG), who would ensure that other ministers' councils are kept informed on key files. National Committee membership would continue to include representatives from federal, provincial and territorial governments and the other FPT IAS Committees, but would be expanded to include additional federal agencies, for example, the Canada Border Services Agency, the Pest Management Regulatory Agency, and Agriculture and Agri-food Canada. It would be the responsibility of National Committee members to maintain linkages to other inter-jurisdictional and interdepartmental IAS committees to ensure that work is aligned and complementary.



Red eared turtle (*Trachemys scripta elegans*) in Valleyfield near Montreal
Photo: S. Fiset, Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques

The work will focus on three priority areas:

- › Strengthen policy frameworks to address IAS
- › Coordinate national studies and analysis
- › Encourage collaboration and partnerships

Table 1 illustrates example priority tasks under this recommendation. These examples reflect the key gaps and priorities identified through the initial stock-taking exercise, jurisdictional scan, and National Workshop, which together provided an excellent starting point for future work. For example, through the early parts of the process, the Task Force members provided information about pathways management and prioritization in their jurisdictions, indicating where there are key gaps. This information will help to inform the development and coordination of strategies to address high-risk pathways in the future.

Table 1: Focus areas and example priority tasks under Recommendation 1

Recommendation 1

Improve National Leadership and Coordination of IAS Actions in Canada

Formalize the Federal-Provincial-Territorial Invasive Alien Species Task Force

Focus Areas

Strengthen policy frameworks to address IAS

Example Priority Tasks

- › Focus on policy/legislative framework for key pathways not currently fully addressed (e.g. pet trade) and emerging issues (e.g. e-commerce)
- › Improve the toolbox for long term management of established IAS of economic and environmental importance (e.g. pesticide registration and application permitting for aquatic uses, use of biological control agents, etc.)
- › Encourage collaboration/ information-sharing for enforcement/ inspections across jurisdictions
- › Develop an EDRR National Framework (see Recommendation 2)

Focus Areas

Conduct national studies and analysis

Example Priority Tasks

- › Develop a National Report on the status of IAS across Canada by 2020
- › Track progress toward the achievement of Target 11 (IAS) of the 2020 Biodiversity Goals and Targets for Canada
- › Review existing and support new socio-economic impacts analysis to better understand the cost of IAS in Canada.
- › Review the efficacy of existing and past funding programs and investigate options to increase funding and generate revenue, including funding for emergency response and restoration (e.g. contingency fund, environmental bonds, fees, etc.); consider best practices in Canada and elsewhere in the world (e.g., US federal-state funding for IAS response programs; New Zealand beneficiary-pay model)

Focus Areas

Encourage collaboration and partnerships

Example Priority Tasks

- › Work with national partners in the delivery of IAS national programs (see Recommendation 3)
- › Encourage collaboration and information sharing with the U.S. and other international partners



Alberta stakeholders cutting a stand of invasive Common reed (*Phragmites sub sp. australis*) for containment measures
Photo: Alberta Agriculture & Forestry



Asian longhorned beetle (*Anoplophora glabripennis*)
Photo: P. Hodge, Ontario Ministry of Natural Resources and Forestry

Recommendation 2

Improve Emergency Response to IAS Incursions

Develop a National Framework for Early Detection and Rapid Response (EDRR) Initiatives

Preventing IAS wherever and whenever possible is of critical importance to avoid or minimize the significant long-term economic, environmental and social costs of these unwanted species introductions. However, when IAS circumvent initial prevention measures and enter Canada, effective emergency response is essential to ensure they do not become established. The jurisdictional scan and the National Workshop confirmed that there are gaps in the current approach to emergency response. Improvements are needed in areas such as effective monitoring programs (general or site, pathway and vector-specific), taxonomic expertise and diagnostic tools to support accurate identification, and rapid response plans to ensure that Canada can respond effectively should new pest incursions occur.

Asian Long-horned Beetle: A Case Study in Early Detection and Rapid Response Asian Long-horned Beetle (ALB) is a forest pest that attacks nearly all broad-leafed trees with a preference for maple species. ALB was first discovered in North America at several ports in the early 1990s. ALB was detected in the Toronto, Ontario area in 2003 and quick and effective action led to eradication of the pest over the following years. A new infestation was discovered in Mississauga, Ontario in 2013, and eradication and quarantine efforts are currently in place to stop its spread.

Immediately upon the discovery of the beetle, a joint task force was created to eradicate the insect from Canada. This eradication effort is led by the Canadian Food Inspection Agency, and includes the Ontario Ministry of Natural Resources and Forestry, the Canadian Forest Service, City of Toronto, City of Vaughan, York Region, Toronto and Region Conservation Authority, and the U.S. Department of Agriculture. Most discoveries of the Asian Long-horned beetle in North America were made by alert, observant citizens who informed the appropriate agencies. Early detection is crucial to stop this beetle from becoming established and spreading.

Effective partnership, coordination and communication across multiple scales reduce duplication of effort and facilitate the success of operations, significantly improving the effectiveness of Early Detection and Rapid Response (EDRR). To date, few emergency response plans have been developed, so there is also a need to develop EDRR plans for particular high-risk species/taxonomic groups, geographic locations, and pathways.

Under this recommendation, the Task Force suggests three focus areas. The first focus is the development of a national Framework for EDRR initiatives, under the leadership of the IAS National Committee. It would provide guidance on how to respond to new invasive species across the full continuum of emergency management, from preparation through to restoration, but it would not be prescriptive. This guidance would build on and ensure linkages to existing frameworks within Canada (e.g., BC Invasive Species EDRR Plan, draft Decision Support Framework for Forestry Invasive Pests, Emergency Management Framework for Agriculture in Canada), the United States (e.g., National Framework for Early Detection and Rapid Response, Guidelines for the Establishment of Early Detection and Rapid Response Systems), and elsewhere in the world (e.g., New Zealand's national biosecurity surveillance program). This national framework could also build on plans established in other areas, such as intervention plans for natural disasters.



Tench (*Tinca tinca*)
Photo: McGill University

The second focus involves the development of EDRR plans for high-risk species/taxonomic groups, provinces/territories, pathways and/or natural areas of national significance. The third focus is on developing mechanisms for information exchange on EDRR initiatives. Table 2 summarizes these focus areas with example priority tasks.



Air boat applying herbicide to eradicate Water soldier (*Stratiotes aloides*) in the Trent Severn Waterway
 Photo: F. MacDonald, Ontario Ministry of Natural Resources and Forestry

Table 2: Focus areas and example priority tasks under Recommendation 2

Recommendation 2

Improve Emergency Response to IAS Incursions

Develop a National Framework for EDRR

Focus Areas

Provide guidance on how to respond to new invasive species

Example Priority Tasks

- Provide guidance on response to IAS across the full continuum of emergency management, from preparation through to restoration, building on and ensuring linkages to existing frameworks within Canada, the US and elsewhere in the world
- Example content could include description of agency/ stakeholder roles and notification processes; legislative and regulatory tools; approvals and permitting requirements; communication mechanisms, including contact persons

Focus Areas

Encourage development of EDRR plans

Example Priority Tasks

- Encourage development of EDRR plans for high-risk species/ taxonomic groups; provinces/territories; pathways, and natural areas of national significance
- Explore the feasibility of establishing a National IAS Emergency Response Fund with clear mechanisms to build, sustain, and allocate resources for EDRR

Focus Areas

Share EDRR experiences and build on lessons learned

Example Priority Tasks

- Coordinate response simulations, post-mortems on EDRR experiences, training workshops, etc.



Studying the effects of Didymo algae (*Didymosphenia geminata*) on benthic invertebrates and fish habitat in Million Dollar Falls, Yukon
Photo: H. Milligan, Yukon Department of Environment



Flowering rush (*Butomus umbellatus*) control trials at Lake Isle, Alberta
Photo: Alberta Environment & Parks

Recommendation 3

Enable Actions by Canadians

Join Forces to Combat IAS

Many excellent IAS initiatives are already underway across Canada, at all levels of government, through non-governmental organizations and on private and public lands. The jurisdictional scan and national workshop highlighted the importance of collaboration and information sharing as a way of joining forces to build upon these existing networks, programs and successes. In light of input received during the National Workshop, the Task Force has identified five key focus areas to enable implementation of this recommendation.

Invasive Alien Species Councils

IAS Councils are established in most provinces and territories. They are not-for-profit, multi-stakeholder organizations, generally with close links to governments. They play a key role in coordination of actions at the local, provincial and regional levels by increasing awareness and understanding of IAS and their impacts. IAS councils work with partners to address the Strategy priorities, especially in leveraging local action to address IAS issues. They equip local residents with the training and tools they need to identify new and existing IAS infestations, and facilitate the establishment of a community monitoring network, enhancing the management of IAS issues within their jurisdictions.



The Canadian Council on Invasive Species was created in 2012 at the initiative of provincial councils to work on common issues across the country. Through this mechanism, invasive species groups across the country are working in partnership to build on lessons learned and improve public awareness of invasive alien species.

Five Key Focus Areas:

- › Build strategic partnerships
- › Communicate and educate
- › Build capacity
- › Share information and data
- › Strengthen funding

Table 3 illustrates example of priority actions under each key focus area. This is intended to create a foundation on which to build long-term, collaborative partnerships with others. These are not actions that would be undertaken solely by the National Committee; rather, the National Committee could lead, support, or collaborate with external partners as appropriate for the particular action and available resources. Invasive alien species affect everyone, from regulatory agencies, to business and industry, to the general public. Strengthening collaboration and empowering others to take action improves efficiency and enhances outcomes for everyone. Table 3 summarizes proposed focus areas with example priority tasks.



Green crab (*Carcinus maenas*) in Passamaquoddy Bay, New Brunswick
Photo: S. Robinson. Fisheries and Oceans Canada

Table 3: Focus areas and example priority tasks under Recommendation 3

Recommendation 3	
Enable actions by Canadians	
<i>Join forces to combat IAS</i>	
<p>Focus Areas</p> <p>Build strategic partnerships</p>	<p>Example Priority Tasks</p> <ul style="list-style-type: none"> › Work with CCIS and other national partners, and provincial/ territorial invasive species councils › Identify and work with representatives of the private sector, including industry, to address key pathways of introduction and spread › Develop new partnerships with Indigenous communities › Promote partnerships for on the ground action (both regulatory and community-based) and research
<p>Focus Areas</p> <p>Communicate and educate</p>	<p>Example Priority Tasks</p> <ul style="list-style-type: none"> › Develop and implement a national communications plan to encourage consistent messaging › Strengthen connections to existing outreach and education approaches and programs, possibly through a common hub/ portal › Support CCIS, industry and other national partners in the delivery of IAS education and outreach programs, including those based in schools and community groups › Engage stakeholders and the public in national and regional forums (e.g., a biannual national forum) › Engage the public in IAS prevention and control through citizen science programs
<p>Focus Areas</p> <p>Build capacity</p>	<p>Example Priority Tasks</p> <ul style="list-style-type: none"> › Develop a risk assessment, including protocols, clearinghouse (central hub/ sharing portal) › Conduct joint risk assessments › Share Best Management Practices and provide training opportunities
<p>Focus Areas</p> <p>Share information and data</p>	<p>Example Priority Tasks</p> <ul style="list-style-type: none"> › Develop interactive maps of IAS species occurrences for Canada, possibly linking existing mapping systems such as EDDMapS, Sentinelle and Invasive Alien Plant Program Application › Ensure data sharing across all relevant organizations and jurisdictions and connections with provincial/ territorial data systems › Facilitate public access to federal/ provincial/ territorial reporting networks by providing easy access to contact information
<p>Focus Areas</p> <p>Strengthen funding</p>	<p>Example Priority Tasks</p> <ul style="list-style-type: none"> › Improve existing and establish new federal, provincial, and territorial partnership funding programs to support priority actions



Yellow flag iris (*Iris pseudacorus*)

Photo: E. Sellentin, British Columbia Invasive Species Council



Common reed (*Phragmites australis*) control in a Great Lakes coastal wetland in Ontario
Photo: J. Gilbert, Ontario Ministry of Natural Resources and Forestry

Implementation

A national secretariat (at ECCC) would need to be established for a new permanent National IAS Committee to be effective. Additional administrative considerations include the need to develop terms of reference for the new body, and establish a framework for work planning and reporting. Equitable and sustainable funding arrangements will ensure continuity without an undue burden on any agency. The Task Force proposes the following arrangements:

Terms of reference

Following the endorsement of these three recommendations by the CWB Ministers, the IAS Task Force will amend its terms of reference for approval by the CWBSG. The IAS National Committee (name to be confirmed) will be co-chaired by ECCC and a province/territory on a rotational basis.

Planning and Reporting

The IAS National Committee will develop a 5-year work-plan that will prioritize key actions and estimate costs. The plan will be presented to the CWBSG for approval.

The IAS National Committee will present an annual work-plan and the associated budget to CWBSG for approval and will report annually on accomplishments.

The IAS National Committee will prepare a summary report for each CWB Minister's meeting.

Funding

Establishment of a new National Committee need not impose a heavy financial burden on participating agencies. Many key actions proposed are already ongoing or already constitute priorities within each jurisdiction individually. A national collaborative approach will diminish the total costs and increase the benefit for all jurisdictions. The following funding arrangements are proposed:

- ECCC (Canadian Wildlife Service) will cover secretariat costs of the new IAS National Committee.
- Each member will cover its own participation costs (e.g., travel).
- Implementation of key actions will fall under three categories:
 - 1) Many actions will only need in-kind contribution from the members
 - 2) Some projects to be delivered directly by the IAS National Committee will need additional contribution in cash from the participating jurisdictions;

3) Other projects, which may be supported by the National Committee, will be delivered by external partners who will seek funding through other channels.

- Cost sharing: voluntary contributions will be sought from individual jurisdictions on a project-by-project basis.
- Contributions in cash could be managed by ECCC with terms to be agreed upon according to projects.
- The selection of projects in which each government will be involved and to which it could contribute financially will be done case by case, depending on its priorities and human and financial capacity.



Japanese knotweed (*Reynoutria japonica*)

Photo: F. MacDonald, Ontario Ministry of Natural Resources and Forestry



Field scabious (*Knautia arvensis*)

Photo: V. Miller, British Columbia Ministry of Forests, Lands and Natural Resource Operations

Conclusion

Invasive species will continue to significantly impact Canada's economy, environment and society. Climate change, reduced ecosystem resilience and habitat degradation increasingly enable the survival, establishment and spread of invaders. They move easily across jurisdictional and international borders, facilitated by an increasingly global economy, an increasing demand for commodities and a globally mobile population, which create many pathways for entry and spread. Much good work has been done since the release of the 2004 Strategy, but it is increasingly clear that effective IAS prevention and response will require approaches that transcend sectoral and jurisdictional initiatives and thus require national coordination and new partnerships.

The current proposal builds on the priority actions identified in the 2004 Strategy and offers a flexible framework for continued coordination and increased efficiency of the many efforts underway across Canada on invasive alien species, according to the specific interests and capacities of each government. Its recommendations, focus areas, and proposed priority actions reflect a decade of experience across Canada, and strong consensus among IAS Task Force members, partners, and stakeholders.



European fire ant (*Myrmica rubra*)

Photo: S. McCann

Appendices

Appendix 1

Federal-Provincial-Territorial Invasive Alien Species Task Force Membership

Alberta

- › Brian Makowecki (Alberta Environment and Parks)

British Columbia

- › Dominique Sigg (Ministry of Environment)
- › Val Miller (Ministry of Forests, Lands and Natural Resource Operation)

Manitoba

- › Ryan Klos (Manitoba Sustainable Development)
- › Justin Shead (Manitoba Sustainable Development)

New Brunswick

- › Steve Gordon (Department of Energy and Resource Development)
- › Kathryn Collet (Alternate)

Northwest Territories

- › Suzanne Carrière (Department of Environment and Natural Resources)

Nova Scotia

- › Sherman J. Boates (Department of Natural Resources)

Nunavut

- › Melanie Wilson (Department of Environment)
- › Matt Fredlund (Department of Environment)

Ontario

- › Ala Boyd, Co-Chair (Ministry of Natural Resources and Forestry)
- › Francine MacDonald (Alternate)

Quebec

- › Isabelle Simard (Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques)
- › Isabelle Desjardins, Frédéric Lelièvre (Ministère des Forêts, de la Faune et des Parcs)

Saskatchewan

- › Jeff Keith (Ministry of Environment)

Yukon

- › Todd Powell (Department of Environment)

Canadian Food Inspection Agency

- › Christine Villegas

Environment and Climate Change Canada

- › Bob McLean, Co-Chair

National Aquatic Invasive Species Committee

- › Jane Keenan (NAISC Co-Chair), Fisheries and Oceans Canada

Forest Pest Working Group

- › Derek MacFarlane (FPWG Co-Chair), Natural Resources Canada
- › Anthony Hopkin (Alternate)

Secretariat (Environment and Climate Change Canada)

- › Kelly Torck
- › Bruno Paris

Appendix 2

Federal-Provincial-Territorial Invasive Alien Species Task Force Major Work Products

1. Stock-taking:

Raw data:

- › Invasive Alien Species Strategy for Canada: key accomplishments and gaps (October 2015)
- › Invasive Alien Species Pathways: regulation and management measure in place (October 2015)

Summary Presentations:

- › Analysis of Pathways for the Introduction/ Spread of Invasive Alien Species (October 2015)
- › Key Accomplishments and Challenges associated with the implementation of the Invasive Alien Species Strategy for Canada December 2015)

2. Stakeholder engagement

- › Stakeholder Engagement Strategy (December 2015)

3. IAS Task Force members' interviews on priorities

- › National Invasive Species Task Force Member Interview Responses (PowerPoint, January 2016)
- › Jurisdictional Scan of Canadian Invasive Alien Species (IAS) Priorities (Isobel W. Heathcote, January 2016)

4. National Invasive Species Workshop (February 2016)

Pre-workshop material:

- › Input on National Key Priorities and Partnerships, Canadian Council on Invasive Species
- › Summary Input on Key National Priorities for Invasive Alien Species Management, Invasive Alien Species Task Force

Presentations:

- › Canadian Council on Invasive Species: Priority Actions for 2020 & Beyond
- › Analysis of Priority Invasive Alien Species (IAS) Actions, Invasive Alien Species Task Force
- › An Invasive Alien Species Strategy for Canada: Context and Accomplishments

Report:

- › National Invasive Alien Species Workshop: Summary Report



Common barberry (*Berberis vulgaris*)

Photo: F. MacDonald, Ontario Ministry of Natural Resources and Forestry

Appendix 3

Summary Input on Key National Priorities for Invasive Alien Species Management (Invasive Alien Species Task Force)

(In preparation for the National IAS Workshop, February 2016)

Background

The Invasive Alien Species (IAS) Task Force was established in 2015 by federal, provincial and territorial Conservation, Wildlife and Biodiversity Ministers to support collaborative efforts to fight against invasive species in Canada, guided by the strategic goals of the Invasive Alien Species Strategy for Canada. The Task Force is comprised of representatives from federal, provincial, and territorial governments. Its mandate is to identify key gaps, priority actions and best practices, as well as opportunities for strengthening the national policy framework and improving leadership, coordination and collaboration and development of strategic partnerships. As part of that effort, interviews were conducted with IAS Task Force members in late 2015 to determine their priorities for actions that are national in scope; relevant and beneficial to more than one jurisdiction; strengthen the IAS policy framework in Canada; encourage collaboration; and are cost effective and sustainable over the long term.

The work of the IAS Task Force is intended to build on existing efforts in the fight against IAS. The key actions and priorities identified in the IAS Strategy remain valid, and the IAS Task Force recognizes that much has been accomplished since its development in 2004. Similarly, key actions and priorities identified by other intergovernmental platforms (National Aquatic Invasive Species Committee, Forest Pest Working Group) remain valid. The focus of the IAS Task Force work has been on identifying the gaps and opportunities on cross-cutting/horizontal issues.

Results

The results reflect a broad range of comments across a range of perspectives and priorities. Participants were optimistic, creative, and supportive of collaborative efforts to prevent, manage, and control invasive alien species.

Priority Actions

The following were the most frequently cited priority actions, in decreasing order of occurrence:

- *Legislation and regulations*: regulate organisms in trade; consistent legislation and regulations; model rules
- *National public education campaign*: consistent messaging; national communications strategy; national coordination
- *Enhance and stabilize funding*: stable, equitable, accessible funding; restore IAS Partnership Program
- *Establish an inter-jurisdictional coordination mechanism*: clarify roles and responsibilities; national coordination and response framework
- *Develop systems and networks for rapid decision-making, communication, and emergency response*: create decision-support tools; clarify roles and responsibilities
- *National IAS Database*: information on species ranges and control efforts; Best Management Practices (BMPs)

- ▶ *Increase risk assessment (RA) capacity*: share RAs; find new ways to work together; strengthen capacity for socio-economic RA
- ▶ *Prioritise pathways according to risk; develop/ implement plans for managing high-risk pathways*: collaborate; hold national meetings on key pathways; pathway pilots
- ▶ *Increase capacity for inspections and enforcement at Canada's borders*: empower Canada Border Services Agency (CBSA) to be first line of defense; cross-border information sharing
- ▶ *Conduct/support research on treatment methods and technologies*: species response to treatment methods; develop and register additional pesticides

Additional priority actions identified in the interviews included: strengthened international cooperation; a coordinated public monitoring network; the need for a national core capacity of diagnostic and taxonomic expertise; the need for research to develop new diagnostic tools and tools to predict invasiveness; surveillance in high-risk areas; risk assessment to prioritize and identify options for managing IAS; and restoration plans for vulnerable ecosystems.

Opportunities

The most frequently cited opportunities were:

- ▶ Build on existing networks and programs
- ▶ Take advantage of high public interest/awareness
- ▶ Amend existing laws to include IAS
- ▶ Create a national research network
- ▶ Link to non-traditional priorities such as climate change, species at risk, and biofuels
- ▶ Use social marketing to change behaviours
- ▶ Use new technology, for example environmental DNA, information technology, web crawlers
- ▶ Try innovative funding approaches, for example boat stickers, or a fuel surcharge
- ▶ Work more closely with Indigenous Peoples



Goldfish (*Carassius auratus*) captured in an urban pond in Quebec City
Photo: P. Turmel. Organisme des Bassins versants de la Capitale

Partnerships

Members suggested a variety of mechanisms to strengthen national partnerships:

- ▶ Enhance/strengthen the Canadian Council on Invasive Species and regional/P/T Invasive Species Councils
- ▶ Enhance/improve collaboration/coordination mechanisms
- ▶ Create a national research partnership or network
- ▶ Create an IAS Federal-Provincial-Territorial Committee
- ▶ Create a national alert system
- ▶ More engagement of Indigenous Peoples

Conclusion

The interviews reflected a great deal of optimism, energy, and interest in mutual support, especially enhanced co-ordination at the national level. The results revealed many linked issues and potential solutions (e.g., pathways, species in trade, border controls), and therefore opportunities to achieve broad impact with a relatively small number of actions.

Appendix 4

Input on National Key Priorities and Partnerships (Canadian Council on Invasive Species)

(In preparation for the National IAS Workshop, February 2016)

Background:

Established in 2012, the Canadian Council on Invasive Species brings together Invasive species councils, committees, provincial governments and coalitions representing the majority of provinces and territories in Canada. This national organization was formed as a result of a joint Canada wide meeting in 2009 along with a key recommendation from the 2012 National Invasive Species Forum to establish a national voice to share and coordinate knowledge across Canadian borders, as invasive species 'know no boundaries.'

What we do:

The **Canadian Council on Invasive Species (CCIS)** works collaboratively across jurisdictional boundaries to support actions and information that can help reduce the threat and impacts of invasive species.

Invasive species groups work in partnership to build upon lessons learned in each province/ territory to improve public awareness of invasive alien species. Detecting emerging invasive species early is integral to prevention, as once established, they spread rapidly, causing damage to the environment, economy, and/or human health.

Priority Actions for 2020 and Beyond:

Coordinated actions and secure resources are vital to enable timely and effective responses to invasive species. Coordination is required across all jurisdictions while recognizing that each level of government has distinct regulatory responsibilities and private sector also plays a critical role for success. Diverse financial resources are required from all levels of governments and private sources, especially those involved with 'pathways of spread'.



Eastern grey squirrel (*Sciurus carolinensis*) is considered invasive on the west coast as they displace native squirrels and birds from their habitats
Photo: D. Sigg, British Columbia Ministry of Environment

1. Strengthen Leadership and Coordination

- a) Build a much stronger network within Canada and beyond:
 - Support work with Canadian Council on Invasive Species to ensure linkages exist beyond FPT
 - Ensure effective regular national meetings as a tool to improving collaboration
- b) Have a main single point of contact within federal government and each province/territory for invasive species:
 - Ensure centralized lead agency to coordinate and respond to high risk invasive species
 - Increase coordinated and cooperation information flow across all governments and private
- c) Ensure review and monitor progress against Alien Invasive Species Strategy for Canada:
 - Identify clear roles and responsibilities for FPT governments
 - Have clear defined strategies with specified roles/responsibilities for all agencies, timelines
 - Establish, implement and monitor progress against clear Action Plans, linked the Strategy for Canada
 - Establish FPT/private task force to address pathways such as horticulture, pet and aquarium
- d) Establish a North American Invasive Species Agreement/Framework/Accord to share information and build cross border coordination on prevention and emerging issues

2. Establish and Enforce Regulatory Tools

- a) Close pathways of introduction for incoming transport or trade across borders
- b) Develop and enforce regulatory tools to prevent selling/trading/moving of invasive species

- c) Streamline regulatory tool review to enable more timely approval of proven pesticides and biocontrol tools, including herbicides for use in and near water, add EDRR application techniques and targeted species to labels

3. Ensure Effective Emergency Response to High Risk Species

- a) Ensure prevent and effectively responses to new invasive species potentially entering Canada
- b) Develop/strengthen a coordinated federal risk management process
- c) Conduct thorough risk assessments and risk management plans

4. Ensure Effective Management

- a) Determine priority habitat or geographic areas for protection from invasive species
- b) Improve prevention and early detection by formalizing alliances between research and industry
- c) Establish long term monitoring to determine impacts of invasive species and relation with climate change
- d) Establish an open source data base to be accessed, updated by authorized partners i.e. F/P/T and others

5. Increase Financial Resources

- a) Increase financial resources within the federal government to ensure implementation of the updated Alien Invasive Species Strategy of Canada
- b) Ensure federal resources for supporting/enforcing national regulations to early invaders to Canada
 - Recognize invasive species as a conservation issue equivalent to species at risk
- c) Increase long term funding to provincial/territory non-government organizations on invasive species

- d) Provide resources for partnership work in stopping high risk species (i.e. Invasive Alien Partnership Program)
- e) Establish national trust fund for immediate response to high risk invasive species to Canada or a region

6. Increase Effective Education and Extension

- a) Develop and implement an extensive national education and awareness campaign on invasive species
- b) Establish and support a National Invasive Species Week or Month
- c) Support nation-wide outreach campaigns for invasive species
- d) Support a 'central hub' of information linking government and non-government resources
- e) Support and link to a national Spotter's program aimed at engaging more Canadians

7. Increase Research and Ensure Linkage to Practices

- a) Conduct long-term research on impacts of pesticides to the environment
- b) Conduct long-term research on effectiveness of biocontrol agents after release.
- c) Conduct research on landscapes disturbance impacting distribution or persistence of invasives
- d) Current research on social, economic and environmental impacts of invasive species to Canada

Opportunities

1. LEADERSHIP within Canada and beyond

- a) Ensure strong vertical flow across Council of Ministers and horizontally across provinces, councils and other stakeholders.

- b) Facilitate the North American Invasive Species Framework to build stronger bridges for prevention
- c) Expand partnerships with Canadian Council on Invasive Species, others to increase collaboration

2. REGULATORY TOOLS NEEDED

- a) Ensure that federal and provincial regulatory tools are in place
- b) Ensure clear responsibilities for responding to new invasive species in one region of Canada

3. RESEARCH:

- a) Increase research on economic and ecological impacts and key pathways for invasive species
- b) Ensure extension or outreach of research to decision makers and planners at all level

4. EDUCATION:

- a) Support national campaigns for public awareness and roles in preventing spread of invasive species
- b) Harness energy and support from key partners such as Indigenous, stewardship and outdoor groups

Partnerships & Collaboration

- 1) Facilitate North American Invasive Species Framework
- 2) Develop shared protocols for pathways and emergency responses across Canada and North America
- 3) Partner with Canadian Council on Invasive Species for education and information
- 4) Support establishment of national website linking governments and private information
- 5) Establish centralized database including links to United States
- 6) Support bi-annual National Forum and national level Bulletin or listserv
- 7) Re-invest in partnership programs aligned to national campaigns and priorities (i.e. IASPP)

Appendix 5

Executive Summary, National Invasive Alien Species Workshop Report

Ottawa, Ontario – February 25, 2016

Invasive alien species are a recognized threat to Canada's environment, economy and society. In response to this, An Invasive Alien Species Strategy for Canada in 2004 was developed by federal departments and agencies, provinces and territories to provide a framework to guide actions to address this threat. Since this time, a number of actions have been undertaken by governments, environmental non-governmental organizations, industry, academia and citizens to help support the prevention, early detection, rapid response and management of invasive species.

To further support the goals of the Strategy, Ministers responsible for Conservation, Wildlife and Biodiversity established a representative federal-provincial-territorial (FPT) Invasive Alien Species (IAS) Task Force to identify priority actions to better position Canadian efforts. To ensure a national perspective on priority actions, the IAS Task Force, in partnership with the Canadian Council on Invasive Species, held a national workshop on February 25, 2016 to share perspectives on priorities and potential actions to improve invasive alien species prevention and management in Canada. There were 50 participants including representatives from various levels of government, industry, provincial and territorial invasive species councils, academia and other non-governmental and non-profit organizations. Presentations provided an overview of progress on implementation of the Strategy, and shared the results of jurisdictional scans of FPT governments, and invasive species councils on key priorities and actions.



Mute swan (*Cygnus olor*)
Photo: M. Levesque

Five key themes emerged from the workshop: the importance of further inter-jurisdictional coordination, the need for increased funding, the importance of stronger education and awareness, the need for enhanced emergency response actions, and the value of facilitating more collaboration and strategic partnerships. The input obtained from the workshop, will be used as the foundation for future IAS actions. It was clear there was a strong optimism and willingness by organizations represented at the workshop to support the implementation of these goals.

