Acknowledgements

A sincere thank you to all of the involved organizations that contributed to the development of the Monitoring for Success Framework for the Invasive Species Strategy of British Columbia and the subsequent Provincial Survey.
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Executive Summary

The Invasive Species Strategy for British Columbia (the ‘Strategy’) was released in Spring 2012. In order to determine if current management efforts were being successful there was a need to develop a monitoring framework. The IMISWG, ISCBC, governments and regional committees established an advisory committee to collaborate on ideas, advice and support towards developing a monitoring framework for the success of all invasive species initiatives in British Columbia. Building off of the solutions and goals of the Strategy, a Monitoring for Success Framework (MFS Framework) was created during 2012 and 2013. In late 2016, the MFS Framework was used to derive survey questions for each goal and was finalized between the ISCBC and the IMISWG. In early 2017, the provincial survey was distributed across B.C., encouraging participation from all organizations, groups and individuals involved in invasive species management in the province from 2012–2016. This report summarizes all input and feedback received during the survey process and sets a baseline to compare against for future measurement.

The following table provides a high–level summary of the monitoring for success of the Strategy (2012–2016).

### Monitoring for Success (MFS) of the Strategy (2012–2016) Summary

*Please note that some of the results deviate from the developed indicator. Please refer to the full report in the Results section for a full rationale.

| Solution 1: Establish and enforce effective regulatory tools |
|-------------|-----------------|
| Strategy Goal | MFS Objective | Indicator | Survey Results | Achievement |
| Goal 1: Establish effective regulatory tools | A single piece of provincial legislation for all invasive species in British Columbia is developed | 1. Each step towards the completion of the Invasive Species Act is completed on time. 2. Percent of governments that have legislation and regulation responsibilities | An Invasive Species Act has not been completed; 51.4% of respondents have legislation and regulation (including bylaws) responsibilities | No |
| **Goal 2: Enforce regulatory tools** | Active enforcement of legislation conducted by all enforcement agencies. Enforcement = that programs are actually enforced | Percent of governments that enforce regulatory tools | 60% of respondents monitor for compliance with enforcement actions. 38.5 % of respondents monitor for compliance with enforcement actions | No – baseline for future measurements |
### Solution 2: Build strong collaboration

| Goal 3: Build strong collaboration and coordination | All groups involved in some form of collaboration on the continuum scale | Percentage of groups involved in the continuum of partnerships: networking, alliances, collaboration, partnership | 91.9% of respondents do work with other groups; (Networking: 81.8%, Alliances: 66.7%, Collaboration: 72.7%, Partnership: 63.6%) | No – however, high percentage of collaboration |

### Solution 3: Prevent the introduction and spread of invasive species

| Goal 4: Close entry pathways and manage vectors of spread | All key entry pathways have formal restrictions in place | Percentage of key entry pathways that have formal restrictions in place that are monitored | Majority of key entry pathways do not have formal restriction in place | No – baseline for future measurements |

| Goal 5: Encourage British Columbians to undertake responsible actions | People are taking responsible actions towards invasive species management | Percentage of public behaviour change for key targeted behaviours | Percentage of respondents that use changing behaviour programs: Clean, Drain, Dry: 37.8%, PlantWise: 45.9%, Don’t Let It Loose: 27.0%, Buy It Where You Burn It: 10.8%, Play Clean Go: 24.3%, None: 45.9% | N/A – baseline for future measurements |

| Goal 5: Encourage British Columbians to undertake responsible actions | Active communication through technology and social media | 1. Number of hits/friends/followers of participating groups’ website and social media sites 2. Number of people using cell phone invasive species Apps (i.e.: report—a—weed) | Please see full report for specific statistics for each year – overall social media, public participation and mobile application usage are increasing | N/A – baseline for future measurements |

Monitoring for Success of the Invasive Species Strategy for British Columbia 2012-2016: Provincial Survey Report | 3
### Solution 4: Implement effective control, restoration and monitoring programs

<table>
<thead>
<tr>
<th>Goal 6: Eradicate new invasive species occurrences</th>
<th>No establishment of all federally regulated and provincially prohibited invasive species in the province</th>
<th>Percentage of EDRR federally regulated and provincially prohibited species responded to</th>
<th>100%</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal 7: Effectively treat invasive species populations to minimize impacts</strong></td>
<td>Restrict or reduce the range of priority species to the 2012–13 level</td>
<td>Change in range of extent since 2012–2013 baseline</td>
<td>75.7% of respondents conduct treatment</td>
<td>N/A – baseline for future measurements</td>
</tr>
<tr>
<td><strong>Goal 8: restore ecosystems impacted by invasive species</strong></td>
<td>To have healthy functional ecosystems that were once impacted by invasive species</td>
<td>In the areas that have undergone restoration: 1. Percentage of reduction in priority target species 2. Percentage increase of desirable species</td>
<td>51.4% of respondents include post-treatment restoration in programs</td>
<td>N/A – baseline for future measurements</td>
</tr>
<tr>
<td><strong>Goal 9: Monitor management efforts to enhance effectiveness and efficiencies.</strong></td>
<td>All invasive species management programs are monitored</td>
<td>Percentage of management programs that are monitored</td>
<td>67.1% of treatment sites are monitored</td>
<td>No</td>
</tr>
</tbody>
</table>

### Solution 5: Conduct relevant and applicable research

| Goal 10: Conduct relevant research on invasive species. | Research priorities are addressed with ongoing research | Number of research projects addressing research gaps responded to. Research includes peer reviewed papers, field trials, finding new treatment methods | 55.6% of respondents are conducting research; remaining gaps identified | NA – will serve as baseline to compare to for next monitoring period |

### Solution 6: Provide stable long-term funding

| Goal 11: Establish adequate, stable, long-term funding for invasive species management | Sufficient stable funding to protect BC from negative impacts of invasive species as identified in the Green Paper. | Level of annual of funding from all groups (Need to develop a targeted number of funding–Green Paper) | No |
Overall, the process to develop the MFS Framework and Provincial Survey was very valuable in its aim to measure the success of invasive species management conducted throughout the province from 2012–2016. Although there is always capacity for improvement, the initial development of monitoring indicators, associated survey questions and obtained results provide valuable baseline information for monitoring for the success of the Strategy in the future.
1.0 Background
In 2000, invasive plants were a growing concern for ranchers and rural communities and as a result, by 2002, there was a call for a more collaborative approach to manage agricultural “weeds” in British Columbia. During this time regional and provincial workshops were held to develop an innovative Strategy for the province. As a result of this input and direction, the Invasive Plant Strategy for B.C. was born in 2004! The Strategy dictated the mandate, design and development of the Invasive Plant Council of BC (IPCBC). Following release of the Strategy, the newly established provincial Inter-Ministry Invasive Plant Committee, the IPCBC and other partners began tackling the 10 solutions defined in the Strategy. Building cooperation, supporting coordinated research, compiling common lists of invasive plants and strengthening regulatory tools were key initial activities, along with the call for stable long term funding.

The IPCBC and provincial government worked together to grow the number of regional non-profit organizations. In 2004, there were three, and now in 2017 there are 12 regional non-profit organizations. Most regional invasive species organizations started as invasive plant committees with a focus on education and awareness. Many have now moved to operations (field control treatments).

As knowledge of impacts and pathways of introduction and spread of invasive species grew, there was a call to broaden the IPCBC’s mandate from invasive plants to include all invasive species. In 2005, the IPCBC’s mandate evolved to focus on invasive species – and the Council became the Invasive Species Council of BC (ISCBC). The provincial Inter-Ministry team also moved to focus on invasive species, becoming the Invasive Species Inter-Ministry Working Group (IMISWG). This trend was followed over time by a large number of regional committees.

The Invasive Species Strategy for BC (the ‘Strategy) was released in 2012 by Minister Steve Thomson. Based on the original Invasive Plant Strategy for B.C, the new Strategy was built with almost two years of stakeholder input and consultation, as well as through the dedicated work of a provincial writing team. The writing team was composed of key stakeholders involved in invasive species management throughout the province. The ISCBC served as secretariat for the process and continues to act as the Secretariat of the Strategy.

In order to work towards the Strategy’s vision that “British Columbia’s citizens, ecosystems, and resources are protected from invasive species impacts”, there was a need to develop a monitoring framework to determine if current management efforts were being successful. The IMISWG and ISCBC, with input from others including governments and regional committees, established an advisory committee to collaborate on ideas, advice and support towards developing a monitoring framework for the success of all invasive species initiatives in B.C. Building off of the solutions and goals of the Strategy, a Monitoring for Success Framework (MFS Framework) was created over 2012 and 2013. In late 2016, the MFS Framework was used to derive 1–2 survey questions for each goal and was finalized between the ISCBC and the IMISWG. In
early 2017, the provincial survey was distributed broadly within BC, encouraging participation from all organizations, groups and individuals involved in invasive species management in the province from 2012–2016. This resulting report summarizes all input and feedback received during the survey process and sets a baseline to compare against for future measurement.

1.0 Purpose
To measure if invasive species activities conducted in BC from 2012–2016 were successful in supporting progress on the Strategy’s vision that “British Columbia’s citizens, ecosystem, and resources are protected from invasive species impacts”. The Monitoring for Success Framework, provincial survey and this resulting report also serve as a baseline from which to measure the success of the Strategy every 5–years.

3.0 Survey Methodology
The 2012–2016 Strategy is organized around six solutions and eleven goals to address the challenges of invasive species management in British Columbia. In 2012, the IMISWG and ISCBC worked to assemble an advisory group that was representative of the different levels of invasive species management in the province to provide their expertise in the development of the monitoring framework. With the ISCBC acting as the secretariat of the process, the advisory group began with developing the framework around the six solutions and eleven goals. Within each solution and goal there is also an extensive list of objectives and preliminary actions. During the MFS Framework building process, the advisory group decided that due to the extensiveness of objectives and preliminary actions, that objective(s) would be created with an associated indicator that best measured each intended goal. The developed objectives and indicators were also used to create suggested survey questions to measure success in the future.

The more extensive list of objectives and preliminary actions was used to create a 5-Year Activity Workplan which serves as a checklist for each group. In late 2016, the created objectives, indicators and suggested survey questions were used to develop a Provincial Monitoring for Success Survey (‘Provincial Survey’). Prior to distribution, the IMISWG provided input on the draft survey and confirmed the final draft in late 2016.

Survey Monkey was used to generate the survey, composed of a variety of multiple choice, Likert-scale and open-ended questions. Since the survey aimed to capture the wide variety of invasive species activities completed throughout the province, a variety of question types were used. In January of 2017, the Provincial Survey was distributed through ISCBC networks, list serves and made available to the public.
4.0 Survey Results and Discussion

The online program, Survey Monkey, was used to capture participant responses as it allowed convenient access to the survey at any time. A total of 37 (n=37) organizations completed the survey.

Although the results of these survey questions spark a wide variety of discussion, only high-level strategic discussion is targeted within this report. Please see the 6.0 Recommendations and Considerations section for suggestions for further discussion and application.

4.1 Participant Organizations, Affiliations or Individual Work

While reviewing the survey results, it is important to consider which organizations and/or individuals participated and have therefore influenced the results on behalf of the province. The following is a list of the organizations and/or individuals that completed the survey.

All organizations that completed the Provincial Survey (n=37, Question #1 Results):

- BC Ministry of Agriculture
- BC Ministry of Energy and Mines
- BC Ministry of Environment
- BC Ministry of Forests, Lands and Natural Resource Operations
- BC Ministry of Transport and Infrastructure
- BC Parks
- Bonaparte Watershed Stewardship Society
- Boundary Invasive Species Society
- Canadian Food Inspection Agency
- Cariboo Chilcotin Coast Invasive Plant Committee
- Cariboo Regional District
- City of Port Coquitlam
- City of Prince George
- City of Surrey
- City of Victoria
- Coldwater Indian Band
- Columbia Shuswap Invasive Species Society
- Community Mapping Network
- Capital Region Invasive Species Partnership
- District of North Vancouver
- District of Saanich
- EDI Environmental Dynamics Inc
- Foothills Weed Warriors
- Fraser Valley Invasive Plant Council
- Gibraltar Mine Ltd.
- Haisla Nation Council
- Heike Designs Inc.
- Invasive Species Council of British Columbia
- Invasive Species Council of Metro Vancouver
- Okanagan and Similkameen Invasive Species Society
- Regional District of East Kootenay
- Regional District of Okanagan and Similkameen
- Saulteau First Nations
- Sea to Sky Invasive Species Council
- Stoney Creek Environment Committee
- Township of Langley
- Village of Cumberland
4.2 Solution 1: Establish and Enforce Effective Regulatory Tools

Four questions were constructed to measure the success of Goal 1: Establish Effective Regulatory tools and Goal 2: Enforce Regulatory Tools.

Establishment of a single piece of legislation, such as an Invasive Species Act, was established as an indicator for Goal 1. The B.C. provincial government is the responsible body for this regulatory tool and has confirmed that it has not been completed, however, much effort has been put towards drafting this Act and it is expected that it will be released provincially at some point. It was therefore not included in the provincial survey.

Firstly, it was important to determine if the respondent’s organization has legislation and regulation responsibilities. Approximately half of the respondents have legislation and regulation (including bylaws) responsibility and half do not (Yes: 51.4%, No: 48.6%, n=37, Question #2 Results). Secondly, there was a need to determine if monitoring for compliance is being conducted with enforcement actions. The slight majority of respondents do monitor for compliance with legislation (Yes: 60%, No: 40%, n=25, Question #3 Results). The majority of respondents do not monitor for compliance with enforcement actions (Yes: 38.5%, No: 61.5%, n=26, Question #4 Results).

<table>
<thead>
<tr>
<th>Question #2 Results: Does your organization have legislation and regulation (including bylaws) responsibilities? If “Yes”, please proceed to Question 3, if “No” proceed to Question 6. n=37</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Pie chart showing 51.4% Yes and 48.6% No]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Question #3 Results: Does your organization proactively monitor for compliance with legislation? n=25</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Pie chart showing 60.0% Yes and 40.0% No]</td>
</tr>
</tbody>
</table>
4.3 Solution 2: Build Strong Collaboration

Two questions were constructed to measure the success of Goal 3: Build Strong Collaboration and Coordination.

If organizations with other groups in invasive species initiatives it is important to classify on what scale. The MFS advisory committee decided to classify by using a collaboration continuum scale: networking, alliances, collaboration and partnership (please see Question #7 results for definitions). The large majority of respondents do work with other groups (Yes: 91.9%, Bo: 8.1%, n=37, Question #6 Results). A majority of respondents work with other groups on the level of networking but also work with groups in the form of alliances, collaboration and partnership (Networking: 81.8%, Alliances: 66.7%, Collaboration: 72.7%, Partnership: 63.6%, n=33, Question #7 Results). Although these results indicate an encouraging level of joint efforts, the results may also indicate that there is potential to increase collaboration from the “networking” level to include more “partnerships” to target more invasive species management issues collectively.
4.4 Solution 3: Prevent the Introduction and Spread of Invasive Species

Fourteen questions were constructed to measure the success of Goal 4: Close entry pathways and manage vectors of spread and Goal 5: Encourage British Columbians to undertake responsible actions.

High risk new invasive species that have arrived to the province from 2012–2016 as listed by respondents with the B.C. provincial government are: brown marmorated stink bug, apple maggot, corn rootworm, boxwood blight and Asian gypsy moth, with concern expressed towards the potential of White Nose Syndrome fungus (Question #8 Results, n=6). A Likert–scale question was used to measure if key entry pathways have formal restrictions in place. The majority of respondents indicate that none or very few key entry pathways have restrictions in place in the aquarium, live food and pet trade (None: 4, Very few: 3, Some: 1, Most: 0, All: 0, n=8, Question #9 Results). The majority of respondents indicate that none, very few or some key entry pathways have restrictions in place in the horticulture industry including water gardens pathway.
All respondents indicate that none or very few key entry pathways have restrictions in place in the firewood and wood gardens pathway (None: 3, Very few: 3, Some: 0, Most: 0, All: 0, n=6, Question #9 Results). All respondents indicate that none or very few key entry pathways have restrictions in place in the produce trade particularly fruit and vegetables pathway (None: 3, Very few: 3, Some: 0, Most: 0, All: 0, n=8, Question #9 Results). The majority of respondents indicate that very few key entry pathways have restrictions in place in the recreational travelers pathway (None: 2, Very few: 4, Some: 1, Most: 1, All: 0, Question #9 Results).

Although the majority of respondents indicate the lack of key entry pathways having formal restrictions in place, it is seen that some are being targeted. Please keep in mind the response number is low (6–8 organizations) due to targeting the question for only provincial and federal government respondents. This baseline data on key entry pathways provide valuable information for comparison with future measurements towards these key entry pathways.

The MFS advisory committee identified that the percentage of public behavior change for key targeted behaviours would provide a valuable measure of British Columbians taking responsible actions. However, by late 2016, there was little capacity to measure this percentage. The use of a random telemarketing survey to measure this indicator in the future has been discussed but has not been put into action at this time. It is important to note that organizations may have independently surveyed specific audiences for behavior change. For example, the ISCBC conducted a baseline survey on ISCBC changing behavior programs. Alternatively, instead of not addressing this goal at all, it was decided to use the opportunity to measure success and usage of the provincial behavior change programs. Over the past five years, provincial invasive species behavior change programs have established and expanded. The majority of respondents have used and/or adopted the PlantWise or None of the behavior change programs (Clean, Drain, Dry: 37.8%, PlantWise: 45.9%, Don’t Let It Loose: 27.0%, Buy It Where You Burn It: 10.8%, Play Clean Go: 24.3%, None: 45.9%, n=37, Question #10 Results).

Active communication through technology and social media was identified by the MFS advisory committee as an objective under Goal 5. A series of eleven questions were used to measure technology and social media usage as well as serve as a baseline measurement for the years to come. The large majority of respondents have a website (Yes: 88.9%, No: 11.1%, n=36, Question #11 Results). The average website page views have generally doubled from 2012–2016 (Question #12, n=13). The slight majority of respondents have a Facebook page (Yes: 55.6%, No: 44.4%, n=36, Question #13). The number of Facebook likes vastly increased in 2016 The number of Facebook likes vastly increased in 2016 (2012: 0 or N/A, 2013: 36, 2014: 76, 2015: 321, 2016: 4507, n=9, Question #14). The majority of respondents have a Twitter page (Yes: 77.1%, No: 22.9%, n=35, Question #15). The number of Twitter followers has increased in recent years as more organizations create accounts, however it is important to note the small sample size (2012: 0 or N/A, 2013: 0 or N/A, 2014: 0 or N/A, 2015: 881, 2016: 636,
n=5, Question #16). Other social media channels being used are Youtube, Instagram, Pintrest and Houzz. Please note the small sample size (n=x) for the social media questions. Therefore the statistics were not reliable and the general trend has been reported in some cases. It is expected that as organizations that have website and social media accounts increase, more reliable trends will emerge in the next reporting period.

The use of technology, particularly mobile apps, as a form of invasive species education, monitoring and reporting is increasing in popularity. Half of the respondents are using the Report-A-Weed mobile app and some are using the Report-Invasives and PlantWise apps (Report-A-Weed: 50%, Report-Invasives: 29.4%, PlantWise: 20.6%, No invasive species apps are in use: 41.2%, n=34, Question #18). Other apps that listed are IAPP and internal databases (Question #19).
4.5 Solution 4: Implement Effective Control, Restoration and Monitoring Programs

Four questions were constructed to measure the success of Goal 6: Eradicate new invasive species occurrences, Goal 7: Effectively treat invasive species populations to minimize impacts, Goal 8: restore ecosystems impacted by invasive species and Goal 9: Monitor management efforts to enhance effectiveness and efficiencies.
The provincial government Ministries reported on behalf of new invasive species occurrences. Generally, either all EDRR provincially prohibited species reported from 2012–2016 were responded to, or the information was unknown (Question #19, n=5). Specifically, BC Ministry of Forest Lands and Natural Resource Operations (MFLNRO), on behalf of plants and forest departments, reported that 100% have been responded to; BC Ministry of Agriculture reported that it was “unknown”; BC Ministry of Environment reported that very few animal species are prohibited, so nothing to report; and BC Parks reported that monitoring capacity is low, but assumed it would be 100% for those occurrences as there is much coordination between MFLNRO and Ministry of Transport and Infrastructure (MOTI).

The majority of respondents conduct invasive species treatment (Yes: 75.7%, No: 24.3%, n=37, Question #20). The majority of treated sites are monitored (67.1%, n=26, Question #21 Results). The majority of respondents include post-treatment restoration in their invasive species management programs (Yes: 51.4%, No: 48.6%, n=35, Question #22 Results).

Comparison of percentage of organizations that conduct invasive species treatment to those that include post-treatment restoration in management programs:

<table>
<thead>
<tr>
<th>Question #20</th>
<th>Question #22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your organization conduct invasive species treatment? If &quot;No&quot;, please proceed Question 22. n=37</td>
<td>Does your organization include post-treatment restoration in your invasive species management programs? Restoration: introducing desirable species once treatment is complete. n=35</td>
</tr>
<tr>
<td>[24.3% Yes] [75.7% No]</td>
<td>[48.6% Yes] [51.4% No]</td>
</tr>
</tbody>
</table>

4.6 Solution 5: Conduct Relevant and Applicable Research

One question was constructed to measure the success of Goal 10: Conduct relevant research on invasive species.

The slight majority of respondents do conduct research on invasive species, Research includes peer reviewed papers, field trials, finding new treatment methods etc. (Yes: 55.6%, No: 44.4%, n=36, Question #23). A variety of invasive species research gaps were identified (Question #24). Trends in responses include species specific treatments.
and efficacy, aquatic invasive species treatment, impacts of treatment, disposal, and costs of treatment /economic impacts. A full listing of gaps are identified and listed in Appendix A.

4.7 Solution 6: Provide Stable Long-term Funding
No questions were constructed to measure the success of Goal 11: Establish adequate, stable, long-term funding for invasive species management. It was discussed that more information was needed in order to ask appropriate questions. For example, revival and completion of the “Green Paper” outlining expected costs of invasive species management would significantly contribute to establishing a baseline to measure against. There was a concern that the information collected would overlap, for example, operating budgets, and the data would be inaccurate.

5.0 Conclusion
Overall, the process to develop the MFS Framework and Provincial Survey was very valuable in its aim to measure the success of invasive species management conducted throughout the province from 2012–2016. Although there is always room for improvement, the initial development of monitoring indicators, associated survey questions and obtained results provide valuable baseline information. The baseline information provided in this report will be essential to further measuring the success of invasive species management efforts throughout the province over the next five–year period. In 2017, the goal is to release the updated Invasive Species Strategy for BC – 2018–2022. It is the hope that B.C. continues to take large strides towards province–wide success in invasive species management moving into the next five years.

6.0 Recommendations and Considerations
Although the results of these survey questions spark a wide variety of discussion, only high–level strategic discussion is targeted within this report. It is suggested that results be used as a basis for future discussions, workshops, conference calls, meetings as well as for comparison for future monitoring efforts. The results are useable for organizations and individuals across B.C. and beyond to incorporate into work plans, reports, funding applications and/or any other valuable use.

Three different types of survey questions (multiple choice, Likert–scale and open–response) were chosen with the aim of creating consistency and clarity. However, feedback has suggested the use of more open–response questions to allow for elaboration. As a result, a more qualitative analysis may be appropriate. It is recommended that this topic be discussed with the MFS advisory committee while planning for the revised Strategy for 2018–2022.

Although a wide variety of organizations that conduct invasive species management throughout the province are sampled here, increased participation throughout the province would increase the reliability of the data. Despite efforts to increase interest, the survey results are missing input from federal government agencies. Additionally, although most of the remaining groups that do invasive species work in the province
(governments, invasive species organizations, non-profits, consultants, industry, etc.) are represented at least once, the variety of work that is done within each group may be missed. For example, on the local government scale, the results of the City of Richmond may vary widely from the results from the Peace River Regional District due to different management goals, capacity and invasive species issues.

As mentioned throughout the report, it is highly recommended to reference this report for monitoring for success of the Strategy in the future. It is important to build off of the work and success that has been done towards invasive species initiatives from 2012–2016. We look forward to the next five years!
APPENDIX A: Research gaps identified by organizations

Question #24 Results:

Question #24 was measured using an open-ended response to allow for the explanation of results. The following is a summary of the answers received.

Complete listing of participant responses to “Please list the invasive species research gaps your organization has identified” (n=21).

<table>
<thead>
<tr>
<th>Costs of impacts of certain invasive species, most effective treatment methods for some species, most effective disposal for each species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing and rate trials; long term efficacy of treatments; impacts of invasive plants on ecosystem functions and values; more economic impact studies;</td>
</tr>
<tr>
<td>Need more work on evaluation of pest control products for invasive species in BC</td>
</tr>
<tr>
<td>Training</td>
</tr>
<tr>
<td>Priority species disposal methods (e.g. minimum temp &amp; time to kill seeds during industrial composting processes); Priority species treatment methods (e.g. parrots feather); species specific monitoring protocols after plants are no longer found at a site</td>
</tr>
<tr>
<td>Effective control and eradication for Carpet Burweed.</td>
</tr>
<tr>
<td>Best management practices; viability of knotweed seeds and fragments</td>
</tr>
<tr>
<td>Effective mud flat transportation for herbicide mappers and applicators is a major impediment to control/containment of Spartina anglica</td>
</tr>
<tr>
<td>Seed viability in soil, length of seedbanks, knotweed treatment methods for development sites, knotweed and erosion; knotweed’s ability to grow through infrastructure (roads, concrete etc.); dealing with knotweed infested soils; knotweed treatment options, distribution of invasive animals in general; aquatic herbicides.</td>
</tr>
<tr>
<td>We have assisted TRU with Yellow Flag Iris benthic barrier treatment trials. We have identified research gaps in invasive species monitoring. In our region, particularly we’d be interested in more aquatic invasive species monitoring such as fish, and american bullfrog. In addition, our reports about terrestrial invasive species often go without much follow up due to lack of provincial staff capacity.</td>
</tr>
<tr>
<td>We wrote a grant for funds for mapping invasive species and species at risk; we conducted herbicide trials with funding from MoTI and MFLNRO to find a herbicide suitable for the treatment of wild chervil.</td>
</tr>
<tr>
<td>More info on Burdock Are there any yellow irises that are NOT Yellow Flag Iris? question comes up repeatedly. Also, legality IS on private land and ability to remove. e.g. YFI on dry land when owners claim they control it so it does not spread...</td>
</tr>
<tr>
<td>Treatment methods, plant biology; restoration; biocontrol; effects and impacts of ipâ€™s economically, environmentally, and socially relevant to BC; climate change and invasive plants; prevention</td>
</tr>
<tr>
<td>There are many – can provide a more fulsome list if given more time to complete. A couple of examples: 1. determining what is best treatment type for carpet burweed (burning vs. chemical vs. mechanical). 2. what is the impact of restoration activities on invasive plants? i.e., are prescribed burns just worsening the problem?</td>
</tr>
<tr>
<td>Treatment for Sedum acre</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>- knotweed sp herbicide and/or alternate treatment in 0–1 m zone – potential bio-control agent for knotweed sp. – effective treatment of yellow lamium – bullfrog control methods – red–ear slider turtle control methods</td>
</tr>
<tr>
<td>Burdock, Canadian Thistle, Common Tansy, Hawkweed, Yellow Hawkweed, Oxyeye Daisy, Scentless Chamomile, Sow Thistle</td>
</tr>
<tr>
<td>Hounds Tongue, Burdock’s, knapweed,</td>
</tr>
<tr>
<td>This is not a research gap but rather a management gap: Regional District and City bordering on each other do not cooperate well and management is inconsistent.</td>
</tr>
<tr>
<td>We need to be looking at ecologically sensitive ways of dealing with invasive species.</td>
</tr>
</tbody>
</table>