

# BRITISH COLUMBIA REPORT TO THE CWSS/SMC

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On behalf of the Invasive Plant Program,

BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD)

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## 1. OVERVIEW FOR 2020

- Provincial public (Crown) land and water invasive plant management programs continued this year at similar levels to recent years, despite travel and field work challenges with Covid-19.
- An additional \$12M was recently announced for Invasive Species Management in BC as part of the Province's economic recovery plan. This funding will help provide job opportunities and stimulate local economies while supplement ongoing invasive plant management work across BC. (see 3B below for additional funding information).
- Using the data for 2020 from the Provincial Invasive Alien Plant Program (IAPP) database entered so far this year, it can be reported that over 1100Ha of invasive plants on Provincial public land and water have been treated chemically, mechanically, or with biocontrol this year.
- The Province aims to focus and coordinate treatment efforts on management of Provincial EDRR species first, followed by a "Top 25" invasive plant priority list for Provincial public lands, then regional EDRR or local priorities as resources allow. Over 100 different invasive plant species were managed this year across BC.

	Chemical	Mechanical	Biocontrol Releases	Biocontrol Monitoring
<b>Number of Treatments</b>	10905	3799	26	51
<b>Number of Sites</b>	5268	2868	25	33
<b>Total Hectares</b>	977.6	106.7	31.8	n/a

- Year 4 (final year) of a pilot project in the Thompson-Nicola Region of BC is now complete. This pilot project focused on enhanced management of established invasive plants impacting agricultural values, such as spotted knapweed and hoary alyssum. It included a trial of a new "good neighbour" program where Provincial public grasslands and roads were prioritized for treatment in areas where adjacent lands were being actively managed by the private landowner, to help protect their investment. While there were some benefits to this, the resulting increase of cheatgrass in the treated areas is a concern that must be addressed.
- A draft *Manual of Prescribed Fire and Invasive Plants* has been developed and will be published on the Province of BC's Invasive Species Website in early 2021. The manual contains a summary of best practices to consider during all phases of planning and implementing prescribed burn projects, as well as a large appendix containing species specific information.
- Year 3 of the post-wildfire management project was accomplished at a smaller scale this year than previous year due to less seasonal staff hired. Long-term photo monitoring plots were re-visited that had been installed over the past two years, and data was re-collected along vegetation monitoring transects to compare invasive plant establishment in seeded and un-

seeded fire guards, and document how different species respond in various burn severities across the landscape. Lessons learned from these projects will inform future post-fire responses (e.g. treatments and reclamation activities) and prescribed burning activities led by the Province for Ecosystem Restoration and Community protection projects. Analysis of data and report are in progress.

- The Province of BC continues to update and expand on our Invasive Species web presence at: <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species>

## 2. LEGISLATION – no changes this year.

Current legislation:

### **BC Weed Control Act**

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_96487\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96487_01)

This older statute has not undergone any revisions for many years and there are no immediate plans for such. However, there is increasing interest in BC regarding the development of an *Invasive Species Act* which was identified as a priority in the BC Invasive Species Strategy (2018) ([https://bcinvasives.ca/documents/Invasive\\_Species\\_Strategy\\_for\\_BC-2018-180117-WEB.pdf](https://bcinvasives.ca/documents/Invasive_Species_Strategy_for_BC-2018-180117-WEB.pdf)).

### **BC Weed Control Act Regulations**

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/10\\_66\\_85](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/10_66_85)

This regulation was revised in 2011 with the addition of 18 species to Schedule A, Part I, Provincial Weeds.

### **Other provincial legislation that pertains to invasive plants in BC include:**

*The Forest and Range Practices Act, Sec 47:*

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/00\\_02069\\_01](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_02069_01)

*The Forest and Range Practices Act, Invasive Plants Regulation:*

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/18\\_18\\_2004](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/18_18_2004)

*The Community Charter, Spheres of Concurrent Jurisdiction, Environmental and Wildlife Regulation:*

[http://www.bclaws.ca/EPLibraries/bclaws\\_new/document/ID/freeside/41\\_144\\_2004](http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/41_144_2004)

*The Integrated Pest Management Act and Regulation:*

[http://www.bclaws.ca/civix/document/id/complete/statreg/03058\\_01](http://www.bclaws.ca/civix/document/id/complete/statreg/03058_01)

*Oil and Gas Activities Act, Environmental Protection and Management Regulation:*

[http://www.bclaws.ca/civix/document/id/complete/statreg/200\\_2010#section15](http://www.bclaws.ca/civix/document/id/complete/statreg/200_2010#section15)

Environmental Protection and Management Regulation (EMPR)

<https://www.bclaws.ca/civix/document/id/bcgaz1/bcgaz1/1861701917>

## 3. INVASIVE PLANTS AND PROGRAMS

- a) Inter-Ministry Invasive Species Working Group:** This working group consists of representatives from 8 ministries (13 branches/divisions) and 3 Crown agencies. The role of the Inter-Ministry Invasive Species Working Group is to increase cross-government collaboration and efficiencies; develop provincial policy and provide technical expertise and leadership in invasive species prevention and management. Member Ministries include:

Agriculture; Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD); Transportation and Infrastructure; Energy, Mines, and Petroleum Resources; Environment and Climate Change Strategy; Education; Municipal Affairs and Housing; Indigenous Relations and Reconciliation, and other Provincial Authorities.

<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/imiswg>

**b) 2020 Investments** by the Province of BC:

- *CORE MINISTRY FUNDING*: \$9.9M on invasive species programs this fiscal (flora and fauna), including invasive plant management investments of \$2.6M by Ministry of Transportation and Infrastructure, \$2.15M by FLNRORD and \$300K by BC Parks (includes FTE dollars)
- *TOGETHER FOR WILDLIFE*: \$50K for invasive plant management to protect wildlife values in the East Kootenays, particularly those linked to Ecosystem Restoration Prescribed Burns.
- *BC ECONOMIC RECOVERY PLAN*: A large and exciting increase this year of \$12M to support jobs and help address invasive species across BC.

**c) Invasive Plant Management Delivery models:** Approximately 95% of lands in BC are Crown lands with 80% of this being the responsibility of FLNRORD, 14% is BC Parks, plus linear roadside rights of ways and gravel pits managed by the Ministry of Transportation and Infrastructure. IP management on Provincial public lands is accomplished through several approaches: Provincial Government staff; contracted services; partnership delivery through Provincial and Regional Invasive Species organizations and local government invasive plant programs, and partnerships with Indigenous Governments or communities. The Province continues to collaborate and coordinate activities with land managers, regional stakeholders and Indigenous communities, and delivers on-ground treatments in partnership in many areas. The Province continues to focus on providing increased opportunities for invasive plant management partnerships with Indigenous communities and providing training or other resources as needed, to help build capacity in this area over time.

**d) Provincial Early Detection Rapid Response (EDRR) Program for Invasive Plants:**

FLNRORD administers an established EDRR Program, operating under the BC Invasive Species Early Detection and Rapid Response Plan (2014) ([https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/guidance-resources/final\\_imiswg\\_bc\\_is\\_edrr\\_plan\\_nov\\_2014.pdf](https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/guidance-resources/final_imiswg_bc_is_edrr_plan_nov_2014.pdf)). The program focuses on provincial border surveillance and information exchange, pre-entry risk assessment, report verification, containment, treatment trials, eradication activities and long-term monitoring. EDRR candidate species have either a limited presence in B.C. or a high likelihood of occurring due to border proximity or active importation pathways. These species are designated Noxious Weeds under the B.C. Weed Control Regulation and re-evaluated annually. The EDRR Program pertains to all lands and water in B.C., public and private. It is coordinated and managed by the FLNRORD provincial Invasive Plant Program. The goal for EDRR candidate species is eradication and is the highest invasive species management priority

for the Province of B.C. The Province has identified 48 candidate EDRR invasive plant species and drafted 46 risk assessments. 21 of the EDRR candidate invasive plants species are currently in the EDRR process in BC, totaling more than 350 distinct sites. Of these sites approximately 92% are either contained or eradicated. FLNR also supports provincial containment and regional EDRR programs, which serve to contain the spread of established species to impacted regions.

Table 1. Provincial Early Detection Rapid Response Invasive Plants Present in BC, Nov. 13, 2020  
 (A complete list of EDRR candidate species can be found at:

[https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/guidance-resources/proposed\\_prohibited\\_noxious\\_weeds.pdf](https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/invasive-species/guidance-resources/proposed_prohibited_noxious_weeds.pdf)

Black Henbane	Flowering-rush	Perennial Pepperweed
Brazilian Elodea	Giant Reed	Shining Geranium
Cordgrass, Dense-flowered	Goatsrue	Slender False Brome
Cordgrass, English	Jointed Goatgrass	Squarose knapweed
Cordgrass, Salt Meadow	Maltese star thistle	Water Hyacinth
Dyer's Woad	Mouse-ear Hawkweed	Water Lettuce
European Common Reed	North African Grass	Yellow floating heart

- e) **Provincial Invasive Species Data Management:** The FLNRORD Invasive Plant Program continues to administer the web-based Invasive Alien Plant Program (IAPP) application which contains well over half a million records (Invasive Plant surveys, treatments, monitoring, and activity plans) for the entire province. This data is entered by a wide variety of user groups for sites and treatments on all jurisdictions on an on-going basis. The Province also has 3 free mobile apps: Report-a-Weed, Invasive Species Reporting, plus a mobile app specifically geared to the BC Ranching and Agricultural sector (WeedsBMP). <https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/invasive-species/iapp> A new provincial invasive species data and mapping system "InvasivesBC" is in full scale development stage with roll-out expected early in 2021. This new system will encompass surveys, management activities, monitoring, analysis, reporting and research activities, and will incorporate new mobile data collection abilities for all invasive species in BC (not just plants).
- f) **Emergency Use Registration - Imazapyr for Spartina:** This is a collaborative project with FLNRORD, Ducks Unlimited, Ministry of Environment and Climate Change Strategy, and the BC Spartina Working Group. An emergency use registration (EUR) was granted by PMRA to the Province again this year for the herbicide Habitat (imazapyr) for controlling and eradicating invasive Spartina spp. (cordgrasses) located in tidal areas along the B.C. Coast. The provincial Pesticide Use Permit (PUP) under the BC Integrated Pest Management Act and Regulation for this use is current until May 31, 2022.

- g) Herbicide Treatment up to waters edge (BC Pesticide Use Permits) - Nimpkish River and Victoria Lake Knotweed Treatment next to water.** Invasive Bohemian Knotweed (*Fallopia x bohemica*) is found scattered along the Nimpkish River on Northern Vancouver Island for approximately 70 kms and around the shore of Victoria Lake in the same area. FLNRORD initiated a the Nimpkish Knotweed collaborative project with the 'Namgis First Nation and Western Forest Products with the goal to eradicate knotweed from this river system. Similarly, FLNRORD initiated the Victoria Lake Knotweed collaborative project with the Quatsino First Nation and the Neucel Pulp Mill with the goal of eradicating knotweed from the lake and preventing invasion to the Marble River system. Much of the knotweed for both of these projects grows on gravel bars below the 1 meter from high water mark Pesticide Free Zone. The Province applied for and acquired a Pesticide Use Permits to allow for herbicide treatments in these situations. Treatments started in September 2018, using a combination of foliar and stem injection application methods with the herbicide Roundup WeatherMAX. with the majority of sites being stem injected. Large knotweed stems (>5 cm diameter) are stem injected with Roundup WeatherMAX, while smaller stems must be treated with wipe-on or foliar spray methods using the same product. All sSites have been treated annually since September 2018, resulting in significant declines in population density. were treated or re-treated in 2019.
- h) INVASIVE PLANT BIOCONTROL UPDATE:** BC is continuing to fund screening research for potential new biocontrol agents on ten projects for: common reed; common tansy; Dalmatian and yellow toadflax; flowering rush; the hawkweed complex; Himalayan balsam; the hoary cresses; the knotweeds; oxeye daisy and Russian olive. In addition, the prospect of initiating two new projects - tree of heaven and the aquatic plant parrot's feather - is being funded. The most recent biocontrol agents to be introduced into the province are the gall-forming wasp *Aulacidea acroptilonica* on Russian knapweed (2015) and the root-feeding hover fly *Chelosia urbana* on six hawkweed species, primarily orange and meadow hawkweed (2017). Collection and redistribution is ongoing with several longer-established biocontrol species. The refocus of attention and efforts have continued on Spotted Knapweed and St. John's wort biocontrol agents as these plant species have a tendency to spread following wildfires and have been the focus of stakeholder concerns in rangeland areas.

#### **4. CHALLENGES, NEEDS:**

- Overall, the greatest challenge for the Province's Invasive plant management programs continues to be staff capacity. Work is ongoing to elevate this challenge internally and explore potential solutions.
- Stable, consistent funding is also an ongoing challenge in all of BC's Invasive Species Management Programs, however there appears to be growing support and recognition of its importance both within Government and across BC.
- Many priority species sites in BC are found in very remote locations, difficult to access and expensive to carry out the initial treatments as well as the required follow-up treatments each year.
- Increased surveys and inventories by land managers, as well as the better-informed public, has resulted in increased Invasive Plant reporting with an expectation for action.

For example, the Province received almost 2000 reports through our mobile reporting apps this year, which are verified by staff or partners, and then manually entered into the IAPP database. There are also a growing number of citizen science and herbarium databases that must be checked annually for new reports of priority species which has become an added workload, but also has resulted in some new sites found and managed in BC.

- Management of aquatic and semi-aquatic invasive plants continues to be an increased focus and requirement (eg. species such as parrots feather, flowering rush, Brazilian elodea, yellow floating heart etc.) A site of water lettuce and water hyacinth is being closely monitored to determine whether those species will begin to overwinter in the southwestern part of our province as a result of a changing climate.
- Additional registered aquatic herbicide products are needed in Canada (e.g. Habitat and Rodeo) and BC continues to elevate this need with herbicide companies. We continue to collaborate through several national FPT committees and elevate to PMRA the need for a minor use type approach for access to products to control invasive species.
- Under the *BC Integrated Pest Management Act*, additional permitting is required to control invasive plant species to water edge with products other than glyphosate and can be expensive and lengthy to achieve. This has hampered efforts to control invasive plants such as knotweeds which are rapidly colonizing riverbanks. The Province's successful application for a two Pesticide Use Permits in recent years to allow treatment to water's edge will hopefully lead to more effective treatments on these and future treatment sites, and we are eagerly awaiting the full registration of Habitat (aquatic imazapyr product) in Canada which will support increased management adjacent and within water in BC.
- Treatment of invasive annual grasses such as North Africa grass, jointed goat grass and cheatgrass has been a challenge in BC and are increasing in importance with the risk of increased wildfires associated with climate change. The Province will be working on updating our Provincial Pest Management Plan for the Southern Interior Region to add a pre-emergent herbicide product Esplanade (A.I. Indaziflam) to address this challenge. We are also working with Bayer and PMRA on a proposed label expansion to add North Africa Grass to this label.
- Climate change adaptation related to invasive plants and consideration of climate change projections into the Province's Invasive Plant Risk Assessment and Status Assessment processes will continue to be a focus in the coming years.
- The use of Remotely Piloted Aircraft Systems for invasive plant surveys is an emerging research need. Invasive Plant Program staff have been trained and are certified to use drones, and testing has begun. It has great potential to survey hard to access areas and avoid the potential for seed spread through physical transport.