

Biocontrol Process in British Columbia

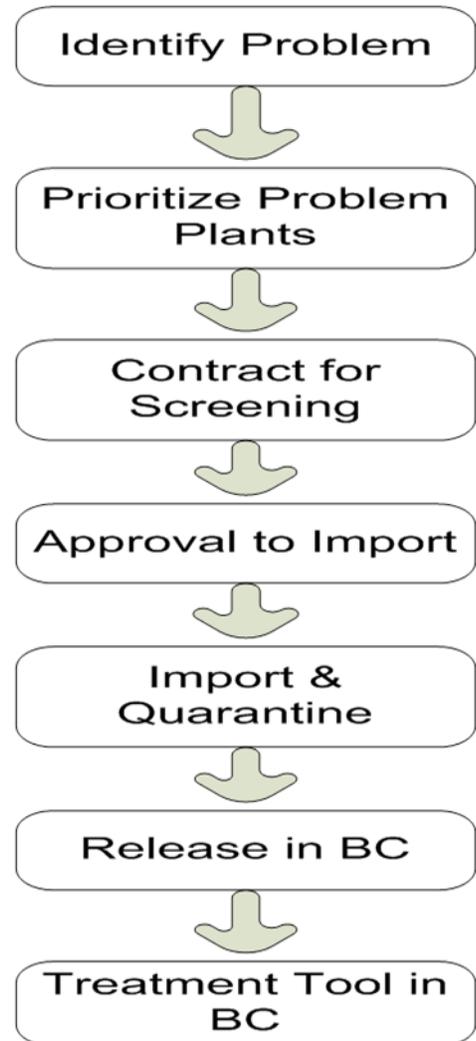
1. **IDENTIFY PROBLEM:** Plant discovered in B.C., typically removed from **EDRR**, no other viable control methods exist, or it is found too wide spread in the province to be eradicated.

2. **PRIORITIZE PROBLEM PLANTS:** Decision made to seek a biocontrol agent for an invasive plant by the Inter-Ministry Invasive Species Working Group (IMISWG). All the invasive plants addressed to date in the Ministry of Forests, Lands and Natural Resource Operations and Rural Development's (MFLNRORD) Biocontrol Development Program are intruders to North America, mostly from Europe and Asia. These invasive plants are prioritized in their need for requiring new biological control agents in conjunction with determining if the plant is a candidate for biocontrol.

3. **CONTRACT FOR SCREENING:** Once plant species are chosen for pursuit of new biocontrol agents, the **Screening Process** is undertaken by: Centre for Agriculture and Biosciences International (CABI)/Agriculture and Agri-Food Canada (AAFC):

- a. Literature search performed to investigate predators of target invasive plant;
- b. Investigate genetic variability of target plant and closely-related test plants in consortium member countries (agents show preferences);
- c. Field surveys performed to find potential candidates in same latitudes of consortium member countries (for similar habitat);
- d. Grow plants and agents and combine them in multiple trials with many plants (choice tests) or single plants (no-choice tests);
- e. Investigate: all stages of life cycle; impact and effectiveness of attack on target and test plants; and functionality of use as a biocontrol agent; and
- f. The invasive plant species prioritized for B.C. and the potential biocontrol agents under investigation to control them are described in **Agents Undergoing Screening**.

4. **APPROVAL TO IMPORT:** Petition is written summarizing research to request approval to import into Canada (CABI/AAFC) following Canadian federal requirements outlined in the document Guide for the Importation and Release of Arthropod Biological Control Agents.
5. **IMPORT AND QUARANTINE:** If Canada Food Inspection Agency (CFIA) approves the petition under the *Plant Protection Act*, biocontrol agent is shipped to AAFC quarantine facility.
6. **RELEASE IN B.C.:** Agent released in field sites, studied, collected and redistributed.



- a. The use of biocontrol agents requires a commitment to evaluate the agents once they have been released to the landscape for control of their target plant. Evaluation can address many topics, including:
 - i. Surveying release sites to determine whether the agent has established;
 - ii. Surveying the area to determine if the agent is dispersing;
 - iii. Monitoring for whether the targeted plant is being affected at the release site;
 - iv. Monitoring for interaction among biocontrol agents and cumulative effects of multiple agents targeting one plant species; and
 - v. Monitoring for changes in plant communities coinciding with biological control of invasive plants.
 - b. Evaluation can take many forms, ranging from cursory observations to intensive research trials. The MFLNRORD is committed to evaluate the biocontrol agents released in B.C. for establishment and trend data and partnering with agencies such as AAFC for more complex questions.
 - c. Investigate for habitat preference; initiate effectiveness measurements.
7. TREATMENT TOOL IN B.C.: When agents are safely established in province & handling is understood, they become operational and potentially available to supply to clients.
- a. For a list of invasive plants with biological control agents in B.C., please see **Biocontrol Agents and Host Plants**.