

Himalayan Balsam (*Impatiens glandulifera*)

Designation: Regional Category 3

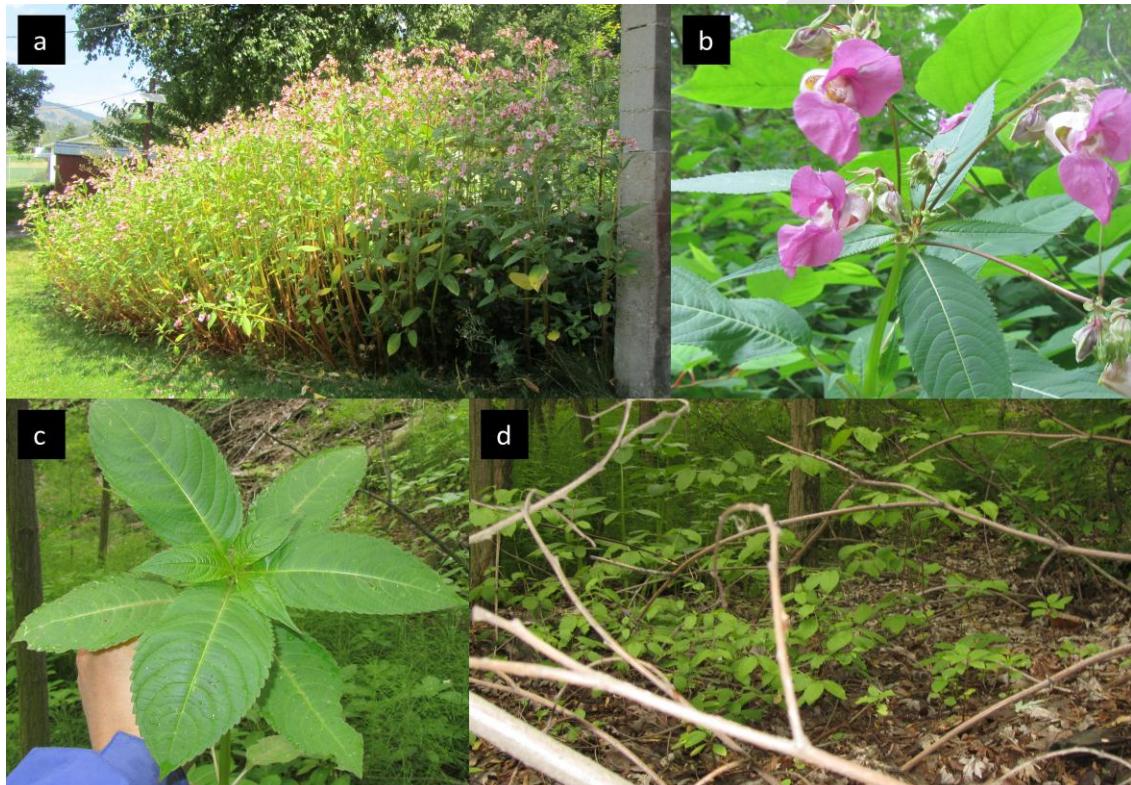


Figure 1: a) *Impatiens glandulifera* in a residential garden, b) Flower, c) Non-flowered plant, d) Non-flowered plants in the wild. Photo credit: a-d) J. Vogel

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Overview:

This summer annual is native to the Himalayan region, and arrived in Canada as an ornamental garden plant. Himalayan balsam was first recorded in Canada in 1901 in Ottawa, and is now found in eight Canadian provinces; including BC¹. It is identified as a significant invasive plant in at least 15 European countries.²

Habitat: Himalayan balsam requires moist soils and moderate soil disturbance to establish and grows along riparian areas, irrigation ditches, roadsides and in wetlands. It thrives best in nutrient rich soils and can tolerate partial shade.

Reproduction: Himalayan balsam is an annual succulent herb that spreads through seed. Flowers are both insect and self-pollinated. Seeds germinate in the spring.

Dispersal: Mature seed capsules explode when disturbed and eject the seeds, up to 5 meters away from the parent plant. Rapid spread is facilitated by waterways and human transportation.

Regional Distribution: Particularly abundant in the southern portion of the Central Kootenay region. Report remote sites or sites near waterways.

Provincial Distribution: It is found primarily in the southern part of BC, around Victoria, in the Fraser Valley, and in southeastern BC.

Identification

Flowers: Large orchid like flower in shades of pink through purple. Flowers have 5 petals (2 fused) and 3 sepals (fused). It resembles a British policeman's helmet, thus one of its common names. High nectar production. Plants flower from July until frost.

Stem: Stems are smooth, hairless and hollow, tinged red-purple and range in size from 1 to 3 meters tall.

Leaves: Leaves are opposite or in whorls of 3. They are lance shaped or elliptic with pointed tips, rounded bases and serrated edges and range in size from 6-15 cm.

¹ David R. Clements, The Biology of invasive Alien Plants in Canada. 9. *Impatiens glandulifera* Royle, 9 November 2006, Biology Department, University of Winnipeg.

² CABI, 2004. Crop protection compendium, 2004 edition. CAB International, Wallingford, UK.

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Seeds: Produces up to 2500 seeds per plants, which explode out of a five chambered capsule when touched. Seeds do not float and are still viable under water and when fully soaked – seed viability is about 2 years. Seeds require cold stratification before germination.

Similar Native Species

Orange Jewelweed (*Impatiens capensis*)

Yellow Jewelweed (*Impatiens pallida*)

Impacts

Ecological: Himalayan balsam has a shallow, fibrous root system and may increase erosion in the winter, when thick patches die off and expose bare soil.

Due to its large size and ability to grow quickly, it dominates native vegetation and diminishes conservation values at some sites. It has been shown to reduce species diversity by as much as 25% in sites in the United Kingdom.³

Rich and high nectar content (much higher than most native plant species) Himalayan balsam attracts pollinators, particularly bees, butterflies and hummingbirds. More research is required but observations indicate that there is a 50% reduction in pollinator visits to native plants when Himalayan balsam is present in large numbers. In addition, seed set of these native plants was reduced by up to 25%.⁴

Integrated Pest Management (IPM)^{5,6}

IPM is a decision making process that begins with the identification and inventory of invasive plant populations, assessment of the risks that they pose, and development of well-informed management options from monitoring to site treatment.

³ David R. Clements, The Biology of invasive Alien Plants in Canada. 9. *Impatiens glandulifera* Royle, 9 November 2006, Biology Department, University of Winnipeg.

⁴ Chittka, L. and Shurkens, S. 2001. Successful invasion of a floral market: an exotic Asian plant has moved in on Europe's river-banks by bribing pollinators. Nature 411: 653.

⁵ http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96483_01

⁶ Invasive Species Council of BC (ISCBC), 2012, www.bcinvasives.ca

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Prevention and Early Detection:

- Select a non-invasive alternative, such as cardinal flower (*Lobelia cardinalis*) for your restoration project or water garden. Additional options can be found by downloading the Invasive Species Council of BC's 2011 *Grow Me Instead booklet* from: www.bcinvasives.ca/resources/outreach-materials.
- Avoid accidentally introducing non-native plants to surrounding water bodies by installing water gardens a safe distance away. Ensure water gardens are not allowed to overflow to wetlands, streams or rivers.
- Properly dispose of garden and yard waste by double bagging and disposing of it at your local landfill.
- Prevent plants from spreading from existing populations by washing vehicles, boots and animals that have been in infested areas.
- Report plants infestations found in remote locations to 1-888-WEEDSBC or 250.352.1160.

Mechanical Control: The best time to remove Himalayan balsam is in late June and early August, when it is in flower. At this time, plants are easily recognized, but it has not yet gone to seed. When the seed pods are ripe they will explosively pop, releasing seeds a great distance. Mechanical control is not ideal at this time. However, at sites where plants have gone to seed, remove plants by bending them over a plastic bag first and cutting them off into the bag. Further cutting of stems or pulling can now take place without fear of spreading the tiny seeds.

Himalayan balsam is controlled easily through hand pulling due to its shallow root system. Plants can be composted on site as long as no seeds are present. Plants should be placed on a black tarp and left for several weeks to ensure that re-rooting does not occur. Mowing or weed-whacking can be very effective but may need to be repeated as cut plants can grow new flowering branches.

Chemical Control: Visit the Integrated Pest Management Program website at www.env.gov.bc.ca/epd/ipmp/ prior to completing any chemical treatments.

Biological Control: No biological control agents are currently available.

Restoration Substitutes

Wild Bleeding Heart (*Dicentra formosa*)

Cardinal Flower (*Lobelia cardinalis*)

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Beard-tongue (*Penstemon barbatus*)
Red Columbine (*Aquilegia formosa*)
Pink Monkey Flower (*Mimulus lewisii*)

Legislation and Regulations

There is a growing network of partnerships and collaborations among all levels of government, industry, regional invasive plant committees, and concerned individuals to address unwanted aquatic invasive plants.⁷ In addition, there is numerous legislation and regulations that pertain to aquatic invasive plants.

Federal: The *Fisheries Act*⁸ specifies that it is an offence to harmfully alter, disrupt, or destroy fish habitat, including streamside vegetation. It is also an offence to move or introduce aquatic organisms (including plants) to new habitats. The purpose of the *Fisheries Act* is to conserve and protect Canada's fisheries resources, including fish habitat. It applies to all Canadian fisheries waters, including ditches, channelized streams, creeks, rivers, marshes, lakes, estuaries, coastal waters and marine offshore areas. It also applies to seasonally wetted fish habitat such as shorelines, stream banks, floodplains and intermittent tributaries and privately owned land. It is an offence to damage fish habitat or put harmful substances such as pesticides into water frequented by fish, including includes pesticide drift. Fisheries and Oceans Canada (DFO) and Environment Canada administer this legislation.

The *Migratory Birds Convention Act*⁹ prohibits the deposit of any substance harmful to migratory birds to any area frequented by migratory birds. This includes pesticides deposited on water and land. The Canadian Wildlife Service of Environment Canada administers this legislation.

Provincial: In BC, invasive plant management on all lands (Crown and non-Crown) is regulated by the BC *Weed Control Act*¹⁰, and the management of specific Crown lands is regulated by the *Forest and Range Practices Act*¹¹, the *Community Charter*¹², and the *Integrated Pest Management Act*¹³.

⁷ Invasive Species Council of BC (ISCBC), 2012

⁸ <http://laws.justice.gc.ca/en/F-14/>

⁹ <http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>

¹⁰ <http://www.agf.gov.bc.ca/cropprot/noxious.htm>

¹¹ <http://www.for.gov.bc.ca/code/legislation.htm>

¹² http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/03026_00

¹³ http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_03058_01

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In addition, in BC the ownership of water is vested in the Crown as stated in the *Water Act*¹⁴, the primary provincial statute regulating water resources.

Section 9 of the *Water Act* requires that a person may only make “changes in and about a stream” under an Approval; in accordance with Part 7 of the Water Regulation, including Notification where required; or under a Water Licence or Order. Notifications are typically used for works that do not involve any diversion of water, may be completed within a short period of time and will have minimal impact on the environment or third parties. Notifications are the responsibility of the Environmental Stewardship Division of the Ministry of Forests, Lands and Natural Resource Operations. Contact Front Counter BC for more information at www.frontcounterbc.gov.bc.ca/contact/.

Useful Links

- Alberta Invasive Plant Council: www.invasiveplants.ab.ca
- Central Kootenay Invasive Plant Committee: www.ckipc.ca
- E-Flora BC, Electronic Atlas of the Plants of BC:
www.eflora.bc.ca
- Invasive Species Council of BC: www.bcinvasives.ca
- King County Noxious Weed Control Program, www.your.kingcounty.gov/dnrp/library/water-and-land/weeds/BMPs/policemans-helmet-control.pdf
- Ministry of Forests and Range Invasive Alien Plant Program:
www.for.gov.bc.ca/hra/plants/index.htm
- Ministry of Agriculture: www.agf.gov.bc.ca/cropprot/weedguid/weedguid.htm
- Society for Ecological Restoration BC Chapter: www.serbc.ca/
- Tipi Mountain Native Plants: www.tipimountain.com
- Weeds BC: www.weedsbc.ca

¹⁴ http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_96483_01

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