

Himalayan Balsam *(Impatiens glandulifera)*

aka Poor Man's Orchid, Policeman's Helmet, Indian Balsam, Ornamental Jewelweed

Provincial Designation: Prohibited Noxious

Overview:

Himalayan balsam is a summer annual of riparian areas which reproduces by seed only. Native to the western Himalayas, it was introduced to Kew Gardens in the early 1800s. By the 1900s it was already common in south-west Germany and spreading via the Rhine River[3], and throughout Scandinavian countries by the mid-1900s. Today it is widely known as an invasive alien in temperate areas of Europe, Asia, North America and New Zealand.[3] In Alberta there are patches along water courses within the cites of Edmonton & Red Deer, and Parkland County.[1]

Seeds germinate in the spring to produce dense, even-aged stands which shade-out competing vegetation. It then exhibits an impressive growth rate for an annual with some plants growing to 3m tall. Himalayan balsam has a shallow, fibrous root system but adventitious roots from the lower stems provide some buttressing. However in winter, erosion can occur as a result of balsam's shallow rooting having replaced the deeper rooted native vegetation.

Plants flower from July until frost. Flowers are self compatible but the anthers release their pollen before the stigma is receptive, therefore plant requires pollinators.[7] Himalayan balsam attracts pollinators away from native species with its high nectar content and extended flowering.[6] It is a late season nectar source for butterflies, bees and bumble bees.

Mature seed capsules explode when disturbed and eject the seeds, hence another common name of Touch-Me-Not plant. Medium sized plants produce on average 700-800 seeds which can be flung as much as 5 m from the parent plant. Seeds do not float and are still viable under water and when fully soaked – seed viability is about 2 years.



Photos by J.R. Crellin

Habitat:

Himalayan balsam requires moist soils and some soil disturbance to establish (uprooted trees, flooding). It thrives best in nutrient rich soils of disturbed riparian habitats and wet woodlands. It is tolerant of partial shade and soil pH values of 3.5 to 7.7.[8] It is frost sensitive and intolerant of drought. In its native range it grows at elevations 1800-4000m[3] – its limiting factor at high elevations is the short growing season.



Identification:

Stems: Stems are smooth, hairless, and usually hollow, tinged red-purple and are easily broken. Stems grow 1 to 3m tall and there may be some branching.

Leaves: Leaves are lance shaped or elliptic with pointed tips and rounded bases, and 6-15cm long. The leaves are stalked and have sharply serrated edges[5]. They occur opposite or in whorls of 3. Leaf size decreases with height on the stem.

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Himalayan Balsam *(continued)*

Flowers: Flowers are large – 2.5 to 4 cm long – in shades of pink through purple, occasionally white. Flowers occur 5-10 together in racemes on long stems borne in the upper leaf axils.[5] Flowers have 5 petals and are bilaterally symmetrical. The upper petal forms a hood over the reproductive structures (resembling a British policeman's helmet) and the lower petals form a platform for landing insects.[7]

Seed: Seed capsules are 1.5-3.5 cm long and up to 1.5 cm wide and contain up to 16 seeds which are 4-7 mm long and 2-4 mm wide. Seeds require cold stratification before germination.

Prevention:

Initial spread is mainly from ornamental plantings – do not purchase or grow Himalayan balsam. Seed can be spread by movement of riparian soil and in the sediment from the bottoms of water courses of infested areas. Remedy soil disturbance in suitable habitats. Any control work on infested stands must be done before flowering.

Control:

Grazing: Sheep and cattle have been known to graze the plant in Britain without ill effects. *Invasive plants should never be considered as forage.*

Cultivation: Likely very effective but cultivation is not practical in riparian habitats.

Mechanical: Mowing can be very effective but may need to be repeated as cut plants can grow new flowering branches, and would be difficult in riparian areas. Himalayan balsam plants are easily hand pulled due to the shallow root system. Plant debris should be incinerated or bagged and sent to the landfill.

Chemical:[9] Glyphosate and 2,4-D Amine has been effective on young plants.[4] Sprayed flowering plants are still able to produce viable seed.[2] Herbicide use in riparian areas is restricted to specific products and is potentially damaging to the environment. Consult your local Agricultural Fieldman or Certified Pesticide Dispenser for more information.







Biological: CABI began researching natural enemies in 2006 and host specificity testing began 2008.[6]

TOP: Himalayan Balsam infestation
(photo by Barbara Tokarska Guzik, U of Silesia, Poland)

ABOVE LEFT: Himalayan Balsam stem
(photo by Michael Shepard, USDA Forest Service)

ABOVE RIGHT: Himalayan Balsam seedlings
(photo by Jan Samanek, State Phytosanitary Admin, Czechia)

1 McClay, A. 2008. Risk assessment fact sheet for Himalayan balsam, *Impatiens glandulifera*.

2 Hejda, M. 2006. *Impatiens glandulifera*. Delivering Alien Invasive Species Inventories for Europe.

3 Helmisaari, H. 2006. NOBANIS – Invasive Alien Species Fact Sheet – *Impatiens glandulifera*. Online database of the Northern European and Baltic Network on Invasive Alien Species – www.nobanis.org

4 Down Garden Services, for County Down, Northern Ireland. http://www.dgsgardening.btinternet.co.uk/himalbals.htm

5 Ecological Flora of the British Isles. http://www.ecoflora.co.uk

6 The Biological Control of Himalayan Balsam. www.cabi.org

7 Nienhuis, C. and Stout, J. 2009. Effectiveness of native Bumblebees as Pollinators of the Alien Invasive Plant *Impatiens glandulifera*. Journal of Pollination ecology, 1(1), 2009, pp 1-11 (ISSN 1920-7603)

8 Beerling, D.J., and J.M. Perrins. 1993. Biological Flora of the British Isles. *Impatiens glandulifera Royle (Impatiens roylei Walp.)*. Journal of Ecology 81: 367-382.

9 Always follow the product labels. The use of pesticides in any manner not published on the label or registered under the *Minor Use of Pesticides* regulation constitutes an offence under both the *Federal Pest Control Products Act and Alberta's Environmental Protection and Enhancement Act.*