

Management and control information *Impatiens glandulifera* Royle

IUCN SSC Invasive Species Specialist Group

Wadsworth *et al.* (2000) used model simulations to examine circumstances under which control programmes successfully reduce the spread of two invasive weeds of riparian habitats *Impatiens glandulifera* and hogweed ([Heracleum mantegazzianum](#)). Model simulations suggest that a) strategies that prioritized control based on weed population and spatial characteristics were most effective, with plant population size and spatial distribution being the key parameters and b) Successful control of both species at a regional scale is only possible for strategies based on species distribution data, undertaken at relatively high intensities and efficiencies.

Preventative measures:

Impatiens glandulifera is a highly invasive plant and should not be introduced to new locations. Care should be taken to prevent ornamental and contained plants from establishing in the wild. Studies indicate once widely established, eradication is extremely difficult. Maintenance of a dense grass sward along river banks may prevent the germination of *I. glandulifera* seedlings (Centre for Ecology and Hydrology, 2004; Wadsworth *et al.*, 2000).

Physical control:

The physical removal of the *I. glandulifera* plant itself is relatively easy due to its modest root system. However, this method as a means of management has proven difficult and is strongly dependent on site accessibility, as well as, precise execution based on seasonal growth. Hand pulling or cutting below the lowest node will prevent flowering. Two years of such control can eradicate small infestations of *I. glandulifera* since seed banks last about 18 months. Care should be taken to manage all adjacent locations of *I. glandulifera* as reinvasion of seeds transported by waterways is common (Burkhart & Nentwig, 2008; DAISIE, 2006; Centre for Ecology and Hydrology, 2004).

Chemical control:

Control of *I. glandulifera* has been achieved with the application of 2,4-D-amine at rates of 6-9 lha⁻¹. It is important that plants are sprayed well before flowering as plants can still produce viable seeds if sprayed while flowering. A second treatment is recommended to target stunted individuals that are protected by larger ones. The application of glyphosate in spring, before flowering, has also proven an effective control of *I. glandulifera*, but it also kills grasses unlike 2,4-D-amine. Care should be taken to manage all adjacent locations of *I. glandulifera* as reinvasion of seeds transported by waterways is common. Unfortunately, the use of herbicides at riversides and in wetlands is generally prohibited in the European Union and many other areas (Beerling & Perrins, 1993; Burkhart & Nentwig, 2008; Centre for Ecology and Hydrology, 2004).

Biological:

Between fungi such as *Taenothrps* spp. and *Puccinia* spp. and specialist herbivores in its native range, plants usually only reach a height of 100 cm, while European populations commonly reach 250 cm. In Central Europe, polyphagous aphids and fungal pathogens and generalist herbivores can infest *I. glandulifera*, but it has proven tolerant to these attacks, indicating a need for a specialist herbivore. One potential bio-control agent of *I. glandulifera* is the moth, *Priesterognatha fuligana*, which commonly occurs on the related, European native, Touch-me-not balsam (*I. noli-tangere*) and is also known to infest *I. glandulifera*. *P. fuligana*'s native range extends from western and eastern Europe to east Palaearctic region as far as Japan, but it does not co-inhabit the Himalayas

with *I. glandulifera*. It lays its eggs from April-August in stems of its host plant where caterpillars feed and hibernate. Initial studies, however, did not yield positive results indicating *P. fuligana* as a good control in experimental European *I. glandulifera* populations. Researchers indicate a need for further testing of other possible specific herbivores due to the considerable impact on specific herbivores within *I. glandulifera*'s native range (Burkhart & Nentwig, 2008).