



Eradication of Himalayan balsam

Jättebalsamin/Jattipalsami

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The origin of Himalayan balsam



Native to western Himalaya (India, Pakistan and Nepal), young plant shoots and seeds are edible, used as food and medical plants,

Introduced to Europe via Great Britain 1839 and already 1855 it was found spreading into natural habitats.

Attractive garden plant favouring pollinators

Where does it grow



Himalayan balsam requires moist and relatively nutrient rich habitats and grows particularly well in frequently disturbed areas.

It prefers riparian zones, but is also found in open areas of forests, forest edges, roadsides, and man-made structures.

It is often found on illegal compost heaps.

It is sensitive to frost, which kill both seedlings and adult plants during spring and autumn.

Why is it an invasive species?

Himalayan balsam is very competitive in Europe, displacing native plant species and forming thick, dense monocultured stands.

Stems persist and cover the ground during winter, suppressing competing seeds the following spring

Flowers are very nectar producing, creating an appealing source of nectar to native pollinators and causing pollinators to neglect native plants.

Affects soil chemistry preventing the growth of other plants species.

Spreading of Himalayan balsam reduces plant- and insect diversity, promotes erosion along watercourses

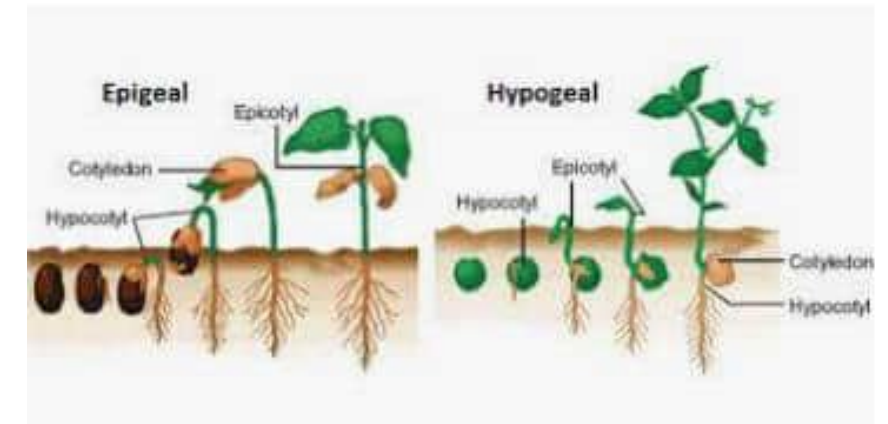


How does it spread

Annual plant, with no vegetative reproduction but high seed production. Competes through synchronous germination suppressing neighbouring species.

Epigeal germination – seeds germinate above the ground from the middle of May in our region, after about 13 weeks it starts flowering (July) and produces seeds up to 12 weeks until the first frost.

Effective seed dispersal via exploding seed pods. Seeds are scattered up to 7 meters and can be dispersed by water. Seed bank lasts for 18 months.



5 Steps of Eradication

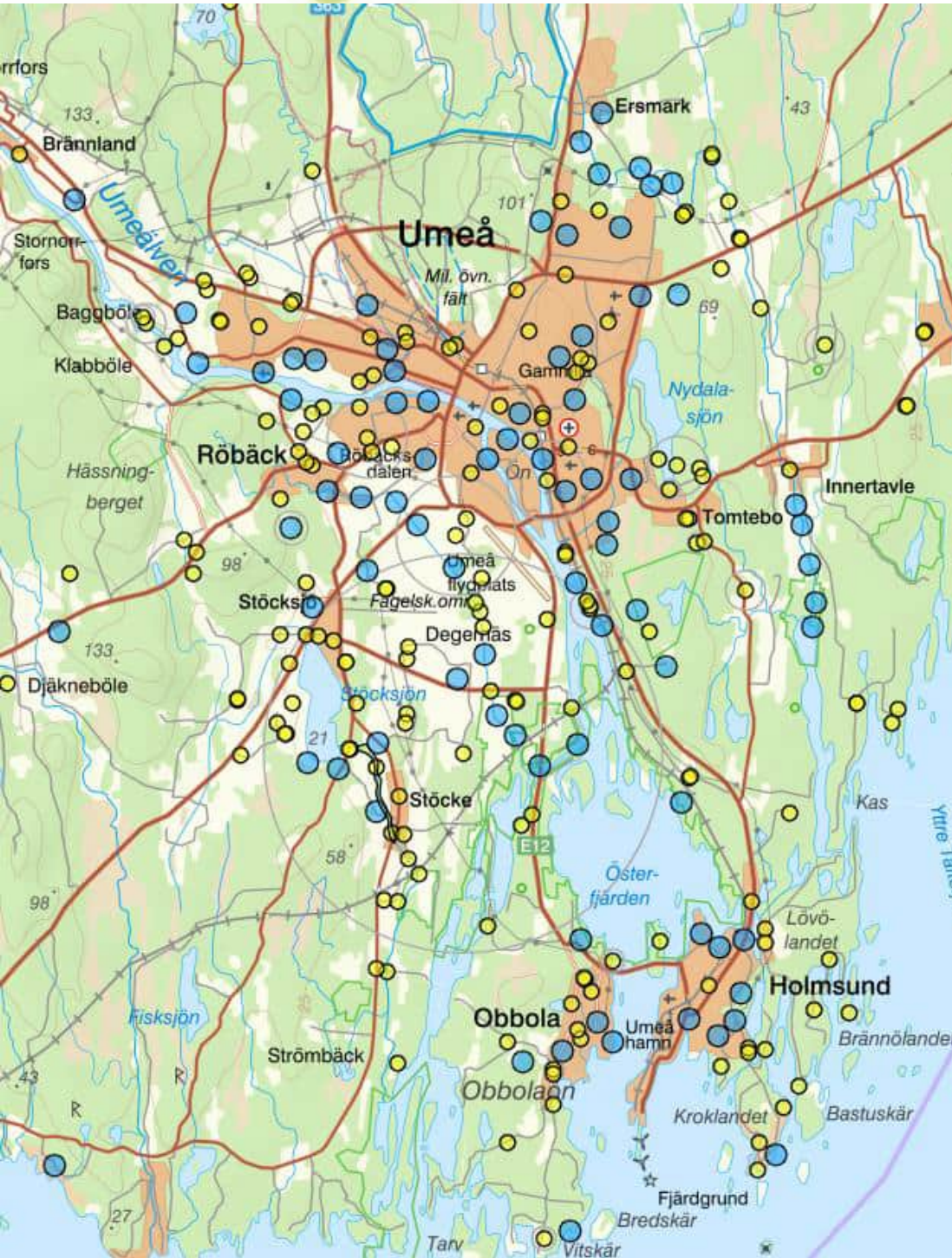
1. Survey , identify the stands
2. Control land rights, who owns the property
3. Chose suitable method
4. Waste management
5. Monitoring

Difficult to combat all stands at once, think strategic:

- sensitive environments like nature reserves, riverine areas, diverse meadows.
- area for area,
- avoid resprouting from nearby stands. Start the control upstreams along water courses.



Survey and preparatory work



Encourage everyone to report to national websites and applications like invasivaarter.nu, vieraslajit.fi

Prioritize and chose methods:

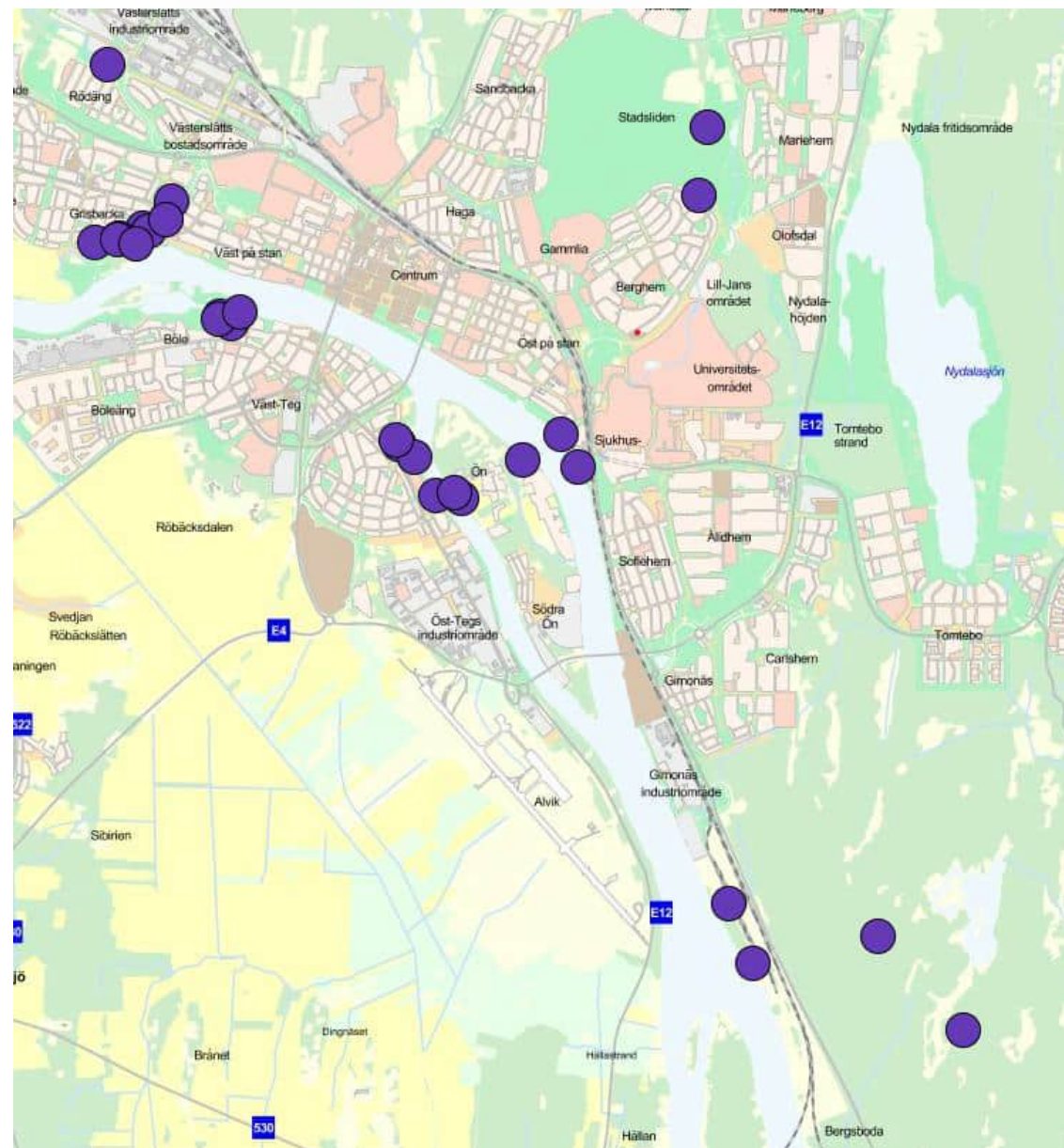
- Sampling data (national websites, other, ..) getting an overview of the situation: Distribution of stands, size of stands, kind of environments, ...
- Evaluate risk for spreading to other vulnerable nature environments,
- Documentation of the sites: Pictures, location, environment, other stands nearby,....
- Accessibility of the place, suitable for mowing, heat water machine etc.

Eradication in INSPECT

About 200 eradication actions throughout the project in both Finland and Sweden

Uprooting	Mowing	Acid	Steam	Grazing
82	86	13	20	1

Additionally, many landowners and the public has been activated to do their own eradication. In these cases, they've been offered helped with waste disposal and advice on suitable methods.



Who owns the property?



**PRIVAT
TOMT**

In general it is the responsibility of the landowner to eradicate invasive species. Authorities can give orders to eradicate.

Taking away invasive species is not part of a legal right of access to private land

Permits of landowners are needed!

Municipalities can allow and encourage NGO's and volunteers to take away Himalayan balsam on common grounds.

Coordinate the control of invasive species between the landowner concerned

Which eradication method?



1. Mowing or clearing by trimmer or clearing saws at different heights
2. Uprooting/pulling up plants
3. Chemical control with acetic or pelargonic acid
4. Hot water or steam treatment
5. Grazing

The choice of method depends on

- Accessibility of the site,
- Stand size and type of land
- Natural environment, for example how near it is to water
- Time, manpower and economical resources

Mowing or clearing

With trimmer, clearing saw or scythe at different heights

An effective method for larger sites with relatively even grounds

Roots are left behind and may build new plant shoots, needs to be repeated at least twice a year.

Unselective method, even native species will be clipped.

In general a cheap and effective method

Plant material needs to be sampled and carried away.



Uprooting/pulling up plants



Pulling up the plants with the roots. Uprooting the plant before flowering is an effective method preventing regrowing of the plant.

Selective method, favouring native plants.

Treatment needs to be repeated 2 -3 times a season for better control.

In comparison to clearance this is a time consuming method, but very effective.

Suitable method for voluntarily organized control.

Despite gloves no further equipment is needed.

Should be repeated for 2 – 3 years.

Good method for rocky or uneven grounds which are less suitable for mowing and clearance.

Chemical control



Chemical control with acetic or pelargonic acid
The whole plant is sprayed with acid. Doesn't affect the seeds.

Unselective method, the treatment will affect all plants with non lignified stems.

Not advisable near open water.

Dry, cloudy and wind still weather are the best conditions.

Requires equipment for application and safety.

Useful method for professionals.

Treated stands need to be controlled for at least 2 years.

Grazing

Sheep and cows work the best for grazing large areas. Goats can be difficult to keep fenced.

Grazing works well for areas that are not easily accessible to humans (like steep river banks and places covered in larger vegetation).

Requires suitable fences and grazing animals. Arrangements with local farmers could be a possibility for future work?

Needs to be planned very carefully, animals require care and a check-up every day.



Hotwater or steam treatment

Plants are treated and perished with hotwater or steam. This method demands a portable hotwater or steam aggregate. The treatment can be started early in the season, preferably for plants smaller than 20 cm.

Heat treatment doesn't affect seed germination.

For larger plants and stand this treatment is rather ineffective.

This method is time consuming, requires quite expensive and sophisticated equipment which has to be transported to the stands.

Aftertreatment of the sites to facilitate regrowth of native plants is recommended.



Waste management



Prevent illegal compost heaps – in Umeå several stands of Himalayan balsam developed on compost heaps.

On harvested plants flowers still may ripen to seed pods and shoots have been occasionally shown to build new roots.

Collect all harvested plant material in plastic bags and dispose as combustible waste.

Umeå municipality helps voluntary workers to dispose plant material of invasive species.

Conclusions

- Cleaning up sites from Himalayan balsam takes up to three years.
- Especially in woody habitats individual plants are easily missed. Important to monitor the sites for several years after eradication took place.
- Work strategical! Work out an action plan how to eradicate most effectively area for area.
- Involve and support voluntarily organized control
- Collaborate with different actors and neighboring municipalities to cut dispersal along water courses etc.
- Restoration of treated sites?

