CASE STUDY

Manage invasive species

Project Summary

Title: Tweed Invasives Project
Location: Tweed River Catchment, England / Scotland border
Technique: Herbicide control of invasive species
Cost of technique: £££££
Overall cost of scheme: £££££
Benefits: £££
Dates: 2002 – 2013 (ongoing)

Mitigation Measure(s)

Manage invasive species

How it was delivered

Delivered by: Tweed Forum, with funding coming from Natural England, Environment Agency, DEFRA, Tubney Trust, Esmee Fairbairn Foundation, Scottish Government, Landfill Tax Credits, Scottish Natural Heritage, Scottish Environment Protection Agency, Northumbrian Water, Interreg, Monsanto, SITA Trust, Countdown 2010, Northumberland County Council, Berwick Borough Council, Heritage Lottery Fund, Forestry Commission.
Partners: The main active partners are landowners, farmers, local communities, and angling associations.

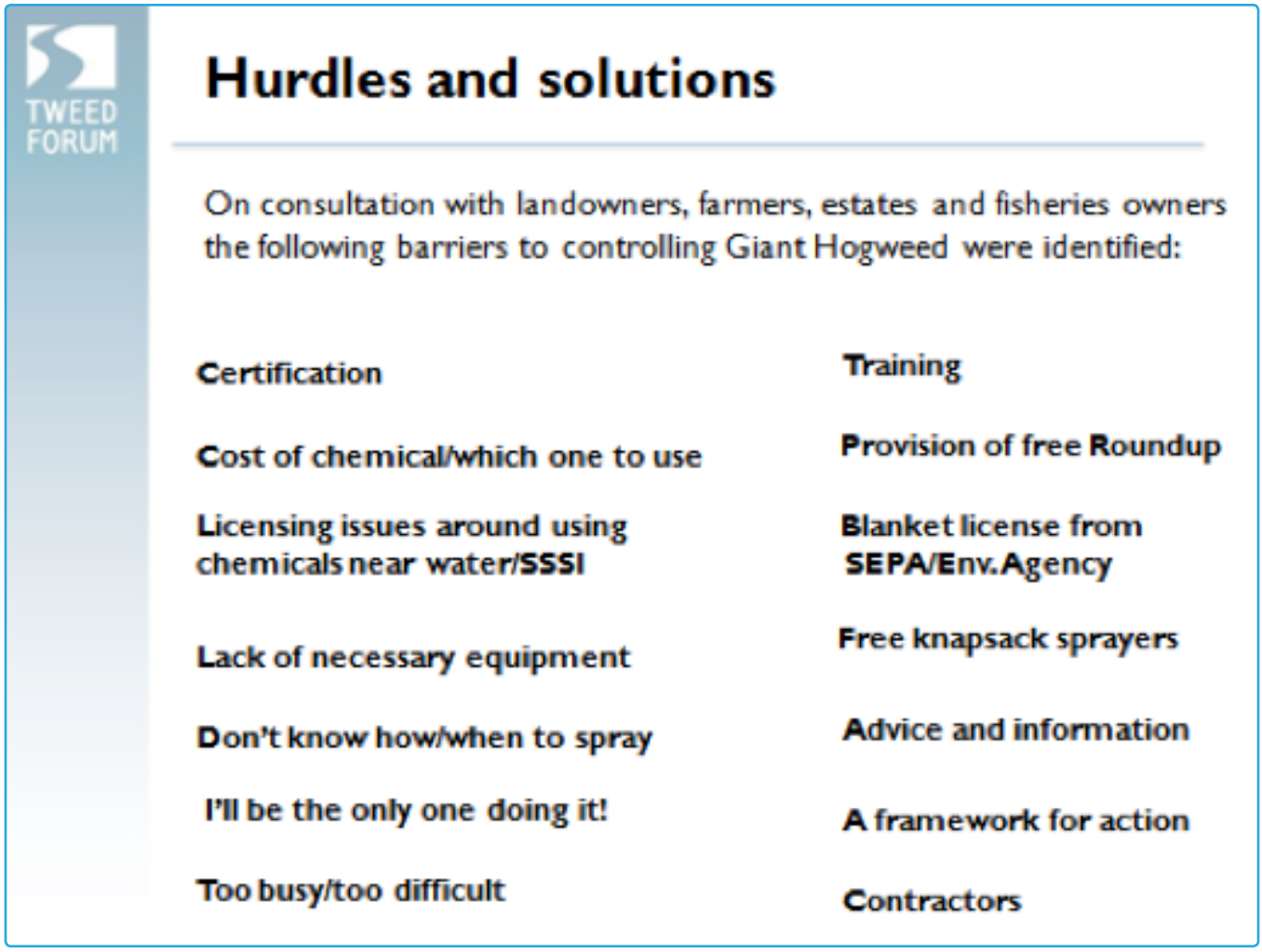
Invasive Non-Native Species (INNS) on the north bank of the River Tweed at Coldstream, Scottish Borders

(1) Giant hogweed infestation (and asscoiated bank erosion); (2) Infestation of the river bank near Hawick, Scottish Borders, by Japanese knotweed

Background and issues

Non-native invasive plant species such as giant hogweed (Heracleum mantegazzianum) , Japanese knotweed (Fallopia japonica) and Himalayan balsam (Impatiens glandulifera) have been present in the River Tweed catchment since the 19th century, when they were introduced through botanical garden collections or by accidental importation with other goods. In recent decades these have spread all over the catchment and in the lower reaches form dense stands that out-compete all native species.

The main target for this project was the control of giant hogweed and Japanese knotweed. These two species are particularly difficult to eradicate and cause a variety of problems: biodiversity issues, river erosion due to out-competing native vegetation, leaving banks exposed during winter die back, and the potential to impact on the human environment through H&S risks and damage to property. Giant hogweed is capable of producing a seed head that contains over 10,000 seeds which can remain dormant in the soil for a number of years. Japanese knotweed reproduces through rhizomes and is capable of regenerating from small sections of root, often thought to have been killed by the treatment.



Deliverables produced through consultation with local stakeholders were aimed at education and creating a greater understanding of the problems of dealing with the situation

Step-by-step

Giant hogweed
Control of giant hogweed was managed through application of glyphosphate weed killer ('Round-Up') to plants that have grown to about 60cm high. Giant hogweed seeds germinate at different times, so it was essential that the site was revisited a few weeks after the initial application to determine whether a second application was required.

Japanese knotweed
Control of Japanese knotweed was managed through the cutting of the stem and injection of glyphosphate weed killer directly into the stem. Japanese knotweed is exceedingly resilient to both cutting and chemical treatment. Once a stand of Japanese knotweed has become established it is very difficult to kill, therefore a strategy of continued management and treatment involving repeated visits on a rolling programme was required.

Himalayan balsam
Control of Himalayan balsam has been carried out on one major tributary, the River Till, by spraying plants with glyphosphate. However, concentrations of the weed killer can be reduced as the species is more receptive to treatment than the other plants. Hand pulling of balsam was initially trialled as an alternative to spraying but was found to be time consuming and not cost effective in comparison.

The size of the Tweed catchment, which includes more than 300 miles of river, produces considerable logistical problems. There is an optimum window of a few weeks for the effective treatment of each target species; rendering it impossible for a single group of contractors to carry-out all necessary work. Tweed Forum therefore put much of the onus on the landowners and farmers, acting as coordinator to ensure that every area was treated effectively. All riparian landowners were contacted, told about the project and asked to undertake control measures on their land. They were also provided with appropriate chemicals, training and technical guidance. Contractors were brought in for sections that posed particular difficulties because there was no clear ownership or the terrain was hazardous to access.

Norham Bank, Northumberland, before treatment. The white flowers of giant hogweed can be clearly identified.

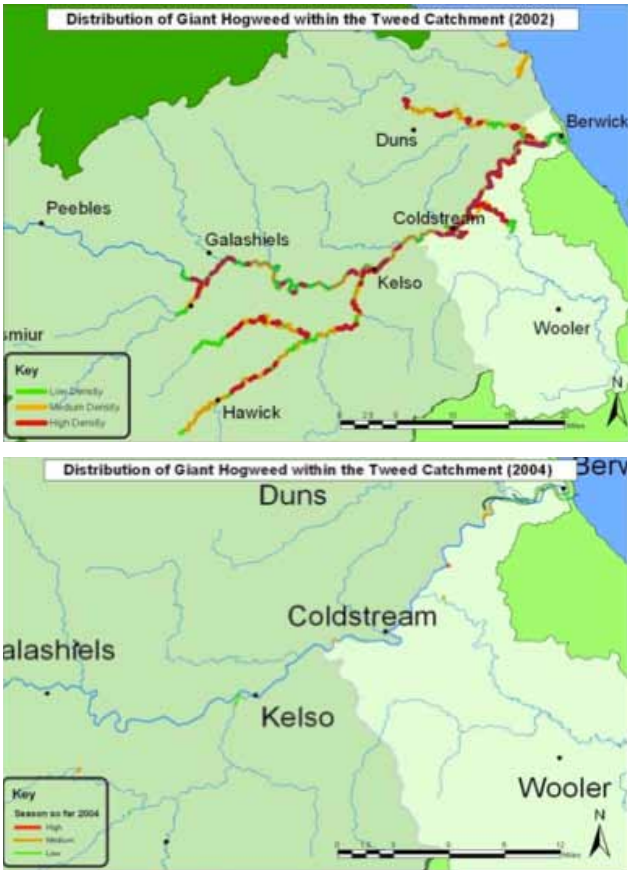
Norham Bank, Northumberland, showing treated giant hogweed plants

Benefits

- Large areas that were virtual monocultures of INNS have been restored to native vegetation:
  - o Japanese knotweed: There are signs that stands of knotweed have been eradicated altogether, although this success is not even throughout the catchment due to varying skills in the application of the glysophate.
  - o Giant hogweed: Hogweed has reduced massively although the viability of the existing seed bank should not be overestimated and work should continue on reducing hogweed.
  - o Himalayan balsam: The balsam has responded much quicker to treatment that the other species in recognition of the shorter viability of the seeds.

The successful control of these species has led to the following benefits within the catchment:

- Improved access to the riparian zone.
- Reduced riverbank erosion.
- Reduced siltation.
- Improved habitat for native species.
- Reduced risk to human health.
- Reduced damage to property.



Distribution of flowering giant hogweed (1) before and (2) 2 years after the project started. Flowering hogweed is now present at very few sites although the same areas still have to be controlled due to the seed bank.

Lessons Learnt

- Control is possible but it does take dedicated coordination and leadership to keep momentum going.
- Costs have not reduced as envisaged and have 'plateaued' out in recognition that the same amount of ground needs to be walked and treated.
- Large floods can expose and redistribute seeds and thus all reaches need to be covered each year.
- Public interest/participation can drop off rapidly once invasive species are no longer perceived as a priority issue. Many members of the public forget the scale of the problem once an area has been treated.
- Himalayan balsam's ability to colonise is still an issue even in treated areas.
- Hand pulling of balsam was time consuming and not cost effective compared to spraying.
- Use of existing stakeholder engagement networks and delivery mechanisms is crucial for stakeholder buy-in and support.
- Encouraging the development of a network of 'champions' to engage and educate stakeholders. These 'champions' were local community representatives that enabled good consultation and acceptance of the treatment teams so that there was no significant disturbance to local residents and stakeholders..
- INNS can present a long term problem and it is therefore important to be persistent when undertaking control and eradication programmes. The project demonstrated a clear need for a long term strategy of 25 years or more.

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