

## Scottish Invasive Species Initiative

### Project Case Study

#### Using sheep as a form of chemical-free, low-intensity hogweed control

##### Summary

This trial project is a practical experiment to discover if a land manager could use sheep to control a substantial giant hogweed invasion in a woodland site. Where giant hogweed has taken over in an area it can be difficult, time consuming and expensive to tackle the problem and requires the use of herbicides. This trial has been assessing the opportunity of using sheep to control the hogweed by creating a trial site near to Macduff at the bottom of the River Deveron catchment.

After our first year (2019) we found that the sheep did a fantastic job in controlling the hogweed but there were signs that the sheep overgrazed the land leaving bare patches which could encourage more hogweed growth. In 2020 we will put fewer sheep on for a shorter duration and continue to monitor the effect.

##### Background

A previous sheep grazing trial, by the Deveron, Bogie and Isla Rivers Charitable Trust at Auldtown (near Huntly) in 2013, showed that in a controlled environment, sheep can successfully graze and control a giant hogweed infesting a field, and this causes no ill-effects to the sheep.

The trial site is near Macduff, in Aberdeenshire where we are working in partnership with a local farmer. It is a 1km stretch of woodland sandwiched between arable fields and the River Deveron. Giant hogweed has begun dominating the woodland, particularly around the sunnier edges, and along the numerous streams that flow through the wood to the river (figure 1.). In the past, attempts to control the giant hogweed has been via herbicide application using a knapsack sprayer, which proved very time consuming, costly and potentially harmful to the native wildlife.

Due to the scale of infestation and the difficult terrain of the site so far little progress has been made in restricting the giant hogweed's expansion. We hope to demonstrate with this trial that sheep are an efficient and effective means for controlling hogweed as they require minimal attention during spring and summer months and do not cause as much damage to the wider ecosystem as non-selective herbicides.

##### Action taken

After fencing in the site in April 2019, 25 sheep were released into the woodland area and, after asking dog walkers to keep their dogs on leads, we waited to see what would happen... and for the first month, nothing did! The sheep lazed around the entrance to the site, maybe due to the new environment or maybe because they had never eaten anything other than grass before (figure 2).

During this time, we started mapping the extent of the hogweed through, performed vegetation surveys and used drone footage to visualise the infestation. Working in partnership with The University of Aberdeen we developed a base map of the hogweed which we can track over multiple years. We also identified 28 monitoring spots where we can measure the effect of the sheep on the rest of the woodland vegetation (figure 3).

As 2019 progressed, we started to pick up more indications of the sheep growing in confidence with clear trails developing through the wood showing where the sheep had been walking as well as a few nibbled hogweed stems. A couple of months later, and the sheep well and truly gained a taste for the hogweed (figure 4).

## Results

To assess the grazing impact 42 hogweed monitoring plots were created and the number of seedlings per plot counted in June and October. In June there was an average of 13 giant hogweed plants per plot (1371 in total) whereas there were 5 per plot in October (501 in total) which is a 60% decrease. Hogweed seedlings outside of the trial site were still emerging during October and so this decrease is not because of the time of year.

In addition, 28 vegetation monitoring plots were also created to record the height and type of flora present within the trial site. In June, 19 plots had giant hogweed present with 9 of them having more than 10% hogweed cover. By October only 9 of the plots had giant hogweed present (a decrease of 50%) and none of the plots had more than 10% hogweed cover.

Overall there was little change in vegetation height but an increase in grass and nettles was observed. Salmonberry, Hedge woundwort, nettles, bracken and Ash seedlings showed signs of grazing and there was an increase in bare ground in the plots from 24 to 39% (62% increase).

## Successes and lessons learnt

Time was lost at the start of the trial (about a month) as the sheep took time to acclimatise to their new surroundings before they started grazing the hogweed, which resulted in some of the hogweed growing larger than was preferable. The sheep have been taken off the site over winter and it is anticipated then when reintroduced to the wood in 2020 they will start grazing hogweed from the moment they return to the site.

Despite the successful grazing by the sheep throughout 2019, there are still some patches of hogweed that have grown too big and dense for the sheep to graze.

We also found that the sheep were not selective in their grazing. When most of the hogweed had been grazed down the sheep would turn their attention to the other woodland vegetation. It was hoped that these native plants would start to thrive in the absence of the hogweed and play a role in out-competing hogweed re-growth.

The grazing pressure resulted in areas of bare ground which are more likely to be re-colonised by hogweed re-growth, rather than a native ground flora.

The broad idea of the plan worked and once the sheep were on site, they did an excellent job of controlling the hogweed, even attacking plants that were 1.5m tall. Similarly, the act of controlling the hogweed required a minimal time commitment from the land manager and this is a promising factor in encouraging other land managers to use sheep when trying to control hogweed.

## Next Steps

The sheep will be returned to the trial site in 2020. In order to combat the issues of grazing pressure and bare ground, a smaller number of sheep will be put back onto the site, and for a shorter time with the aim of finding the optimal grazing regime for volume of hogweed present.

## Further information

Download the 2013 Auldtown trial report

**Location:** Macduff, Aberdeenshire

**Key partners:** Deveron, Bogie and Isla Rivers Charitable Trust and University of Aberdeen (Annie Robinson and Prof. René Van der Wal).

**Date/Timescale:** April 2019 - ongoing

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## Images

Figure 1. Giant hogweed growing along the woodland edge



Figure 2. The hogweed munching sheep

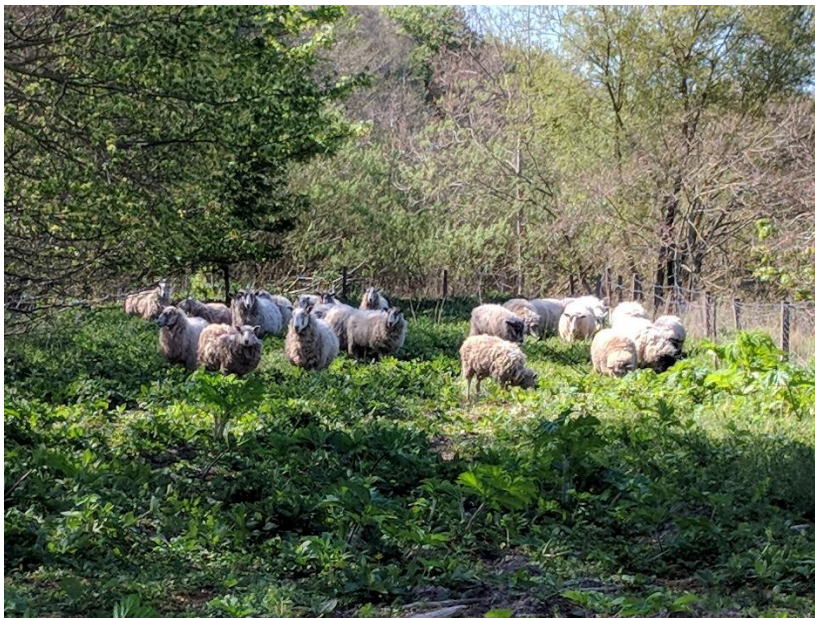




Figure 3. Site monitoring



Figure 4. Grazed hogweed at the site

