



# Non-native Invasive Species Survey

## Upper Rother sub-catchment



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An Outstanding Medieval Landscape

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# 1. Project outline

Non-native invasive species (NNIS) are known to be widespread along the Rother and its tributaries. However, as no comprehensive surveys have recently been carried out, existing biological records are incomplete along much of the river, and do not give a full impression of their abundance (figures 1 and 2).

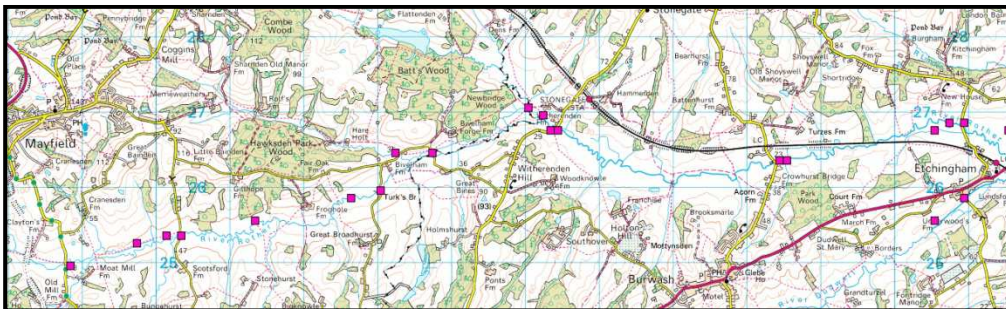


Figure 1: Distribution of *Impatiens glandulifera* along the upper Rother according to the NBN Gateway (Accessed 22/08/2016).



Figure 2: Distribution of *Impatiens glandulifera* according to this survey.

Some landowners known to the AONB Unit have been actively carrying out control of NNIS in recent years, but due to the lack of control upstream, the species have rapidly re-colonised soon after control has taken place. This has demonstrated the need for a catchment wide, co-ordinated approach to the control of NNIS along the River Rother.

The aim of this survey is to build up a more complete picture of where NNIS occur along the river and where control could be best targeted to minimise their spread downstream. By far the most widespread of the NNIS in the Rother catchment is Himalayan balsam (*Impatiens glandulifera*), which became the focus of this project.

## 2. Non-native invasive species

### 2.1 Himalayan balsam (*Impatiens glandulifera*)

Described by the Non-Native Species Secretariat (2015) as “well established and extremely invasive throughout most of Lowland Great Britain”, Himalayan balsam (HB) was introduced from Northern India in the 19<sup>th</sup> century, and has since spread rapidly. Now widespread throughout the UK, it has a huge ecological impact, partly due to the shade it casts – suppressing native plants – but more significantly due to its shallow root system. It dominates bank vegetation during the summer, before dying back in the winter, leaving bare banksides which are liable to accelerated bank erosion.

Currently HB can be controlled by mechanical methods (strimming or pulling) or chemical spraying (Environment Agency, 2010). However, along many stretches of the river that were surveyed, access for physical control was limited. A biological control agent is currently being trialled in Kent.

### 2.2 Giant hogweed (*Heracleum mantegazzianum*)

Typically growing to be 2-3m high, Giant hogweed (GH) can form dense stands competing with native vegetation, but its main impact is recreational. It produces phytotoxic sap which causes serious burns when it comes in to contact with human skin by sensitising it to UV light.

The phytotoxic sap complicates physical control of GH, strimming is not recommended without full protective clothing. Chemical control using glyphosate is considered the most effective method (Environment Agency, 2010).

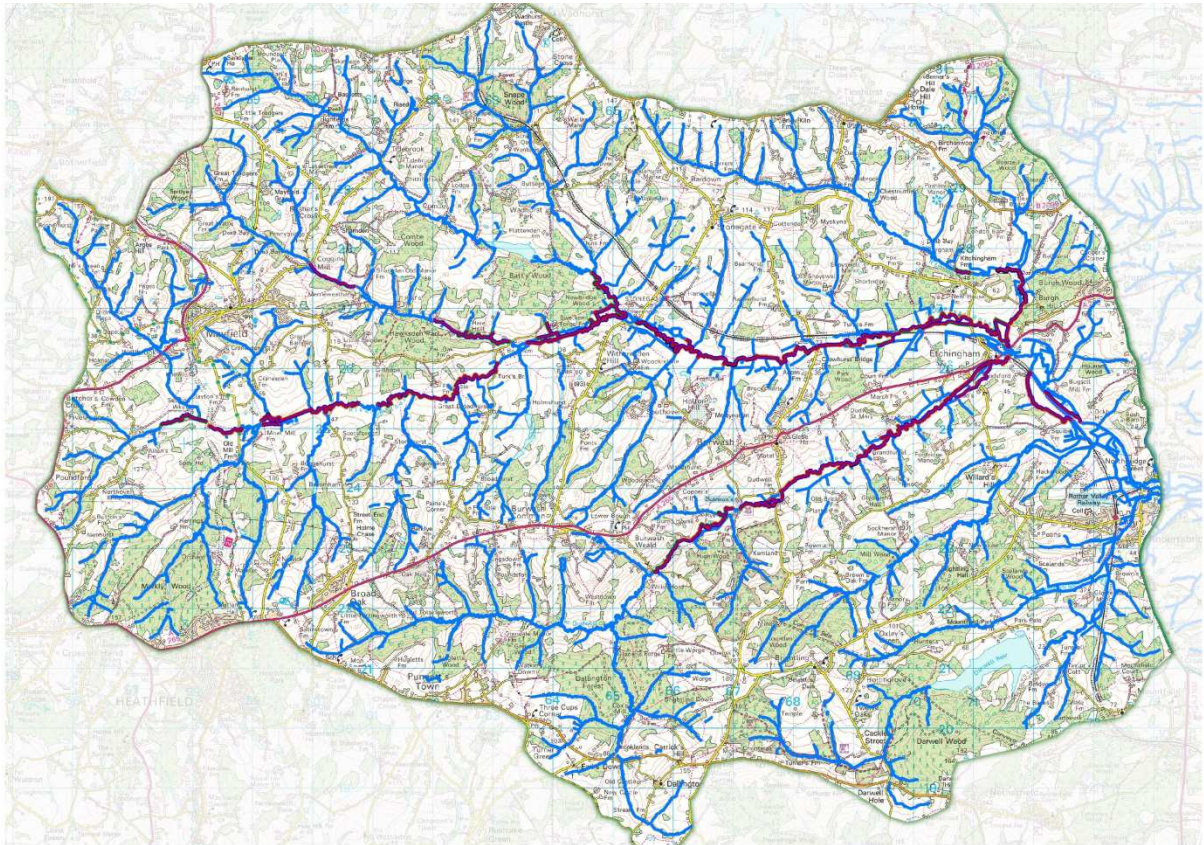
### 2.3 Japanese knotweed (*Fallopia japonica*)

Little is known about the ecological impact of Japanese knotweed as it usually occurs in already degraded urban locations (Roy and Hiley, 2016). However, it is important economically due to the laws requiring it to be removed from development sites and it is likely to cause access problems if left to dominate. It is dispersed along rivers when root pieces are washed downstream by flooding.

## 3. Survey

### 3.1 Survey area

It was decided that the survey should focus on the uppermost sections of the Rother, where control is likely to be most effective. The aim was to survey the entire main channel between Newick Lane (near Mayfield) and Etchingam and major tributaries along that stretch (figure 3). Unfortunately, difficulty obtaining access permission from some landowners along that stretch meant that this was not realised. However, 30.4km of the main channel between Mayfield and Etchingam was successfully surveyed, as well as 10.2km of the Dudwell, 3.2km of the Limden (two major tributaries of the Rother) and another 5.6km of minor tributaries and ditches. In total 50.5km of river was surveyed.



*Figure 3: Map showing the extent of the Upper Rother Sub-Catchment, with surveyed stretches shown in purple.*

### **3.2 Survey approach**

- The survey was undertaken between 29/06/2016 and 23/08/2016 and took 12 days to complete.
- Access permission was obtained from landowners along the river, some were already known to the AONB Unit, some were visited in person by the surveyor, and the Environment Agency shared details of several others.
- Once permission was granted, the land adjacent to the river was walked by the AONB Unit's summer intern, who recorded GPS point data for any NNIS (recording stands of Himalayan Balsam rather than individual plants due to the huge volume present) and created a sketch map showing the abundance of Himalayan Balsam using the DAFOR scale (dominant, abundant, frequent, occasional, rare, absent).
- GPS point data was recorded using iRecord, a smartphone app which submits records along with an accompanying photo to the local Biological Records Centre.
- In the office the point data was then imported into GIS where each point was scaled according to the size of the stand. On the same GIS project the river was colour coded according to the recorded DAFOR abundance of Himalayan Balsam.

### 3.3 Summary of survey results

Himalayan Balsam (HB) occurred along the entirety of the main channel at different levels of abundance. It was generally found to be more abundant along arable fields and at points where the channel slowed (e.g. meanders and confluences); it was found to be less abundant where cattle were present and where tree cover was denser. See below a summary of its distribution along the main channel:

- HB rarely occurs west of the disused railway (near Newick lane), becoming more frequent to the east.
- HB is generally 'frequent' between Scotsford Bridge and Turks bridge,
- HB is generally 'abundant' between Witherenden Road and Witherenden Bridge.
- HB is generally 'dominant' between Witherenden Bridge and Shrub Lane (this stretch contains the highest concentration of arable fields as well as numerous meanders).
- HB is generally 'frequent' between Shrub Lane and Etchingham.

No HB was recorded along the tributary which joins the main channel near Pound Bridge (TQ63437 26368); however access to the bank was not possible along much of the channel here. Very little HB was recorded along the tributary flowing through Wadhurst Park joining the main channel near Witherenden Bridge, but access to the bank here was also limited.

Along the Dudwell, HB was abundant between Etchingham and Bateman's, becoming less abundant to the west. There were several stands of Giant Hogweed (GH) between Riverdell Farm and Etchingham (figure 4), the largest of which was on Lundsford Farm in Etchingham itself (TQ71418 26130), close to where the Dudwell joins the Rother. No GH was recorded west of King's Hill Road.

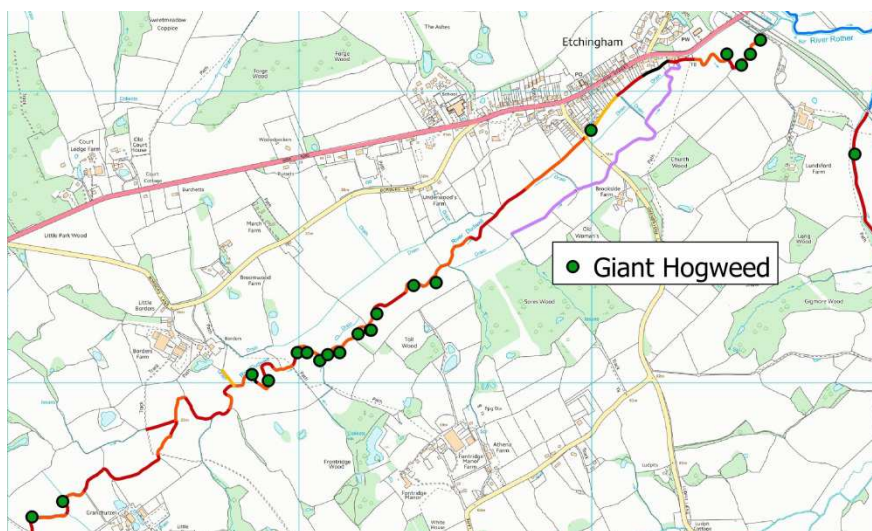


Figure 4: Map showing giant hogweed distribution.

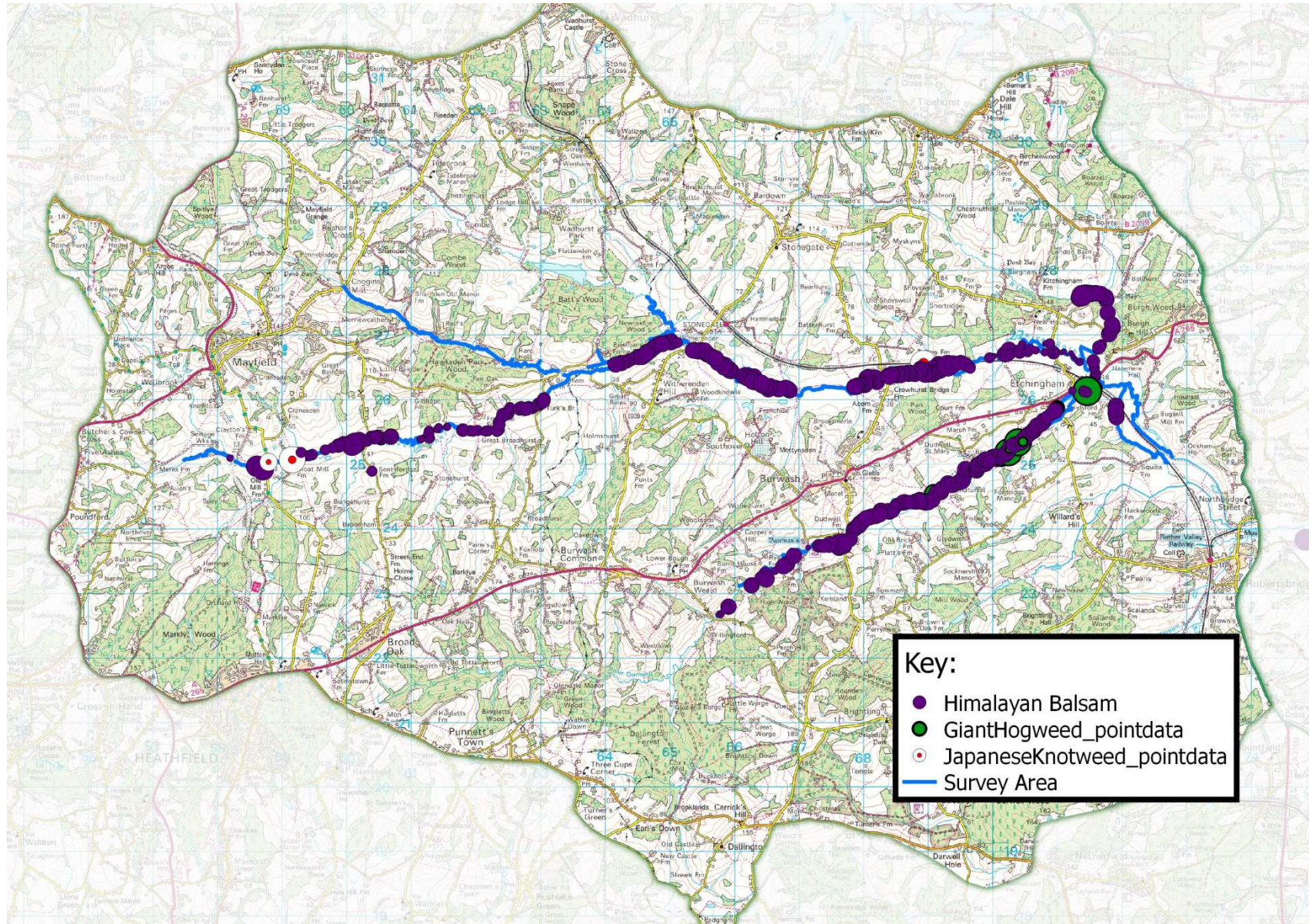
Three stands of Japanese knotweed were recorded during the survey, two of which were near Newick Lane; the other was adjacent to the railway drainage ditch near Crowhurst Bridge.

### 3.4 Survey challenges

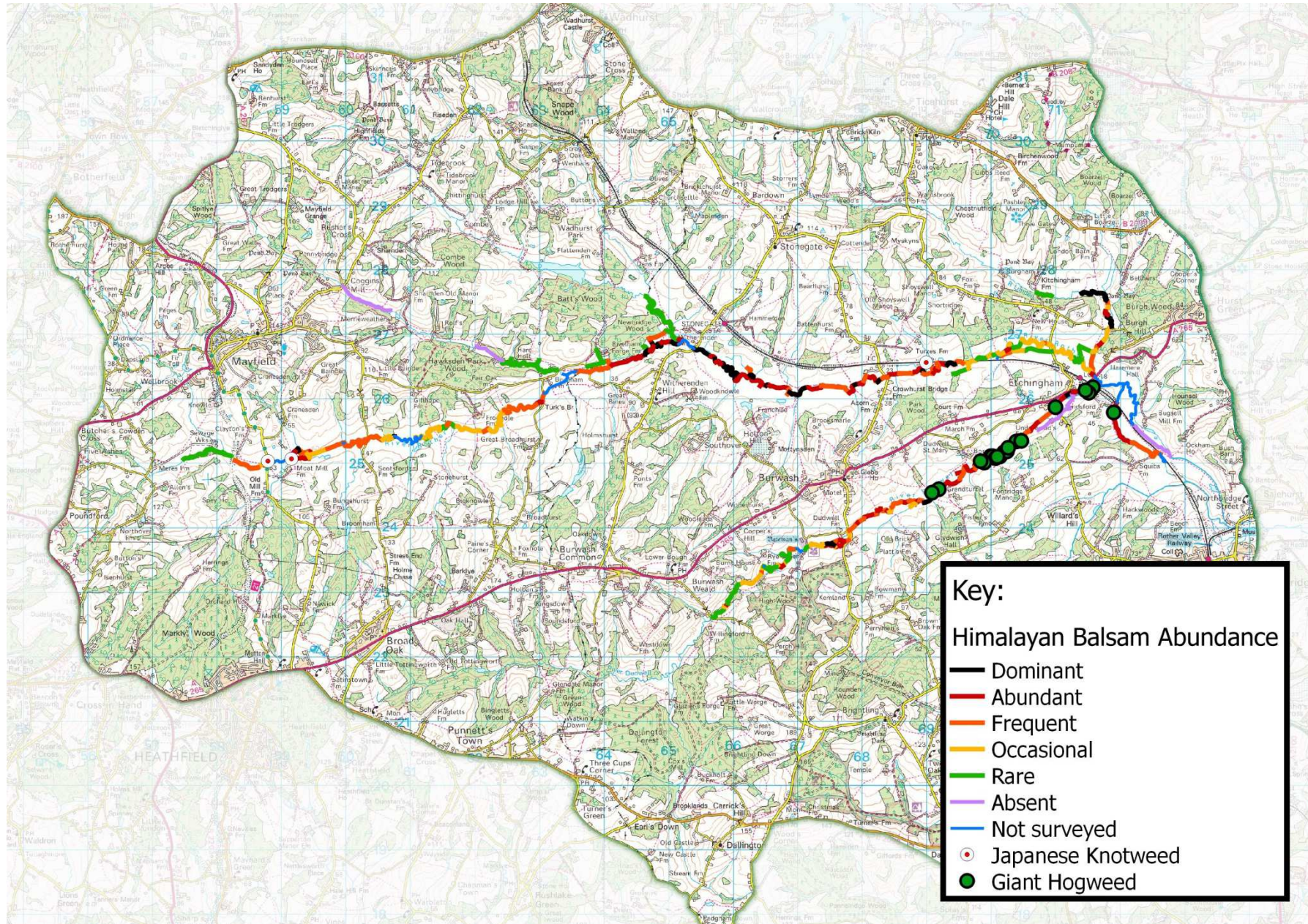
- Contacting landowners to obtain access permission proved difficult in some areas, and some short stretches were not surveyed. It was also by far the most time consuming aspect of the survey.
- The survey took two months to complete and by the end of the survey period the plants were in flower and considerably larger than at the start. Although this was taken in to account by the surveyor, it could potentially have caused the sites visited later in the summer to be recorded as disproportionately more abundant than those which were visited when the plants were smaller and more easily missed.
- On some sites, other bank vegetation made access to the bank difficult or impossible and meant that the river had to be surveyed from a few accessible points. On most sites the channel could only be surveyed from one side of the river due to the scarcity of crossing points.

### 3.5 Overall distribution

Map 1: The overall distribution from point data collected during the survey. The points are scaled according to the size of the stand.



Map 2 Giant hogweed and Japanese knotweed point data as well as the relative abundance of Himalayan balsam along the river, as judged in the field by the surveyor.



## 4. Recommendations

The results of this survey have shown that Himalayan balsam (HB) is extremely widespread in the Upper Rother sub-catchment, and to effectively control it would require a catchment wide co-ordinated approach. Even then, any control carried out would only have a temporary effect due to the extensive seed source that exists along the river's many tributaries.

If the rust fungus currently being trialled as a biological control at 25 sites throughout the UK proves effective, it may be the most viable option long term. The Eastern Rother Catchment Partnership should register an interest in having release sites along the Rother with CABI (the organisation developing the biological control), although that may still be a number of years away. In the meantime, potential release sites could be identified in areas where HB is particularly dominant (such as the stretch between Witherenden Bridge and Crowhurst Bridge).

Some landowners who were contacted during the survey were not aware of HB or its impact, and others were attempting to carry out physical control but at the wrong time of year, potentially spreading its seeds further in the process. Efforts should be made to raise awareness of the impact of HB among landowners, and of how best to control it (as control of invasive species is a requirement of riparian landowners). The focus should be on riparian landowners who were found to have little or no HB on their land, as they should be encouraged to ensure they remain free of HB by monitoring for its presence and carrying out physical or chemical control of plants which are present.

Several of the Giant hogweed (GH) stands identified by the survey were located in Etchingham (a relatively built up area); as it can cause severe skin blisters when people come in to contact with it, its control should be made a priority. In the meantime, information on the danger of GH could be made available to local primary schools and landowners should be advised on how to control it in a safe manner.

As Japanese knotweed (JK) was only identified in 3 locations in the survey area, its control should also be prioritised, to prevent it becoming established in more locations downstream. The owner of the adjacent land to the stand near Crowhurst Bridge (which is situated on Network Rail land), informed the surveyor that his land agent was asking Network Rail to control it but at the time of the survey he had not been successful. The Eastern Rother Catchment Partnership could assist the landowner in petitioning Network Rail to take steps to remove the JK, which if left controlled could spread in to the river along the railway drainage ditch. The stands near Newick Lane are situated on the land of a farmer who is known the AONB Unit, he should be contacted and advised on how to effectively control them.

## 5. References

Environment Agency (2010). *Managing invasive non-native species in or near fresh water*. Available at: [https://www.gov.uk/media/62585/ea\\_invasive\\_plants.pdf](https://www.gov.uk/media/62585/ea_invasive_plants.pdf) (Accessed 05/09/2016)

Non-native Species Secretariat (2015). 'Himalayan Balsam Factsheet'. Available at: <http://www.nonnativespecies.org/factsheet/downloadFactsheet.cfm?speciesId=1810> (Accessed 05/09/2016)

Roy, H. Hiley, A. (2016). 'Japanese Knotweed Factsheet'. Available at: <http://www.nonnativespecies.org/factsheet/downloadFactsheet.cfm?speciesId=1495> (Accessed 05/09/2016)

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