

**High Weald Area of Outstanding Natural Beauty Guidance**  
(Noxious Non-native Invasive Species; Weed Control)

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# **Giant Hogweed Report**

## *Management Guidance*

**Rother Catchment**

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The High Weald: an outstanding medieval landscape

**Guidance for: Those living and working in and close to the High Weald, particularly land owners and managers in the Rother Catchment Area. Also, of particular importance to land-based businesses including those of a riparian nature and Local Government; Parish/Town Councils, Local Planning Authorities, County Councils, Environment Agency and Highway Authorities**



## DKS/602

# High Weald Area of Outstanding Natural Beauty (HWAONB) Background

The High Weald Area of Outstanding Natural Beauty is **one of the best surviving medieval landscapes in northern Europe**. The management objectives for the AONB are based on an understanding of the fundamental and defining character of the area – that is, the components of natural beauty that have made the High Weald recognisably distinct for at least the last 700 years and will continue to define it in the future.

- **Geology, landform, water systems and climate:** deeply incised, ridged and faulted landform of clays and sandstone. The ridges tend east-west, and from them spring numerous gill streams that form the headwaters of rivers. Wide river valleys dominate the eastern part of the AONB. The landform and water systems are subject to, and influence, a local variant of the British sub-oceanic climate.
- **Settlement:** dispersed historic settlements of farmsteads and hamlets, and late medieval villages founded on trade and non-agricultural rural industries.
- **Routeways:** ancient routeways (now roads, tracks and paths) in the form of ridge-top roads and a dense system of radiating droveways. These routeways are often narrow, deeply sunken, and edged with trees, hedges, wildflower-rich verges and boundary banks.
- **Woodland:** a great extent of ancient woods, gills, and shaws in small holdings, the value of which is inextricably linked to long-term management.
- **Field and heath:** small, irregularly shaped and productive fields often bounded by – and forming a mosaic with – hedgerows and small woodlands. These field systems are typically used for livestock grazing, small holdings, and mixed farming, within which can be found distinctive zones of heaths and inned river valleys.

The High Weald Partnership's specialist team, the HWAONB Unit, works to develop our understanding of these key components – their history, development, distribution, special qualities, deterioration, damage and loss – by undertaking their own research, or by commissioning independent reports. This enables us to develop an evidence base for the AONB Management Plan and other AONB policy and guidance.

Our research also informs how the High Weald landscape can contribute to society – in terms of food, energy, water provision, flood protection, recreation, biodiversity and fisheries – without damaging its natural beauty.

Land management including, giant hogweed control, should be informed by the character, type and status (e.g. organic or non-organic managed land) of the area.

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The views expressed in this report are those of the author(s) and do not necessarily reflect those of the High Weald Partnership.

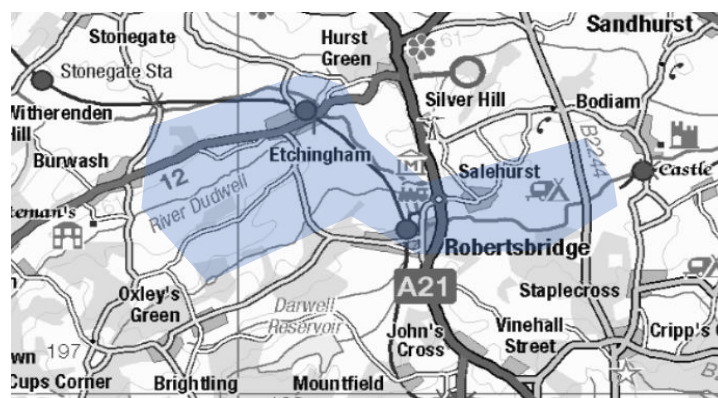
## Executive Summary

Giant hogweed ([GH] *Heracleum mantegazzianum*) is a non-native invasive plant species, which is now widespread along the rivers Dudwell and Rother. As well as forming dense stands which compete with native vegetation, GH produces phytotoxic sap which causes severe burns, posing a danger to users of the countryside.

Extensive surveys conducted in 2016 and 2018 (Figure 1), together with anecdotal accounts from landowners, has provided findings that GH's extent has increased rapidly in recent years. Its control should now be made a priority particularly by riparian landowners, on whom the most responsibility lies for the control of its spread. This report presents the current known distribution of GH in the Rother catchment, and outlines a suite of control measures which, depending on individual circumstances, can be applied to effectively control outbreaks. In addition, proposals are made for the engagement of stakeholders, to increase awareness of GH and promote public safety.

On non-organic land, land managers should apply for Environment Agency consent and chemically treat GH using glyphosate applied by a qualified operative. On organic land, glyphosate cannot be applied; instead, land managers should use an integrated pest management approach based on local site conditions including, combining a number of mechanical and grazing (as appropriate) control techniques. Individuals who use the river (either recreationally or commercially) should be made aware of the dangers of GH and encouraged to report new outbreaks. Parish councils should be encouraged to take account of GH as part of policy and decision making.

Figure 1: Survey Area  
 (Indicative) (adapted from  
 Magic Map; NE, 2018)





## Contents

<b>Executive Summary</b> .....	<b>3</b>
Figure 1: Survey Area (Indicative) ( <i>adapted from Magic Map; NE, 2018</i> ).....	<b>3</b>
<b>Glossary</b> .....	<b>6</b>
<b>Part One</b> .....	<b>1</b>
<b>1.0 Introduction</b> .....	<b>1</b>
<b>1.1 Giant hogweed</b> .....	<b>1</b>
<b>1.2 Landowner responsibilities</b> .....	<b>1</b>
<b>1.3 Project outline</b> .....	<b>1</b>
<b>1.4 Current distribution</b> .....	<b>2</b>
1.4.1 River Limden .....	<b>2</b>
Figure 2: Previous GH Record (adapted from Magic Map; NE, 2018.....	<b>2</b>
1.4.2 River Dudwell .....	<b>3</b>
Figure 3: In-field GH Stand & Dock spp. ( <i>Rumex</i> ) Near Etchingam Village .....	<b>3</b>
1.4.3 River Rother .....	<b>3</b>
<b>Part Two - Control methods</b> .....	<b>5</b>
<b>2.0 Introduction</b> .....	<b>5</b>
<b>2.1 Options for landowners</b> .....	<b>5</b>
Table 1: Recommended control methods. ....	<b>6</b>
<b>2.2 Chemical control</b> .....	<b>8</b>
Figure 4: Arborweald GH Treatment Utilising Knapsack Sprayer with Telescopic Lance .....	<b>9</b>
<b>2.3 Mechanical control</b> .....	<b>9</b>
2.3.1 Root Severing .....	<b>9</b>
2.3.2 Seed Head Removal .....	<b>9</b>
2.3.3 Cutting and Mowing.....	<b>10</b>
2.3.4 Rootwave Electrical Control.....	<b>10</b>
2.3.5 Alternative Methods .....	<b>10</b>
<b>2.4 Further information and guidance</b> .....	<b>11</b>
<b>Part Three</b> .....	<b>12</b>
<b>3.0 Management strategy</b> .....	<b>12</b>
<b>3.1 Priority areas</b> .....	<b>12</b>
<b>3.2 Organic and no-chemical treatment sites</b> .....	<b>12</b>
<b>3.3 Non-organic sites</b> .....	<b>13</b>
<b>3.4 Stakeholder engagement</b> .....	<b>13</b>



Table 2: River Users with a Stake in On-going Monitoring of GH.....	13
3.4.1 Local communities .....	14
3.4.2 Other stakeholders .....	14
Table 3: Individuals and Organisations with an Interest in the Project.....	14
<b>3.5. Monitoring.....</b>	<b>14</b>
3.5.1 Individual sites .....	15
3.5.2 Catchment scale.....	15
<b>3.6. Conclusions.....</b>	<b>15</b>
<b>4.0 References .....</b>	<b>16</b>
<b>Appendix 1 – Giant Hogweed Control Checklist .....</b>	<b>17</b>
<b>Appendix 2: Giant Hogweed Distribution Plan .....</b>	<b>18</b>
<b>Appendix 3 – Legislation and legal responsibilities .....</b>	<b>19</b>
Wildlife and Countryside Act (1981).....	19
Environmental Protection Act (1990).....	19
Occupiers Liability Act (1957/84) .....	20
Common Law Duty of Care .....	20



## Glossary

The following abbreviations are used in this report:

**COSHH:** Control of substances hazardous to health

**EA** – Environment Agency

**GH** – Giant hogweed (*Heracleum mantegazzianum*)

**HWAONB** – High Weald Area of Outstanding Natural Beauty

**NNIS** – Non-native invasive species

**NPTC** – National Proficiency Tests Council

**PROW** – Public rights of way

**GBNNS** – Great Britain Non-Native Species Secretariat

The following descriptive terms are used in this report:

**Abundant** – Equal/More than 251 individuals per linear kilometre.

**Frequent** – Equal/More than 21 and fewer than 251 individuals per linear kilometre.

**Occasional** – Equal/More than 5 and fewer than 21 individuals per linear kilometre.

**Rare** – Fewer than 5 individuals per linear kilometre.

**Small stand** – A contiguous group of no more than 20 individuals.

**Large stand** – A contiguous group of no fewer than 21 individuals.



## Part One

### 1.0 Introduction

In 2016 the High Weald Unit recorded the locations and distribution of giant hogweed (GH) in the upper part of the Eastern Rother catchment upstream of Bodiam by surveying the banks of the river Rother and its tributary the river Dudwell.

In 2018, the Eastern Rother Catchment Partnership secured funding for a further surveying followed by herbicide treatment of GH upstream of Bodiam and this was undertaken by Arborweald. This builds on the findings of the 2016 survey and with the aim of producing a more complete picture of GH distribution in the Rother catchment, which can be used to inform future management and control.

Abbreviations and dates in brackets refer to referenced material, the full titles of these documents can be found in the references section of this management plan.

### 1.1 Giant hogweed

Giant hogweed (scientific name: *Heracleum mantegazzianum*) is a non-native invasive plant which can form dense stands and compete with native vegetation. In addition, GH produces phytotoxic sap, which poses a health risk to both land managers and recreational users of the countryside (Rajmis et al, 2016). Contact with the plant desensitises skin to ultra-violet light, which results in severe burns and an increased sensitivity to sunlight which can persist for a number of years. GH is most commonly found along river banks, where it can spread quickly, producing thousands of seeds each year (GBNNS, 2010).

The survey findings of this project have shown, that within the survey area, GH has become well-established along stretches of the river Rother and its tributaries. A large-scale non-native invasive species survey of the Rother catchment in 2016 identified a significant population of GH along the river Dudwell (Crisford, 2016). No GH was observed upstream of the Rother's confluence with its major tributary the river Dudwell at Etchingham, which suggests that the source of the outbreak may be on the Dudwell.

### 1.2 Landowner responsibilities

Giant Hogweed is classified as an invasive species it is therefore the responsibility of the land owner to prevent the plant spreading to neighbouring land (or into the wild), and removal of plant must be conducted with due care and attention. Under different areas of the law the landowner may be found liable and therefore open to prosecution for the spread of giant hogweed from their land. For details on the legal responsibilities see Appendix 3.

### 1.3 Project outline

Guided by existing records, surveyors conducted a visual GH survey over the course of eight days in May 2018 and extended on the 2016 survey area over two days in August 2018. Surveyors walked the banks of rivers, recording the location of individuals and stands using Geographical Positioning System (GPS). Radial surveys were conducted around new stands and stands which had been previously recorded, checking all areas of suitable habitat within one kilometre.

An exponential increase on 2016 stand sizes was found upstream of Dudwell Bridge to Etchingham; in 2016 the vast majority of records were for single plant stands with occasional stands exceeding five individuals and a single stand of up to 100 individuals. For the same area the 2018 surveys found a general ten-fold increase in the smaller stands with the larger stands being subject to a 5 – 25-fold increase indeed, one stand had increased in size to over 500 individual plants. New records were submitted to the Sussex Biodiversity Record Centre and the High Weald Unit.

After obtaining the relevant permissions and consents Arborweald undertook initial herbicide treatment of surveyed GH stands; repeat herbicide treatment (as project funding and permissions allow) will continue in spring/summer 2019.

This management plan presents the current known distribution of GH in the Rother catchment, and sets out how outbreaks can be effectively controlled in a way which is ecologically sensitive and in compliance with the law. In addition, proposals are made for the engagement of stakeholders, to increase awareness of GH and promote public safety. Finally, key points of contact are outlined, to help facilitate a co-ordinated, catchment-wide approach. However, it remains the responsibility of individual landowners to manage GH in a way which is compliant with best practice guidelines and legislation.

No liability is accepted for any costs, claims or losses arising from the use of this report.

#### 1.4 Current distribution

Distribution provided within this report is current from the May and August 2018 surveys. TQ references are relative to National Grid References accurate to within 10m. Maps showing the locations of giant hogweed stands can be found at the end of this report.

##### 1.4.1 River Limden

GH has been previously recorded at TQ71562672, approximately 500m upstream of the confluence between the rivers Limden and Rother. A 1 km radial survey was conducted around this point (Figure 2), however, despite the presence of much suitable habitat, no GH was observed. Burdock (*Arctium spp.*) and common hog weed (*Heracleum sphondylium*) occurred frequently along some stretches of river; these could have been mistaken for GH in the past.



Figure 2: Previous GH Record (adapted from Magic Map; NE, 2018)

#### 1.4.2 River Dudwell

Upstream of Etchingam (where the rivers Dudwell and Rother converge), GH occurs along both banks of the main channel. In the village itself, GH is abundant on agricultural land adjacent to the A265. In addition, one small stand and two isolated plants were observed on non-agricultural land north-east of Oxenbridge Lane.

Further outside the village, on grazing land situated to the west of Oxenbridge Lane, small stands and isolated plants are abundant along both banks of the main channel of the Dudwell; none were identified in adjoining ditches. One exceptionally large stand was observed at TQ70472545, which was estimated as containing several hundred individuals (Figure 3). This was situated away from the river bank, in an adjacent field.



Figure 3: In-field GH Stand & Dock spp. (*Rumex*) Near Etchingam Village

Upstream of Borders Farm, occurrences of GH become more occasional. No individuals were observed upstream of TQ69062445, which is consistent with the findings of the 2016 survey. This indicates that the source of the outbreak is located no further upstream on the main channel; none was observed in adjoining streams and ditches to the south of the river.

#### 1.4.3 River Rother

The Dudwell joins the Rother just to the north of the railway line in Etchingam. From there the Rother splits in to two channels, and GH appears to travel exclusively down the faster flowing of the two. The faster flowing channel turns south-west at Haremere Hall and crosses beneath the railway line to Lundsford Farm. GH occurs frequently on both banks along the length of this channel, becoming more abundant as the river approaches Squibs Farm. The slower moving channel appears to be entirely free of GH at present; the channels converge in Robertsbridge village.



The Rother flows through Robertsbridge in three main channels. Individual GH plants occur frequently along the two southerly channels, and along adjoining ditches; the northernmost channel is currently free of GH.

River sections accessible by PROW were surveyed between Robertsbridge and Bodiam, including the 1.7 km stretch between Junction Road and Bodiam Castle. Isolated plants and small stands of GH occurred occasionally along surveyed sections; none were recorded within 1 km of Bodiam Castle. This stretch of river between Bodiam Castle and Scot's float (Rye) appears to be free of GH at present.



## Part Two - Control methods

### 2.0 Introduction

A range of control methods can be utilised by land owners/occupiers and managers. One need not be wedded to a single control method. Whilst chemical treatment is anecdotally the most effective, depending on the land's environment and the responsible party's aims and objectives, alternatives to chemical treatment can be utilised. Which may be a suite of different methods perhaps including chemical treatment (*integrated pest management*) utilised together as appropriately informed by the local environment.

Significant harm can result from the plants phytotoxic properties and the inappropriate use of tools. Accordingly, the appropriate full personal protective equipment (PPE); tools, clothing, head/face, hands and feet protection must be utilised and operations must be carefully planned to sufficiently protect the environment, operatives and other persons within the potential influence of operations. The personal precautions listed below must be taken before carrying out treatment of GH.

- Under no circumstances allow GH plants to come into contact with bare skin.
- Have contingency planning in place for accidental exposure.
- Apply sun-block before commencing work near GH plants.
- Ensure all skin is covered by water-resistant clothing, including waterproof gloves and boots which will not be penetrated by plant hairs.
- Wear eye protection and face shield to prevent yourself from touching your face.
- Equipment should be washed immediately after use, launder clothing separately and wash yourself as soon as possible after carrying out work.

### 2.1 Options for landowners

Riparian landowners have a responsibility to control non-native invasive species (NNIS) which are present on their land (Environment Agency, 2014). This can be achieved using chemical or mechanical methods (table 1); chemical control is usually the more effective of the two.

No derogation can be given to organic landowners allowing them to use non-organic pesticides for the treatment of GH, and no organic pesticides are known to be effective. Organic farmers can either use mechanical control methods or choose to remove bank-sides from their Soil Association licensed land, facilitating chemical treatment. Mechanical control is likely to require greater effort to be as effective as chemical control. It also requires a high level of health and safety planning.

Table 1: Recommended control methods.

Number of Individuals	Recommended Control Method	Approximate Time Effort (team of 2)	Constraints
Fewer than 100 individuals	"Rootwave" electrical control	50-100 per hour depending on the density of plants.  Time excludes setting up and closing down of equipment.	Specialist equipment can only be used by trained operators.  Vehicle access needed to get equipment to GH stands.
	Root severing	Up to 100 plants per hour  Time excludes cleaning of toxic materials tools in suitable protective clothing; <i>personal protective equipment</i> .	Labour intensive.
	Chemical control (spot treatment)	200 plants per hour	Not permitted on organic land.  Operators must be NPTC qualified and conduct necessary COSHH assessment.  Less time efficient for smaller stands due to prep time.
	Scything	Up to 200 plants per hour  Time excludes cleaning of toxic materials from scythe in suitable protective clothing; <i>personal protective equipment</i> .	Less effective than root severing or chemical control. Also, labour intensive. Requires multiple treatments over time.

Number of Individuals	Recommended Control Method	Approximate Time Effort (team of 2)	Constraints
100 to 500 individuals	Chemical control (knapsack sprayer)	300 m <sup>2</sup> per hour	<p>Not permitted on organic land.</p> <p>Herbicide application not as accurate and targeted as spot treatment.</p> <p>Operators must be NPTC qualified and conduct necessary COSHH assessment.</p>
	Mechanical mowing	<p>Up to 1 ha per hour</p> <p>Time excludes cleaning of toxic materials from mower in suitable protective clothing; <i>personal protective equipment.</i></p>	<p>Not appropriate for vegetation on steep banks.</p> <p>Requires machinery and access and multiple treatments over time.</p>
	Seed head removal	<p>Fewer than 50 plants per hour</p> <p>Time excludes cleaning of toxic materials from tools in suitable protective clothing; <i>personal protective equipment.</i></p>	<p>Labour intensive.</p> <p>Disposal of seed heads is strictly controlled.</p>

Number of Individuals	Recommended Control Method	Approximate Time Effort (team of 2)	Constraints
More than 500 individuals	Chemical control (knapsack or boom sprayer)	1 ha per hour  Time excludes setting up of equipment.	Not permitted on organic land.  Herbicide application not as accurate and targeted as spot treatment.  Operators must be NPTC qualified and conduct necessary COSHH assessment.
	Mechanical mowing	Up to 1 ha per hour  Time excludes cleaning of toxic materials from mower in suitable protective clothing; <i>personal protective equipment.</i>	Not appropriate for vegetation on steep banks.  Requires machinery and access and multiple treatments over time.

NB: Appropriate PPE must be utilised when conducting operations including, the setting up, closing down and storing away of equipment.

## 2.2 Chemical control

Translocated glyphosate solution should be applied to GH leaves by a qualified operative (refer to Appendix 1), using either a knapsack sprayer, or weed-wiper. Permission must be sought from the Environment Agency (EA) prior to using herbicides near to watercourses. The herbicide manufacturer's guidance should be followed, including information relating to dosage and livestock exclusion. The optimum time for chemical treatment is between April and early June. Persistent plants may require follow-up treatment in the late summer. Land should continue to be monitored and further treated as necessary.

Some studies have indicated that acute exposure to glyphosate can affect honeybee behaviour (Herbert et al, 2014). Spraying well before the emergence of flower heads will mitigate any effect on pollinators. The use of a weed wipe is more targeted than spraying and can reduce the risk of non-target plant species being affected in sensitive areas.

The use of a telescopic lance is recommended for large stands (Figure 3), so that operatives are not forced to walk through dense GH, which carries risk of sap exposure. Dense stands should be visited as early in the year as possible, when plants are smaller and more manageable.



Figure 4: Arborweald GH Treatment Utilising Knapsack Sprayer with Telescopic Lance

### 2.3 Mechanical control

Mechanical control of GH can carry significant health and safety risks from contact with phytotoxic substances and accordingly, best practice must be followed. The use of an experienced weed control contractor should be a consideration.

#### 2.3.1 Root Severing

This is the most labour-intensive of mechanical control methods. However, for single-plant or small infestations, it is anecdotally the most effective approach as it will typically kill plants with a single treatment. Tap-roots should be severed using a sharp spade early in the growing season (late March – Early May *weather dependent*) at approximately 15cm below the ground surface and repeated in mid-summer. Areas should be monitored in subsequent years as seeds can persist in the seed bank for up to 15 years and/or recolonise from upstream.

#### 2.3.2 Seed Head Removal

This is an effective control method, which can contain the spread of GH when carried out on an annual basis. However, the timing of removal is crucially important and best conducted between July – early September, as GH will produce new flowers if the head is removed too early (Nielsen et al, 2005) and seeds will have the opportunity to set if heads are removed too late. Timing needs to be adaptable and based upon seed maturation, removing heads as the seeds begin to turn from immature (green) to mature (brown) but prior to full maturation. Seeds should be contained at the point of removal; seed heads must be disposed of with a registered waste carrier for non-native invasive species. Where it is intended to dispose of seed heads in situ, this would require responsible careful planning that ensured no spread of potentially viable seeds. A specific seed head incineration in situ site should be considered for such disposal; carefully checking post burn that seeds have been destroyed and ensuring that ash is not recycled as a fertilizer but contained or disposed of



responsibly in a sealed container. Post seed head removal and within 1 month, a check should be made for any new seed head generation which if present should be removed. Areas should be monitored in subsequent years as seeds can persist in the seed bank for up to 15 years and/or recolonise from upstream.

### 2.3.3 Cutting and Mowing

This can exhaust the energy reserves of GH tap roots, if repeated several times each growing season. However, it is only recommended on sites where all other techniques have been ruled out due to poor efficacy of treatment. The first cut should be made early in the growing season when plants first emerge. Mowing must not be carried out after flower heads are formed. Scything may be appropriate in areas where there is no access for mechanical mowers, brush cutters should not generally be used due to the uncontrolled and accordingly hazardous nature of cut/flying arisings with potential health and safety concerns. Machine operators should wear full protective clothing and take all the health and safety/best practice precautions, until equipment has been fully cleaned of GH sap. Of all mechanical methods, cutting and mowing arguably carries the greatest health and safety risk; it should not be carried out close to public rights of way and warning signs should be erected in advance of work.

### 2.3.4 Rootwave Electrical Control

This works by passing electrical current through the vascular system of the plant and in effect boiling the sap and thus killing the plant. Treatment has been effective on a variety of invasive plants including GH, with no adverse effects to non-target plants. Control should be undertaken early in the growing season before access to stems becomes difficult. Vehicular access is needed to transport treatment equipment to GH stands, this could limit effective treatment dependent on stand location and accessibility. Areas should be monitored in subsequent years as seeds can persist in the seed bank for up to 15 years and/or recolonise from upstream.

### 2.3.5 Alternative Methods

Little has been written about the use of paraffin weed burners to control GH. According to Gucker (2009), GH is likely to be killed above-ground by fire but will regenerate from its protected root crown. Therefore, it could be considered as an alternative to mechanical cutting, with a potentially lower risk of sap exposure. Careful planning of operations would be required with all necessary health and safety precautions for operatives and anyone else within the influence of operations. Suitability of burning with relevance to the local environment should also be a consideration.

Livestock grazing (by sheep, cattle, goats or horses) has a similar effect to cutting, with animals removing the above-ground foliage and reducing the plants' photosynthetic area. Control by grazing is most effective at the beginning of the growing season when plants are small. However, livestock can develop reactions to GH sap on areas exposed to sunlight (e.g. lips, nostrils, eyelids); affected animals should be temporarily removed from the field. Livestock breeds with skin pigmentation, such as black-faced sheep, are less susceptible to this.

Trials of GH control on the river Deveron in Aberdeenshire with black-faced sheep in 2013 have proven effective. The animals showed no ill effect from eating the plant and have actually shown



preference over time to predating GH. Grazing over a 3-year period significantly reduced the number of GH seedlings.

## 2.4 Further information and guidance

The following publications and online resources provide useful insights into the management of GH:

- *The Giant Hogweed Best Practice Manual*, edited by Nielsen et al (2016), provides detailed guidance for the management and control of GH; it is freely available to read online.
- *Living on the edge* (Environment Agency, 2014), outlines the rights and responsibilities of riparian landowners.
- *Managing invasive non-native plants* (Environment Agency, 2010), includes guidance on the management of a range of invasive species (including GH), and provides legislative context.
- More information is available from the Non-native Species Secretariat:  
<http://www.nonnativespecies.org/home/index.cfm>.
- GH management trial information using black-faced sheep:  
<https://www.snhpresscentre.com/news/sheep-join-battle-against-invasive-plant-invader>
- *Rootwave* electrical control method: <http://www.rootwave.com/>
- *Check, Clean, Dry* (Boat Biosecurity Relating to NNIS):  
<http://www.nonnativespecies.org/ceckcleandry>
- *Be plant wise* (Defra Guidance re, NNIS for Landowners, Gardners, Retailers and Pond owners): <http://www.nonnativespecies.org/beplantwise>
- *Wildscreen* (on-line educational resource for natural world species, ecosystems etc.):  
<http://www.wildscreen.org/arkive/>

## Part Three

### 3.0 Management strategy

Management to be effective requires cooperation between landowners and a holistic and consistent approach. Management should be based on achieving the best environmental outcome but will also need to pragmatic taking account of available resources.

#### 3.1 Priority areas

The absence of GH upstream of TQ69062445 (Burwash), in both the 2016 and 2018 survey, suggests two things. Firstly, that there is no seed source further up-river and secondly, that GH is not migrating any significant distance upstream. It is in these areas downstream of TQ69062445 (east-north east) where treatment is likely to be most effective and should initially be focused; seeds present in the soil will continue to germinate for a number of years.

Another priority for management is the three exceptional stands of over/approximately 500 individuals (Appendix 2), as these stands will take longer than others to be brought under control. In addition, they represent a significant source of seed travelling downstream each year. Of these three, two are situated on non-organic land (stands A and B) and should continue to be chemically treated early in the growing season as required. The third is a linear stand situated on organic land. As the organic site has good vehicular access, “Rootwave” treatment and/or seed head removal, should be considered; it may be the case that a range of integrated treatments may be implemented for reasons of practicality however, doing nothing should not be an option.

Finally, stands which are situated on or near to PROW should be considered a priority, as these pose a danger to the general public.

#### 3.2 Organic and no-chemical treatment sites

The most effective control method is thought to be chemical treatment; however, no derogation can be given to organic farmers to use non-organic herbicides. In addition, on other sites, landowners have raised concerns about the impact of herbicides on pollinators and non-target plant species.

On no-chem treatment sites, an integrated management approach combining a number of strategies should be adopted. Established methods include: Controlling small infestations by the severing of tap roots with a sharp spade, this should be carried out early in the growing season, when the plants are a manageable size (refer to section 3.3); Seed head removal is also an effective method and anecdotally has been the method of choice for medium sized infestations or those with good vehicular access (as umbels must be removed from the site or destroyed in situ). Appropriate guidance (refer to section 3.3) must be followed as early seed head removal will lead to aggressive regeneration and the disposal of seed-heads is strictly controlled.

Mechanical mowing is unlikely to be appropriate for any of the outbreaks recorded as part of this project, as many are situated on steep banks or are otherwise inaccessible. Scything (either by hand or using a powered scythe mower) may be appropriate for some sites. This will need to be repeated several times each growing season. If motorised equipment is to be used, reciprocating cutters should be favoured over rotary or flail cutters and the guidance in section 3.3 should be followed.

### 3.3 Non-organic sites

On non-organic sites, landowners should carry out chemical control of GH, referring to the guidance in section 3.2. As part of this project, the HWAONB Unit contracted Arborweald Environmental Planning to carry out chemical treatment at a number of sites and therefore, control at least of these sites has commenced. The sites visited varied in size from 0.3 km of river up to 1 km of river, but with chemical treatment, all were treated in less than a day.

### 3.4 Stakeholder engagement

As well as being directly affected by GH and other NNIS, organisations and companies which use the river (whether commercially or recreationally) are uniquely placed to monitor its status. Information on identifying GH and guidance on how best to record its presence will be circulated to relevant organisations and local businesses (table 2).

Table 2: River Users with a Stake in On-going Monitoring of GH.

Business/Organisation	Description	Action
Bodiam Boating Station, Newenden	River cruise operator, provider of kayak and boat hire.	GH information should be made available to boat operators, to promote safety of customers and allow for the early recording of outbreaks. Leaflets from the "Check Clean Dry" biosecurity campaign should be circulated and accorded with.
The Hub, Quarry Farm, Bodiam	Campsite and water sports activity provider.	GH information should be made available to campsite staff and activity instructors, promoting customer safety and early recording of outbreaks. Leaflets from the "Check Clean Dry" biosecurity campaign should be circulated and accorded with.
Rother Fishery Association	Association made up of numerous small angling clubs, together controlling approximately 12 miles of the Rother.	GH information should be made available to club secretaries, to promote the safety of anglers. Anglers should be encouraged to report outbreaks of GH and other NNIS. Leaflets from the "Check Clean Dry" biosecurity campaign should be circulated and accorded with.
Rother Ramblers	<i>The Ramblers</i> is a national organisation which "encourages walking, protects and helps with the upkeep of public rights of way". Members regularly arrange group walks in the Rother catchment.	Safety information concerning GH should be made available to club secretaries. Ramblers will be encouraged to report outbreaks.

### 3.4.1 Local communities

Public authorities (including all councils from Parish/Town to County) have a responsibility to have regard to conserving biodiversity as part of policy and decision making. To increase awareness of GH and the wider issue of riparian NNIS, this management plan along with accompanying literature will be circulated to Councils and their Neighbourhood Plan Environment Working Groups.

The High Weald AONB Unit will use its social media presence to increase awareness of GH and share information from the “Be Plant Wise” campaign, to reduce the risk of future outbreaks. A range of educational materials produced by *Wildscreen* will be promoted to local schools by the HWAONB unit’s Education Officer.

### 3.4.2 Other stakeholders

Other stakeholders who should be considered for consultation are outlined in table 3 below.

Table 3: Individuals and Organisations with an Interest in the Project.

Stakeholder	Description	Role
<b>HWAONB Land Management Advisor</b>	Project officer responsible for the Giant Hogweed project.	First point of contact for enquiries; able to advise private landowners on control methods.
<b>Environment Agency Biodiversity Officer</b>	EA Officer responsible for promoting the opportunities of river maintenance programs.	Monitoring the status of non-native invasive species along the Rother and its tributaries.
<b>Environment Agency Estates Team</b>	Team responsible for vegetation management on EA sites, including pumping stations.	Control of GH on EA managed sites.
<b>Sussex Biodiversity Records Centre</b>	Local environmental records centre.	Maintenance and distribution of GH records.
<b>Arborweald Environmental Planning Consultancy</b>	Report authors and environmental consultants, experienced in GH survey and management.	Carrying out survey and control programmes on behalf of private landowners. Provide consultancy services for information and guidance on GH management.

## 3.5. Monitoring

Due to viable seed longevity (<15 years), short term control treatment alone will not be effective and good monitoring at a landscape scale is essential in order to, reasonably control and to seek eradication of GH.



### 3.5.1 Individual sites

Land managers should monitor the status of GH on their site to indicate whether control measures are having a significant impact. This can be assessed visually or using fixed point photography. Due to the persistence of GH seeds in the soil, it may take a number of years before the effect of control is observed.

### 3.5.2 Catchment scale

Individuals who use the rivers and adjacent PROW regularly should be encouraged to report outbreaks of GH to their County Biodiversity Record Centre and to the EA. With access permissions already in place, the survey conducted as part of this project took approximately 10 days (excluding preparation, planning, recording, report and correspondence work) to complete. It revealed that GH had spread significantly in the space of 2 years; this survey should be repeated in 2019. If it is not practical to repeat the full survey, areas which were found not to have been colonised in 2018 should be prioritised with areas already recorded as having GH present under suitable treatment.

## 3.6. Conclusions

GH is widespread along the rivers Dudwell and Rother between Old Brick Farm and Bodiam Castle. Due to the volume of seed that GH produces, and their persistence in soil, its eradication could take a number of years. However, targeted control can immediately mitigate its impact on PROW, and reduce the quantities of seeds travelling downstream each year. Carrying out treatment in the upper reaches of its colonised area should reduce the extent of the outbreak, as it is not thought to be travelling upstream.

The foothold that GH has on organic land along the river (precluding the use of chemical control) will present a challenge moving forwards. The use of an integrated weed management strategy will be needed on these sites, perhaps including the use of more experimental techniques such as weed-burners and 'electric shock treatment'.

In addition to direct control, awareness can be raised about GH using social media and the engagement of organisations which use the river regularly; this will promote public safety and reduce GH's recreational impact on the countryside. As an added benefit, this will make people more aware of the wider issue of non-native invasive species, which can help towards preventing future outbreaks (due to increased public awareness of biosecurity).

Monitoring should form a key part of GH management moving forwards. Opening a line of communication with regular users of the river such as angling clubs, may be of use, as they are well-placed to provide updates on its status and the efficacy of control measures. It is thought that the monitoring of control measures will prove particularly important on organic sites, where a number of different mechanical techniques may be tried.



## 4.0 References

Crisford, B.M. (2016) "Non-native invasive species survey: Upper Rother sub-catchment". Flimwell: High Weald AONB Unit. Available at: <http://www.highweald.org/downloads/publications/2014-upper-rother-non-native-invasive-species-survey/file.html>.

Environment Agency. (2010) "Managing invasive non-native plants": Environment Agency. Available at: <http://www.environmentagency.gov.uk/managinginvasivenonnativeplants>

Environment Agency. (2014) "Living on the edge: A guide to your rights and responsibilities of riverside ownership". Bristol. Available at: <https://www.eastsussex.gov.uk/media/8360/riparian-ownership.pdf>.

Great Britain Non-Native Species Secretariat (GBNNS). (2010) "Giant Hogweed: *Heracleum mantegazzianum*". York: GBNNS.

Gucker, C.L. (2009) "*Heracleum mantegazzianum*". In: *Fire Effects Information System*. US Department of Agriculture, Fire Sciences Laboratory. Available at: <https://www.fs.fed.us/database/feis/plants/forb/herman/all.html>.

Herbert, L.T. Vasquez, D.E. Arenas, A. Farina, W.M. (2014) "Effects of field-realistic doses of glyphosate on honeybee appetitive behaviour". *Journal of Experimental Biology*. 217(19).

Nielsen, C. Ravn, H.P. Nentwig, W. Wade, M. (eds.) (2005) "The Giant Hogweed Best Practice Manual. Guidelines for the management and control of an invasive weed in Europe". Hoersholm: Forest & Landscape Denmark. Available at: [http://www.ibot.cas.cz/personal/pysek/pdf/Giant\\_alien\\_uk.pdf](http://www.ibot.cas.cz/personal/pysek/pdf/Giant_alien_uk.pdf).

Rajmis, S. Thiele, J. Marggraf, R. (2016) "A cost-benefit analysis of controlling giant hogweed (*Heracleum mantegazzianum*) in Germany using a choice experiment approach". *Neobiota*. 31.



## **Appendix 1 – Giant Hogweed Control Checklist**

### Chemical treatment

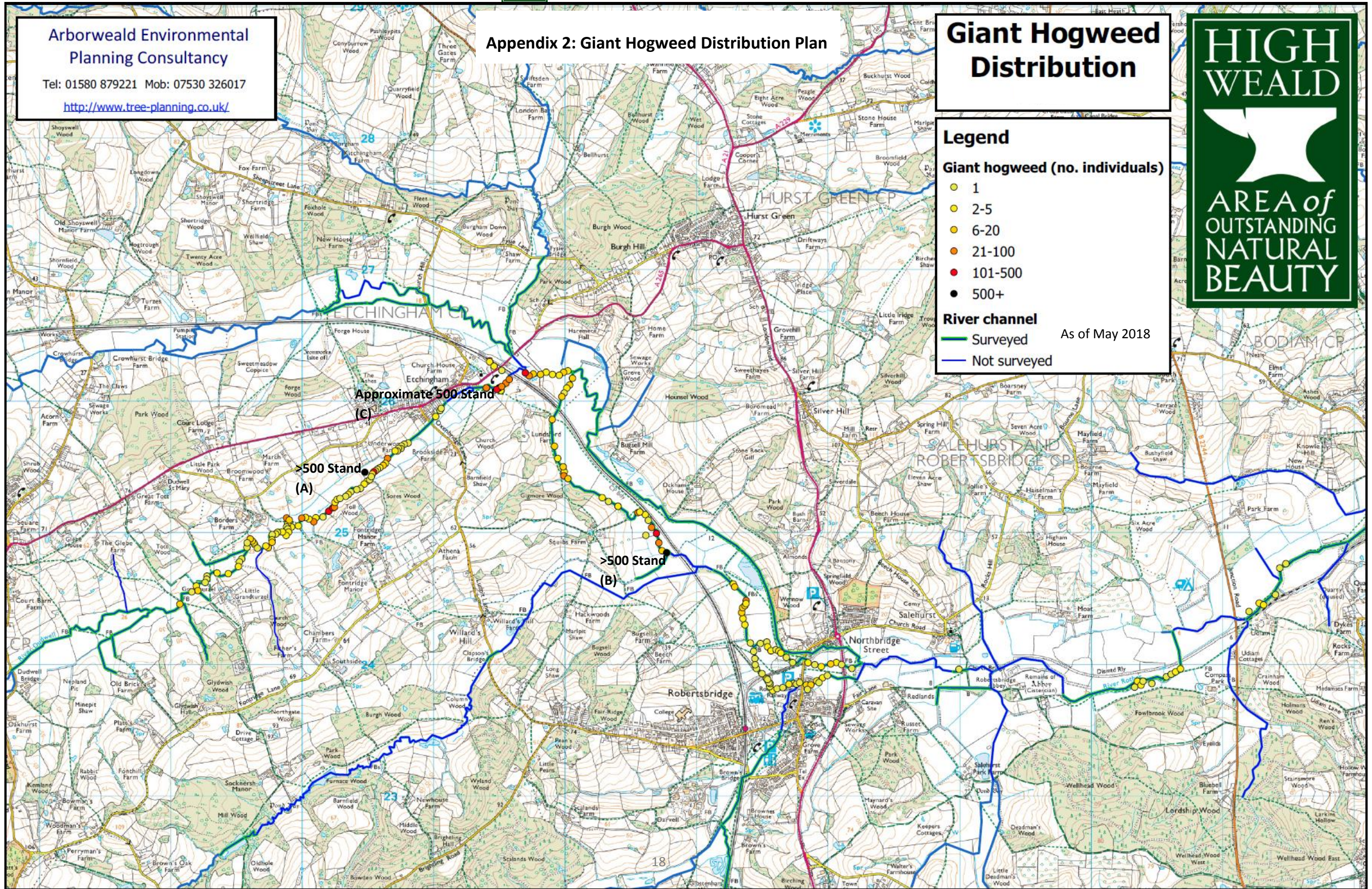
- Timing treatment to be most effective. (April to June)
- Correct herbicides are used for effective treatment. (Glyphosate based)
- Operators have NPTC (National Proficiency Testing Council) qualifications PA1 and PA6 (w).
- Environment agency have agreed to the use of herbicides near to a water body (if applicable)<sup>1</sup>.
- Livestock have been excluded from treatment area.
- Health and safety and environmental risk assessments have been completed including COSHH assessment.
- Monitoring after treatment to gauge effectiveness of control, and to decide whether further control is necessary.

### Mechanical treatment

- Decide on the most effective control method/s depending on stand size, location, site constraints (organic), local environment and available resources.
- Timing of treatment dependent on method/s used: tap root severing (late March-early May), electrical control (late March-early May), seed head removal (after seeds have formed but prior to full maturation to avoid seed dispersal).
- Health and safety and environmental risk assessments have been completed.
- Correct disposal methods are in place before seed head removal control commences.
- Monitoring after treatment to gauge effectiveness of control, and to decide whether further control is necessary.

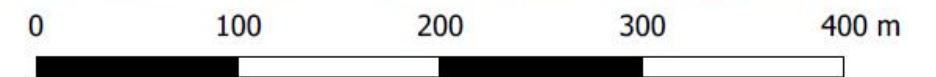
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<sup>1</sup> <https://www.gov.uk/government/publications/application-to-use-herbicides-in-or-near-water>



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### **Appendix 3 – Legislation and legal responsibilities**

The legal standing of giant hogweed varies slightly across the UK. In England and Wales, the primary legislation relating to giant hogweed is ‘Section 14(2) of the Wildlife and Countryside Act 1981 (WCA 1981).’

Giant hogweed is classified as an invasive species and this means it is the responsibility of the land owner and occupier to prevent the plant spreading to neighbouring land (or into the wild), and removal of the plant must be conducted with due care and attention. There is no legal obligation to remove or treat giant hogweed as long as the landowner or occupier is not encouraging or allowing the growth on to adjacent land.

If the plant is obstructing a public footpath or otherwise can be deemed to be presenting a risk to human health local councils also have powers to compel landowners and occupiers to take action to avoid causing harm. Section 79 of the Environmental Protection Act 1990 allows for enforcement action to be taken where the giant hogweed is, or is likely to be, prejudicial to health.

There are no regulations stating that the landowner or occupier needs to notify anyone that giant hogweed is growing on their land. However, reporting the growth of the plant to the Non-native Species Secretariat website (NNSS) does help with getting a handle on how quickly it’s spreading across the country.

In 2013 the UK government decreed that anyone failing to control giant hogweed (and other invasive weeds) could receive an anti-social behaviour order. It will be seen as committing a criminal offence. For an individual on-the-spot penalties of £100 can be issued, if prosecuted fines of up to £2500 and for companies up to £20,000.

#### **Wildlife and Countryside Act (1981)**

Giant hogweed is listed on Schedule 9, Part II of the Wildlife and Countryside Act (1981) making it an offence Under Section 14 (2) (a) of the Act to “plant or otherwise cause giant hogweed to grow in the wild”.

Both the Police and local authorities have enforcement functions under the Act. Penalties for a Section 14 offence have been modified by the Countryside and Rights of Way Act 2000 for England and Wales. A magistrates’ court can impose a maximum fine of £5000 or a maximum prison sentence of six months. Upon indictment the court may impose an unlimited fine and/or up to 2 years imprisonment.

#### **Environmental Protection Act (1990)**

Disposal of giant hogweed is classified as a controlled waste under the Environmental Protection Act (EPA, 1990); it is an offence to deposit, treat, keep or dispose of controlled waste without a licence. Only specially registered controlled waste carriers are permitted under the law to transport controlled waste off site. Treatment of giant hogweed in situ in accordance with this report’s guidance and up-to-date legislation should not require a ‘controlled waste licence’.

Giant hogweed could also be considered hazardous waste particularly, where it has been herbicide treated. Therefore, where it is intended to be removed from site or treated in situ, account must be



taken of legislation secondary to the EPA (1990); The Hazardous Waste Regulations (2005) and The Environment Permitting Regulations (EPR, 2010).

The EPR (2010) informs, that necessary measures shall be taken to ensure that “...waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plant or animals; without causing a nuisance through noise or odours; and without adversely affecting the countryside or places of special interest”.

Under the EPA (1990), a magistrates’ court can impose an unlimited fine and/or a maximum prison sentence of six months. Upon indictment the court may impose an unlimited fine and/or up to 5 years imprisonment.

#### **Occupiers Liability Act (1957/84)**

The Occupiers Liability Act (1957/84) requires that property (land owned and/or occupied) is retained safely for owners/occupiers, visitors and neighbours. Where it was to be found that the owner/occupier was not carrying out their duty of care and harm resulted, a criminal offence may have taken place and the severity of sentencing may be proportionate to the level of harm that has occurred, including potentially heavy fines and/or imprisonment.

#### **Common Law Duty of Care**

Owners/occupiers have a common law duty of care to all their neighbours to not create a nuisance which may result in, unlawful interference with a neighbour’s use or enjoyment of land including, harm to their neighbours e.g. from the phytotoxic properties of giant hogweed.

The spread of giant hogweed could be considered such a nuisance particularly where its spread was foreseeable, i.e. the owner/occupier being aware of the plant’s presence and potential spread. Given that giant hogweed is becoming a widely recognised invasive weed, organisations (Councils etc.) and land owners/occupiers would be expected to recognise it and be aware of its invasive and harmful nature.

Owners/occupiers/ of land which are victim to its spread and anyone present on land who is harmed by giant hogweed, can pursue legal action against those responsible for the spread where foreseeable and where harm results. Where it was to be found that the owner/occupier was not carrying out their duty of care and giant hogweed spread/harm resulted, a criminal offence may have taken place and the severity of sentencing may be proportionate to the level of nuisance/harm that has occurred, including potentially heavy fines and/or imprisonment.