



# The Ecology Co-op

ENVIRONMENTAL CONSULTANTS

Building B, Lords Wood Barns, Petworth, GU28 9BS

Tel: 01798 861 800 – E-Mail: [info@ecologyco-op.co.uk](mailto:info@ecologyco-op.co.uk) – Web: [www.ecologyco-op.co.uk](http://www.ecologyco-op.co.uk)

## **Invasive Species Management Plan**

**Land to the rear of Sturt Avenue, Haslemere**

**Author:** Emma Baker, MSc, ACIEEM

**Reviewed by:** Kate Priestman, CEnv, MCIEEM

**22<sup>nd</sup> March 2022**

**Project No: P3782**

The Ecology Co-operation Ltd  
Registered Office: Greens Court, West Street, Midhurst, West Sussex, GU29 9NQ  
Company number: 8905527



## **Document Control**

<b>Issue No</b>	<b>Author</b>	<b>Reviewer</b>	<b>Issue Date</b>	<b>Additions/alterations</b>	<b>Notes</b>
Original	EB	KP	22/03/2022	N/A	

*This report has been prepared by The Ecology Co-operation Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client. This report only becomes the property of the client once payment for it has been received in full.*

*We disclaim responsibility to the client and others in respect of any matters outside the scope of the above.*

*This report is confidential to the client, and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.*



## **Report Summary**

1. The Ecology Co-operation was commissioned by Pegasus Group to provide an Invasive Species Management Plan with regards to a proposed development on land to the rear of Sturt Avenue, Haslemere. This document outlines mitigation measures for a range of invasive species identified on the site and within the adjacent watercourse. It also includes long-term monitoring and management responsibilities to ensure the species are eradicated in perpetuity.

2. A Preliminary Ecological Appraisal of the site was undertaken in August 2020 by The Ecology Co-op. A suite of Phase 2 surveys revealed the site supports an active badger outlier sett, nine species of foraging and commuting bat as well as populations of slow worm and grass snake.

3. Eight invasive species, some of which are listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded on the site and within the adjacent watercourse including:

- Himalayan balsam
- Japanese knotweed
- variegated yellow archangel
- *Rhododendron ponticum*
- *Cotoneaster* sp.
- bamboo species
- American skunk cabbage
- signal crayfish

4. Section 3 of this report outlines measures to safely eradicate and prevent further spread of these invasive species prior to and during the construction phase.

5. Section 4 of this report outlines the monitoring and maintenance measures required to keep these species under control in perpetuity.

6. Mitigation for the protected species on site must be implemented prior to any eradication programmes commencing given the potential impacts from both machinal and chemical methods used. To prevent any unnecessary harm to flora and fauna on site, consideration has been given to the impacts of eradication methods and the safest option has been chosen.

7. All staff undertaking invasive species work must be briefed prior to the commencement of eradication programmes on the ecological issues related to the project and the importance of contacting an ecologist in the event that any wildlife is identified within the site.



## **CONTENTS PAGE**

<b>1</b>	<b>INTRODUCTION.....</b>	<b>5</b>
1.1	Purpose of the Report.....	5
1.2	Background.....	5
1.3	Summary of Previous Survey Work.....	7
<b>2</b>	<b>LEGAL CONTEXT .....</b>	<b>9</b>
<b>3</b>	<b>TREATMENT OF INVASIVE SPECIES.....</b>	<b>9</b>
3.1	General Precautions .....	9
3.2	Himalayan Balsam and Japanese Knotweed .....	10
3.3	Variegated Yellow Archangel.....	11
3.4	Rhododendron Ponticum .....	11
3.5	Cotoneaster Species.....	11
3.6	Bamboo Species.....	12
3.7	American Skunk Cabbage .....	12
3.8	Signal Crayfish.....	12
<b>4</b>	<b>LONG TERM MANAGEMENT AND MONITORING .....</b>	<b>13</b>



## **1 INTRODUCTION**

### *1.1 Purpose of the Report*

The Ecology Co-operation was commissioned by Pegasus Group to produce an Invasive Species Management Plan for a proposed residential development on land to the rear of Sturt Avenue, Haslemere. This document outlines site-wide mitigation for a number of invasive species identified on the site and within the adjacent watercourse.

Mitigation for the protected species on site must be implemented prior to any eradication programme commencing given the potential impacts from both mechanical and chemical methods used. To prevent any unnecessary harm to flora and fauna on site, consideration has been given to the potential impacts of eradication methods, and the safest option has been chosen.

Additionally, all staff undertaking invasive species work must be briefed prior to the commencement of eradication programmes on the ecological issues related to the project and the importance of contacting an ecologist in the event that any wildlife is identified within the site. The works contractor will be given contact details for an ecologist so that any issues can be resolved promptly.

### *1.2 Background*

The site is located to the rear of Sturt Avenue in Haslemere. The nearest postcode for the site is GU27 3SJ. The central grid reference for the site is SU 8889 3232. Figure 1 shows the boundary of the site and local context.

The site covers a total area of 0.62ha and comprises of deciduous woodland. The site is bordered on three sides by residential properties within the suburban setting of Haslemere. The north-eastern site boundary is demarked by a watercourse.

The proposed development comprises the construction of nine dwelling houses together with associated access, infrastructure, parking and landscaping (see Figure 2).



**Figure 1.** Aerial image showing the location of the site. The approximate site boundary is outlined in red. Images produced courtesy of Google maps (map data ©2021 Google).



**Figure 2.** Proposed scheme layout for Land to the rear of Sturt Avenue, Haslemere. Reproduced from dsp architecture (Drawing No. STU 001 Rev. P1).



### 1.3 Summary of Previous Survey Work

A Preliminary Ecological Appraisal (PEA) with Phase 1 mapping was completed by The Ecology Co-op in August 2020<sup>1</sup>, followed by a suite of Phase 2 surveys undertaken across 2021 which identified:

- an active badger *Meles meles* outlier sett;
- nine species of foraging and commuting bat; and
- populations of slow worm *Anguis fragilis* and grass snake *Natrix helvetica*.

During the PEA and Phase 1 survey nine invasive species were identified across the site, some of which are Schedule 9 species under the Wildlife and Countryside Act 1981 (as amended)<sup>2</sup>. These are outlined in Table 1 below. Invasive plant species spread rapidly and can cause a number of adverse effects such as outcompeting the native flora. This in turn degrades the habitat in which they are situated and reduces foraging resources for native animals, disturbing the ecosystem balance. Signal crayfish carry a disease which spreads to our native white-clawed crayfish *Austropotamobius pallipes*, which they have no natural immunity to, thereby reducing their already declining populations in the UK.

**Table 2.** Invasive/non-native species recorded within land to the rear of Sturt Avenue, Haslemere.

Species	Location within site	Listed on Section 9 – Wildlife and Countryside Act, 1981 as amended	Photographs
Himalayan balsam <i>Impatiens glandulifera</i>	Woodland and watercourse	✓	
Japanese knotweed <i>Reynoutria japonica</i>	Woodland	✓	

<sup>1</sup> The Ecology Co-op (2021). *Land to the rear of Sturt Avenue, Haslemere – EclA*.

<sup>2</sup> Wildlife and Countryside Act (WCA) (1981). HMSO London. Available at:

<http://www.legislation.gov.uk/ukpga/1981/69/contents>



*Land to the rear of Sturt Avenue, Haslemere – INVASIVE SPECIES MANAGEMENT PLAN*

Species	Location within site	Listed on Section 9 – Wildlife and Countryside Act, 1981 as amended	Photographs
Variegated yellow archangel <i>Lamium galeobdolon</i>	Woodland	✓	
<i>Rhododendron ponticum</i>	Woodland	✓	
<i>Cotoneaster</i> sp.	Woodland	Some species	
Bamboo species	Pond	N/A	
American skunk cabbage <i>Lysichiton americanus</i>	Woodland and watercourse	N/A (Consensus it should be added <sup>3</sup> and listed on European List of Invasive Alien Species of Union concern <sup>4</sup> ).	

<sup>3</sup> Plantlife - *Invasive non-native plants and the law*.

<sup>4</sup> Publications Office of the European Union (2020).  
<https://ec.europa.eu/environment/nature/invasivealien/docs/KH-04-20-414-EN-N.pdf>



Species	Location within site	Listed on Section 9 – Wildlife and Countryside Act, 1981 as amended	Photographs
Signal crayfish <i>Pacifastacus leniusculus</i>	Watercourse	✓	

## 2 LEGAL CONTEXT

Measures for the prevention of spreading non-native species which may be detrimental to native wildlife are included in the Wildlife and Countryside Act 1981 (as amended), which prohibits the release of animals or planting of plants into the wild of species listed on Schedule 9.

The Environmental Protection Act 1990<sup>5</sup> classifies the vegetation and soil containing any part of the non-native plant species as ‘controlled waste’. This has been applied to Japanese Knotweed in particular, and any waste containing parts of this plant must be disposed of in accordance with guidance from the Environment Agency<sup>6</sup>.

Note that The Environmental Permitting (England and Wales) Regulations 2007<sup>7</sup> mean that species on Schedule 9 of the Wildlife and Countryside Act cannot be removed off site without a permit, which is why experienced invasive species contractors should be used for all eradication programmes on site as they will likely be a ‘registered carrier’.

## 3 TREATMENT OF INVASIVE SPECIES

### 3.1 General Precautions

Once protected species have been safeguarded as outlined in the EclA<sup>1</sup>, a qualified invasive species expert should undertake a detailed walkover of the site to gather baseline information of which species are present and to what extent. Following on from the walkover, a detailed management plan should be produced, which should include details regarding the appropriate methods of eradication. Given that the site is likely to support other fauna and the site is directly bordered by a watercourse, mechanical measures should be used where possible to reduce long-term negative effects on retained habitats and the surrounding landscape through toxicity of herbicides.

Given the proximity to aquatic habitats, herbicide must only be used by a qualified person, and under supervision of an ecologist who knows the site well. It may be required to contact the Environment

<sup>5</sup> <https://www.legislation.gov.uk/ukpga/1990/43/contents>

<sup>6</sup> Fasham, Matthew & Trumper, Kate. (2001). *Review of non-native species legislation and guidance*.

<sup>7</sup> <https://www.legislation.gov.uk/uksi/2007/3538/contents/made>



Agency given the proximity to a watercourse<sup>8</sup>.

To prevent further spread of any species that can propagate via tiny fragments of the plant itself, it will be important to thoroughly clean any machinery used on the site before it leaves the site. Therefore, a dedicated washing station should be set-up on the site.

Those working on site should be experienced in the removal of invasive species and their protective clothing should be removed and footwear cleaned before leaving site.

None of the plants listed below can be composted on-site, given that this will only lead to re-establishment.

### *3.2 Himalayan Balsam and Japanese Knotweed*

Himalayan balsam is found in damp or riparian habitats and can spread extremely quickly because it has explosive seed pods which drop into the flowing water, allowing it to spread over large distances rapidly, often along river banks. Its flowers are also favoured by our native pollinators, meaning native plants are less likely to be pollinated in areas with this plant.

Japanese knotweed thrives in most habitats and grows rapidly, easily reaching heights of 2m in the right light levels. It then prevents light reaching flora below and can form large stands or monocultures. It spreads via deep rhizomes, meaning that leaving minute amounts of material in the soil will allow it to re-establish. It can also spread via contaminated site machinery.

Both of these species have been controlled on site by Environet<sup>9</sup> since 2016, with Japanese knotweed being controlled via herbicide and the Himalayan balsam by a combination of herbicide and strimming, between 2016 and 2019, to keep these under control until groundworks can begin on site, which will enable these plants and their root systems to be removed mechanically with diggers. They have also been working through the seed bank within the soil.

Use of glyphosate or 'RoundUp' is very harmful to surrounding flora and fauna, while posing a health risk to the public and adjacent residents. It has therefore been strongly advised by Environet that mechanical removal takes place to remediate the site thoroughly.

This must be undertaken by a Japanese knotweed contractor who must use registered waste carriers to ensure the plant is safely removed from the site and disposed of, as it is classed as 'controlled' waste under the Environmental Protection Act 1990. It is important that no earth or plant material is disposed of with normal garden waste, as this would be in breach of this Act. This can be carried out at any time of the year, but is best timed when the plant is visible above the ground. Alternatively, it can be destroyed on site by allowing it to dry before burning.

---

<sup>8</sup> Environment Agency (2010). *Agreement to use herbicides in or near water*.

<sup>9</sup> Environet (2021). *RE: Japanese knotweed – 6022 - Land at the rear of Sturt Avenue, Camelsdale, Haslemere, Guildford GU27 3SB*.



### 3.3 Variegated Yellow Archangel

Variegated yellow archangel prefers shady areas such as woodland and spreads using rhizomes and runners meaning it can quickly form dense mats of vegetation which smother slower growing, more delicate plants. Like Japanese knotweed, pulling doesn't work as the smallest piece of leftover vegetation can grow back and recolonise.

Mechanical removal can be used at the same time as the removal of the Himalayan balsam and Japanese knotweed, but care must be taken to remove all of the plant material. This must be undertaken by an experienced contractor who must use registered waste carriers to ensure the plant is safely removed from the site and disposed of, as it is classed as 'controlled' waste. Soil containing this plant should also be disposed of at a licensed landfill.

If this treatment is not completely effective, herbicide can be applied when the plant is actively growing, but this should be used as a last resort only and be carried out by an experienced contractor.

### 3.4 *Rhododendron Ponticum*

*Rhododendron ponticum* is a dense shrub that mostly grows in woodland and heathland in the UK. Like other invasive species, it grows quickly, up to 8m, eventually outcompeting other vegetation and degrading the habitat. It is also a host for a number of pathogens (*P. ramorum* and *P. kernoviae*) to which our native trees are not immune<sup>10</sup>.

Like the aforementioned species, mechanical control works well. All of the plant and root material will need to be dug up with regular checks to apply herbicide to young regrowth in order to fully eradicate it. If the regrowth is small, it can be hand-pulled or brought up with mattocks, but only over small areas. Alternatively, in line with Forestry Commission guidance<sup>11</sup>, the shrubs can be cut back to a stump, a small hole cut immediately in the centre and glyphosate applied directly. If there is foliar regrowth this can be sprayed.

A further method that has been trialled is the use of glyphosate 'ecoplugs'<sup>12</sup> inserted directly into the freshly cut stump, which provides a similar method of eradication to that of directly applying herbicide to the stump.

The cut vegetation material should be taken to a licensed landfill and preferably buried thoroughly.

### 3.5 *Cotoneaster Species*

These shrubs have a deep root system and bright red berries that are eaten by birds, allowing the plant to spread through seeds in their droppings. They are hard to eradicate and can damage

<sup>10</sup> <https://www.nts.org.uk/stories/problem-rhododendron-ponticum-garden-guide>

<sup>11</sup> Willoughby, Ian H., Stokes, J. Victoria. & Edwards, Colin (2017). *Ecoplugs containing glyphosate can be effective in preventing regrowth from Rhododendron ponticum stumps*. Available online at: <https://www.forestryresearch.gov.uk/documents/2557/fcpg017.pdf>

<sup>12</sup> Forestry Commission (2006) Managing and controlling invasive rhododendron [https://www.forestryresearch.gov.uk/documents/7225/FR\\_Willoughby\\_Ecoplugs\\_2017\\_SFJ\\_qNudKtk.pdf](https://www.forestryresearch.gov.uk/documents/7225/FR_Willoughby_Ecoplugs_2017_SFJ_qNudKtk.pdf)



surrounding native plants.

Any small plants can easily be pulled by hand; otherwise the entirety of the plant, including the root ball, must be excavated. The surrounding soil which may contain seeds or remaining plant matter should also be removed. This will need to be disposed of at a licensed landfill by a registered carrier.

If herbicide is used, smaller plants can be sprayed, but any shrubs with larger stems will need to be cut back to a stump and directly treated as with *Rhododendron ponticum* (see section 3.4).

### **3.6 Bamboo Species**

There are two varieties of bamboo, one of which spreads quickly via 'running' roots that are strong enough to damage buildings and spread up to 10m to create new plants which then do the same.

They can be treated via mechanical removal, including the plant, entire root system and surrounding soil, to ensure all rhizomes have been removed. Herbicide will not be successful in treating a whole mature plant, but can be applied topically to any new growth remaining after mechanical removal.

### **3.7 American Skunk Cabbage**

This species is found in damp areas, especially pond and stream/river margins or wet woodland habitat. This is a large plant that may begin as a small colony, but will then spread rapidly. The leaf area is large, meaning dense areas of the plant leave no light for other plants to grow.

As it can spread via rhizomes and seeds, a combination of mechanical and chemical removal may be required. The removed plants can then be collected and dried out before removal from the site, or burned on site.

### **3.8 Signal Crayfish**

These non-native crayfish carry the crayfish plague: a fungus-like illness, which is fatal to the native white-clawed crayfish that lack natural immunity<sup>13</sup>. It spreads in waterborne spores.

This species is extremely challenging to control and studies have found that while trapping efforts can remove them temporarily, this reduces competition and allows for a successful breeding season the following year<sup>14</sup>.

Though this will not remove them from the site, biosecurity measures are most important for preventing the spread of the plague to other waterbodies. All equipment, clothing and footwear used on site must be disinfected prior to entering any other sites, as the spores live for up to two weeks in damp conditions, making it important to disinfect and dry any equipment used during crayfish surveys.

<sup>13</sup> <http://www.nonnativespecies.org/factsheet/factsheet.cfm?speciesId=2498>

<sup>14</sup> <https://insideecology.com/2017/09/27/invasive-non-native-species-uk-signal-crayfish/>



## **4 LONG TERM MANAGEMENT AND MONITORING**

Once the initial eradication has been completed, the same contractor should return to site to check for any new growth or dispersal of berries (Cotoneaster). They should then produce a monitoring timetable to ensure that the methods outlined above work in the long-term and that the appropriate remediation methods are deployed where necessary.

For plant species that spread via seed, the process of eradication may be lengthy, as the seed bank will need to be depleted over time.

It is imperative that the landscaping for the scheme does not include any invasive/non-native species and that an agreement is produced for the new homeowners that prevents the planting of any non-native species during the operational period.