

Invasive riverside plants in Greater Manchester



Created by: Greater Manchester Combined Authority Date published: March 2024



This programme has been made possible with the support of EU LifelP funding. Project number: LIFE14 IPE/UK/027

About Natural Course

78% of water bodies in North West England are failing to meet a good ecological status* and solutions are often found to be too expensive to implement.

Natural Course is a collaboration of organisations in North West England from public, private and third sector who, together, will seek cost-effective solutions to improving water quality across urban and rural landscapes, sharing best practice across the UK and Europe.

*Environment Agency, North West River Basin District 2015

Natural Course will:

- Test and inform best practice in achieving UK and EU legislation in water quality
- Use the North West River Basin District as a flagship project and share best practice with the UK and Europe
- Make better use of resources, share ownership of complex issues and maximise outcomes through a collaborative approach of organisations from public, private and third sector.

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Invasive riverside plants in Greater Manchester

1 Executive summary

Invasive plants disrupt the environment and native wildlife, harm our economy, and impact on our health and way of life. They are easily spread by rivers, but piecemeal survey and control efforts meant little was known about the full extent of their distribution in Greater Manchester. Therefore, comprehensive surveys of these plants were commissioned by the Greater Manchester Combined Authority along the River Irwell and River Tame catchments. In response to the survey findings, and following strategic guidance from the Irwell Catchment Partnership, Natural Course funded control work in the River Croal Catchment in Bolton by the Bradshaw Brook Fly Fishing Club and Groundwork Greater Manchester. Meanwhile, both the Irwell Catchment Partnership and Upper Mersey Catchment Partnership are being supported to create Local Action Groups within the catchments that have been surveyed. In the face of the increasing problem posed by these plants, methods have been sought to encourage landowners to tackle invasive plants on their land, including providing councils and other stakeholders with legal briefings. Ways have also been investigated to utilise new apps and drones to improve survey coverage.

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3 Introduction

Many non-native species of plant are harmless, causing no disruption to the environment and native wildlife in their new locations, and are often welcome in our gardens. But occasionally, a species will establish and thrive in a way which can cause those disruptions, harm our economy, and even impact on our health and way of life.

Depending upon the species, invasive plants can spread by seed and by fragments of root or stem which then take root at a new location. All of these species are most easily spread by water, and in particular by rivers, where they can cause bank erosion introducing excessive sediment to the watercourse, while also potentially damaging flood defences. In addition, many species die back each winter, and the dead plant material can form blockages that increase the risk of flooding. Lastly, these plants reduce the biodiversity of sites where they grow.

Local authorities, eNGOs, and volunteer groups often do not have the necessary resources to tackle the problem, and when a site is cleared of invasive plants in isolation it is liable to become reinfested from upstream. The large-scale and integrated nature of Natural Course provided an opportunity to inform and bring stakeholders together to act on a catchment level.

For these reasons, in the summer of 2022, as part of Natural Course, Greater Manchester Combined Authority (GMCA) commissioned a survey of INNS plants along the River Irwell Catchment, which was complemented by volunteer surveyors. The success of that survey led to a commissioned survey of the River Tame catchment in the summer of 2023. We also produced legal advice so that local authorities better understood if and how they could persuade landowners to control invasive plants on their land.

Survey reports have been published on the Natural Course website and shared with the relevant catchment partnerships. Maps created from the Irwell survey has been presented online on the Irwell Catchment Partnership Storymap. The data from both surveys have been passed onto the Greater Manchester Ecology Unit for ongoing custodianship of the data, including careful sharing so that utility is maximised. The Bradshaw Brook Fly Fishing Club used the data during the first year of their invasive plant eradication project, and Natural Course was able to support the continuation of this control work for a second year.

Two plants species have been identified as being the most harmful. Japanese Knotweed is estimated to cost the UK economy £246.5m each year while Giant Hogweed costs £1.4m and is a significant health risk causing chemical burns on skin. Himalayan Balsam is more widespread, but its economic

impact has not been calculated, however, it is known to damage the environment, for example by outcompeting native plants and causing erosion of riverbanks.

3.1 Giant Hogweed

3.1.1 Description

Giant hogweed (*Heracleum mantegazzianum*) is an immensely tall umbellifer (member of the carrot family) that forms a taproot and displays flat topped 100 cm diameter wide umbrella-like clusters of white flowers. Its 3-10 cm diameter hollow stem is ridged and dark red spots on the stem each surround a single coarse white hair, with many more hairs present at leaf stalks. The 1–1.5 m wide leaves are incised and deeply lobed. It is a monocarpic perennial plant, meaning that it can be 2 to 8 years before it flowers, producing tens of thousands of seeds, after which it dies.



Figure 1 Giant Hogweed

3.1.2 Impact

- Dense patches prevent other plants from growing.
- Harmful to humans, causes skin blisters when exposed to sunlight.
- Creates 10s of thousands of seeds.
- Easily spread downstream by rivers.
- Dies back leaving bare earth that is prone to erosion.

3.2 Japanese Knotweed

3.2.1 Description

Japanese Knotweed (*Fallopia japonica var japonica*) is a perennial plant whose rhizomes spread and produce dense clumps of characteristically zig-zagged bamboo like stalks up to 2-3 metres high. These clumps prevent other species of plant growing, can increase flood risk, cause damage to property, and promote the erosion of riverbanks. The increase in flood risk is due to large volumes of dead stems and leaves washed into the rivers and reducing river volume each winter, as well as

erosion of flood banks, or even damage to concrete flood defences, if allowed to grow on them. Surprisingly, all Japanese Knotweed present in the UK is a clone of a single female plant that was introduced to gardens in the 1800s and has reproduced vegetatively. Being only female, it cannot set seed in this country unless it hybridises.



Figure 2 Japanese Knotweed

3.2.2 Impact

- Perennial and difficult to kill.
- Cannot produce fertile seeds. Spreads by small fragments of root and stem.
- Dense patches prevent other plants from growing.
- Easily spread downstream by rivers.
- Increases flood risk
 - Dies back leaving bare earth that gets eroded.
 - Large amounts of dead stem and leaves introduced to rivers each winter.
 - Strong rhizomes that can damage structures.

3.3 Giant Knotweed and Bohemian Knotweed



Figure 3 Leaf shape of Japanese, Bohemian, and Giant Knotweeds

Bohemian Knotweed (*Fallopia x bohemica*) is an increasingly common hybrid between the invasive plants Japanese Knotweed (*Fallopia japonica var japonica*) and Giant Knotweed (*Fallopia sachalinensis*) that is occasionally found in the UK and has the potential to spread even faster than its already troublesome parent species.

Giant Knotweed is essentially a larger version of Japanese Knotweed, though generally growing to a similar height of 2-3 metres, with 5 metres being possible. Giant Knotweed is distinguished from the other Knotweeds by the shape of its very large leaves, and identification is confirmed by tiny threads on the underside of its leaves. It has both female and hermaphrodite (both male and female) plants, meaning that it is fertile, but is not quite as invasive in our habitats as the other two species. However, it can fertilise Japanese Knotweed to produce Bohemian Knotweed.

Bohemian Knotweed has features that are intermediate between Giant Knotweed and Japanese Knotweed. The leaves are larger than Japanese Knotweed, but not as large as Giant Knotweed. Giant Knotweed and Bohemian Knotweed leaves have a lobed edge either side of the stem, whereas Japanese Knotweed has a straight edge. Japanese Knotweed lacks the threads underneath the leaves, while Bohemian Knotweed has tiny spikes that are thicker at the base.

Compared to other Knotweeds found in the UK, Bohemian Knotweed grows in a wider range of habitats, grows and spreads more quickly, and is more difficult to control. Also, it can produce fertile seed with Giant Knotweed, or another Bohemian Knotweed, or it can successfully pollenate the already widespread Japanese Knotweed. From a genetic survey of Knotweed patches across Western North America, 71% of the plants were found to be Bohemian Knotweed¹. Genetic analysis of the sample plants suggested this spread was by both vegetative propagation and fertile seed. On the other hand, a Code of Practice from the UK says that hybrid Knotweed seed rarely germinates, and the seedlings nearly always die off². It should be remembered that may change as the climate warms, or the variability of plant characteristics due to hybridisation may produce an even more invasive variant of the species.



Figure 4 Bohemian Knotweed



Figure 5 Giant Knotweed

Gaskin, J. F., Schwarzländer, M., Grevstad, F. S., Haverhals, M. A., Bourchier, R. S., & Miller, T.
 W. (2014). Extreme differences in population structure and genetic diversity for three invasive congeners: knotweeds in western North America. Biological Invasions, 16(10). doi:10.1007/s10530-014-0652-y

(2) Property Care Association (2018). Code of Practice: Management of Japanese Knotweed.

3.4 Himalayan Balsam

3.4.1 Description

Himalayan balsam (*Impatiens glandulifera*) is the tallest growing annual plant in the UK, its generally single upright stem reaching 2-3m (6-10ft) in height. Its leaves are arranged in pairs or whorls of three, and it grows very quickly in clumps that block light from reaching other plants. Between June and October, it produces clusters of purplish pink (or occasionally white) helmet-shaped flowers. The flowers are followed by hanging seed pods that open explosively when ripe, dispersing up to 800 seeds per plant. Himalayan balsam seeds land up to 4m from the parent plant.



Figure 6 Himalayan Balsam

- 3.4.2 Impact
 - Annual plant that easily spreads from thousands of seeds.
 - Dense patches prevent other plants from growing.
 - Seeds easily spread downstream by rivers.
 - Increases flood risk
 - Dies back leaving bare earth that gets eroded.
 - Large amounts of dead stem and leaves introduced to rivers each winter.

3.5 Invasive plant control in Greater Manchester

For many invasive species; including Giant Hogweed, Japanese Knotweed, Giant Knotweed, Bohemian Knotweed, and Himalayan Balsam; it is illegal to transport them without a licence or cause them to grow in the wild. However, it is not illegal for them to grow on your land, nor do you have to take action to remove them. This perhaps goes some way to explain how they have been able to gain such a secure foothold along the rivers of Greater Manchester and beyond.

Meanwhile, in most cases local authorities, eNGOs such as the Mersey Rivers Trust, and volunteer groups have carried out what control measures they can but in general have not had the necessary resources to keep invasive plants at bay let alone eradicate them.

Our investigation of the legal situation found that there are methods for local authorities and the public to require action to be taken by a landowner where their infestation is impacting beyond their land. However, it is an onerous legal process and hence prohibitively expensive. For more details see: Appendix A - Summary of law regarding invasive non-native species – specifically Giant Hogweed and Japanese Knotweed – March 2023, and Appendix B - GMCA Legal advice note May 2023.

4 Irwell INNS survey 2022

4.1 Irwell Catchment Partnership INNS working group

In 2021 the Irwell Catchment Partnership formed an INNS (Invasive Non-Native Species) working group to gather what was known and being done about invasive plants along the rivers in the catchment and it began to devise a strategy for their control. Part of their action plan was to help the Natural Course Project Officer to specify an invasive plant survey of the River Irwell Catchment, as well as to assist recruitment of volunteers and with the GMCA commission of consultants to carry out the survey.

4.2 What was planned

The Irwell Catchment (including the Manchester Ship Canal within the catchment boundary) has 453.5 Km of Main River and 1402 Km of Ordinary Watercourse, as designated by the Environment Agency's Flood Maps. The Environment Agency would be a significant user of the survey data, so it was decided to focus upon Main River. The budget from Natural Course would only be able to cover the Main River so this was an opportunity for volunteers to assist with prioritised sections of the Ordinary Watercourse. Also, it was determined that Himalayan Balsam would be too widespread to be practical to map. However, bare earth left after either of the other two invasive species was removed would quickly be colonised by nearby Himalayan Balsam. Therefore, the surveyors were asked to record Giant Hogweed and Japanese Knotweed, with Himalayan Balsam noted where it was close enough to the other species to colonise once they were removed. At this point Bohemian Knotweed was not thought to be an issue in Greater Manchester.



Figure 7 River Irwell Catchment – Main Rivers and Ordinary Watercourses

4.3 What was done

The River Stewardship Company was commissioned to survey the Main River (in Red) between 08/06/2022 and 16/08/2022. Meanwhile, volunteers surveying prioritised sections of Ordinary Watercourse (blue). The volunteers used an online recording app created by Groundwork using ESRI Survey123 as part of the Irwell INNS Working Group. The app was designed to produce data that was compatible with the data from the consultant survey, and able to be shared with others such as the Greater Manchester Ecology Unit (GMEU). Two training courses were run, one in Salford and the other in Bolton, and 15 volunteers were trained over three sessions, as well as 2 members of Groundwork staff to enable them to train members of their own volunteer groups. The volunteers surveyed until the end of October 2022.

4.4 Results

The Irwell survey found that Giant Hogweed was well established on the Croal catchment and Irwell. There were just a few small clumps elsewhere e.g., Roch, Irk, and Medlock, and it was almost absent from Upper Irwell. Radcliffe Ees in Bury contains a very large patch that is a likely significant seed source away from the river.

Japanese Knotweed was more evenly spread along the Irwell and the Croal, as well as a good proportion of the larger tributaries. As might be expected because of how invasive plants are easily spread by rivers, the lowest part of the Irwell is badly infested. On the other hand, Manchester Ship Canal has relatively sparse infestation of all species, perhaps because of industrial nature of that area.



Figure 8 Irwell INNS survey results map

Himalayan Balsam was found to be almost ubiquitous on the catchment of the River Irwell, often intermingled with the other two target species.

The consultant surveyors also noted a few locations where bamboo was showing signs of becoming invasive.

Table 1 Irwell INNS survey results

	No. of stands	Total line length (m)	Total Area Coverage (m2)
Japanese Knotweed	2080	105867	361472
Giant hogweed	719	45493	135883

There are 2080 instances of recorded Japanese Knotweed and over 719 instances of Giant Hogweed across the whole Irwell Catchment.

The consultants and volunteers surveyed 872km of linear riverbank on both sides of the river. Of that, approximately 1/8 or 12% of riverbank is covered by Japanese Knotweed. In isolation Giant Hogweed also covers 5% of all the river corridor in the Irwell catchment. However, it does not follow that these two species cover 17% because there are multiple instances where Japanese Knotweed and Giant Hogweed are mixed and integrated in one area.

When considering area and estimated coverage immediately away from the river edge there is over 361km² of Japanese Knotweed within the Irwell Catchment. Further to this there is over 135km² of Hogweed in areas in and around the river corridor.

The consultants estimated that they could treat all of the Knotweed and Hogweed that they had found for £300 000 per annum. A further £350 000 per annum would pay for the removal of Himalayan Balsam. However, it will require several years of extensive control work to completely remove any of these species from a location.

The INNS Working Group created a video about the group and survey results. It was debuted in the main auditorium of the Greater Manchester Green Summit 2022 where it was seen by over 1000 people. The survey also featured on the Natural Course stand before being uploaded onto YouTube https://www.youtube.com/watch?v=tevvB9KzEgg

4.5 Irwell Catchment Partnership StoryMap

The Natural Course Project Officer worked with a Project Officer from Groundwork to produce heat maps showing the density of Japanese Knotweed and Giant Hogweed that had been found by the Irwell Catchment INNS Survey 2022. The heatmaps were displayed on the Irwell Catchment Partnership online StoryMap. Irwell Catchment Partnership (arcgis.com)



Figure 9 Heat map on online StoryMap showing River Irwell INNS Survey 2022: Japanese Knotweed coverage



Figure 10 Heat map on online StoryMap showing River Irwell INNS Survey 2022: Giant Hogweed coverage

5 River Croal

5.1 Bradshaw Brook Fly Fishing Club

5.1.1 Japanese Knotweed

5.1.1.1 What was planned

In 2022, the Bradshaw Brook Flying Fishing Club (BBFFC) received single year funding from the Angling Trust to commence a volunteer Japanese Knotweed eradication project from much of Bradshaw Brook in Bolton. The treatment achieved a 95%+ reduction in regrowth seen the following year, but it takes several years of treatment to kill Japanese Knotweed, so the club put out an appeal for funding for 2023 via the Bolton Forum for Greenspace. Seeing the opportunity to remove a serious infestation from an entire watercourse, GMCA provided Natural Course project funding to

continue and increase the extent of the BBFFC INNS control project to more of Bradshaw Brook catchment downstream of Jumbles Dam.

Some of the infested land is within a Sites of Biological Importance, and work would also occur in Upper Bradshaw Valley Local Nature Reserve, so members of the fishing club liaised with an ecologist from GMEU to avoid damaging important habitat. Bolton Council were also contacted to see if they had plans to control the INNS at this location, and for permission to do so. Meanwhile, a licence was acquired from the Environment Agency to permit use of herbicide alongside Bradshaw Brook.

Following on from the success of treating over 4,000 square metres of Japanese Knotweed on Bradshaw Brook in 2022 and a very significant reduction in regrowth in 2023, Natural Course funding allowed the project to expand in 2023 to:

- 1. Continue the treatment of the areas from the 2022 Project.
- 2. Expand the treatment further downstream through Longsight and 7 Acres Parks.

5.1.1.2 What was done

It was quickly realised that the 2023 campaign would not suit the average volunteer programme. This was apparent given the larger than expected extent of Japanese Knotweed stands, the more difficult access downstream of the 2022 locations (access was also made more difficult at some locations by high river levels), the hard physical work required for Japanese Knotweed treatment, and needing dry weather for spraying making it weather sensitive requiring flexibility for a changeable schedule. In response to this conclusion paid manual workers were employed to assist. They were particularly useful, as they were willing to adjust their work schedules at short notice to suit river levels and weather forecasts. Volunteers would not be entirely removed from the project and still used to treat a minority of easier-access sites to conserve limited funds for hiring of contractors and to supervise contractors.

As in 2022, Stem Injection was found to be the best method of treatment: it is more effective, less weather sensitive and less physically demanding than manoeuvring up and down a riverbank with a full 20Kg backpack sprayer and does not produce the 'collateral damage' to adjacent native plants associated with spraying. However, the stunted regrowth in the areas treated in 2022 and areas treated by the Council in the past often had to be spot sprayed in 2023, as the diameter of some stems can be too small for injection.

Also, Stem Injection does not affect the wider landscape, so it was easier to apply in the many areas with public access, without the need to close off access to footpaths and provide the stewarding to guide people away from treatment sites that spraying requires. Furthermore, when Natural England were contacted for permission to stem inject the Japanese Knotweed (JKW) upstream of their Sites of Special Scientific Interest (SSSI's) on the Derbyshire Wye they stated "...the contribution to pollution on the Wye by stem injecting Roundup herbicide was insignificant compared to other sources."

5.1.1.3 Results

More than 9,800 square metres of JKW over 152 sites were treated with herbicide. This includes all the sites identified by Natural Course's INNS survey 2022 between the Jumbles Dam downstream through Longsight and 7 Acres Park, as far as the Bury Road bridge, including all of Bradshaw Brook's tributaries. See maps below.







Figure 11 Patches of Japanese Knotweed controlled on Bradshaw Brook - upper section

Figure 12 Patches of Japanese Knotweed controlled on Bradshaw Brook - middle section

Figure 13 Patches of Japanese Knotweed controlled on Bradshaw Brook - lower section



Figure 14 Japanese Knotweed on Bradshaw Brook before treatment Oct 2022



Figure 15 Japanese Knotweed on Bradshaw Brook the summer after treatment June 2023

It is confidently expected that in 2024 the remainder of Bradshaw Brook, down through Leverhulme Park to the Croal confluence, can be treated if funding is available. A detailed survey will be completed in November 2023 to confirm the full extent of the Japanese Knotweed on the riverbank in Leverhulme Park. The model of using supervised paid manual workers is believed to provide by far the most cost-effective solution to the control of invasive plants in general, and Japanese Knotweed in particular, on a watercourse, so funding for 2024 will be sought on that basis.

5.1.2 Himalayan Balsam

5.1.2.1 What was planned

Spurred on by the success of their 2022 Japanese Knotweed control project, for 2023 BBFFC decided to commence a programme to treat the huge areas of Himalayan Balsam below Jumbles Dam, via brush cutting, hand pulling and herbicide spraying. In some cases, electric strimmers were the most effective method, and again GMEU was involved to advise on the best treatment methods while protecting important habitat.

5.1.2.2 What was done

BBFFC, in cooperation with the Friends of Longsight Park & Groundwork teams, pulled, slashed and brush cut large areas of Himalayan Balsam on and around the riverbank between Jumbles Dam and the Bolton Arboretum. Additionally, after discussions with United Utilities who own Jumbles Reservoir and Dam, United Utilities cut all the Himalayan Balsam on their land at the Jumbles Dam exit, to prevent the seeds entering the Brook and being transported downstream. They have committed to continue in 2024 and going forward. Unfortunately, it became apparent that there were not enough volunteers to continue the work on the Himalayan Balsam regrowth through the summer.



Figure 16 Himalayan Balsam being strimmed by a volunteer

5.1.2.3 Results

Base maps from OpenStreetMap. Scale 1:4000

- ✓

 [†] Bradshaw Brook

 ✓
 Balsam Bashed UU

 ✓
 Balsam_Bashed_GW_BBFFC



Figure 17 Map of Jumbles Dam showing areas of Balsam that have been controlled by BBFFC & Groundwork, and UU



Figure 18 Map of Bradshaw Brook around Bradshaw Cricket Club showing areas of Himalayan Balsam that have been controlled by BBFFC & Groundwork

As a result of the spraying trials and advice received, the proposal for Himalayan Balsam control in 2024 is:

i. Continue hand pulling on the riverbank and around footpaths.

ii. Continue brush cutting and strimming selected areas.

iii. Spray and spot Spray with herbicide in areas of 100% Himalayan Balsam, areas which have difficult or dangerous access locations, and areas where the HB was mixed in with desirable vegetation.

iv. As with Japanese Knotweed, paid manual workers would be used to assist in addition to volunteers.

5.2 Groundwork Greater Manchester

5.2.1 Himalayan Balsam

5.2.1.1 What was planned

Natural Course funding enabled Groundwork Greater Manchester to organise balsam bashes with the volunteer community of Bolton. They worked along Bradshaw Brook in close co-ordination with BBFFC. In addition, revisits were planned due to ungerminated seeds and regrowth of controlled plants.

5.2.1.2 What was done

Volunteers were recruited via flyers/posters distributed in person as well as posting in shop windows and on noticeboards. Balsam bashing events were also advertised on Facebook. One community group was supported to purchase equipment to enable them to Balsam bash.

Control sessions included Balsam bashes as well as strimming and spraying with herbicide, as most appropriate for the circumstance. Revisits to the Balsam sites also occurred to enable a more complete removal of the plants.

5.2.1.3 Results

- Total number of hours/days doing the balsam bashing since the start of the programme: 38.5 hours of Balsam Bashing in total, with 11 individual sessions run in total.
- Number of staff working on the bashing: 5 members of staff in total
- Number of volunteers that joined events: 32 in total over the course of the sessions (this may include people who attended multiple sessions so have been counted multiple times)
- Area bashed: New Bradshaw Cricket Club and downstream of Jumbles Reservoir see Figures 17 and 18 above. This is including areas that were strimmed/sprayed too.
- Estimated number of promotional flyers/posters disseminated: distribution of between 100-150 flyers in person/in shop windows/noticeboards. On Facebook, the event was viewed on the Bromley Cross Balsam bashers page by 17 people, and the flyer was viewed by 55 people. On Bolton vs Balsam on Facebook our events were viewed by 17 people and the flyer by 66 people – group members also shared these around other pages and with individuals which increased reach.

What went well:

• Good relationships have been built with Bradshaw Fly Fishers and Bolton Green Umbrella because of the work done, which has also led to future work. Good networking & presence in Bolton has been another outcome. Groundwork Greater Manchester are now strategically

better placed in Bolton: they understand what it is like on the ground much better and the coverage of Balsam which will make their future work more efficient.

- Two consistent groups helped with bashing activities throughout. Through partnering with the Bradshaw Fly Fishers, Groundwork Greater Manchester have been taught positive ways to treat INNS through spraying.
- The work was backed up by the INNS survey data, which enabled work on the ground.
- A lot of Balsam was bashed in a short amount of time with a small group. Everything at the top of Jumbles Dam has now been cleared.
- Individuals have been inspired to bash balsam in their own time when they see it. Awareness has been raised of the issue and how to tackle it.
- Promotion via posting on Facebook groups has been effective.
- Volunteers saw the promotional posters in shop windows, they also went up in post offices. People said they saw the posters. This has been a more effective method than delivering flyers to houses directly.

5.2.2 Japanese Knotweed

5.2.2.1 What was planned

The large-scale INNS survey of the River Irwell Catchment in 2022, organised by the Greater Manchester Combined Authority (GMCA) as part of Natural Course Action C.14.D.4 and in liaison with the Irwell Catchment Partnership (ICP), found many serious riverside infestations of Giant Hogweed and Japanese Knotweed. This new catchment knowledge created an opportunity to take coordinated action to address INNS and enhance the impact of C.14.D.4.

Bradshaw Brook was the target for the Bradshaw Brook Fly Fishing Club's INNS eradication project, However, other infested sections of the Croal Catchment do not have volunteer groups to carry out INNS control. Therefore, some Natural Course grant was transferred to Groundwork to enable them to control Japanese Knotweed and Giant Hogweed on Middlebrook and Eagley Brook, both of which had been identified as priority areas by the Irwell Catchment Partnership.

5.2.2.2 What was done

MiddlebrookIt was easier to gain landowner agreements in the public spaces. As all target areas were within Bolton, agreement was secured via Nigel Hartley, Green Space Manager at Bolton Council. Following agreement, permission to treat adjacent to the watercourses was secured from the Environment Agency.

Two members of staff from Groundwork trained and received certification in PA1 (Safe Use of Pesticides), PA6A(AW) (Safe use of handheld applicators e.g. knapsacks), and PA6inj (Stem Injection).

Japanese Knotweed was treated using the stem injection method. It is expected assessment only visits will need to be made over the next five years for signs of regrowth. Should any materialise then foliar treatment using knapsacks should be adopted.

5.2.2.3 Results

Middlebrook sites owned by the council have been treated. Most of the Eagley Brook stands have also been treated. However, there was a need to return and treat some smaller stands using a knapsack/foliar treatment approach as they were too small to inject.



Figure 19 Location of earmarked Japanese Knotweed stands along Eagley Brook.



Figure 20 Location of earmarked Japanese Knotweed stands along Middle Brook and Deanne Brook

The summer of 2023 was a wet one. Normally, such conditions would have hampered herbicidal foliar application work. However, the INNS budget allowed Groundwork to invest in training of two of its staff before using the stem injection methods: a practice which is not weather dependant. It has also advanced the programme as injected has a greater impact on 'knocking back' the spread of Japanese Knotweed.

Giant Hogweed was not managed by Groundwork because of the difficulties in sourcing the high number of private landowners, the time to acquire permission, and the time to then get treatments agreed with the EA. Groundwork now knows the locations for Japanese Knotweed and Giant Hogweed along Eagley Brook and Middlebrook and plan to focus on the watercourses again in future years. In January 2024, Groundwork will use their remaining Natural Course budget to survey and source potential landowners over the course of a two-week period. This will allow for future EA licence applications earlier in the year and allow teams to complete the chemical treatments.

6 Tame INNS survey 2023

6.1 What was planned

In 2023 the Greater Manchester Combined Authority (GMCA), as part of Natural Course and in partnership with the Tame Working Group of the Upper Mersey Catchment Partnership, commissioned consultants to conduct an invasive non-native species (INNS) survey for 4 target species within the River Tame catchment. The target species were Giant Hogweed, Japanese Knotweed, Bohemian Knotweed. Himalayan Balsam was also included; however, because Balsam was expected to be too widespread to be feasible to map, it was to be recorded only at its furthest most upstream point, and where it posed a flood risk.

The survey included all of the River Tame and accompanying tributaries and catchment areas. Riverside facilities owned by United Utilities were not included in the survey as they had already been surveyed by UU and they are an active member of the Tame Working Group. Other local and volunteer groups such as the Mersey Rivers Trust, who have led the volunteer surveys, have all had an important part in coordinating and delivering the project.

6.2 What was done

The survey commenced on 08/07/2023 and ran through until 04/08/2023. The main purpose of conducting this survey over this span of time was to ensure that the target species were developed to a growth stage where each plant would be more conspicuous due to their annual growth stages.

The survey extent across the main River Tame and all tributaries covered a total area of approximately 104 linear km.

Additional data and local knowledge provided by volunteers from the Mersey Rivers Trust.

6.3 Results

The survey results can be found in a survey report that has been published online <u>Tame INNS Survey</u> 2023 and has been shared with the Upper Mersey Catchment Partnership.

The spread of the five invasive species found in the Tame catchment is now widely varied with a high percentage of stable Japanese knotweed populations that are generally found all around the Tame catchment. Giant Hogweed is surprisingly limited and is only found in several downstream instances. Himalayan Balsam was recorded in nearly all rivers and tributaries within the catchment, with a high proportion of the first recorded instance being found at the top or upper reaches of the river.

Patches of Bohemian Knotweed were discovered within the River Tame Catchment in Greater Manchester, The survey team searched 104 km of river, assisted by additional data and local knowledge provided by volunteers from the Mersey Rivers Trust.

Eleven instances of Bohemian Knotweed were found at three locations within the Tame Catchment: Saddleworth Primary School, Diggle; River Tame main channel, Dukinfield; and River Tame, Reddish Vale Meanwhile, Giant Knotweed was recorded at two upstream locations; Diggle Brook, and a small brook on the edge of Uppermill; meaning that it is well placed to spread downstream. In contrast, Japanese Knotweed is very common along the River Tame, but much less so on the tributaries.



Figure 21 Map showing all species results from Tame INNS Survey 2023

Table 2 summary data from Tame INNS Survey 2023

	No. of stands	Total line length (m)	Total Area Coverage (m ²)
Japanese Knotweed	503	14,388	23,479
Giant hogweed	20	299	397
Bohemian Knotweed	11	477	616
Giant Knotweed	2	23	61

- There are over 500 instances of recorded Japanese Knotweed as well as 20 instances of Giant Hogweed, 11 Bohemian Knotweed and 2 Giant Knotweed across the whole Tame Catchment.
- Over 14km of riverbanks are covered in Japanese Knotweed with a further 800m covered by Giant Hogweed, Bohemian Knotweed and Giant Knotweed.
- The whole Tame catchment is approximately 104km in length, comprising a left and right hand bank. This means that out of a possible linear river bank of 208km approximately 1/15 or 7% of river bank is covered by Japanese Knotweed.
- This also means that Giant Hogweed, Bohemian Knotweed and Giant Knotweed cover less than 1% of the catchment.
- When considering area and estimated coverage immediately away from the river edge there is over 23479m2 of Japanese Knotweed within the Tame Catchment.
- Further to this there are a number of Giant Hogweed, Bohemian Knotweed and Giant Knotweed in areas in and around the river corridor.

Giant Hogweed was not present across most of the River Tame or the number of associated tributaries. The locations noted were specifically on two main areas towards the downstream end of the Tame catchment. Sporadic smaller infestations and several areas of specific individual patches suggest that the species has been introduced directly to these specific locations and is not a catchment wide problem. Where the Giant Hogweed was noted, there were large healthy plants with larger seedbanks specific to the location.

Japanese Knotweed (JKW) was found consistently through the whole catchment and even started close to the headwaters on the Lumb Hole Brook in Denshaw. The spread is heavily concentrated on the River Tame main channel and seems to spread up each subsequent tributary but not always to the upper reaches of all non-main tributaries. All areas had healthy JKW growth, and it is clear from the seeing the JKW that there is no evidence that targeted herbicide treatment has taken place within the catchment.

Prior to the survey, the Natural Course project officer informed the consultants that there was already evidence of Bohemian Knotweed around the Reddish Vale Country Park area of the catchment. It was confirmed during the survey, that there are several instances of Bohemian Knotweed with the River Tame catchment. These were found mainly on the actual River Tame main channel with only one instance found on the Diggle Brook in the upper part of the catchment. Interestingly there was also a nearby finding of Giant Knotweed which could provide an explanation for the various locations of Bohemian Knotweed.

7 Drone knowledge sharing day

7.1 What was done

On 12/07/2022 the Natural Course project officer arranged an invasive plant drone knowledge sharing day. The idea was to bring together a drone pilot from Groundwork with the experts from the River Stewardship Company and the Data Manager from Greater Manchester Ecology Unit so that they could explore how useful a drone could be for surveying invasive plants, as well as other ecological surveys.

7.2 Results

We discovered that it can be very difficult to determine the extent of a large patch of invasive plants from the ground, because the lay of the land can prevent you from seeing the edges of the patch. The size of a patch is important when estimating the amount of effort and chemicals required to treat it. A drone can be invaluable for this task but has some limitations. Further limitations came to light during a trial drone survey of inaccessible sections of river that was carried out as part of the Irwell INNS survey 2022.

- You need to attend training, take exams and have a check flight to be allowed to fly drones for work purposes.
- Trees block the view of the drone.
- Drones cannot fly amongst aerial cables or trees.
- Requirement to maintain line-of-site: difficult when a river meanders.
- Only expensive models can fly in rain.
- Limited battery life and hence flight range.
- Limitations apply when flying in built-up areas, such as electromagnetic interference from homes and power sub-stations, as well as risk of complaints of disturbance.

• Specific flight patterns and data logging must take place to enable specialised software to create accurate GIS layers from the photographs, with which to then locate and make measurements of the size of patches of invasive plants.



Figure 22 Groundwork drone photograph showing Japanese Knoweed on the left bank with the occasional Giant Knotweed flowerhead, and more of a mosaic on the right bank within an island. These inaccessible banks could only be properly surveyed with a drone.



Figure 23 The view of the Japanese Knotweed infestation from the ground. NB there is also Bohemian Knotweed present. Photo credit: Paul Barrington

8 Legal briefing

A frequently asked question about INNS was: what is the legal situation regarding landowners with INNS on their property? To answer this, we consulted with Hampshire & Isle of Wight Wildlife Trust and Medway Valley Countryside Partnership and produced a legal summary that can be found in Appendix A - Summary of law regarding invasive non-native species – specifically Giant Hogweed and Japanese Knotweed – March 2023

9 Legal advice

To answer a request from a Bury Councillor about INNS and the law, the legal situation was further explained by the GMCA legal advisor in Appendix B - GMCA Legal advice note May 2023

10 Overall lessons learnt

There were indications that invasive plants are not just spread by rivers. Potential methods of spread include:

- wheels of vehicles
- movement of soil during land management and development.
- birds and other wildlife may also spread seed.

Stem injection is a more effective method of applying herbicide than spraying because:

- The equipment is lighter.
- Less chemical is used.
- It can occur in a wider range of weather conditions.

• There is no by-spray onto nearby desirable plants.

• There is no need to prevent the public from accessing the area during treatment.

However, one downside of injection is that the plant stems must be thick enough.

Volunteers are not always suitable for herbicide treatment. Supervised manual labourers are in some cases better because:

- Treatment is weather dependent, requiring a flexible schedule.
- Carrying 20kg tanks of chemicals over sometimes difficult terrain.
- A faster pace of work.

Despite the Irwell INNS Survey 2022 including estimates of area of infestations, the amount of Japanese Knotweed to be treated was significantly underestimated by BBFFC. This may have occurred because infestations have been recorded and displayed as lines, while the infestation area measurement was held within a GIS data table, and BBFFC are not able use GIS files. In the future it might be better to record and display as polygons rather than lines. For the meantime, Excel data tables have been provided for new smaller sites that are being considered for treatment for 2024. It is easier to understand where each record relates to for a smaller site, whereas it would be impossible for an entire catchment without GIS software.

During discussions between BBFFC and GMEU, regarding the spraying of the Himalayan Balsam with herbicide, weaker mixtures of Roundup, than would normally be used for spraying invasive plants, were trialled which could be expected to protect desirable native vegetation. A 25% strength mix (50ml in 10L) was found to be effective. This was in line with similar trials carried out by Rochdale Council.

To pevent the need to revisit areas of strimmed Himalayan Balsam, strimming low on the stem had the best impact in terms of regrowth and areas able to be covered. While the risk of hitting amphibians with a strimmer should be seriously considered, there is a strong argument for using mechanical aids such as this in the future because of the improved speed of progress. Assessing the area to be strimmed before commencing work is perhaps the best way forward.

Balsam bashing lessons learnt:

- Volunteers were interested in bashing as individuals rather than attending an organised event on the day.
- Volunteers were more interested in going to Jumbles rather than the cricket club, and it was tricky to get engagement from cricket club members.
- Balsam Bashing in a residential area gets more interest from the local residents, as they have an interest/pride in place. Maybe targeting residential areas upstream next time would be good but there are remote headwaters in Bradshaw Brook making that tricky.
- It was tricky to reach all of the nearby houses with flyers, limited flyers and limited time. Could put posters up in local parish halls next time.
- Access to the site was tricky for volunteers, contractors are needed for more risky areas.
- Bradshaw Fly Fishers were reluctant to strim because of risk to amphibians. Contradictory approaches can emerge when taking a multi-agency approach, an agreed method would be good to establish at the start of the work next time.
- Social media promotion would be good next time, and there is an idea to involve community service people.
- A larger volunteer response next year may be possible due to newly established connections.

Giant Hogweed within the Tame catchment is very sporadic and isolated to several seed banks. Treatment and targeting of the seedbanks should be a short-term priority and a financial outlay at the present could result in control within the catchment over the next 5 years.

Even though the Godley Brook area has the largest population of Giant Hogweed within the Tame catchment, it is still relatively small in comparison to other similar UK environments. Control and treatment could be highly successful if this infestation received a series of annual treatment with foliar herbicide treatment.

One of the difficulties with the identification of the two species that are very similar to Japanese Knotweed (Giant and Bohemian Knotweed) is that in many locations both were likely to be growing in and amongst the Japanese Knotweed and often careful close-up inspection was not an option. It is unlikely that the cost and time to carry out detailed rope access and boat analysis of the mixed species areas would be beneficial. Regardless of the species of knotweed it is all treatable via the same methods and therefore is just as useful to identify using best endeavours and plan any future funding and treatment around treating all three species of Japanese knotweed, giant knotweed and bohemian knotweed. Targeting the known patches of giant knotweed may be more efficient as this will reduce the possibilities of hybridisation and at least mitigate one of the three problem species of knotweed. Further investigation could be useful for understanding this process but a simple annual herbicide programme will be the most cost effective and efficient for the knotweed varieties found on the Tame. With the locations of the two species fairly isolated to two main areas, it should be a viable treatment option to try to control the spread of the two species.

11 Next steps

11.1 Options paper

To help senior stakeholders to choose between possible strategies regarding control of INNS, and their possible consequences, Natural Course produced a paper - Developing a collaborative and comprehensive approach to addressing Invasive Non-Native Species (INNS) of plant in the river valleys of Greater Manchester - which is available in Appendix C.

11.2 Local Action Groups

11.2.1 What is a Local Action Group?

There are over 50 INNS Local Action Groups (LAGs) in GB working with member organisations and volunteers to reduce the risks and impacts associated with INNS in their local area. Defra first established LAGS by funding them 2011-2015 and continues to support them by funding a national coordinator.

LAGs are invaluable in delivering sustainable, long-term management of a number of invasive nonnative species at a local and regional level. Not only do they control species that are widespread across Great Britain, LAGs also tackle species which are a local issue, helping to prevent them from establishing more widely. They also play a vital role in monitoring and early detection and have even carried out national eradications.

11.2.2 Examples of success elsewhere

11.2.2.1 River Bollin LAG

BEACON (Bollin Environmental Action and Conservation) is a group of people in Greater Manchester and Chesire working towards controlling and eradicating invasive non-native species (INNS) and improving water quality within the Bollin catchment, which includes all the tributaries, meres, brooks and streams connected to the River Bollin such as the River Dean and Mobberley Brook.

BEACON was formally established? in 2011 following a successful stakeholder workshop in 2010. It was established to help identify, control and where possible eradicate invasive non-native species in the River Bollin catchment. Three main species are currently being targeted, these being Himalayan Balsam, Japanese Knotweed and Giant Hogweed. BEACON joined the Mersey Rivers Trust in 2016 to use a more co-ordinated approach in tackling invasive species and improving water quality in the Bollin catchment. For many years their activities were co-ordinated by a project officer with funding from various sources, including initially from Defra. They now have a Senior Project Manager and a Project Manager who spend some of their time on invasive plants.

During 2022 they spent nearly 150 hours controlling Giant Hogweed, both by digging up seedlings and by applying 36 litres of herbicide. 200 hours were spent Balsam Bashing, and they treated Japanese Knotweed along 37.5 km of riverbank. At least nine BEACON partners also carried out invasive plant control work in the catchment.

11.2.2.2 Yorkshire Derwent Catchment Partnership

In 2017, the Yorkshire Derwent Catchment Partnership (YDCP) Officer, hosted by Yorkshire Wildlife Trust (YWT), was funded by the Environment Agency (EA) to produce a strategy to prioritise future surveying and treatment work of riparian Invasive Non-Native Species (INNS) in the Derwent Catchment. Data was collected from various partners and stakeholders who were active in INNS control work. The main principles of the strategy include prioritising waterbodies that have very little chance of being re-infected and/or pose the most threat to waterbodies downstream, the 'top down' approach, and prioritising sites of particular significance.

Funding for 2022/23 has come from the Environment Agency's 'Doing More for the Derwent' project which aims to restore the ecological health of the River Derwent SSSI. The funding from the EA, a total of $\pm 23,526$ covered the following:

- INNS treatment
- Landowner engagement (including maintenance of the Pay-In Scheme).
- Volunteer management and coordination of 67km of survey work.
- Coordination and management of the INNS programme.
- Reporting, planning, and costing up the following years programme.
- Inputting and collating data on INNS mapper and QGIS.
- Updating the catchment strategy including partner work and sending data to RECORD (the Local Environmental Record Centre for Cheshire, Halton, Warrington and Wirral).

2022 INNS work in summary:

- 54km INNS treated (97km including retreatments).
- 280m2 additional adjoining areas treated near the riverbank (660m2 including retreatments)
- 58 Landowners engaged with.
- 67km of watercourse surveyed. 72 volunteer hours as well as 119 hours by the YDCP voluntary Trainee.

- £1,764 cash contribution raised through the Landowner Pay-In Scheme.
- £14,700 'in kind' contributions including treatment carried out by 7 landowners with YDCP guidance and YWT paying £1,492 cash to train up INNS seasonal assistant, trainee, and key volunteer.
- 8 waterbody catchments worked on.

11.2.3 Situation in Irwell Catchment Partnership

In 2021 the Irwell Catchment Partnership created an INNS working group to devise a strategy and to coordinate an upcoming Natural Course funded commission by GMCA for consultants to survey all the Main River of the Irwell Catchment, with volunteers filling in some of the prioritised smaller rivers. The group also met with the national Local Action Group coordinator because they were a de facto local action group, even if they did not refer to themselves by that name. Once the survey was complete the meetings have become less frequent; however, encouraged by the invasive plant control momentum that has built up in Bolton, another meeting is planned to return to the task of devising a strategy and becoming a more formalised Local Action Group.

11.2.4 Situation in Upper Mersey Catchment Partnership

Following on from the Tame INNS survey 2023, the Upper Mersey Catchment hosts are keen to setup a LAG for the River Tame Catchment. A meeting has been arranged between the key stakeholders for the Tame Catchment and the national LAG coordinator to help them to understand what a LAG is and what it involves.

11.3 INNS Mapper

The surveys of the Irwell & Tame catchments highlighted the gap that existed in our knowledge about where INNS are within Greater Manchester, and how eager people are to help record and manage this problem.



Figure 24 INNS Mapper Home page

To further close that INNS knowledge gap, and to help keep our knowledge up-to-date, we are currently evaluating INNS Mapper, which is a free to use app and website, created by a consortium of national and regional organisations. It enables members of the public, volunteers, and employees to record the presence of 62 types of INNS, ranging from Giant Hogweed, to Mink, and even Killer Shrimp. Records are verified using the app, and it can also be used to map management activity.

The data is uploaded to the National Biodiversity Network Atlas, where it is published on the internet and is available for download. From here organisations such as Catchment Partnerships and Local Environmental Record centres can access the data to assist with strategic decision making and planning advice.

11.4 Local Nature Recovery Strategy (LNRS)

Local authorities, catchment partnerships, and other stake holders will use our findings to help steer future INNS control efforts on local and strategic scales.

Key to this is invasive plants being included within Greater Manchester's Local Nature Recovery Strategy, which clearly sets out our vision and priorities for nature's recovery and the practical actions needed to restore declining species and habitats.

The invasive plant surveys discussed in this report have created a baseline for future monitoring of these problem plants, for instance the maps are going to feature in the Greater Manchester State of Nature Review.

12 Conclusion

The survey results mostly featured two very widely distributed and problematic plants: Japanese Knotweed and Giant Hogweed. Alongside both plants causing significant ecological damage, Japanese Knotweed is estimated to cost the UK economy £246.5m each year while Giant Hogweed costs £1.4m and is a significant health risk causing chemical burns on skin.

Extrapolating the survey results from the Tame and the Irwell, we estimate that over 149 km of Main River riverbank in Greater Manchester contains Japanese Knotweed, and over 55 km contains Giant Hogweed.

Meanwhile, Himalayan Balsam was found on all the rivers and was too widespread to be feasibly mapped. There is no reported economic cost, but it is known to damage the environment, for example by outcompeting native plants and causing erosion of riverbanks.

Both sets of results have been shared with the respective catchment partnerships and other stakeholders to inform future INNS control strategy.

Current activity to address INNS within Greater Manchester is piecemeal and uncoordinated and has a very limited impact. However, there is not a single solution to addressing the INNS challenge within Greater Manchester's river valleys. Similarly, there is no single source of funding that can support action to tackle INNS at a catchment scale. Instead, a coordinated bottom-up approach, involving multiple stakeholders and drawing on a range of funding sources probably offers the most effective way forward. Examples where this approach has worked involve creating a central coordinating function: an officer operating at a catchment scale who can work with stakeholders, engage with landowners, attract resources and facilitate local community action etc.

Appendix A- Summary of law regarding invasive non-native species – specifically Giant Hogweed and Japanese Knotweed – March 2023

The EU Invasive Alien Species (IAS) Regulation (No. 1143/2014)

'Species of union concern' (including Giant Hogweed and Himalayan Balsam) cannot be intentionally:

- imported into the EU;
- kept;
- bred;
- transported (except for the transportation to facilities in the context of eradication);
- placed on the market;
- used or exchanged;
- allowed to reproduce;
- grown or cultivated; or
- released into the environment.

Statutory Instrument 2019 No. 527

The Invasive Alien Species (Enforcement and Permitting) Order 2019

The Order implements the requirements contained in the IAS Regulation by putting in place enforcement, licensing and permitting regimes.

Restrictions under the IAS Regulation and the Order apply to specimens of any <u>live</u> invasive alien species of Union concern and include: 'any live part, such as seeds, eggs, or cuttings that might grow, hatch or reproduce and any hybrids, varieties or breeds of such a species that might survive and subsequently reproduce.'

The list of 'species of union concern' is now referred to as the list of 'species of special concern'.

Natural England is the licensing authority for the Order in England.

Wildlife and Countryside Act 1981

Section 14 (2) of the Wildlife and Countryside Act 1981 makes it an offence to plant or otherwise cause to grow in the wild any plant listed in part 2 of **Schedule 9** to the 1981 Act.

Includes:

- Japanese Knotweed
- Japanese Knotweed x Giant Knotweed hybrid.
- But not Giant Hogweed and Himalayan Balsam: these are listed within The EU Invasive Alien Species (IAS) Regulation (No. 1143/2014) and Statutory Instrument 2019 No. 527 The Invasive Alien Species (Enforcement and Permitting) Order 2019

Anti-social Behaviour, Crime and Policing Act, 2014

Community Protection Notices can be issued under the Anti-social Behaviour, Crime and Policing Act by the local authority or the Police and can be used against individuals or bodies that are acting unreasonably and who persistently or continually act in a way that has a detrimental effect on the quality of life of those in the locality.

Although the Anti-social Behaviour, Crime and Policing Act 2014 does not explicitly refer to Japanese knotweed or other invasive non-plants plants, the Home Office guidance note titled 'Reform of antisocial behaviour powers: Japanese Knotweed and other invasive non-native plants' states that Community Protection Notices can be used to require someone to control or prevent the growth of Japanese knotweed or other plants that are capable of causing serious damage to communities.

Where there is evidence of damage to a community, it is required to engage with the landowner and explore all other possible solutions, and document that process, before asking the enforcement team at the local borough council or the Police for a Community Protection Notice.

Section 43 of the Anti-social Behaviour, Crime and Policing Act, 2014

Enables the Police or the local authority to erect a Community Protection Notice (CPN) on a piece of land where no owner can be identified. Again, documented efforts must be made beforehand to locate and engage with the landowner. If there is still no response in the specified time period, then it is permitted to enter the land to control the invasive species.

Infrastructure Act, 2015

The Infrastructure Act contains provisions for 'environmental authorities' to make agreements and orders to require landowners to control or eradicate invasive non-native species, including plants.

The 'environmental authorities' that can issue Species Control Agreements and Species Control Orders are:

- The Secretary of State for Environment, Food and Rural Affairs
- The Forestry Commissioners
- The Environment Agency
- Natural England

However, in practice, this only happens to prevent novel species from becoming established. Already established invasive non-native species should be dealt with using other powers.

Examples:

Community Protection Warning convinces landowners to join INNS control project

Despite years of engagement with landowners, the Medway Catchment Invasive Non-Native Plant Control Project is still occasionally faced with those who are not willing to have Giant hogweed controlled. One such landowner simply liked the plants and didn't want them removed, and another didn't believe there was any issue with the plants or that control methods worked. Unfortunately, the lack of control on these plots was visibly making the surrounding land worse. Armed with proof of engagement attempts and outright refusal from the landowners to control the plants, there was a good case to present to the enforcement team at the local borough council for legal action, stating that inactivity to control the plants was anti-social given the vast INNS control campaign that was being done on neighbouring land, which the landholders were undermining. Both these landowners were issued with a Community Protection Warning, which is a written warning, outlining what action is required to be taken or stopped within a set time period, and is an opportunity to modify behaviour without any formal sanctions being taken. In both cases, the landowners immediately signed up to the INNS control project and the plants on their land were treated.

Community Protection Notice on land for which no current owner can be identified

In February 2016 Hampshire Constabulary served a Community Protection Notice at the request of New Forest Non-Native Plants Officer on land for which no current owner could be identified. It is a site adjacent to the River Cadnam that is infested with Himalayan balsam and Japanese knotweed. The police were able to act because there were documented attempts to find a landholder over several years, and there was harm to the community because the site was a source of re-infestation during an INNS control campaign along the river. Therefore, notices were erected at two entrances to the site, giving 80 days' notice to contact the constabulary. The Community Protection Notice was served on the 'Owner/Occupier or person in charge of Parcel of Land as detailed on attached map'. The Notice cited non-compliance with Section 14 (2) of the Wildlife and Countryside Act 1981, specifically 'the management of invasive non-native plants.' No response was received so access was granted, since when the INNS have been successfully controlled by volunteers and contractors as part of an ongoing INNS control campaign along that river.

Damages can be awarded for perceived loss of land and property value due to Japanese Knotweed

Newspaper article: Legal victory in UK Japanese knotweed case could lead to more claims | Environment | The Guardian

In February 2023 a court of appeal ruled that a homeowner could recover the decrease in their property's value from a local council even after the spread of Japanese knotweed from neighbouring council land had been dealt with. This creates a legal precedent that one can recover damages for the stigma attached to having Japanese Knotweed spread onto your property, even after the plant has been eradicated, and not just paying for physical damage caused by it or compensation for restricted use of a garden while the plant is there. It is thought that this could lead to local authorities being sued for similar loss of property value in the future.

Full text of the court of appeal decision: <u>Davies v Bridgend County Borough Council [2023] EWCA Civ</u> 80 (03 February 2023) (bailii.org)

Appendix B- GMCA Legal advice note May 2023

Advice Note

I have been asked to provide a legal note on the powers local authorities have in relation to Japanese Knott Weed (herein JKW) and to explain whether the case of <u>Network Rail vs</u> <u>Williams & Waistell</u> can assist local authorities acting against landowners with JKW on their land.

I have spent some time reviewing the case law and legislation to see how JKW can be controlled. I set out below my findings:

The Starting Point

A landowner or occupier is under a duty to prevent the escape of Japanese Knotweed onto *adjoining neighbouring land*. There is no legal obligation for a landowner or occupier to inform anyone that knotweed is present on the land or any legal obligation to remove or treat it. There are however legal obligations in the disposal of knotweed off-site, or the burning, burying or treating of it on-site. So, in essence the mere presence of Japanese Knott Weed on land does not mean the owner/occupiers needs to take any action. The Local Authority cannot simply write to all landowners in their area requiring them to remove JKW from their land.

Powers

The Local Authority has some discretionary powers in dealing with difficult **neighbours** with knotweed on their land if the legal tests are met.

Section 215 Town and Country Planning Act 1990

This power could be exercised for infestation of land by knotweed, particularly where it is at risk of spreading into adjoining land.

The Local Authority can serve a Notice under Section 215 Town and Country Planning Act 1990 ("S215"). The local authority would normally receive complaints about the affected land. The Local Authority would always encourage a negotiation between neighbours first before looking to serve a Notice. If the negotiation is not effective, the Local Authority will then consider all the local circumstances, such as the condition of the site, the impact on the surrounding area and the scope of their powers.

If the Local Authority decides that action needs to be taken, they will normally first warn the landowner or occupier that a S215 Notice can be served on them. If this does not have the desired effect, it is then at the Local Authority's discretion whether they serve such a Notice.

A S215 Notice requires a landowner or occupier to remedy the condition of the land within 28 days. The Legal Test - where in the Local Authority's opinion; the amenity of an area (or adjoining area) is adversely affected.

If they fail to comply with the notice, then consideration can be given to prosecuting the landowner or occupier in the Magistrate's court.

Further any steps required by the notice to be taken have not been taken, the local planning authority who served the notice may:

Take steps to undertake the necessary works and recover its reasonable costs from the occupier. (Section 219)

The Anti-Social Behaviour, Crime and Policing Act 2014,

Furthermore, under The Anti-Social Behaviour, Crime and Policing Act 2014, the Local Authority or the police have the power to serve a community protection notice on an individual (or body if applicable) if they are satisfied on reasonable grounds both that the conduct of an individual/body: Is having a detrimental effect, of a persistent nature, on the quality of life of those in the locality is unreasonable. Again, complaints would normally be received by the local authority and officers would go and investigate.

This legislation does not however explicitly refer to knotweed however the powers are intended to be flexible, and it has been suggested in Home Office information that it could be used against an occupier failing to clear knotweed.

There has been a successful prosecution bought under this legislation. See the link below:

https://www.bbc.co.uk/news/uk-england-bristol-46470898

Wildlife and Countryside Act 1981

As stated above the owner or occupier of land is not obliged to control, remove, eradicate or treat JKW. However, failure to take reasonable measures to control knotweed that results in the plant spreading to the wild, or being negligent or reckless about that occurring, could amount to the criminal offence of causing it to grow in the wild under section 14 of the WCA 1981. Therefore, it is prudent land management to take action promptly to control the spread of JKW.

Section 14(2) of the Wildlife and Countryside Act 1981 makes it an offence to plant or otherwise <u>cause to grow</u> in the wild any plant listed in part 2 of Schedule 9 to the 1981 Act which includes Japanese Knotweed.

What does "cause to grow" mean?

Meaning of "cause to grow". Previous Defra guidance confirms that "section 14 of the WCA 1981 does not impose an explicit obligation to manage Schedule 9 species (JKW) not introduced onto land by the owner's or occupier's own actions. It states that, however, the law is not entirely clear about the full scope of the phrase "causes to grow". Applying case law on the meaning of "causing" and "knowingly permitting" it considers that it may be possible to argue that a landowner who knowingly allows a Schedule 9 species (JKW) that it did not introduce, to accumulate on its land and create a problem as it spreads to other areas of the wild, and who makes a conscious decision to do nothing about it, is "causing it to grow". The guidance acknowledges, however, that this interpretation has not been tested" I am unable to find any case law on this point.

Civil Powers

As you are aware from the reading the case of Network Rail v Williams & Waistell the claimants in joined cases, Mr Williams and Mr Waistell, were adjoining freehold owners of two semi-detached bungalows in Maesteg, South Wales. Both of their bungalows abutted a railway embankment and access path owned by the defendant, Network Rail Infrastructure Limited. The railway embankment and path had been infested with knotweed for 50 years, which had persistently spread to the claimants' land.

You will see from the case a landowner or occupier can take action themselves if knotweed were to spread onto neighbouring land and this can amount to a common law nuisance and damages can be awarded.

There has been a more recent case of Davies v Bridgend (Court of Appeal) [2023]. The Court of Appeal found that if the value of the neighbouring property was diminished as a result of an interference with quiet enjoyment or amenity due to physical encroachment of Japanese knotweed from the defendant's land onto the claimant's land, damages in nuisance for diminution in value of the property would be available.

The legal test for private nuisance is as follows:

There must be damage, or interference with the enjoyment of a neighbour's land

which must be substantial or unreasonable; and

which may arise from a single incident or state of affairs.

The claimant must have a direct interest in the land affected by the nuisance.

If successful, the following remedies are available:

- damages to compensate for loss; and/or
- an injunction to prevent the continuing nuisance and prevent recurrence.

As you will see from the legal test above the person bringing the claim for damages must have a direct interest in the land that is affected and there must be damage, or interference with the enjoyment of a neighbour's land. This isn't an avenue that can be pursued by local authorities to claim damages for Local Authority expenses in clearing invasives from downstream sites that they own.

Conclusion

The powers the local authorities are given to control JKW are quite limited. I understand the problems JKW causes and the costs to the Council purse, but we must make sure we can meet the legal tests above before taking any action. Each will depend upon on its own fact as to what action (if any) can be taken.

Appendix C- Developing a collaborative and comprehensive approach to addressing Invasive Non-Native Species (INNS) of plant in the river valleys of Greater Manchester

1. Context and challenge

- 1.1 In 2019, the Environment Agency consulted on the most important challenges to the current and potential future uses and benefits of the water environment. The challenges are the main issues that limit the uses and potential benefits of managing the water environment in a sustainable way. INNS were identified as one of the ten most significant challenges to the water environment at a national scale.
- 1.2 An invasive non-native species is an animal or plant introduced, either deliberately or accidentally, into a place where it does not belong. A species becomes 'invasive' if it has negative effects on the environment. It is estimated that the UK has over 2,000 established non-native species and the cost to society from those that are invasive can be enormous. Invasive non-native species can damage animal and human health, the way people live and can crowd out native wildlife. For example, Japanese Knotweed grows in dense clusters that decrease property value, increase riverbank erosion, and reduce the capacity of river channels, possibly leading to increased flooding.
- 1.3 The scale of the challenges is huge and is increasing. In 2021 a study divided the British Isles into 3,893 equal squares by area. Knotweed was found to have affected 3,134 of those squares. The Wildlife and Countryside Act, in 1981, made it an offence to cause knotweed to grow in the wild, promising a £5,000 fine or six months in prison for a breach. An article in The Guardian, on 16th May 2023, with the title "The war on Japanese knotweed" suggested that this legal provision "is like using a towel to stop the tide coming in".
- 1.4 GMCA commissioned a comprehensive survey of INNS in the River Irwell catchment during 2022 as part of Natural Course. A professional survey of 436km of statutory Main River took place from June to August and volunteers surveyed 29km of prioritised Ordinary Watercourse up until October 2022.
- 1.5 The survey results show that approx. 12% of the riverbanks in the Irwell catchment are covered in Japanese Knotweed and 5% are covered with Giant Hogweed. Himalayan Balsam was found almost everywhere along watercourses in the catchment. Giant Hogweed was found to be concentrated in the Croal catchment and lower Irwell, with just a few small clumps elsewhere. It was almost absent from the upper Irwell, though Kirklees Brook has a serious infestation and contains a likely large seed source away from the river. Japanese Knotweed is more evenly spread: the lowest part of the River Irwell is badly infested, while the Manchester Ship Canal has a relatively sparse population. The results of the survey are shown in Figure 1 below.
- 1.6 Giant Hogweed and Japanese Knotweed spread quite easily and are difficult to kill. Giant Hogweed produces 10s of thousands of seeds that are easily spread by rivers and animals and people. Japanese Knotweed is infertile but new plants can grow from small fragments of stem or rhizome, which are often created by soil erosion or human activity. Both species live for more than one year, dying back to tap roots or rhizomes over winter. The plants must have their root systems physically destroyed, buried in specific ways to prevent sprouting, or the top growth chemically treated. Chemical treatment is the most cost-effective method but even then, it



requires 2-3 treatment visits to the site each year for around three years and follow up visits for the next 10 years.

Figure 1: Distribution of Giant Hogweed & Japanese Knotweed in the Irwell catchment 2022.

2. Options for addressing INNS in Greater Manchester

- 2.1 As the 2022 survey shows INNS are a significant challenge within the waterbodies of the River Irwell catchment. A similar survey of the River Tame catchment is planned for the summer of 2023 as part of Natural Course. Current activity to address INNS within Greater Manchester is piecemeal and uncoordinated and has a very limited impact. To understand how the challenge that has been identified can be addressed in the future several options are outlined below.
- 2.2 Do nothing. The current approach to tackling INNS within the River Irwell catchment has very limited impact. The resources currently being utilised may be better spent addressing other challenges outlined in the River Basin Management Plan.
- 2.3 Continue with the current piecemeal approach, or business as usual. Individual landowners, including local authorities, currently take ad hoc action, on the land that they hold, to address Japanese Knotweed and Giant Hogweed. Volunteer events aimed at "bashing" Himalayan Balsam are organised by the owners and managers of wildlife sites and across the catchment by environmental NGOs such as Groundwork. This approach is often reactive and uncoordinated and, while helping to safeguard public parks and conserve wildlife sites, does little to reduce the overall scale of the challenge of INNS.
- 2.4 Do more, increased action to tackle INNS but continue a piecemeal approach. This option would involve continued uncoordinated action to tackle INNS including increased action by individual landowners to tackle INNS on their land and a greater number of volunteer balsam bashes

organised by environmental NGOs. This approach would be beneficial but would have limited impact. It may help to slow the rate of spread of INNS but there would be little impact on the overall coverage of the 3 species of INNS.

- 2.5 Do more, increased action to tackle INNS and the development of a focused approach. This option would involve a modest increase in the level of resources used to address INNS and a more focused application either geographically, focusing on target waterbodies within a catchment, or concentrating resources on tackling a single species. For example, action may focus on Giant Hogweed because of its damaging impact on human health. Again, this option would have limited impact, helping to address strongholds of individual species and reducing the rate of spread of target species in future years or reducing the coverage of INNS in individual waterbodies. This approach would require a degree of dedicated resource to coordinate activity within particular waterbodies or on an individual species.
- 2.6 A comprehensive and coordinated catchment-wide approach. This would involve bringing together core organisations with an interest in tackling INNS and a bespoke resource to liaise with other stakeholders and landowners etc. All three species are spread downstream by rivers, so it would involve starting in the headwaters and moving down through waterbodies. This approach would begin with a survey of the target species of INNS to build up a detailed understanding of the scale and location of the challenges faced (as has already been carried out for the Irwell catchment). Subsequent steps would include:
 - Building up detailed knowledge of and mapping landownership within a catchment.
 - An engagement campaign with landowners who have INNS on their holdings to encourage understanding of the scale of the challenge and to stimulate action to tackle INNS on the land they own.
 - Physical action by landowners to address INNS on their land on an annual basis.
 - Building capacity and recruiting greater numbers of volunteers so that mass-participation balsam-bashing events could be organised.
- 2.7 The comprehensive approach outlined above could follow, and build upon, the DEFRA Local Action Group approach. This involves assembling a group of interested stakeholders and employing a coordinator to work to identify and map landownership, engage with landowners, direct and commission INNS control activity and facilitate volunteer action.
- 2.8 The impact of a comprehensive approach to tackling INNS would be maximised by ensuring that the relevant policies are in place to support action on the ground. For example, through the emerging Greater Manchester Local Nature Recovery Strategy. A public campaign to raise awareness of the challenge of INNS and engage Greater Manchester citizens would also be beneficial. A campaign could encourage members of the public to report sightings of Giant Hogweed, tackle Japanese Knotweed in their gardens or to take part in a local balsam bash for example.
- 2.9 A central objective of the comprehensive approach to tackling INNS is to work with landowners and managers and encourage and influence them to tackle invasive species on their land. If this approach does not have an impact it may be appropriate to consider the use of legal action as a last resort. The use of a legal approach, or at least the threat of legal action, can only be used in specific cases and is most likely to succeed if it builds on a critical mass of practical collaborative action on the ground.

3. Resourcing a comprehensive approach to addressing INNS

- 3.1 The supplier who carried out the 2022 survey of the Irwell catchment estimated that the annual cost of controlling Giant Hogweed and Japanese Knotweed across the catchment would be £300,000. They also estimated that the annual cost of removing Himalayan Balsam would be £350,000 and would require significant support from landowners and volunteer groups. Some of these costs are already being met through on-going INNS control activity. For example, through local authorities paying for contractors to spray Giant Hogweed in publicly owned greenspace.
- 3.2 Further sources of funding could include:
- An increase in the resources used by landowners to tackle INNS on their holdings.
- An increase in Regional Flood & Coastal Committee (RFCC) resources to tackle INNS. During autumn when the INNS die back, they can accumulate in watercourses and lead to an increase in flood risk.
- Grant funding. For example, from an impact funder such as The National Lottery Heritage Fund or through a charitable foundation with an interest in the natural environment. For example, the Esmee Fairbairn Foundation.
- Local authority funding in addition to existing resources.
- The emerging Environmental Land Management scheme or Biodiversity Net Gain offset payments.
- Targeted resources from DEFRA.

4. Conclusion

4.1 There is not a single solution to addressing the INNS challenge within Greater Manchester's river valleys. Similarly, there is no single source of funding that can support action to tackle INNS at a catchment scale. Instead, a coordinated bottom-up approach, involving multiple stakeholders and drawing on a range of funding sources probably offers the most effective way forward. Examples where this approach has worked involve creating a central coordinating function: an officer operating at a catchment scale who can work with stakeholders, engage with landowners, attract resources and facilitate local community action etc.

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This project has been made possible with the support of EU LIFE Integrated Project funding. Project number LIFE14 IPE/UK/027