



Japanese knotweed

Your definitive guide to identifying, reporting
and remediation of Japanese knotweed.

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What is Japanese knotweed?

Japanese knotweed (*Fallopia japonica*) is a hardy, bamboo-like perennial plant. To the untrained eye it looks fairly innocuous and actually quite attractive. However, it is a highly invasive and potentially destructive species.

Japanese knotweed is incredibly difficult to eradicate. Anecdotal evidence suggests that small root fragments can remain dormant in the soil for 20 years.



From its original introduction in the mid nineteenth century by Victorian botanists, Japanese knotweed has spread to such an extent that it is present in almost every 10km × 10km grid square across the UK. This has led to the inclusion of Japanese knotweed in Schedule 9 Part 2 of the Wildlife and Countryside Act 1981, making it an offence to “plant or otherwise cause Japanese knotweed to grow in the wild”. Case law has shown that “the wild” can mean most places beyond the site boundaries of a knotweed infestation.

The growth cycle of Japanese knotweed markedly affects its appearance over the year. In the spring, reddish/purple shoots appear from the ground and from the swollen, red buds on the crowns (small mounds of above ground rhizome material) of previous years’ shoots, which form asparagus-like spears. Within a matter of weeks these quickly form dense stands of bamboo-like stems that develop green heart- or shield-shaped leaves, approximately 9cm wide and 12cm in length.

Shoots can seemingly appear from nowhere (i.e. not from obvious crowns), such as from creeping rhizomes several metres from established stands or from areas where rhizomes have been fragmented from partial excavation or other disturbance. In such cases new leaves are small (1-4cm long), dark red or green with dark red veins and can be rolled in on themselves.

What is Japanese knotweed?

By early summer the mature Japanese knotweed stems, which are hollow and marked with purple speckles, can reach up to 3m in height. The leaf growth alternates on each side of the stems producing an obvious knotweed zigzag pattern along the shoot.

Flowers bloom in late summer forming clustered 'spikes' amongst the foliage. They are creamy white in colour and are approximately 0.5cm wide. Spike lengths are approximately 10cm. In autumn, the leaves fall and the stems die back, leaving persistent, straw-coloured hollow stems that quite closely resemble bamboo canes.



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Crown buds form in early spring at the base of old stems and are 1-3cm wide, resembling bright pink/red 'thumbs'.

New stems grow annually and develop from the crown buds.

Japanese knotweed can be found almost all over the country, with Swansea being dubbed as the Japanese knotweed capital of the world. It can readily grow in many nutrient poor or contaminated soils, exploiting marginal areas of derelict land in urban areas and along railway lines. As most of its biomass is below ground, it only needs a small area of bare earth to push its shoots through, which capture energy from the sun to push back into extending the root system under hard-standing or other built structures.

Rhizomes can be as small as a few millimetres to over 20cm in diameter and can grow more than 7m from the above ground stems and to a depth of 3m. Rhizomes appear dark brown on the outside and are orange / yellow inside.

How can it impact property?

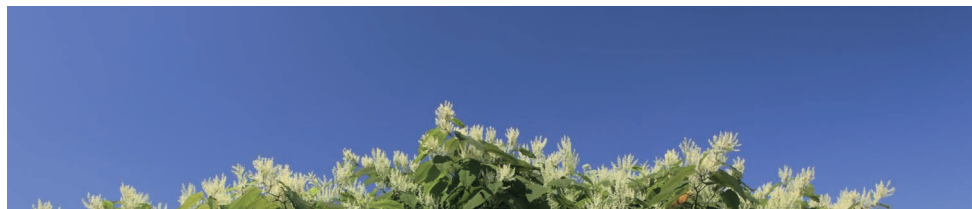
Japanese knotweed is now widely accepted to be a major issue in property transactions. It requires consideration in a similar manner to deleterious materials or other considerations affecting property values.

The presence of Japanese knotweed has the potential to give rise to liability for a property owner under nuisance legislation with regard to cross boundary migration (see the legal framework section of this guide).

In the last few years lenders have become particularly aware and sensitive to the issue of Japanese knotweed. Many have formalised their secured lending decisions concerning property affected by knotweed infestations. On occasion, this has resulted in mortgage refusals, where the risk has been deemed too high.

The Royal Institution of Chartered Surveyors - with the support of the Property Care Association (PCA) Invasive Weeds Control Group - published guidance to its members in response to concerns expressed by lenders. This has generally led to an accepted situation where lending will likely be agreed where a suitably robust Japanese knotweed remediation programme is established in conjunction with a ten year insurance backed guarantee. Despite this, it is widely reported that lenders are seeking a 15%-20% diminution in property value where such remediation schemes are in progress.

In 2013 the Law Society issued a revised TA6 property information form (enquiries of the vendor) inserting a formal question concerning the presence or otherwise of Japanese knotweed at a property. If a vendor is not certain that their property is knotweed-free, and they declare on the TA6 form that no knotweed is present then they may have liability for diminution in value, in addition to treatment costs, if plants are later discovered by the purchaser or their agents.



How can it impact property?

The more common physical effects of Japanese knotweed are as follows:

- Drains and other buried services: knotweed roots can exploit existing cracks and gaps in pipes, culverts and ductwork in their search for light, water and nutrients. This can cause significant damage to services and can block drains.
- Patios, paths and drives: rhizomes and shoots can grow between gaps in paving, slabs and expansion joints of concrete drives. Knotweed's rapid growth can quickly cause damage to such surfaces, requiring costly repair work to remove rhizome-contaminated soil and to reinstate the hard standing.
- Boundary and retaining walls: dense stands of knotweed plants can undermine garden walls with shallow foundations. They can also weaken retaining walls, exploiting weaknesses by growing through brickwork and resulting in sudden collapse.
- Outbuildings: vigorous stands of Japanese knotweed can overwhelm lightweight, insubstantial and poorly founded structures such as garages, parking areas and sheds.

Japanese knotweed contaminated soil is classed as 'Controlled Waste'. Only properly licensed organisations may remove this waste from a property and they must take it to appropriately licensed waste facilities. This can have costly implications for those who want to develop property on knotweed-affected sites.

Due to Japanese knotweed's extensive rhizomes, large amounts of contaminated soil are likely to result from activities on affected sites such as:

- (re)development
- landscaping and garden maintenance
- groundworks



The legal framework

In the UK there are three main pieces of legislation that cover Japanese knotweed. It is not an offence to have Japanese knotweed on your land and there is no legal obligation to remove or notify anybody of its presence. However, if you allow it to spread to neighbouring land there could be legal repercussions:

1. *Wildlife & Countryside Act 1981*. Section 14 of the Act states that it is a criminal offence to plant or otherwise cause to grow in the wild any plant that is included in Part 2 of Schedule 9 of the Act. Japanese knotweed is a Schedule 9 listed plant.
2. *Environmental Protection Act (EPA) 1990*. Japanese knotweed is classed as a 'Controlled Waste' and must be disposed of safely at a licensed landfill site. Section 34 of the EPA imposes a duty of care on persons who import, produce, carry, keep, treat or dispose of a controlled waste. The duty of care requires that all reasonable steps are taken to keep waste safe.

Section 33 states that it is a criminal offence to:

- a. Deposit, treat, keep or dispose of a controlled waste without an environmental permit / license; or
- b. To keep, treat or dispose of a controlled waste in a manner likely to cause pollution of the environment or harm human health.

The maximum sentence for either offence is an unlimited fine and/or two years imprisonment.

3. *Anti-social Behaviour, Crime and Policing Act 2014*. The police or local authorities can serve a community protection notice (CPN) on an individual or body to require them to control or prevent the growth of Japanese knotweed. However, it must be proven that the plant is having a detrimental effect of a persistent or continuing nature on the quality of life of those in the locality, and that the failure to act on the problem is unreasonable.

The legal framework

Other regulatory powers include:

- Civil liability for Private Nuisance: allowing Japanese knotweed to spread onto neighbouring land could constitute a private nuisance and result in a claim for damages.
- *Town and Country Planning Act 1990*: The Town and Country Planning Act 1990 allows a local planning authority to serve a notice on a landowner where an area is “adversely affected by the condition of the land in their area”. This notice will specify steps for remedying the condition of the land and, at the discretion of the local authority, may be used to require a landowner to remove or otherwise control Japanese knotweed.

The Law Commission review of wildlife law in England and Wales concluded that the existing legislation is not sufficient to control and eradicate invasive non-native species. The Infrastructure Act 2015 includes provisions that were recommended in the Law Commission’s review that seek to provide better legislation to control and eradicate invasive non-native species. The Act provides powers for environment authorities to enter into “species control agreements” (SCA) with owners of premises where the authority considers that an invasive non-native species is present.

Further powers also allow environment authorities to make species control orders (SCO). If the owners of premises fail to comply with or agree to an SCA, the authority can make an SCO. This can require the owner to carry out species control operations or can allow the authority itself to do so. However, Defra has stated that the intended use of these powers is to support national eradication programmes and that their use for widespread species such as Japanese knotweed could be considered disproportionate.



Mortgage lenders

Major banks are starting to consider not just the current presence of knotweed in their lending criteria, but the former presence as well. HSBC's recently issued guidelines now state *"You will need to advise the Bank if you become aware that there is, may be or has previously been Japanese knotweed identified within the boundary of the property or within 7 metres of the boundary. We will only consider lending once the weed has been eradicated and a completion certificate for the treatment has been issued together with a guarantee for a minimum period of 10 years."*

Previously the only requirement had been to identify knotweed currently on or in close proximity to a property. It would be possible for an oblivious or unscrupulous land owner to either temporarily chop down any knotweed at a property, or to only sell outside the growing season, in order to effect a sale with no mention of knotweed. Groundsure's Japanese knotweed report reduces this possibility, analysing recent past aerial imagery to identify whether knotweed was formerly present at a site, regardless of whether the plant is visible at the time of a valuation survey.

Groundsure's report has also been used in a number of litigation cases where historic aerial imagery has been used to assess previous extents of knotweed long before a property transaction had been completed and after treatments to get rid of it had begun.



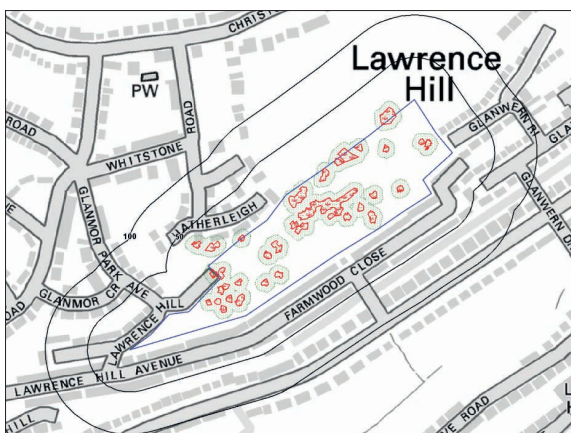
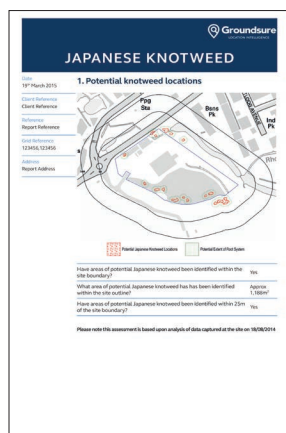
Japanese knotweed searches

Groundsure has developed a commercial property Japanese knotweed search report suitable for conveyancers, surveyors, developers and other similar professionals. The search report highlights areas of potential Japanese knotweed infestation on the subject property and within the vicinity and environs of that site.

The search operates using innovative remote sensing technology and provides an estimate of the possible extent of infestation subsequent to the date of the aerial imagery used.

It is important to note that properties being offered for sale may have had cosmetic removal of Japanese knotweed, leaving a property seemingly free from infestation upon cursory inspection. The Japanese knotweed search report will provide a prior view of infestation and from there give an estimate of present day extent based upon growth rate patterns of the species.

Whilst a present day view of the property from physical inspection is clearly important, the search report provides an additional degree of intelligence that is unlikely to otherwise be possible from present day physical inspection alone.



To discuss any issues relating to Japanese knotweed affecting property or to find out more about the Groundsure Japanese knotweed Search, please email info@groundsure.com or speak with our specialists on 08444 159 000.

Treatment and eradication

Removal off-site: This is the quickest but also the most expensive option. The excavated knotweed material is removed off-site by an appropriately licensed haulier and taken to a licensed waste facility. The site is then monitored as part of a herbicide spraying programme to ensure no re-growth.

Burial on-site: The knotweed growth is excavated and buried on site in an encapsulated root-membrane, or membrane covered burial area. The depth of the burial area might need to be agreed with the appropriate authority (e.g. in England the Environment Agency). The site is then monitored as part of a herbicide spraying programme to ensure no re-growth. Complications with this option can include high groundwater levels and the presence of other contamination.

Landscaping: The knotweed area is excavated and then moved to another part of the site and formed into a landscaping mound. The resulting knotweed growth is then monitored through a herbicide spraying programme over several years. The complication with this option is mainly the presence of other contaminants, and the space available.

Screening/pick and sort: The knotweed area is excavated and the soil arisings passed over either a picking station or a soil screen. The picked/sorted rhizomes are then removed from site as controlled waste, normally at the higher landfill tax rate. As above, the haulier and waste facility need to be appropriately licensed. The sorted soil, as stated by the EA, still needs to be regarded as potentially containing viable knotweed rhizomes, so although it can be reused on site it should be monitored and the location recorded.

Reduced excavation: Often employed under car parks, roads, public open space or other areas where construction levels are relatively shallow. Once the reduced excavation is carried out, a root barrier membrane is laid over the base of the excavation area and the car park/road constructed above. Any emergent knotweed re-growth around the membrane is controlled by a herbicide spraying programme.

Vertical membrane: A root barrier membrane can be installed to act as a vertical barrier to stop Japanese knotweed growth migrating into certain site areas or across site boundaries.

Treatment and eradication

Herbicide Spraying: This is usually the cheapest treatment option but takes the most amount of time to be effective. Specialist herbicides are applied to Japanese knotweed plants over several growing seasons (often two to four). Problems can arise if the knotweed area needs to be excavated in the future as deeper rhizomes take a long time to die and can be woken from dormancy if disturbed - potentially up to 20 years after the above ground growth is treated.

Treatment Costs: Treating an infestation of just a few small square metres can cost £5,000 -£10,000 or more, especially if a quick solution or rhizome excavation is required. Larger infestations, and particularly those that require offsite disposal of significant volumes of controlled waste, are likely to cost tens to hundreds of thousands of pounds to be effectively dealt with.



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Frequently asked questions

What is the purpose of the Groundsure Japanese knotweed search report?

The purpose of the report is to give an indication of whether Japanese knotweed can be identified from aerial imagery on the subject property or in the surrounds within approximately the last 5 years.

How relevant will this be for commercial property transactions, leasing and re-financing ?

Property may have existing Japanese knotweed infestation or indeed be at risk of future infestation where adjacent property has similar issues presenting a trans-boundary future threat. Identifying this in a transaction will allow appropriate factoring of the circumstances and consideration of effective solution from both a technical and commercial standpoint.

What data is used in the search report?

The Japanese knotweed report requires specialist aerial photography, using different types of images taken at the same time. This is different to the aerial images you would see in Environmental Searches/Google maps etc. The aerial imagery used is generally 6 months to 3 years old with occasional use of older imagery to approximately 5 years, where more recent data is not available.

Whilst the search should not be regarded as a substitute for a present day site inspection, importantly it provides a potentially more realistic understanding of Japanese knotweed infestation in the general area and hence the potential impact from adjacent land – the greatest source of Japanese knotweed infestation.

What should I do if a search report identifies a potential Japanese knotweed issue?

There are usually several possible courses of action to address such risks. In the first instance you should contact Groundsure who will be able to assist you further and potentially refer you to a specialist Japanese knotweed remediation company. Groundsure may also be able to assist with dialogue with a lender wishing to protect itself from exposure to Japanese knotweed liability.

Frequently asked questions

What are the potential costs of remediating Japanese knotweed infestations and associated timescales?

Cost ranges can vary considerably depending on what the proposed land use is and whether any development is planned in the immediate future. Simple herbicide treatment of a minor infestation may cost in the order of £5k-£10k with works commonly spread over 3-5 years.

More complex solutions designed to address significant infestations and associated intentions to redevelop the property may require considerably greater expenditure and need careful factoring into any development schedule. Costs could run to the order of £100k+ with initial works completed in months but with additional engineering contingencies and post completion monitoring lasting years.



Case study - Stoke-on-Trent

Groundsure was commissioned to undertake a Japanese knotweed search report on a parcel of derelict land identified for commercial development in Stoke-on-Trent. The site was adjacent to allotment land and residential properties, and had been cleared of vegetation prior to being offered for sale.

No evidence of knotweed was found during a physical survey of the site. The Groundsure Japanese knotweed search report showed that a year before, an area of approximately 75m² had a vigorous knotweed stand growing immediately adjacent to the residential properties to the north of the site. No treatment programme had been undertaken, and as a result the purchase price was reduced by £20,000 to allow for the treatment programme and temporary loss of utility of the portion of land.

Had this not been identified by Groundsure, the first the developer would have known about the Japanese knotweed would be during the spring growth season the following year, adversely affecting the development which would have been taking place by that time, greatly increasing development costs and uncertainty.



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Aerial photography with polygon outlining Japanese knotweed on the site.

Case study - Olympic Park London

The work to prepare the Olympic Park was one of the biggest land remediation projects undertaken in the UK. At 246 hectares, it is big enough to fit 357 football pitches. Of that, Japanese knotweed covered 4 hectares, located mainly in the area of the velodrome and aquatic centre.

Japanese knotweed infestation at the site could have presented long term structural risks to the stadium infrastructure as well as more short term issues of aesthetic appearance with regard to the desired finish to such a high profile project. The toxicity of some chemical treatments limited their use throughout the site. They could only be employed to treat non-landscaped areas and locations greater than 10 metres from protected aquifers or watercourses.

Therefore, a range of site-specific treatments had to be developed in close liaison with the Environment Agency, the London Development Agency and the Olympic Delivery Authority. The aim was to manage the invasive species within the park boundary, with minimised carbon footprint and avoiding transportation which could lead to further spread.

In areas of the site that required immediate access, the knotweed canes were cut and incinerated within a minimum of three days after being treated with the water-safe chemical Glyphosate. These areas were then excavated, transported to an agreed burial site and buried a minimum of 5 metres below finished levels. A protective membrane was overlaid and welded to fully encapsulate it. Other areas of the site that didn't require immediate access were treated with Glyphosate over a minimum of three growing seasons.

The removal and treatment of Japanese knotweed at the Olympic Park cost around £70 million of the £9.3 billion total remediation cost.

To discuss any issues relating to Japanese knotweed affecting property or to find out more about the Groundsure Japanese knotweed Search, please email info@groundsure.com or speak with our specialists on 08444 159 000.



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