

Untying the knots

Japanese knotweed is one of the biggest threats to commercial and domestic developments in the UK. Dr Paul Beckett, founder of environmental consultancy Phlorum, examines the threat and the potential cost of this invasive weed and how to deal with its presence.

Introduced from Asia in the mid-nineteenth century as an ornamental plant, Japanese knotweed is today one of the biggest threats to commercial and domestic developments in the UK. Typically this invasive weed is found in wasteland and brownfield sites. The Government has conservatively placed the total cost of controlling Japanese knotweed at £1.56 billion. The plant poses such a threat even though it doesn't produce viable seed in the UK as all of the introduced plants were female; instead, it spreads entirely by vegetative means, through small pieces of stem and root cuttings.

This insidious weed typically springs up in April. New shoots emerge early in the month and can grow up to three-to-four inches per day. Knotweed can damage foundations, drains and even walls, adding hundreds of thousands, or even millions of pounds to site costs. The danger of Japanese knotweed is that it grows anywhere, from field edges to sand dunes, through asphalt and out of lamp-posts; it's such a keen coloniser of marginal and harsh sites that one of its native habitats is the volcanic, gravelly desert of Mount Fuji. The speed with which it spreads is phenomenal, growing from pieces of the plant or root system that are cut and transported by people, animals or by water. The plant is so voracious that even a single fragment of root smaller than one gram can grow to form a new plant.

As Japanese knotweed does not originate in the UK, it does not compete fairly with our native species and is able to spread unchecked. Once it has established itself, Japanese knotweed shades out native plants by producing



Japanese knotweed

a dense canopy of leaves early in the growing season. Although it is not toxic to humans, animals or other plants, Japanese knotweed damages the ecosystem as it provides a poor habitat for native insects, birds and mammals. However, and quite interestingly, it does release a number of novel chemicals into the soil that can reduce the growth of neighbouring, native plants.

Don't let your development be uprooted

Japanese knotweed can be a recurring expense for developers if the plant isn't properly removed and the site remains infected, even by small fragments of the rhizome. If the knotweed is left untackled it can significantly devalue the land harbouring it. At present, across the UK, an area roughly the size of London is at risk from Japanese knotweed, which means that thousands of sites across the country are potentially at risk. One of the most disruptive impacts of knotweed is its ability to grow through drains and

other service pipes causing them to crack and eventually fail. If knotweed comes into contact with flowing water it can easily spread. Water is ideal for the transportation of the weed and it can begin to grow in any place that it is deposited. It can spread rapidly down watercourses and any flooding can easily dislodge rhizomes, which are then carried downstream to start new colonies.

Japanese knotweed is very common on sites that are disturbed by human activity, such as railway lines, old industrial sites, rubbish tips and derelict land. The transfer of soil, rubble and rubbish between sites is the most common cause for the spread of knotweed; although it is also spread from site-to-site through bits of root stuck to machinery and tyres. For the development of any new site it is essential that polluted areas are clearly marked out. Areas that do not need to be disturbed during the works should be fenced off, allowing a buffer of several metres to allow for the likely extent of the roots. All site operatives should

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be made aware of the requirements associated with the removal and disposal of the weed and their responsibility to ensure that it is not spread off site. On leaving parts of the site known to contain Japanese knotweed, any machinery that has been used should be thoroughly cleaned within a designated area. This spot should be as close as possible to the polluted area on which the machinery has been working to avoid any accidental spread of the plant.

It's criminal

Due to its high potential for regrowth and its ability to contaminate other sites, the movement of Japanese knotweed is strictly regulated by law and is subject to extreme restrictions. Taking into account the damage Japanese knotweed causes and its ability to spread, the species is under the control of different levels of legislation in those countries to which it has been introduced.

In the UK it is an offence to plant or otherwise cause the species to grow in the wild under the Wildlife and Countryside Act, 1981. Material containing Japanese knotweed is also classified as 'controlled waste' under the Environmental Protection Act, 1990 and as such must be disposed of safely at an appropriately licensed facility such as a landfill site, according to the Duty of Care Regulations.

Often, it is not the actual removal of the weed which causes people to be prosecuted, but the disposal. Soil excavated from a contaminated site must be disposed of at a licensed facility. It is also the responsibility of all those involved to ensure that the waste facility operators being instructed to dispose of the knotweed waste are informed of the type of waste and the risks involved in handling it. You cannot normally reuse contaminated soil in other building or landscaping developments and the Environment Agency recommends that knotweed contaminated soil must be buried to a depth of at least five metres. However, there are a number of novel and sustainable methods and practices that can provide easier ways to deal with knotweed wastes than some guidance documents suggest.

Dealing with the problem

To prevent Japanese knotweed from damaging important habitats and development sites, it is necessary to control or remove it. Attempting to dig out the plants either by hand or excavator usually makes the situation worse. Although there are a number of options available for the chemical treatment of Japanese knotweed, the majority of these require a number of years in order to be effective.

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Spraying the weed with an appropriate herbicide is one available option; however, it can take several years to make an impact and rarely achieves eradication without mechanical disturbance. Herbicide treatment can give the appearance of control but the roots below-ground may still be viable and will cause the plant to re-grow. Spraying is most effective when carried out during the growing season when there is green, leafy material present (although soil treatments in winter can be useful in some situations). Herbicide treatments take effect within a few weeks but eradication usually requires a number of revisits throughout the growing season. Whilst this is rarely a complete solution to any knotweed problem, a spraying programme may be an option for weakening the plant before removal or treating regrowth and remaining plants in the spring. The person who undertakes the spraying must hold a Certificate of Competence for herbicide use. A COSHH (Control of Substances Hazardous to Health) assessment must be carried out for all activities involving potentially hazardous chemicals, such as herbicides.

Often when contractors take control of a site, their working timescale is tight

and does not allow sufficient time for this method of eradication to be used. A quicker method of removing Japanese knotweed involves the clearing of the above-ground leaf and stem material and the removal of below-ground material that is contaminated with roots. Care should be taken to ensure that all Japanese knotweed roots are removed; this is one situation where it pays to remove too much material. Although even with great care, a certain amount of regrowth in the spring can sometimes be expected and any should be treated with an appropriate herbicide.

The future of knotweed

The future of Japanese knotweed in Britain looks set to continue being problematic. The weed is already a significant threat to gardens, buildings, roads and agricultural land throughout the western world, but the worst may be yet to come. The plant can set seed, with varying degrees of success, by hybridising with pollen from males of related species such as giant knotweed and Russian vine. Where successful, these hybrids can spread more vigorously than plain knotweed, producing thousands of viable seeds, enabling it to populate new areas in an entirely different way.

Numerous attempts have been made to control the rapid spread of Japanese knotweed, but to date few have been successful. If you suspect that your site is contaminated or if you already have a problem with knotweed, it is vital that you take action and seek the support and guidance of professional experts who can introduce you to some of the novel, sustainable and cost saving approaches to getting rid of it. If you don't you run the risk of significantly devaluing your development site, or at worst, face legal action.

Japanese knotweed is covered by legislation to prevent its spread throughout the UK and you should seek out professional advice before attempting to clear your site.

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