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Everything you wanted to know about **Japanese Knotweed** but were afraid to ask

Do you want to find out how to identify that suspicious plant on your land and what you should do about it?
If so read on…

If you are confused by your Japanese Knotweed, Giant Hogweed, Rhododendron Ponticum and get your roots confused with your rhizomes. Happily, these simple guides have been written just for you…! We hope it will give you an insight into the identification and what to do with various plant species.

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Introduction

This guide is not intended as a replacement for the information provided in the EA code of Practice and SEPA guidance documents rather it is intended to provide practical information in a straightforward manner to allow you to take informed decisions.

A species is generally considered to be "non-native" where it has been introduced by human agency outside its "natural range". The term "natural range" refers to the natural past or present distribution of a species but for the direct intervention of man.

In line with the approach adopted under the Convention on Biological Diversity, non-native species have been described domestically as being invasive where their "introduction and/or spread threaten biological diversity or have other unforeseen impacts"

Going by the definition given above Japanese Knotweed and associated knotweed species are fairly obviously non-native and invasive. The plant originates in Japan and was brought to the UK in the 19th century by the Victorian plant hunters. At this time is was valued for it's speed of growth and ornamental qualities and was consequently planted all over the place. Most significantly it was planted along some sections of railway line to provide a visual and noise screen providing the plant with a ready-made route to spread around the UK.

It is a problem because it truly is invasive in the meaning of the word that it spreads, colonises and invades everywhere it gets the slightest opportunity. The plant can regenerate and grow from cut or broken live stem pieces, from small fragments of rhizome, crown material and grows very quickly in the right conditions. A piece of rhizome roughly the size of your fingernail is capable of regenerating to form a new plant.

So Japanese Knotweed can be easily spread and will quickly out-compete most native vegetation, colonising and dominating most new environments.

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The plant evolved in a volcanically active environment where burial by hot ash is a regular occurrence so it tolerates losing surface vegetation and retains the vigour to grow up through layers of soil if it's buried. The rhizome can survive exposure to quite high temperatures so burning does not guarantee destruction of rhizomes and it grows fast to re-colonise ground in the aftermath of an event such as a volcanic eruption. In the UK there have only been female plants recorded to date so any seeds which are produced are hybrids and unlikely to survive so Japanese Knotweed really only spreads by growth of existing stands or transport of viable plant material by human, or animal action or by natural processes such as erosion of impacted riverbanks.

1. How do I identify Japanese Knotweed

The appearance of a stand of Japanese Knotweed will vary significantly over the course of the year so it's important to bear that in mind when you're looking at that suspicious plant and trying to decide whether to do something about it. The information below is broken into descriptions of discrete sections of the plant to differentiate it from other plants which may share some similarities but not all of the features described below will be visible for the entire growing season.

- Knotweed starts out as a reddish/purple shoot sprouting early spring time.

- The shoot quickly grows, up to 2cms a day forming a hollow stem. The raised nodes along the stem give it an appearance similar to bamboo. As the plant matures during the summer the stem becomes green with numerous small reddish/purple specks.

- Stems can commonly grow to 2-3m in height. A single plant can sprout several stems in close proximity with each other forming what is known as a stand of knotweed. A mature stand in the height of the growing season will commonly become so dense as to be virtually impenetrable.

- The broad, heart/shield shaped leaves emerge in late spring and grow in a zig-zag formation along the branches.

- The off-white flowers bloom during the late summer months and grow in clusters of small spiky stems covered with tiny flowers often described as sprays of flowers.

The height and thickness of stem can vary somewhat from stand to stand. A well established stand will tend to be made up of taller thicker stems than a newly sprouting stand. It's also worth bearing in mind that stands of knotweed which sprout in particularly favourable conditions will grow faster and produce denser stands of thicker stems than a stand which is growing in more marginal conditions.

- As knotweed reaches the end of its yearly lifecycle, the flowers and leaves drop and the stem dies turning to a dry brown

- At the base of the stems is a knotty lumpy section called the crown, this is commonly covered with fine brown tendrils giving the crown material a hairy appearance. Close inspection will reveal many small purple shoots on the crown.

- The rhizome below the crown has a woody, knotty appearance and is brown in colour. Scraping back the relatively thin brown outer layers or snapping the rhizome reveals a yellow/orange inner core. Rhizome has a carrot like texture and will tend to break cleanly and requires only a moderate amount of force to snap with your hands.

The orange interior is less obvious in fine tendrils at the ends of sections of rhizome making them difficult to identify without larger sections of root nearby. This is problematic during excavations as these sections of rhizome are the most effective at regenerating if left in the ground. During a casual inspection you wouldn't expect to encounter rhizome but if you find something like this in the ground close to a site boundary with JK on the other side then it's useful to know what it looks like. The majority of the rhizome will exist at shallow depth in the top 25cm below ground. Research and published literature indicates that rhizome can extend 7m laterally from visible surface plant growth and to a depth of 2m or more. It's worth noting that this depends upon ground conditions and the only way to be sure is through careful excavation and identification of rhizome.

In the UK there are also Giant and Compact Knotweed varieties and a hybrid variety of giant and Japanese knotweed. Giant Knotweed can grow to a height of 5m and has larger leaves, the hybrid will share some of the characteristics of Giant Knotweed and some of Japanese Knotweed although this can vary a bit from plant to plant. The compact knotweed variety grows to only around 1m. In other characteristics such as leaf shape and colour and the appearance of stems these varieties very closely resemble Japanese Knotweed. In other words if it looks mostly like Japanese Knotweed but it seems too big or too small or the leaves aren't quite the right shape it's best to err on the side of caution. These other variants of the plant are just as much of a nuisance as the thorough bred variety.

A special mention should be made with regards to knotweed which has been treated with herbicide either the following growing season or in the event of a sub-lethal dose in early season treatment. These plants will likely be shrunken and malformed and may appear to be radically different to the normal growth of Japanese Knotweed. In this instance an experienced professional may be required to identify the plants

Reasons to eradicate.....1.2.3

The reasons to do something about Japanese Knotweed are basically threefold, it can seriously affect the value of your land, it may impact upon any structures on the property and you might be breaking the law by not controlling it.

1. De-valued land

For most people this means selling a house and since this is also when you'll have to get your property surveyed there's a decent chance that this will be when the presence of JK on your land will come to light. In this circumstance the best outcome you can hope for is that a management plan is put into in place and the cost of this can be removed from the value of your property.

The worst case scenario and one which we've heard many stories of, is that mortgage lenders will simply not be prepared to lend to potential buyers against a property with knotweed issues. We've even heard tales of this affecting properties where the knotweed is located a significant distance from any structures or where it's present on a neighbouring property and is thought to be likely to encroach. In the case of a developer this can make it difficult to sell properties and managing the problem in a responsible manner will almost certainly increase development costs to some extent. Most lenders will consider these matters on a case by case basis but some will refuse a mortgage out of hand on the basis of Japanese Knotweed issues and it's inescapable that this will make land less desirable and probably reduce the value of land.

2. Damaged Structures

It's time to dispel a few myths. Japanese Knotweed does not grow straight through concrete and brick. Like many other plants it will push rootlets into cracks and discontinuities in the structure and then use these inroads to widen them and push more shoots in and so on and so on ultimately causing structural damage. What makes knotweed exceptional is the ability to survive burial at depth and the speed at which it grows. So a process which would kill many plants and take most other plants and trees many years to achieve will happen much more quickly with JK. A freshly laid concrete barrier with no cracks to exploit in this manner will not be susceptible to the growth of knotweed in the same way as an older structure. This is largely the principle behind barrier membranes, even the most durable plastics cannot match solid concrete for strength, however when correctly installed and sealed the membrane presents a smooth impenetrable barrier which the plant is not able to make that initial inroad into.

A freshly laid concrete slab for example will present an effective barrier to JK for a considerable length of time. However, most structures will have a few cracks to exploit and while the building will only ever degrade over time, the JK can remain dormant for long periods of time and if left un-treated the knotweed will keep on growing. It's also particularly problematic with infiltrating buried pipes. Pipes offer the plant a nice path of low resistance to grow along allowing it to spread well beyond the anticipated 7m boundary, along with the plant clogging pipes as it grows there is the potential it can push sections out of alignment. (knotweed growing through a pipe).

Additionally once JK has grown into the midst of a structure physical removal without damaging the structure is pretty much impossible, herbicide treatment is your only option at that point.

3. Legislation

The legal standing of Japanese Knotweed varies slightly across the UK, in England and Wales the primary legislation relating to knotweed is 'Section 14(2) of the Wildlife and Countryside Act 1981 (WCA 1981)'. In Scotland this is still the overarching legislation but in effect has been superseded by the amendments which came into force with the 'The Wildlife and Natural Environment (Scotland) Act 2012'. In relation to the management of knotweed, the practical application of the law is essentially the same.

Japanese Knotweed is classified as an invasive species it is therefore the responsibility of the land owner to prevent the plant spreading to neighbouring land (or into the wild), and removal of plant must be conducted with due care and attention. There is no legal obligation to remove or treat knotweed as long as you're not encouraging or allowing the growth on to adjacent land. As of schedule 9 of the 'Wildlife and Countryside Act 1981', you must not plant or cause to grow Japanese Knotweed in the wild.

In Scotland the Scottish Minister, Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and Forestry Commission Scotland (FCS) have powers to require land managers to take action in relation to invasive species. In practice this means that SNH who have responsibility for land based invasive species can put in place Species Control Orders or Emergency Control Orders to force a landowner to take action to prevent the spread of Japanese Knotweed.

The penalties for breaking the law can be severe, if taken to court you will be tried under the primary legislation and a person found guilty of an offence under Section 14 of the Wildlife and Countryside Act 1981 could be liable to:

- imprisonment for up to six months and /or a fine of up to £40,000 (summary conviction)
- imprisonment for up to two years and/or a fine, (conviction on indictment).

There are no regulations stating that you need to notify anyone Japanese Knotweed is growing on your land. However reporting the growth of the plant to the Non-native Species Secretariat website (NNSS) does help with getting a handle on how quickly it's spreading across the country.

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

With all that in mind the best reason to do something about JK on your land is that it simply won't get better on it's own. If you accept that something will need to be done about it eventually and given what you now know you can see that the best reason to treat sooner rather than later is because the more there is to treat the more expensive it will be.

3. How do you treat Japanese Knotweed ?

There are a range of options to deal with Japanese Knotweed and the best one for you will depend upon site circumstances, the available time and budget. However a simple rule to follow is, if you don't need to physically disturb it then don't. The risks of spreading the plant increase massively as soon as you start disturbing rhizome and crown material by taking it out of the ground. This is particularly of concern with machinery which is being hired onto sites and then sent to other places. So in ascending order of cost, difficulty and risk the most common options are:

- **Herbicides** – Applied either by a sprayer, stem injection or weed wiper. Timing will depend upon the selected herbicide but timing is particularly crucial for systemic herbicides such as Glyphosate which is best applied during in late summer to early autumn. Avoid flowering periods to protect bees and other pollinating insects or modify the application method to reduce risks. The sprayer operator must have relevant qualifications in the safe handling and use of pesticides and sprayer applicator. All regulations and conditions of the herbicide product label must be adhered too. If timed correctly and done properly herbicide application will eradicate Japanese Knotweed but it is unlikely to achieve this in one season. It's also worth bearing in mind that most herbicides need a plant to be growing for successful absorption of the active ingredients, it's counter intuitive but a strong healthy plant will respond better to herbicide treatment than one which is already stressed.

  The herbicide which offers the best result will depend upon site circumstances but it's worth keeping in mind that persistent herbicides may restrict future potential uses for soil.

- **Excavation and on-site treatment** – Excavating but retaining the plant on-site allows the management of the plant within a wider development plan. This is particularly useful if you need access to an area but have other areas of a site where material can be safely stockpiled for at least 18 months to 2 years. The longer it's left the better to allow for monitoring for re-growth following treatment. The knotweed stems can be cut, dried and burnt to reduce the mass of vegetation. Breaking up the rhizome and placing it close to the surface in a bund for treatment encourages the plant to grow and makes the herbicide more effective.

  It is standard practice to treat the plant with a glyphosate based herbicide prior to any excavation works to reduce it's vigour and thereby reduce the likelihood of regeneration from any fragments which may be missed or dropped. Obviously this only applies during the growing season and the usual restrictions on herbicide applications will apply.

- **On Site burial** – Working in conjunction with herbicides or as a stand-alone option, the knotweed can be buried. This can be done either within a suitable plant resistant membrane, or at a depth greater than 5m without a membrane. Careful consideration must be given to the burial site location because it should remain undisturbed for the next 20 years or more. Protection from flooding, excavation by people or animals and accurate recording of the location are all essential for the long term success of this option.

- **Off-site disposal** – Generally this is the quickest but most expensive option. The knotweed and surrounding soil are taken to an appropriately licensed disposal facility to be dealt with. A careful phased excavation is recommended to reduce the volume to a minimum but any excavation of knotweed must remove all viable plant material this means that you can end up with quite a large excavation. Again spraying to reduce vigour and burning to reduce volume can both be employed. It is absolutely crucial that good bio-security procedures including boot and vehicle washing be maintained and hauliers must cover the loads and clean the wagon bay prior to going to another site.

A process of screening can be used to remove the plant material from soil and only the recovered plant material is then disposed of. The resultant screened soil must still be treated with caution and should be used in one place preferably away from watercourses, sensitive structures or where it will be disturbed and at surface where any re-growth from missed fragments can be easily identified and treated.

Other options – There are several other options for treatment of soils to kill the Japanese Knotweed either through mechanical or chemical means. At the time of writing none of these have been officially recognised and anecdotal reports are varied but the option exists to use the best practicable option to treat knotweed, taking account of financial constraints. This can mean the use of treatment and membranes to allow works to take place and protect buildings. If the risk of Japanese Knotweed cannot be completely discounted a properly fitted and sealed root barrier membrane is an effective protection for buildings and other buried services. Also the use of an insect is being trialled in the UK at the moment, results of this are eagerly awaited.

Finally...

If you have any queries, need an experienced professional to identify a suspicious plant or you need some advice email to info@soilutions.co.uk or give us a call on 0131 538 8456.

We're always happy to have a chat.