Ecological information on Japanese knotweed

1.1 What is Japanese knotweed?

Japanese knotweed is a tall, vigorous ornamental plant that escaped from cultivation in the late nineteenth century to become an aggressive invader in the urban and rural environment.

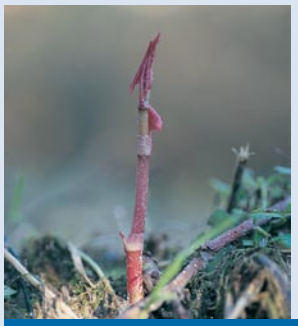
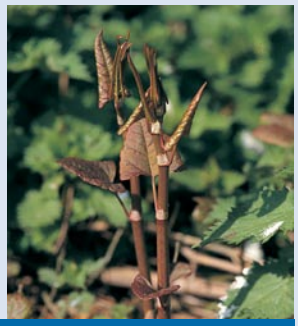
1.2 What does Japanese knotweed look like?

Japanese knotweed, scientific names *Fallopia japonica* (Houtt. Ronse Decraene), *Reynoutria japonica* (Houtt.) or *Polygonum cuspidatum* (Siebold & Zuccarini) is a member of the dock family (Polygonaceae). It is a rhizomatous (produces underground stems) perennial plant with distinctive, branching, hollow, bamboo-like stems, covered in purple speckles, often reaching 2-3 m high. The leaves of the mature plant are up to 120 mm in length with a flattened base and pointed tip and are arranged on arching stems in a zig-zag pattern.
The plant flowers late in the season, August to October, with small creamy-white flowers hanging in clusters from the leaf axils (point at which the leaf joins with the stem). The underground rhizomes are thick and woody with a knotty appearance and when broken reveal a bright orange-coloured centre.
The rhizome system may extend to, and beyond, a depth of at least 2m and extend 7m laterally from a parent plant.

During winter, the leaves die back to reveal orange/brown coloured woody stems which may stay erect for several years. Stem and leaf material decomposes slowly, leaving a deep layer of plant litter. During March to April, the plant sends up new shoots, red/purple in colour with rolled back leaves. These shoots grow rapidly due to stored nutrients in the extensive rhizome system. Growth rates of up to 40 mm a day have been recorded.

1.3 Regeneration

Only female Japanese knotweed (*F. japonica var japonica*) plants have been recorded to date in the UK. Although seeds are produced, they are not true Japanese knotweed seeds but hybrids, and rarely survive.

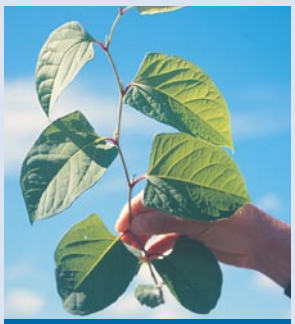



Spring Growth

2-3 metre high canes

August - October flowers

Alternate leaves



Zig-zag pattern

Purple speckles

Two species closely related to Japanese knotweed are also found in the UK. These are, giant knotweed (*Fallopia sachalinensis*), a much taller plant which reaches a height of 5m; and a smaller compact variety (*Fallopia japonica var. compacta*), which grows to a height of only 1m. The hybrid (*Fallopia x bohemica*) (a cross between Japanese knotweed and giant knotweed) is also found throughout the UK but is not as common as Japanese knotweed. Both giant knotweed and the hybrid should be managed in the same way as Japanese knotweed.

Japanese knotweed rarely produces viable seeds. In the UK the plant is mainly spread through rhizome fragments or cut stems. Greenhouse trials have shown that as little as 0.7 gram of rhizome material (10 mm in length) can produce a new plant within 10 days. Cut fresh stems have also been shown to produce shoots and roots from nodes when buried in soil or immersed in water. Once cut stem material has been allowed to dry out thoroughly and has reached the orange/brown 'woody' stage, there is no further regeneration. Rhizome material may take much longer to die and may remain dormant for long periods, possibly as long as 20 years.

1.4 Dispersal

The spread and high regeneration rates of the plant have serious implications for dispersal by both natural and human means. In river catchments, fragments of rhizomes or cut stems that are washed into watercourses under high water flows can form new plants downstream. Fly-tipping garden waste that contains stem or rhizome fragments, using contaminated topsoil and transporting soil from infested sites during construction works are the main ways that people spread the plant. Small fragments of stem and rhizome may also be transferred from an infested site to other sites on machinery, for example for building works or for maintaining road verges.

1.5 Why do I need to manage Japanese knotweed on my development site?

Habitats affected by Japanese knotweed include those in both urban and rural areas. In an urban environment, sites such as road verges, railway land and watercourse corridors may be affected. Waste ground, cemeteries and heavily disturbed ground are particularly vulnerable. In rural areas, the problems include disrupting sight lines on roads and railways and, in the riverside environment, disrupting flood defence structures.
The plant damages the urban environment by pushing up through tarmac and paving, out-competing other species in planting programmes as part of landscaping schemes and causing aesthetic problems as litter accumulates in the dense thickets formed by the plant. This also encourages vermin.

Japanese knotweed is also invading continental Europe, particularly in the east. It is also causing problems on the western seaboard of the United States. Within its native range, Japanese knotweed rarely causes problems.

Japanese knotweed has been removed from the natural enemies that control it in its native range in Japan. It out-competes our native plants and animals. The spread of Japanese knotweed is a serious threat to our countryside, and the native plants and animals that rely upon it.

Dead winter canes

Giant knotweed *F.sachalinensis*

Hybrid knotweed *F.x bohemica*