



Species Spotlight

Japanese Knotweed

Fallopia Japonica

If the plant kingdom could anoint an overlord super-villain, you'd be hard-pressed to find a more suitable candidate than Japanese knotweed. How better to describe a plant that can puncture pavement and crack concrete, breaks the top 40 of the International Union for Conservation of Nature's 100 worst invasive species on the planet, and has been described (with only a hint of hyperbole) as an "indestructible scourge"? Knotweed is capable of completely smothering out all other plant life, launching a domino effect that leads to other native species, like insects and birds, to leave the area as well. While knotweed may seem indomitable, it can be controlled - especially when caught early. So let's take a deeper dive into the story of this much-maligned plant and learn the ways people and parks are trying to halt its spread.

The Devil's Bamboo and Demon Weed

There are so many evil monikers and horror stories associated with it, people may question whether to call an exterminator or an exorcist if detected on their land. Far from being evil however, knotweed of course is just doing its thing. But outside of its native range and without any natural controls to keep it in check, it is having impacts that run almost as deep as its roots. Its seemingly supernatural ability to not only survive but thrive is the stuff of legend: its rhizome (root, essentially) is said to be able to stay dormant for up to 20 years under the soil; a piece of rhizome no bigger than your thumbnail is all it takes to produce clones that can take over several countries (see: the U.K.); it can grow ~10ft high in just 6 weeks (15ft+ total); roads, walls, and parking lots pose no barrier as intricate networks of rhizomes reach as far as 70ft out and 10ft deep from the originating plant; it releases chemicals in the soil that inhibits the growth of would-be plant competitors; and on and on and on. Knotweed is such a public menace in Great Britain that banks won't issue mortgages for properties on which it is found - or even lurking nearby. It has been the cause of such great anxiety there that its invasion into yards has been implicated to drive some to murder and suicide.

The Game of Clones

One of the reasons knotweed can vie for the Iron Throne of Pesteros (George R. R. Martin forgive me) is its ability to reproduce asexually. In no part of the world has this been demonstrated better than the U.K. The sad saga of their knotweed disaster can be traced back to 1850 when a German physician and botanist named Phillip von Siebold sent a single Japanese Knotweed plant to Kew Gardens in London. He had become fond of it during his long stays in Japan (where it lives in relative

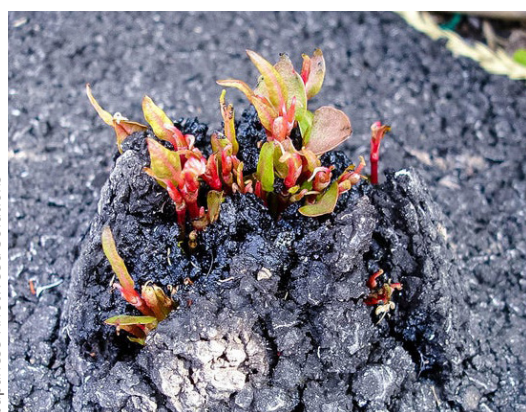
harmony with the local ecosystem). Londoners were at first enamored by its peculiar bamboo-like growth form and delicate white flowers. It soon began to be promoted as a great ornamental plant with medicinal properties that could be used for a wind break, erosion control, cattle feed, and dune stabilization among other beneficial employs. It was also, somewhat ominously in hindsight, noted to grow with "great vigor" (if this were a movie, now is the foreshadowing moment when the bone-chilling background music would start to play). It wasn't long before some gardeners started to sound alarm bells about the aggressiveness of the plant. Nevertheless it was promoted and sold for near on a century before people thought better of it. Of course by then it was far too late to stop it, and Siebold's plant was well on its way to conquering nearly the whole of the British Isles. When I say "Siebold's plant", I literally mean *his* plant - the one he sent to London way back in 1850. Amazingly, DNA analysis in 2000 of 150 knotweed samples from across the U.K. showed them to be identical, meaning they were all clones of the same plant Siebold sent 150 years prior. Think about it - the United Kingdom has been overrun not so much by a plant species, but by a *plant*.

But Can it be Stopped?

Controlling the further spread and eradication of knotweed is a top priority across much of Europe and North America. Though there are no shortage of sensational stories about its indestructibility, cooler heads have concluded that - though a long and arduous task, knotweed can indeed be subdued.

As with many potentially chronic problems, early detection and rapid response are the best ways to control knotweeds' spread. Jumping on a new colony of plants *immediately* goes a long way, as plant patches that have had years to grow their underground network of rhizomes are much harder to get rid of.





Don't worry. While it looks like she's about to be swallowed alive, the little girl on the left was not harmed in the making of this photo. The same can not be said for any native vegetation trying to compete with the overwhelming smothering capabilities of a Japanese Knotweed thicket. Shoots emanating from rhizomes can poke through pavement (middle) and exploit cracks in foundations, which costs millions in damages each year in the U.K. and North America. Attempts to control it include releasing a tiny plant louse that feeds exclusively on knotweed (right).

Such a patch in NH, likely derived from a single plant, was found to have a network of rhizomes that spread out 32,000 square feet (over half the size of a football field). That said, having-at a newly sprouted patch of knotweed with your trusty John Deere or weedwhacker is **not** the way to stop it from taking over your yard. As gratifying as watching the chunks fly may be in the moment (maniacal laughter optional), just a small root fragment or single internode on a stem will create entire new infestations if it makes contact with soil. Far from killing off the plants, this will have the unfortunate Fantasia-like effect of potentially multiplying knotweed stems over an even wider swathe of your yard, or a downstream neighbor if by a waterway. Knotweed is on the Targeted Plant Species Watchlist for the Northeast branch of the National Park Service's [Exotic Plant Management Team](#). They have visited several NETN parks to help them deal with knotweed and other invasive plant issues. The team uses the careful application of chemical herbicides and/or manual cutting and disposal of stems to control and eliminate Japanese knotweed infestations. This can involve years of treatments to kill the rhizomes completely.

Bug it to Death or Get its Goat?

There are also biological control efforts directed at stopping knotweed infestations. In Japan, more than 180 indigenous species feed on the plant and help keep it in check. So wouldn't it be good to bring some of them to Europe and North America to halt knotweed in its tracks? That, my friends, is what is called a loaded question. While logical on its surface, this strategy is fraught with many potential pitfalls. One of the most infamous examples of a biocontrol-gone-wrong is the cane toad in Australia. Introduced to the country in 1935, it was brought in to control a beetle that was destroying sugar cane crops. Turns out, the toads ate just about everything but the beetles (lizards, snakes, frogs, tadpoles, marsupials, mice, snails, insects, pet food, etc.) and are now considered one of the worst invasive species problems on the planet.

In an attempt to avoid repeating such a catastrophe, European researchers have spent many years investigating Japanese insects. They concluded that the best candidate is a 2mm-long psyllid plant louse, something similar to an tiny aphid. Equally as important to its knotweed controlling abilities, it appears to pose no risk to native species. It was released in small test areas in the U.K. a few years ago with the hopes of millions resting on its tiny shoulders. So far, results have been mixed as it seems some native insect species enjoy feasting on its miniscule eggs, limiting the natural spread of the insect. The USDA only very recently (public comment period ended June 27) concluded that this psyllid poses no significant threat to the native environment in this country and plans on issuing release permits soon if no significant concerns are raised.

Another method of controlling knotweed that has enjoyed some success is unleashing small herds of hungry goats upon patches of the plant. The idea is that as the goats graze new shoots again and again, knotweed rhizomes are repeatedly depleted of resources until they eventually die. Of course it can take several years for this to happen.

The take-home message here is that, no matter the method, persistence is the key to at least control if not completely eradicate a knotweed infestation. If you see it in your yard, contact your state or local natural resources agency to receive the most current information and resources on how best to deal with it.

For more information

NETN is committed to helping partner parks detect early instances of many invasives species, including Japanese knotweed. Learn more about [NETN's Early Detection Invasive Species](#) program.

- [Watch this BBC video](#) to see knotweed growing through pavement and even through the floorboards in people's homes. Also learn more about the tiny plant psyllid and see it in action.