

You Ain't From Around Here! Exotic Invasive of the Quarter: Japanese Knotweed (*Polygonum cuspidatum*) Part 1

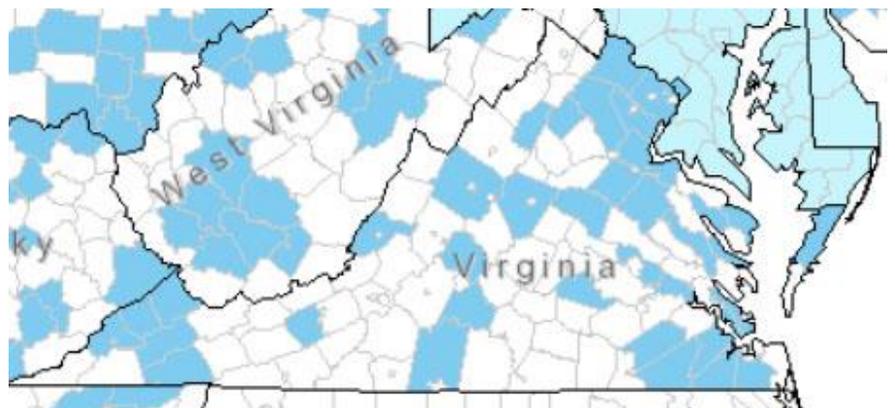
By: Jennifer Gagnon, Virginia Tech

I've written about some pretty amazing (in a bad way) exotic invasives before – [giant hogweed](#), [wild hogs](#), and [hydrilla](#) come to mind. But Japanese knotweed stands alone. There's so much to share that this article will be broken into 2 parts. Part 1 will cover the history, pros and cons, reproduction, and a tale of madness and murder. Part 2 (in the Summer 2020 issue) will cover identification, control, and a tale of revenge.

Classified in the seemingly innocent buckwheat family, along with fan favorites such as sea grape and buckwheat, Japanese knotweed is a plant of many names. Scientific names include *Fallopia japonica*, *Reynoutria japonica*, and *Polygonum zuccarinii*. I'm using *Polygonum cuspidatum* as it's the one used by USDA PLANTS. Common names include: fleecflower, Himalayan fleec vine, billyweed, monkeyweed, monkey fungus, elephant ears, pea shooters, donkey rhubarb, American bamboo, Mexican bamboo, and in Japan it is known as *itadori* (tiger stick). There are two other kinds of knotweed found in the US. These are giant knotweed (*Polygonum sachalinense*), and Bohemian knotweed (*Polygonum x bohemicum*) a hybrid of giant and Japanese knotweed. Both are also exotic and invasive.

Japanese knotweed is an herbaceous bamboo-like perennial native to Japan, China, and Korea. The World Conservation Union listed it as one of the world's worst invasive species. It has been described as the Godzilla plant and the weed that just won't die. In Great Britain, Japanese knotweed is such a problem that it has entered common culture and resulted in at least one tragedy (more on that in a bit).

It was introduced to the New York Botanical Garden in the 1860's as a gift from James Hogg who ran a nursery in the city. He acquired the plant from his brother who was working in Japan. As you may have guessed, knotweed loved the big city and still does. Since 2010, New York City has spent over \$1 million treating just a 30-acre patch of the weed. And knotweed is now launching a rapid and devastating invasion in 38 other states.



Japanese knotweed is found in counties (shaded) throughout Virginia. Map from USDA PLANTS.

Gagnon. Virginia Forest Landowner Update. V. 34 No. 2, Spring 2020.

Japanese knotweed has been identified in counties throughout Virginia. And it is more widespread than what the map shows. The map indicates that Japanese knotweed is absent in Montgomery County. But there are at least two known patches of it on my commute to work. I'll be reporting those as soon as they start coming back this spring.

I'll get into why this species is so bad shortly. But Japanese knotweed is not without its charms. Although there is very little clinical data to support it, Japanese knotweed is a widely-used medicinal because it is rich in resveratrol, the family of molecules present in red wine and associated with health benefits. You can find a wide array of products containing it on Amazon. Japanese knotweed is thought to have anti-inflammatory, antimicrobial, and antioxidant powers, and supposedly can treat conditions such as hyperlipidemia and Lyme disease. Again, there is little data to back up these claims, but that doesn't stop it from being a huge money-maker.

Additionally, it is edible, although its tastiness is up for debate. One source described the flavor as lemony, while another described it as a very sour rhubarb. Personally, I don't find the description of "very sour rhubarb" very appealing; rhubarb is sour enough, thank you. But it can be used in recipes. In fact, I found several on-line, including:

- [Japanese Knotweed Puree](#)
- [Japanese Knotweed Bread](#)
- [Japanese Knotweed Jelly](#)

I truly adore anything that comes with recipes. I have not tried these. I do not know if they are good. But if you make one, please let me know how it turns out!

Surprisingly, Japanese knotweed even has ecological benefits. Ground feeding songbirds eat the seeds, and with its August-September summer blooms, it provides a late season source of food for honeybees.

So, you may be thinking, this isn't such a terrible weed after all. Except...

Japanese knotweed is exceptional at reproduction. In Europe, all Japanese knotweed populations appear to be clones of a single female and do not produce pollen. However, they are able to accept pollen from the closely related giant knotweed, producing the fertile hybrid Bohemian knotweed. The hybrid appears to be spreading faster than either of its parent species.

In the US, populations have been documented with both male and female (European genotype) plants. Though the female plants do not produce pollen, they can produce viable seeds; males contribute pollen and may also produce seed. Reproduction by seed has been documented in the Northeast and also in Wisconsin. The potential for spread of the hybrid knotweed may be even greater; both male and female fertile hybrids have been found in areas without either giant or Japanese knotweed.

More commonly though, Japanese knotweed reproduces asexually. New plants can form from a fingernail-sized piece of stem or root. And roots in the ground will produce copious sprouts.

These reproduction strategies make Japanese knotweed a vicious invader, especially on disturbed sites such as roadsides, waste disposal areas, and construction sites, as well as along waterways such as rivers, streams, and ponds. It is highly adaptable to a wide variety of soil, water, and light conditions. Japanese knotweed is a rapid grower of up to 3" a day, so even though it dies back each winter, it quickly recaptures the site each spring. The plants grow deep taproots that extend up to 10' deep, and 23 to 56' laterally in the soil.



Japanese knotweed forms dense infestations on disturbed sites and along waterways. The infestations along waterways can result in increased erosion and sedimentation. Photos by: Jenn Greiser, New York City Department of Environmental Protection.

One knotweed system that was almost certainly one plant, connected by an extensive root system, covered 32,000 square feet – about 2/3 of an acre!

Ecologically, a Japanese knotweed infestation can be disastrous. These plants form dense, dark colonies that exclude other herbaceous species. Additionally, the roots are allelopathic, meaning they exude an herbicide-like chemical that kills other species growing nearby. Fewer plant species mean fewer bugs, leading to fewer birds.

Because of the dense growth and allelopathy, new trees cannot grow under a knotweed monoculture. This has a particularly negative impact along streams, where trees and their root systems provide valuable erosion control as well as contribute to coarse woody debris, which is valuable habitat. Unfortunately, Japanese knotweed loves growing along streams.

Finally, there is little organic matter found on the ground under these knotweed infestations. This increases soil erosion, contributes to stream sedimentation, and reduces habitat.

Japanese knotweed is also responsible for economic damage. The vigorous root systems can penetrate asphalt and cracks in concrete, making them a menace to foundations, buildings, roads, retaining walls, and architectural sites. It is considered to be such a severe threat to structures that in the United Kingdom, people report not being able to sell their homes if knotweed is found on their property (they are legally required to disclose its presence); or they may not be able to get a loan to buy a home located on knotweed-infested property. There is some debate over whether or not this should be a major concern. But for at least one person, it was.

In a well-documented story from the summer of 2013, Kenneth McRae, a lab technician in the suburbs of Birmingham, England, murdered his wife before killing himself several days later. In his suicide note, McRae stated: "I believe I was not an evil man until the balance of my mind was disturbed by the fact that there is a patch of Japanese knotweed which has been growing over our boundary fence on the Rowley Regis Golf Course...It has proved impossible to stop, and has made our unmortgaged property unsaleable. ... The worry of it migrating onto our garden and subsequently undermining the structure over the next few years, with consequent legal battles which we won't win, has led to my growing madness." True story.

So, where I can send your seedlings? No? You've changed your mind? Good thing! In Part 2 you will learn how to identify and attempt to control Japanese knotweed, and to use it to exact revenge on your enemies.

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