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Michael E. Harvey

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Invasion Control Tangled in Knots

How An Oberlin Student and the Outside World Tackled the Knotweed Problem

Written by Michael Eddy Harvey
Illustrated by Maddy DeCardy-Torris

Japanese knotweed is an invasive plant that has been in the United States since the 1890s. Its first reported sighting was near Philadelphia, PA. It has bamboo-like stems and can spread very quickly. Like that weird stain on the tile of your bathroom floor, it is resilient. This plant can survive high temperatures, high soil salinity, and droughts, while it can cause a multitude of problems in an ecosystem. It acts like a tall person sitting at the front of a movie theater, blocking light from reaching everything else. It spreads rapidly and crowds and shades the native vegetation, leading to increased plant death. This reduces species diversity, alters natural ecosystems, and negatively impacts wildlife habitat. On top of this, it reduces the health of the soil, increasing soil erosion and decreasing soil diversity. Like many of the United States’ problems from a century ago, it persists today, as it has found a home in 42 states, including Ohio!

Armed with a grant from National Geographic and The Nature Conservancy, she has examined various management methods.
One Oberlin student has begun to study the knotweed problem and its possible solutions. Her name is Noah Hamaoui. She is a third-year Environmental Studies student working on possible ways to control the Japanese knotweed in the Arboretum. Noah first became interested in nature conservancy during her time in London at the 2022 Oberlin-in-London program. She did a remote externship, jointly sponsored by The Nature Conservancy and National Geographic, on different freshwater projects worldwide.

She realized she wanted to bring some of the things she learned while working back here to Oberlin. She got some guidance picking a project from Oberlin Professor of Environmental Studies and Biology John Petersen, OC ’88, and selected Japanese knotweed to be the topic of her work. Since that time, she has made the project her own. One of the main problems she identified with the Japanese knotweed in Oberlin is that it is often located near water, usually near Plum Creek. According to her, the main issue with this is that the knotweed takes up all the space near the water. Thus, when the leaves and stems die off in the winter, they flow downstream. When they wash up along the creek’s bank, the knotweed can proliferate at extraordinary rates and increase erosion in the areas where it died since it outcompeted all other plants that could have protected the soil. So, on top of it harming an ecosystem, it now has a ready-made transit system to zip around the Arb.

Noah is currently looking at ways to control the knotweed. Armed with a grant from National Geographic and The Nature Conservancy, she has examined various management methods. The three main methods she looks at are cutting, herbicide, and shade. Cutting is obvious; manually removing the plant will, at least temporarily, reduce its abundance. Herbicide is another widespread tactic, in which some chemical is applied to reduce plant growth. The last method is to cover the plants with something that blots out the sun, even something as simple as a trash bag. The logic is that if the plants do not get UV exposure, they will die.

Over the past couple of months, Noah has tried a combination of these methods. Last semester, she led a group of students and community members to Plum Creek to try cutting to control the knotweed. Unfortunately, because of its resilience, it grew back in September. On the positive side, it was less abundant. This October she applied a tarp to two patches. She cut down one patch in the spring, applied herbicide, and covered it. This patch, unfortunately, grew back. The other patch was a control, where after the initial cutting and herbicide she cut and covered again to see if multiple cuttings made a difference, rather than just cutting and covering once. She is currently waiting for the results of both of these experiments but has been able to get help with her research through ENVS 101 students’ community-based projects.

While Noah has her eye on all control methods, ideally, herbicide will not be necessary. She seems to prefer natural methods of knotweed management. One idea she is currently testing is using the shade from trees to control the plant’s growth. The sugar maple tree seems to be a top candidate, as it provides ample shade to the areas where it is planted. This could help to further cloud the Japanese knotweed. Overall, she seems eager and excited to explore all control methods and wants to do it as soon as possible. As she puts it, “I am going to be gone soon, but Japanese knotweed will stick around.”

Noah is not alone in this sense of urgency and motivation to explore various methods. Around Ohio and elsewhere, new methods for controlling invasive plants are abundant. One that people have taken a particular liking to is goat control! Recently, Colerain Township used about a dozen goats to graze on various invasive plants. This has been shown in other areas around the United States as well. For instance, in Pittsburgh, PA, a local company called GoatScape has been chowing down on invasive plants for the past couple of years. So if you see goats wandering around the Arb in the future, know that they are not lost; they are just having knotweed for lunch.