

Eradication to Education: Tackling Japanese Knotweed

Bibhuti Marasini¹, Joe Hendrick², Megan Ng³

¹E.O. Smith High School; ²Ashford Invasive Plants Working Group; ³UConn NRCA

Project Motivation & Goals

Invasive plants are typically non-native species that disrupt ecosystems by spreading rapidly, exploiting disturbed habitats, and outcompeting native species. They are commonly introduced by human activity, environmental disturbance, or intentional planting.

In Connecticut, **Japanese knotweed (*Reynoutria japonica* Houtt)** has been a pervasive invasive plant. This plant was originally introduced in the United States in the 1800s for erosion and ornamental control but began outcompeting native species in Connecticut by the 1930s.¹ The roots of Japanese knotweed also increase erosion and flood risk.²

Despite ongoing removal by environmental groups, removal of Japanese knotweed requires extensive monitoring throughout the year to be properly treated.

My goal is to...

- ☆ **Control and treat Japanese knotweed**
- ☆ **Educate others on proper removal these invasive species**
- ☆ **Increase awareness of invasive species impacts**

This project combines habitat restoration with community education to support long-term invasive species management.

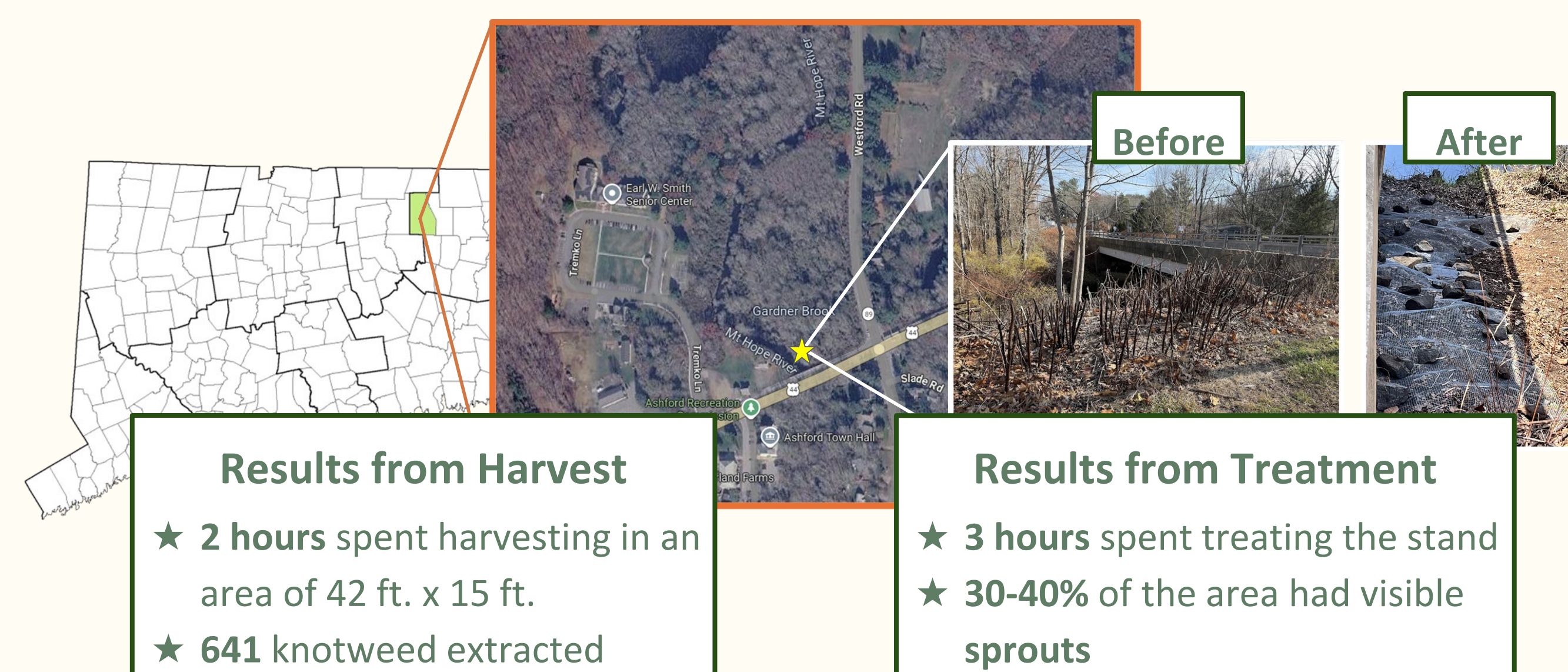


Reynoutria japonica Houtt in bloom (top) & sprouting (bottom).

Impact: Environmental & Educational

Harvesting & Treating the Stand

- Mechanical approach used to compare to a different stand on the opposite bank chemically treated periodically with limited amounts of herbicide.
- Study site was identified by community partner Joseph Hendrick based on the pervasiveness of the knotweed stand, easy accessibility, and a manageable size.
- Site conditions included elevated nutrient levels caused by vehicle emissions near the highway.
- These conditions favor knotweed growth, as invasive species are more resilient to nutrient-rich, disturbed conditions than native species that are then outcompeted.



Properly Removing Invasive Plants Promote:

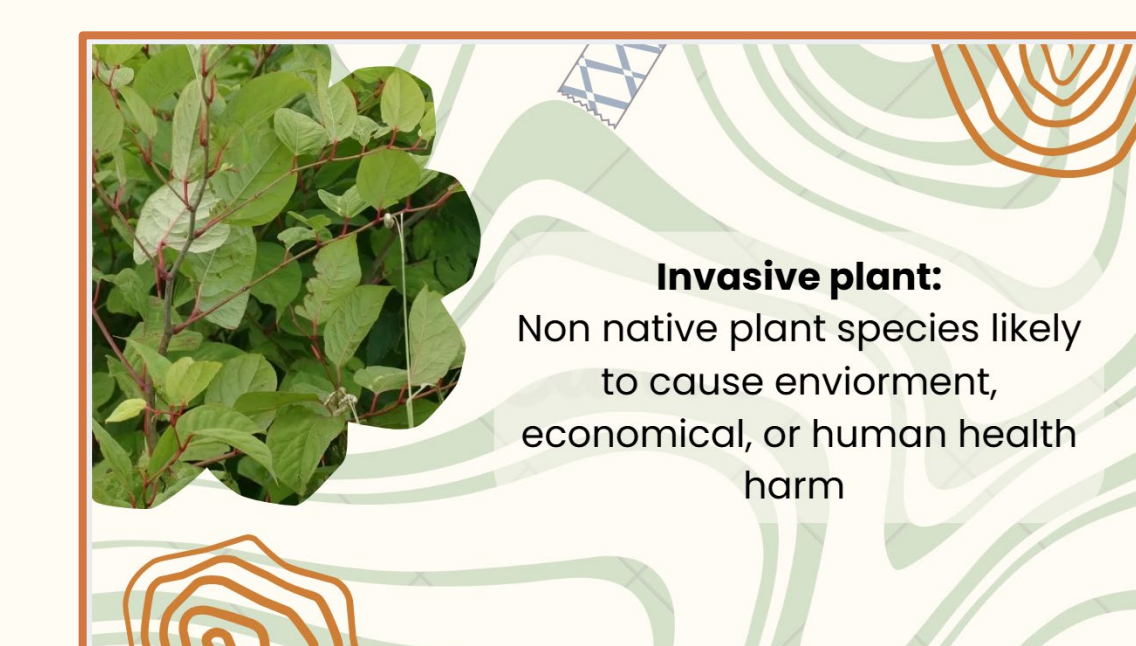
- ☆ **Ecological recovery:** Native plants return, soil stabilizes, and natural habitats are restored supporting pollinators and a balanced ecosystem.
- ☆ **Increasing Biodiversity:** Removing invasive species reduces competition and disease spread, allowing native species to survive.
- ☆ **Organism recover:** Improved biodiversity supports the return and growth of more organisms in those affected areas.¹

Invasive Plant Education

- Developed and delivered a presentation to peers, simplifying project findings to raise awareness about invasive plant management

Outcomes

- **Education on the negatives of invasive plants:** Many do not know about the true detrimental effect that invasive plants hold. I highlighted the harmful impacts of invasive species, helping others better understand their environmental effects.
- **Proper removal/treatment of invasive plants:** To empower my peers to take action in the most effective way, I taught them proper identification and removal methods to prevent regrowth.
- **Accessible information:** I created a clear and easy-to-understand resource to guide others in managing invasive plants in their own communities.



Scan this QR code to check out my presentation!



Community Partnership

Community Partnership

- Partnered with the **Ashford Invasive Plants Working Group** (part of the Connecticut Invasive Plant Working Group), particularly with community mentor Joseph Hendrick.
- Collaborated with Ms. Sangree (English teacher and Environmental Club advisor at **Edwin O. Smith High School**) to educate teens about invasive plants and proper removal.
- Worked alongside **volunteers during fieldwork** to remove and treat Japanese knotweed.

Joseph Hendrick



Elizabeth Sangree

Community Impact

- Removed invasive Japanese knotweed from a local site, supporting **habitat restoration**
- **Educated peers** and school community on proper removal methods through presentations
- Plan to **continue volunteering** with yearly knotweed removal (takes place April, May, and August)!



Methods

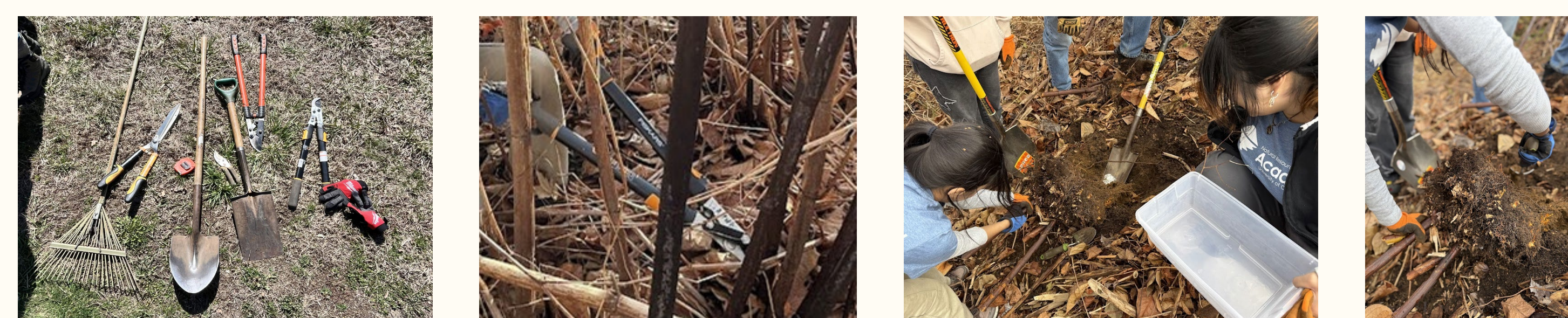
Extraction of Knotweed

- **Date:** November 9
- **Location:** Pompey Hollow Park, Ashford, CT
- **Volunteers:** Joe (community partner), Shreya Neupane, Megan Ng, Laura Cisneros
- **Materials Used:** Loppers (3), shovels (4), hand trowels (2), gloves, pruning shear
- **Reasoning of Method:** Manual removal, using no chemicals because of proximity to waterway

Treatment of Knotweed

- **Date:** April 12
- **Location:** Pompey Hollow Park, Ashford, CT
- **Volunteers:** Joe (community partner), Jen, Amy
- **Materials Used:** Rakes (2), loppers (3), shovels (2), stakes (9), tape measure, gloves, mesh net, hammer
- **Reasoning of Method:** Metal mesh used to limit new knotweed growth and drain energy from underground rhizomes.

Process of Harvest



From left to right, 1) materials needed to manually remove knotweed, 2) cut knotweed close to root as possible, and place the branches in a pile, 3 & 4) dig out the root ball, if possible, and place in a bag.

Process of Treatment



From left to right, 1) measure the ground you want to cover and cut out that amount from the mesh, 2) place any leaves/ branches on the ground in a bag to make the ground more flat, 3) after placing on the ground, put rocks on top of the mesh and place stakes through the mesh in the ground and hammer them 7-9 inches deep, and 4) The knotweed will be able to grow, but not in its normal diameter which eventually drains its energy allowing for long term removal.

Conclusion and Next Steps



My project shows that increasing awareness of proper invasive species control can help more people take action on their own, leading to improved local environmental conditions.

Next Steps

- I am presenting proper knotweed extraction method at school during Earth Week (April 19-26)
- I want to explore ways harvested knotweed can be used to benefit the community (e.g., food products like jelly or baked goods) to promote harvesting of knotweed.
- I am interested in researching the plant's medicinal properties, as Japanese knotweed is an excellent source of antioxidants.

Acknowledgements & References

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1. Hydro, Princeton. "Invasive Species in Focus." Princetonhydro.com, 2026, princetonhydro.com/invasive-species-in-focus-impacts-solutions-and-restoration-successes/.
2. Holmes, Jennifer. "What is the Environmental Impact of Japanese Knotweed?" Japanese Knotweed Ltd, 20 Feb. 2024, japaneseknotweed.co.uk/what-is-the-environmental-impact-of-japanese-knotweed/.