

PUBLIC INFORMATION SESSION

# JAPANESE KNOTWEED ON LEYDEN'S ROADSIDES

MANAGEMENT OPTIONS FOR  
LONGTERM SUCCESS

May 6th 7–8:30pm

HOSTED BY THE LEYDEN CONSERVATION COMMISSION  
AND THE LEYDEN HIGHWAY DEPARTMENT





# What is Japanese Knotweed?

Japanese knotweed (*Fallopia japonica*) is **one of the most aggressive and structurally damaging species of invasive plants** in New England.

It can often be found in areas subject to high levels of disturbance, such as roadways, riverbanks, wetlands and construction sites.

Japanese knotweed spreads vegetatively, with **even a small piece of the plant no bigger than a thumbnail capable of re-rooting and growing into a colony.**

Once established, the plant can grow **10-15 feet in one growing season.**

It is incredibly difficult to eradicate: its rhizome is said to be able to stay dormant for **up to 20 years under the soil.**





# Why is Knotweed a Problem?

Roads, walls and parking lots are easily compromised as Japanese knotweed **rhizomes can reach as far as 70 feet out and 10 feet deep** from the original plant.

Knotweed is **allelopathic**, releasing chemicals into the soil that inhibit the growth of other plant species. Diverse plant and wildlife communities are replaced by a monoculture of a single species.

Knotweed forms dense, tall walls of vegetation that are difficult to bypass, **preventing access to rivers and ponds and blocking driver and pedestrian visibility on roadsides.**

Knotweed increases erosion along waterways, **estimated at about 4 inches per year**, undermining bridges and culverts.

A patch in New Hampshire was found to have a **network of rhizomes that spread out 32,000 square feet** (three-quarters of an acre).





# Why is Knotweed a Problem?

Once introduced to a site, knotweed easily outcompetes other vegetation.

**Mowing knotweed will not stop it from spreading:** a small root fragment or single internode on a stem can create new infestations.

Knotweed can cause structural damage to asphalt and concrete. Dead canes block drainage channels, contributing to flooding.

As land becomes unstable and costly to restore, knotweed can decrease property values. In a landmark 2023 case, **homeowners in Pepperell, Massachusetts were awarded \$186,000** in damages after a developer knowingly instructed a contractor to mix knotweed-infested soil to infill and grade their new property.

Knotweed not only replaces and reduces both riparian and upland species diversity, but it also alters aquatic ecosystems. Loss of tree and shrub canopy can cause increases in water temperature. This in turn affects water chemistry and fish habitat.





# Impacts on Leyden's Roads

Leyden presently has knotweed growing on nearly all of the town's roads: as of 2023, there are **58 unique patches** on town roadsides, ranging in size from 3x3 ft. to as large as hundreds of feet.

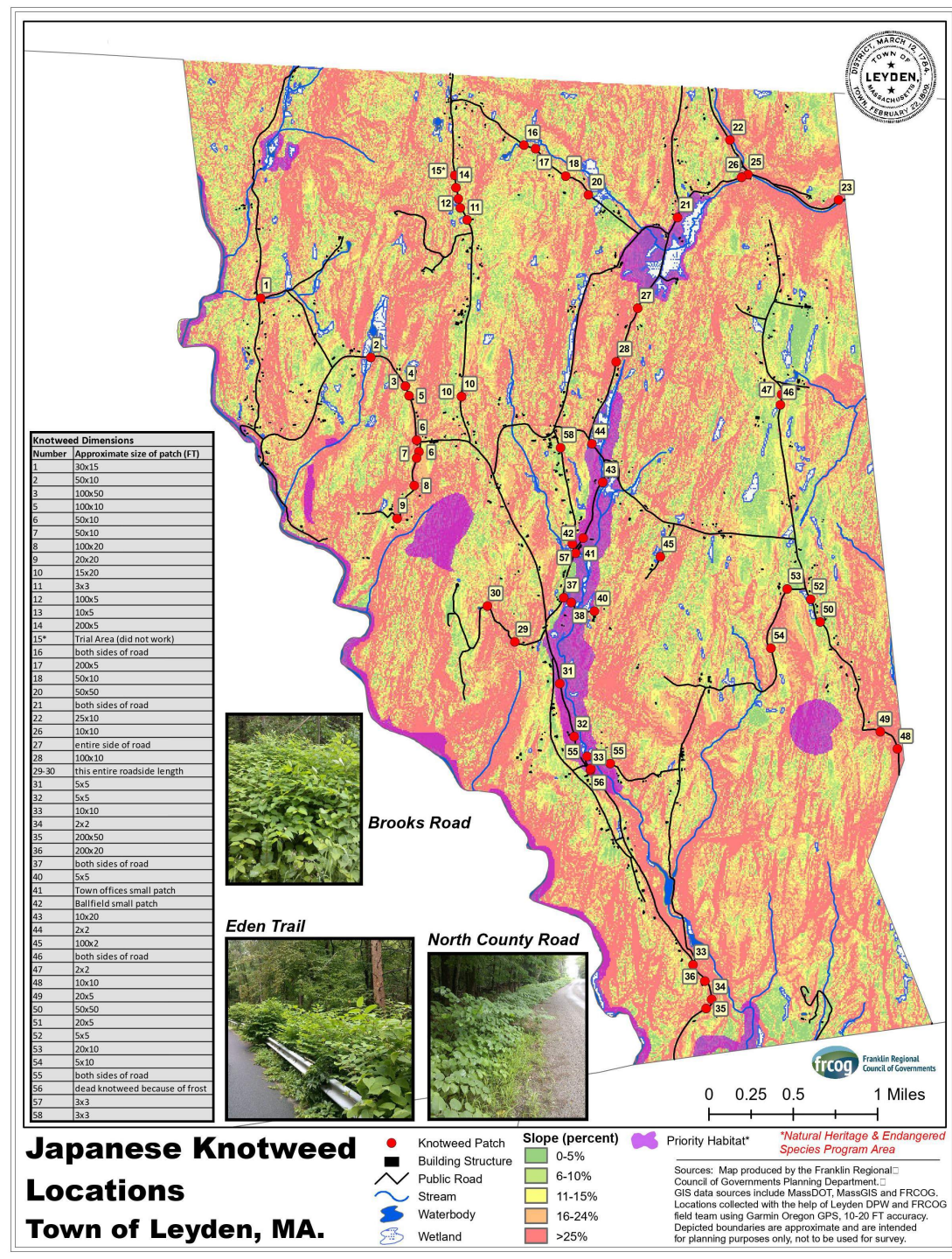
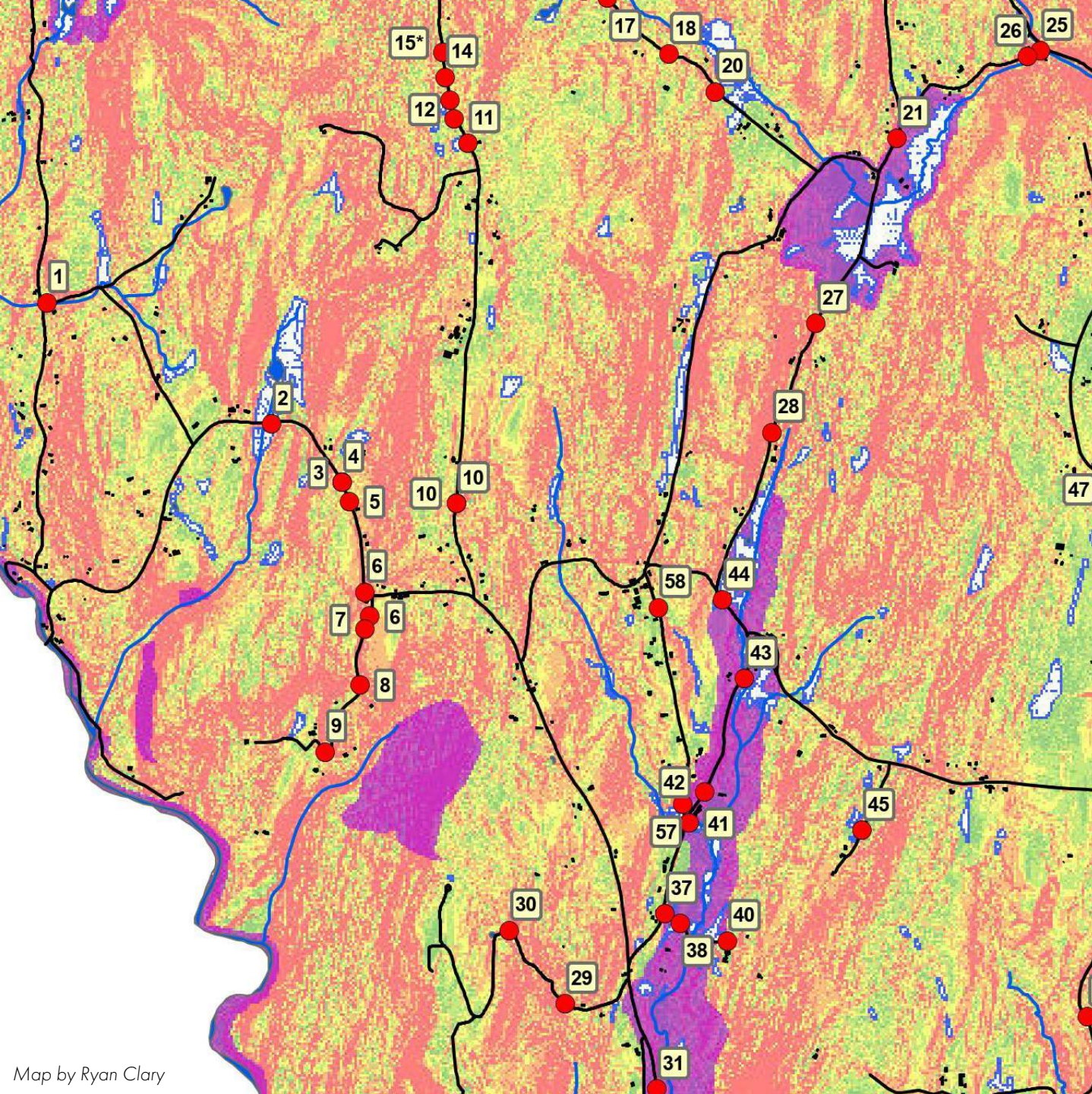
Narrow road widths and small shoulders mean that **knotweed patches prevent driver visibility** of not only pedestrians and bicyclists, but also **wildlife** which may cross suddenly in front of vehicles.

As knotweed patches are mowed, **pieces of the plant get caught in the mower's blades**, becoming dislodged further down the road or later in the day: this enables the plant to spread across wider areas each year.

Under current staffing, the Leyden Highway Department requires an entire growing season just to mow each roadside in town once per year: **knotweed management is therefore impossible without outside help or funding.**







**Japanese Knotweed Locations**  
**Town of Leyden, MA.**

- Knotweed Patch
- Building Structure
- Public Road
- ~ Stream
- Waterbody
- Wetland

**Slope (percent)**

- 0-5%
- 6-10%
- 11-15%
- 16-24%
- >25%

**Priority Habitat\***

- \*Natural Heritage & Endangered Species Program Area

Sources: Map produced by the Franklin Regional Council of Governments Planning Department. GIS data sources include MassDOT, MassGIS and FRCOG. Locations collected with the help of Leyden DPW and FRCOG field team using Garmin Oregon GPS. 10-20 FT accuracy. Depicted boundaries are approximate and are intended for planning purposes only, not to be used for survey.



# Management Options

Various methodologies have been tried and tested to combat Japanese knotweed: smothering, digging, repeated mowing and herbicide applications.

**Smothering does not appear to work:** in 2022, the Highway Department and Conservation Commission collaborated on a test plot along North County Road: 100 feet of knotweed were cut, covered with black landscape fabric and 4 inches of gravel. Less than one year later, the knotweed had already penetrated the gravel and was sprouting through (see photograph).

Digging would require excavating and disposing of at least 6-8 feet of soil beneath each infestation: **structurally and economically impossible for a small town like Leyden.**

**Mowing repeatedly may offer a solution:** the knotweed would have to be mowed repeatedly for six years: 6x a year the first year, 5x a year the second year, 4x a year the third year, and so on.





# Management Options

According to the New Hampshire DOT, mowing or cutting alone will not eradicate Japanese knotweed and should only be used in combination with herbicide applications or smothering.

According to the US Forest Service, knotweed may be controlled by application of a systemic herbicide containing glyphosate or triclopyr to the actively growing plants.

The New Hampshire Department of Ag and Markets states that **glyphosate is the herbicide of choice** for controlling knotweed.





# Cost Comparison

Based on quotes obtained from outside contractors, we have the following estimates for knotweed management on Leyden's roadsides:

## HERBICIDES:

\$3,000 per day, all roadside patches covered in one day. 1-2 applications per year, minimum two years.

Estimated cost: **\$6,000 - \$12,000**

## MOWING:

\$3,050 per day, all roadside patches mowed in three days. No chemicals required.

Year 1:  $\$9,150 \times 6 = \$54,900$

Year 2:  $\$9,150 \times 5 = \$45,750$

Year 3:  $\$9,150 \times 4 = \$36,600$

Year 4:  $\$9,150 \times 3 = \$27,450$

Year 5:  $\$9,150 \times 2 = \$18,300$

Year 6:  $\$9,150 \times 1 = \$9,150$

Estimated cost: **\$192,150**



# Next Steps

Discussion tonight.

Approach finance committee about funding one method for knotweed management.

Vote at town meeting to approve the chosen method?

