

## How to Identify and Control Japanese barberry: An Exotic Shrub That Can Invade Woodland Understories

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*Learn about the adverse effects of Japanese barberry and how to treat and control its spread.*

**Japanese  
barberry is a  
Non-Native,  
Invasive Shrub**

**Barberry Forms  
Thickets That  
Shade and  
Inhibit Native  
Seedlings**

**Identify  
Japanese  
barberry in  
Summer or  
Winter**

**Japanese barberry (*Berberis thunbergii*)** is one of three species of barberry documented by botanists in West Virginia. Originally from Japan, it was established at a Boston arboretum in 1875 and has been cultivated and sold as an ornamental shrub since the early 1900s. Now, it's naturalized in many areas and is considered one of the most widespread non-native, invasive species (NNIS) in eastern North American forests.

Japanese barberry grows as a shrub. A single plant will have many stems with fine branches. The plant forms dense thickets that cast heavy, low shade on the forest floor, inhibiting the development of other herbaceous and woody plants.

Barberry leaves appear earlier than many native species, yet the plant drops its leaves later – gaining a competitive advantage in local woodland environments.

Japanese barberry has year-round distinct features that make it easy to identify. At each node (where leaves attach to the woody stem), there is **a single, thin, straight, and very sharply-pointed spine**. These spines are found on the thin twigs all year long and serve as the best identifying feature of Japanese barberry.

In most areas of West Virginia, flowering occurs in the middle of spring. The flowers are approximately  $\frac{1}{4}$  inch across with five yellowish petals. After the flowers are pollinated, they develop into **barrel-shaped, bright red berries**. Fruits develop in the fall and can persist throughout the winter.

In summer, the green or maroon leaves are shaped like a spatula with **a very thin blade that widens quickly into an oval leaf with smooth edges**. Leaves appear to break from their buds in small whorls that alternate along the stem. They are generally between  $\frac{3}{4}$  inch to 2 inches long.



*Japanese barberry single sharp spine*



*Japanese barberry flowers and fruit*



*Japanese barberry leaves taper at base*

– continued –

## Other barberry Species in West Virginia

Two other species are the American barberry (*Berberis canadensis*) and the common barberry (*B. vulgaris*). These are distinguished from Japanese barberry by their toothed leaves and multiple branched spines (usually three spines at the base of each leaf). American barberry is native to southeastern West Virginia but has only been documented in five counties. Common barberry is native to Europe, northwest Africa, and western Asia. Once established as an ornamental, it was discovered to be a secondary host to a damaging wheat disease.

## How to Control Japanese barberry

Like most weeds, there is no “silver bullet” that will eliminate Japanese barberry without follow-up treatments. Controlling any weed species is complex, especially in forests or woodlands containing many desirable and undesirable plants. **Care must be taken to minimize the damage to desirable plants in the treatment area.**

### Treatments

#### Pulling or Cutting Young Seedlings

**Pulling Japanese barberry can be effective** if the plants are small and do not have well-established root systems (typically, plants no older than one year). The characteristic leaves help identify these small seedlings. Pull them up and continue to monitor for new seedlings from time to time.

#### Cut-stump Method:

Spray a 50% solution on cut stump; do only during growing season.

Cutting Japanese barberry with a brush saw, chainsaw, or clippers will result in resprouting stems. **To prevent sprouting of the cut stems, spray the stumps with a concentrated glyphosate-based herbicide** (with at least 40% of the active ingredient glyphosate). Mix the herbicide with water in a 50:50 ratio (a 50% solution). Be sure to apply the herbicide immediately after cutting the stem. Use the cut-stump treatment only during the growing season and when soil moisture is adequate for good growth.

#### Foliar Application:

Spray 1.5% glyphosate herbicide on leaves, stems that resprout, and seedlings.

**Barberry leaves can be sprayed directly using a glyphosate-based herbicide.**

A concentrated glyphosate herbicide should be mixed with water to yield at least a 1.5% solution. Spray to completely wet the leaves on the entire shrub. Like the cut-stump treatment, foliar treatments should be carried out only during the growing season and when soil moisture is adequate for good growth. Landowners should plan on follow-up treatments to eliminate persistent sprouts and new seedlings.

#### Basal Bark Application:

Spray or brush 20% triclopyr herbicide in oil on base of stems; can be done year-round.

**Barberry stems can be treated with a solution of triclopyr ester in bark oil.**

Concentrated triclopyr herbicide (containing at least 40% of the active ingredient triclopyr) should be mixed in a 20:80 ratio (herbicide:oil) to yield a 20% solution. Spray or brush the solution onto the root collar and the lower 4 to 6 inches of the stems. Use caution if spraying the herbicide solution, as barberry stems are relatively thin, dense, and difficult to access. The solution can cause serious damage if it is splattered, dripped, or squirted onto trees or other desirable plants. This application can be done any time of year, as long as stems are not covered by water, snow, or ice.

### IMPORTANT

**Follow all herbicide instructions – recommended rates, application methods, and use of personal protective equipment.**

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