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Control of Invasive Wisteria

► Asian wisterias—Chinese (*Wisteria sinensis*), Japanese (*Wisteria floribunda*), and hybrids (*Wisteria* x *formosa*)—are invasive plants in the United States, originally introduced for their showy purple flowers and ornamental use. It is difficult to tell the difference between the Chinese and Japanese species because of natural hybridization. All further information is common to all non-native wisteria species. Their aggressive climbing vines can girdle and damage trees, creating a threat to landscapes and woodlands. With diligent management, invasive wisteria can be reduced or eliminated and replaced with native options.

Figure 1. Invasive wisteria vine girdling a pine tree. (Photo credit: Chris Evans, University of Illinois, Bugwood.org)

Figure 2. Compound leaf of Chinese wisteria. (Photo credit: Chris Evans, University of Illinois, Bugwood.org)

Spread

As a climbing vine, Asian wisteria has spread beyond the boundaries of curated landscapes and is found in woodlands across the Southeast and much of the eastern United States. Adaptable to both wet and dry sites, wisteria is known to climb trees to heights of 70 feet or more, causing ecological damage by girdling trees, even mature hardwood trees (figure 1). The dense growth of wisteria can also shade out native plants growing in the understory. Identification and control are essential.

Identification

Wisteria species are in the legume family and have characteristics similar to those of other pea-family plants:

- Stems: light brown to gray, up to 10 inches in diameter, often twisting around one another as they grow
- Leaves: alternate; odd pinnately compound up to 16 inches long; 7 to 13 leaflets on Chinese and 13 to 19 leaflets on Japanese; leaflets 1 to 1½ inches long, oval, tapered tip entire margins (smooth edges); light green pubescent (hairy) new growth (figure 2)

- Flowers: bloom March through May, before or as leaves emerge; lavender raceme (hanging cluster of flowers) 5 to 20 inches long, pealike flowers; fragrant (figure 3)
- Fruit/seeds: July to November; flat legume pod, pubescent, up to 6 inches long; 1-inch-long brown seeds

Control in Residential Areas

Remove any cultivated non-native wisteria plants in the landscape to prevent escape. Plant native alternatives that are ecologically beneficial for wildlife and other plants:

- American wisteria (*Wisteria frutescens*)
- Carolina jessamine (*Gelsemium sempervirens*)
- Coral honeysuckle (*Lonicera sempervirens*)
- Crossvine (*Bignonia capreolata*)

Non-native wisterias are difficult to control, but diligent management techniques can reduce or eliminate the population from a given area. Small wisteria vines may be hand pulled. In areas with large populations or large vines of wisteria, chemical control is most effective.

Herbicide applications can be made by basal bark sprays, cut stump treatment, or foliar sprays depending on the product. Foliar sprays are applied to the leaves but not allowed to run off, generally noted as "spray to wet." This is most efficient from late summer to early fall. Cut stump and basal bark methods work anytime of the year, except during spring sap flow.

See table 1 for products and rates for residential area control. Read and follow all herbicide label directions For more information on applying herbicides, see Alabama Extension publications "Basal Bark Herbicide Treatment for Invasive Plants in Pastures, Natural Areas, and Forests," or "Cut Stump Treatments for Woody Plant Control" online at aces.edu.

Control in Nonresidential Areas

Control of non-native wisteria vines in forests and non-cropland sites is most effective through herbicide applications. Methods include foliar sprays, cut stump, frill (girdle), and hack-and-squirt.

The frill (or girdle) method requires making continuous cuts around the trunk of the tree or large vine. The hack-and-squirt method refers to a single cut or multiple cuts spaced around the tree trunk or large vine. The number of cuts depends on the size of the stem and herbicide being used. All these methods can be used throughout the year except during spring sap flow or in drought conditions.

See table 2 for products and rates for nonresidential area control. Read and follow all herbicide label directions.

Figure 3. Invasive wisteria flowers bloom light purple March through May.

Works Cited

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Table 1. Recommended Herbicide Rates for Residential Landscaping Use

Herbicide Active Ingredient	Herbicide Trade Name	Application Method	Rate
Glyphosate	Roundup or generics (41% active ingredient)	Foliar spray	2% v/v[a] (2.5 fl oz/gal), spray to wet[b]
Glyphosate	Roundup or generics (41% active ingredient)	Cut stump	50%–100% v/v[a], spray to wet[b]
Triclopyr ester	Pathfinder II or generics (13.6% active ingredient)	Basal bark	Spray to wet[b] with undiluted solution
Triclopyr ester	Pathfinder II or generics (13.6% active ingredient)	Cut stump	Spray to wet[b] with undiluted solution

[a] Volume to volume

[b] Do not allow herbicide solution to run off.

Table 2. Recommended Herbicide Rates and Uses for Nonresidential Sites

Herbicide Active Ingredient	Herbicide Trade Name	Application Method	Rate	Site
Picloram[a] + 2,4-D (MOA[b] 4)	Tordon 101[d]	Cut stump	Spray to wet[e] with undiluted or diluted (1:1 with water) solution	Forests and non-cropland (fencerows, roadsides, ROW)
Picloram[a] + 2,4-D (MOA[b] 4)	Tordon 101[d]	Frill or girdle	Spray to wet[e] with diluted (1:1 with water) solution	Forests and non-cropland (fencerows, roadsides, ROW)
Clopyralid[c] (MOA[b] 4)	Transline	Hack-and-squirt	½ mil undiluted or 1 mil diluted (1:1 with water) into each cut	Forests and non-cropland (fencerows, roadsides, ROW)
Clopyralid[c] (MOA[b] 4)	Transline	Frill or girdle	Spray to wet[e] with undiluted or diluted (1:1 with water) solution	Forests and non-cropland (fencerows, roadsides, ROW)
Clopyralid[c] (MOA[b] 4)	Transline	Cut stump	Immediately after cut, spray to wet[e] with diluted (1:1 with water) solution	Forests and non-cropland (fencerows, roadsides, ROW)
Glyphosate (MOA[b] 9)	Roundup Pro Max or generic (41% or more active ingredient)	Frill or girdle	1 mil / 2″ of trunk at DBH[f]	Forests and non-cropland

Table 2. Recommended Herbicide Rates and Uses for Nonresidential Sites (cont.)

Herbicide Active Ingredient	Herbicide Trade Name	Application Method	Rate	Site
Glyphosate (MOA[b] 9)	Roundup Pro Max or generic (41% or more active ingredient)	Cut stump	Apply immediately after cut; 50%–100% v/v[g] solution	Forests and non-cropland
Triclopyr amine (MOA[b] 4)	Garlon 3A	Hack and squirt	½ mil undiluted or 1 mil diluted (1:1 with water) into each cut	Forests, pasture, non-cropland
Triclopyr amine (MOA[b] 4)	Garlon 3A	Frill or girdle	Wet cut with undiluted or diluted (1:1 with water) solution	Forests, pasture, non-cropland
Triclopyr amine (MOA[b] 4)	Garlon 3A	Cut stump	Spray to wet[e] with undiluted solution	Forests, pasture, non-cropland
Triclopyr ester (MOA[b] 4)	Garlon XRT	Cut stump	Spray to wet[e] with undiluted solution on cut surface and stump sides	Forests, rangeland, non-cropland

[a] Picloram can stay active in the soil and may cause damage to nontarget plants. It also leaches easily and is not recommended for use on sandy soils.

[b] Mode of action

[c] Clopyralid can stay active in the soil and may cause damage to nontarget plants. It also leaches easily and is not recommended for use on sandy soils.

[d] Restricted Use Pesticide

[e] Do not allow herbicide solution to run off.

[f] Diameter at breast height

[g] Volume to volume

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