

LOWER HUDSON PARTNERSHIP FOR REGIONAL INVASIVE SPECIES MANAGEMENT

BEST MANAGEMENT PRACTICES

Amur corktree

Prohibited Invasive Species (6 NYCRR § 575.3(d)(2)(lx))

Amur corktree ([synonym common names])
Phellodendron amurense ([synonym scientific names])

REGIONAL STATUS

Amur corktree is Tier 2- Emerging in the Lower Hudson PRISM Region.

State law prohibits transporting, buying, selling or offering invasive Amur corktree for sale or distributing plants, plant parts or seeds.

Lower Hudson PRISM recommends: Eradication, spread prevention and containment is the management recommendation for this species along with survey work and education and outreach efforts to increase spread prevention and detection rates.

INVASIVENESS

New York State has assessed this species' invasiveness as H-High.

IMPACTS OF THIS SPECIES

Amur corktree is a shade tolerant, prolific seed producer capable of adapting to a variety of soil conditions. Due to its quick growing seedlings, young Amur corktree are able to germinate and outcompete understory competition, rapidly converting diverse forests and woodlands to homogeneous stands. Furthermore, Amur corktree is known to be allelopathic, inhibiting the germination of seedlings of other plants and potentially modifying the species dynamics of native forest ecosystems in irreversible ways. ⁽²⁾ One study reports Amur cork tree is favored in areas with high deer concentrations, as these herbivores do not eat this malodorous invasive. ⁽¹²⁾

BACKGROUND INFORMATION

History of Introduction

Amur corktree was introduced to North America from its native China in the 1850s. The extremely hardy, drought, cold, and pollution tolerant species was commonly sold as a street tree, favored for planting in urban areas. The species is now extant in at least 14 states. ^(3, 1)

Description

- Amur corktree is a member of the Rue family (*Rutaceae*)

- Amur corktree is a medium sized deciduous, dioecious tree growing up to 50 feet in height, given the right conditions. Its thick, corky bark is a good diagnostic feature, as are the conspicuous grape-like drupes, emerging towards the end of the summer. A member of the citrus family, its leaves are strongly pungent when crushed. overall description of plant including growth form (tree, shrub, vine etc.) and size, perhaps shape if distinctive

- **Leaves:**

- Dark green, compound leaves are oppositely arranged with five to eleven leaflets. Leaflets are elliptical in shape, up to four and a half inches long, and smell strongly of turpentine when crushed. ⁽⁵⁾

- **Flowers:**

- Creamy yellow to white June-appearing flowers are arranged in large, terminal clusters. ⁽⁴⁾

- **Fruit/Seed:**

- Amur corktree fruits are round, grape-like clusters of drupes up to half an inch wide which ripen to black in early fall. ⁽¹⁾

Key identifying characteristics: It is possible to confuse this species with tree of heaven (*Ailanthus altissima*), another odiferous invasive with compound leaves, or prickly ash (*Xanthoxylum americanum*)— an armored, compound-leaved native. However, Amur cork tree’s corky bark and yellow cambium will quickly distinguish it from any other species. ⁽⁷⁾

Reproduction and Spread

- Female Amur cork trees are capable of producing thousands of seeds a year once mature. Each drupe contains five seeds which require no stratification prior to germination. Light and fire appear to increase germination rates of Amur cork tree seedlings. Although no studies have been conducted expressly on the longevity of Amur corktree seeds in the seedbank, the species has a moderately hard endocarp, suggesting seeds may persist as viable propagules for at least several years. ^(1,3)
- **Vectors:** Birds, water. ^(9,10)

Habitat

- Amur cork tree colonizes roadsides, old fields, woodland edges and other waste spaces. Although the species prefers moist, well-drained soil in full sun, it is a good competitor on depauperate, dry sites and can adapt to both alkaline and acid soils. ⁽²⁾

Likelihood of naturalization: High. Amur cork tree is a highly adaptable, tenacious species capable of being dispersed long distances by birds and water.

CONTROL INFORMATION

Biological Control

No biological control option is currently available.

Manual or Mechanical Control

Pulling / Digging Up: Hand pulling or digging young plants is effective, if time consuming. Larger plants can re-sprout from root fragments left in soil. ⁽¹⁰⁾

Mowing: Mowing, weed whacking or cutting will cause larger individuals to re-sprout. This tactic is more effective when followed up with chemical treatment. ⁽¹⁰⁾

Girdling: Girdling is an effective method of control if used with a chemical control method such as cut stump application. Otherwise, re-sprouting will occur. ⁽¹⁰⁾

Prescribed Fire: Controlled burns will eliminate seedlings and top kill larger trees. ⁽¹¹⁾

Prescribed Grazing: No information available

Soil Tilling: Not advisable as larger plants can re-sprout from root fragments

Mulching: No information available

Solarization: Not applicable

Hot Foam Spray: No information available

Chemical Control

The pesticide application rates and usage herein are recommendations based on research and interviews with land managers. When considering the use of pesticides, it is your responsibility to fully understand the laws, regulations and best practices required to apply pesticides in a responsible manner. At times, the pest you seek to treat may not be on a pesticide label, requiring a 2ee exemption from NYSDEC. Always thoroughly read the label of any pesticide and consult the NYSDEC or a licensed pesticide applicator with questions.

Foliar Spray: A 3-4% solution of glyphosate, triclopyr, or Clopyralid is effective. Always read all instructions on the label. ⁽¹⁰⁾

Cut Stump: A 50% solution of glyphosate applied immediately to cut stems is effective in controlling this species. ⁽¹¹⁾

Basal Bark: A 25% solution of triclopyr is effective when applied from early fall through winter. ⁽¹¹⁾

Stem Injection: No information available

Pre-Emergent Spray: No information available

Cut and Frill: Apply a 50% solution of glyphosate or triclopyr to cuts in Amur cork tree's cambium. ⁽¹³⁾

SUMMARY OF BEST MANAGEMENT PRACTICES

General management overview and recommendation:

As with any other invasive infestation complex, large stands of Amur cork tree are best managed via a combination of mechanical and chemical means. Larger individuals should be treated with a cut stump or basal bark herbicide application, while small individuals can be pulled or sprayed. All managed infestations should be monitored for at least several years to ensure exhaustion of the seed bank and to monitor for any re-sprouting. Any new seedlings can be hand pulled. New sprouts must be treated with foliar spray or continually re-cut.

Post treatment monitoring: Controlled populations should be revisited at least 2 times a season for at least 4 years to ensure exhaustion of the seed bank and to check no re-sprouting has occurred.

Disposal Methods

- Mowed, cut, or pulled Amur cork tree can be composted or chipped so long as management occurred prior to fruiting.

REFERENCES

1. https://www.fs.fed.us/rm/pubs_series/wo/wo_ah727/wo_ah727_783_785.pdf
2. <https://dnr.wi.gov/topic/Invasives/fact/AmurCorkTree.html>
3. http://www.sunyorange.edu/intreetour/phellodendron_amurense.shtml
4. <https://plants.usda.gov/core/profile?symbol=pham2>
5. <https://www.invasiveplantatlas.org/subject.html?sub=11569>
6. <https://gobotany.newenglandwild.org/species/zanthoxylum/americanum/>
7. <https://gobotany.newenglandwild.org/species/zanthoxylum/americanum/>
8. <https://forestrynews.blogs.govdelivery.com/2017/04/25/amur-cork-tree-is-an-emerging-threat-to-wisconsin-forests/>
9. <https://naturewalk.yale.edu/trees/rutaceae/phellodendron-amurense/amur-cork-75>
10. <https://lcinvasives.org/invasives/inner-bark/>
11. https://bugwoodcloud.org/mura/rtrcwma/assets/File/Fact_Sheets/Corktree%20Fact%20Sheet%20RTRCWMA%202017.pdf
12. http://www.urbanhabitats.org/v07n01/phellodendron_full.html
13. Interview with Trillium Invasive Species Management INC