



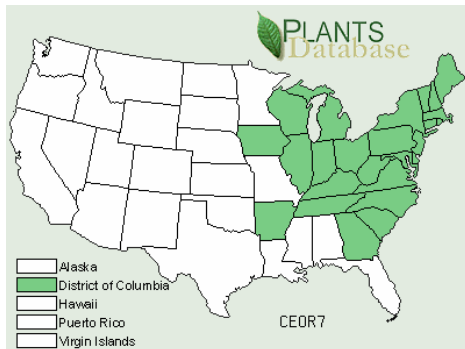
Oriental bittersweet

(*Celastrus orbiculatus*)

IN BRIEF

Oriental bittersweet, also known as round-leaved or Asian bittersweet, is a climbing, woody perennial vine. Originally grown as an ornamental, it has spread throughout the region where its aggressive growth can smother trees, shrubs and other vegetation.

RANGE MAP



Climbing tangle of Oriental bittersweet laden with fruit. Photo by David J. Eagan

DESCRIPTION

Plant Habit. This leafy, deciduous, sprawling, twining vine climbs up and over woody plants and other supporting objects. Its dense foliage can shade out existing vegetation.

Stems. Vines are many-branched, light brown to gray in color, though new branches may be green. Surface of smaller branches dotted with tiny, lighter-colored bumps (lenticels). Stems of older vines can be up to 4 inches thick and climb over 60 feet.



Flowers in leaf axils.

Leaves. Arranged alternately along the stem, leaves vary widely in shape and can be round, oblong or teardrop-shaped with finely toothed margins and sometimes a long,



Fully ripe fruits.

Hugh H. Illits, WI Herbarium

finely toothed margins and sometimes a long,

tapering point. Leaf length is usually less than twice the width. Size ranges from 2-5 inches long and 2-3.5 inches wide. They are glossy green in spring and summer, becoming golden yellow in late summer and fall.

Flowers. Small, 5-petaled, greenish-yellow blossoms are inconspicuous. Clusters of 3-7 flowers appear in leaf axils in May or June.

Fruits. Clusters of 1-3 fruits attach at leaf axils along the stem. They are green in summer, becoming bright yellow/orange in late summer. The outer membrane splits in September and bends back, revealing a bright red, fleshy inner-fruit that contains 1-2 seeds. Some vines are laden with fruit, which can persist throughout winter.

Habitat. Invades woods edges, open forests, roadsides, old fields, grasslands and beaches.

Reproduction. Spreads to new locations by seed and expands within colonies both by seeds and vegetative sprouting from roots. Seeds are dispersed by wildlife that feed on the fruit, and by people who plant the vine intentionally or use plants in decorative flower arrangements. When such decorations are discarded in compost and brush piles, seeds are readily scattered. Seeds germinate best in low light environments.

DISTINCTIVE FEATURES

- Flowers and fruits appear in small clusters in leaf axils
(*In native bitterweet, flowers and fruits only at tips of branches*)
- Leaves usually smaller and rounder in shape than the native bitterweet, but they vary widely.



Twining vines with bark showing small, raised lenticels.

Photo by James H. Miller,
USDA Forest Service

LOOK-ALIKES

Oriental bitterweet closely resembles the native American bitterweet (*Celastrus scandens*). The leaves of the native species generally are more elliptical in shape (length can be up to two times the width), and can be twice as large as those of the invasive variety. But since there is much overlap in leaf shape, the location of the flowers or fruit is the best way to distinguish between the two species. American bitterweet flowers and fruits appear only at the tips of branches, usually in larger clusters. In Oriental bitterweet they appear in small clusters along the branch where leaves are attached.

LIFE HISTORY AND INVASIVE BEHAVIOR

Oriental bitterweet climbs over and smothers herbaceous plants on the ground as well as tall trees and shrubs. Its sprawling growth monopolizes light and water

resources. It can twine tightly as it climbs, constricting and eventually girdling shrubs, tree limbs or entire trees as both continue to grow. Tangled mats of vines in trees can make them top-heavy and increase their susceptibility to wind and ice damage. Because Oriental bitterweet can hybridize with American



Young pines being smothered by Oriental bitterweet.

Photo by David J. Eagan

bittersweet, it may someday threaten the genetic integrity of the native species.

IMPACT ON FORESTRY AND FORESTERS

On Forestry. Oriental bittersweet climbs and overtops existing vegetation, shading and eventually killing saplings and trees. Dense, smothering stands may form under the right light and moisture conditions. Vines can cause structural damage by girdling branches and trunks and even toppling trees. Tree seedling recruitment is inhibited where this invasive vine dominates the ground layer.

On Foresters. Operations such as reconnaissance may be hindered by the dense growth of bittersweet. Safety of sawyers felling trees is compromised as trees fall in unpredictable directions due to constraining vines. On-the-ground processing of logs and slash is further inhibited by entangling vines.

CONTROL METHODS

Care should be taken make sure that Oriental bittersweet is the target, not the native American bittersweet.

	Method	Timing
Manual / Mechanical	Hand pulling or digging	Any season, but preferably before vines have fruited
Chemical	Foliar herbicide application (2,4-D plus triclopyr, or triclopyr alone)	Early spring or fall
Combination Treatments	Cut-stems and herbicide application (glyphosate, triclopyr)	Early spring or late fall

Mechanical. For light infestations, vines can be pulled or dug out by the roots and removed from the area. Fruiting vines should be bagged and landfilled. Cutting the vines without removing the roots or chemically treating the stems will stimulate regrowth.

Chemical. Spraying foliage with triclopyr (1-2% active ingredient) or with a mixture of 2,4-D and triclopyr can also be effective. Apply after the first hard frost in the fall or in early spring while most native plants are dormant but bittersweet is actively photosynthesizing. Sites should be monitored after treatment for regrowth.

Combination. Cut the vines low to the ground and apply herbicide to the cut stumps. Use triclopyr (12% active ingredient) with a non-toxic bark penetrating oil or glyphosate (20% active ingredient). Treat in



Roadside infestation sprawling over meadow, shrubs and trees.
Photo by David J. Eagan



Climbing Oriental bittersweet damaging trees along a forest edge

winter, early spring or fall, preferably when native plants are dormant and will be unaffected. Vines can also be cut and a foliar spray used later on the resprouts.

As with all treatment methods, long-term monitoring will be needed. Even after complete removal and

root-kill, seedlings are likely to sprout for years due to seeds already in the soil. Re-infestation from seed sources elsewhere is a continual possibility.

***NOTICE:** Use pesticides wisely. Always read the product label carefully. Follow all mixing and application instructions and wear all recommended protective gear and clothing. Contact your state department of agriculture for any pesticide use requirements, restrictions or recommendations. Many states require individuals involved in the commercial application of pesticides be certified and licensed.*

HISTORY AND LORE

Oriental bittersweet is native to eastern China, Korea and Japan and was introduced to the U.S. in the mid-1800s. For decades, it was planted as an ornamental, for erosion control along highways and for wildlife food and habitat. In autumn, berry-laden vines and wreaths are commonly seen for sale as decorative floral arrangements. One grower in Wisconsin has 40 acres planted to this species. The genus *Celastrus* is from the ancient Greek *kelastros* (the name of a tree) and *orbiculatus* meaning round.

LINKS and REFERENCES

Websites

Weeds Gone Wild – Oriental bittersweet factsheet

<http://www.nps.gov/plants/alien/fact/ceor1.htm>

The Nature Conservancy: 12-page stewardship document for Oriental bittersweet

<http://tncweeds.ucdavis.edu/esadocs/celaorbi.html>

Invasive.org Project – Oriental bittersweet factsheet, links and photos

<http://www.invasive.org/browse/subject.cfm?sub=3012>

Books / Field guides

Invasive Plants Field & Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands, by Cynthia D. Huebner, U.S. Forest Service, 2005.

(Also online -- <http://www.fs.fed.us/r9/wildlife/nis/invasive-species-field-guide.pdf>)

Invasive Plants of the Upper Midwest: An Illustrated Guide to their Identification and Control,
by Elizabeth J. Czarapata, University of Wisconsin Press, 2005.