

Oriental bittersweet

Celastrus orbiculatus

Control Guidelines

NH Department of Agriculture, Markets & Food, Division of Plant Industry, 29 Hazen Dr, Concord, NH 03301
(603) 271-3488

Common Name: Oriental Bittersweet

New Hampshire Invasive Species Status: Prohibited (Agr 3800)

Latin Name: *Celastrus orbiculatus*

Native to: Japan, China, Korea



Photos by: Douglas Cygan

Description: Deciduous vine reaching heights of 40-60'. **Bark:** Tannish, furrowed. **Leaves:** Alternate, ovate, bluntly toothed, 3-4" long by 2/3's as wide, tapered at the base. **Flowers:** Small, greenish, blooming in spring. **Fruit:** Yellow dehiscent capsule surrounding an orange-red aril. **Fruits** occur in the axils of the stems whereas native bittersweet (*Celastrus scandens*) fruits at the ends. **Zone:** 4-8. **Habitat:** Disturbed edges, roadsides, fields, forests and along rivers and streams. **Spread:** Birds and humans. **Comments:** Very aggressive, climbs up and over trees and smothers them. Do not buy wreaths made of these vines. **Controls:** Difficult to manage. Cutting, pulling

General Considerations

The introduction of Oriental bittersweet to non infested areas is generally associated with birds and small mammals feeding on the abundant fruits in the fall and excreting the seeds as they move from one area to another. Dispersal is also associated with human activities where earth moving activities occur or when the vines and fruits are collected in the fall for ornamental wreaths and decorations (*which is prohibited*) and then carelessly discarded. Seed viability and germination rate is relatively high at 90% in the spring of the subsequent growing season, but drops off significantly the following year. Fruits that remain on the vine eventually drop to the ground and decompose leaving behind three seeds per berry. These seeds ultimately become part of the seed bank, which usually remains viable for only 1-year. Anyone involved with control practices or site development should take precautionary measures to ensure that fruits and soil material containing seeds are not moved off site. Preventative measures to avoid this may necessitate the creation of a cleaning station where soils/seeds and/or propagules can be removed from vehicles, tires, and equipment. Heavy deposits of soil may require pressure washing.

Another factor that warrants consideration is the rejuvenation of Oriental bittersweet from root fragments left in the ground. Control measures that involve cutting the upper portion of the vine and leaving the rooting system intact

typically results in new shoot emergence, known as suckering. These can form at the crown or along the root itself. Subsequent monitoring and control measures may be necessary to manage this reoccurrence.

Since there are no known biological controls, and cultural controls are generally ineffective, the standard management practices involve mechanical and chemical controls. Depending on the method employed it can take less than one year or up to several years to eliminate Oriental bittersweet from the management area.

To easily identify and locate where Oriental bittersweet occurs in any habitat, simply scout areas of concern in the fall when native plant species have reached their peak colors. At this point most native species will have dropped their leaves leaving the bright lemony-yellow foliage of Oriental bittersweet as a key indicator. In New Hampshire, this generally occurs around late October to early November. This method is very effective for early detection and rapid response (EDRR) by enabling managers to map out areas of concern and implement control strategies early on.

Control Options modified by the Pepperell Invasive Plant Advisory Committee

Control options include mechanical and cultural. In Massachusetts, chemical control (herbicides) options are regulated by the Department of Agricultural Resources (MDAR) Pesticide Program. <https://www.mass.gov/orgs/pesticide-program>

Note: Although native American bittersweet, *Celastrus scandens*, is not prevalent in Massachusetts, it is important to properly identify which bittersweet you have and confirm that it is Oriental bittersweet before control measures begin.

<i>Celastrus orbiculatus</i> Oriental bittersweet	
Plant Type	Liana
Habitat Type	Mostly forest edge
USDA Hardiness Zone	4-8
Rooting Structure	Lateral
Environmental Impacts	Hybridizing with American bittersweet. Weaken mature trees by girdling the trunk and weighting the crown.
Wildlife Impacts	
Leaf arrangement	Alternate
NWI Ranking	UPL, FACU
Soil Type	
Soil pH Range	5-7.5
Light Requirements	Prefers partial to full sun
Growing Season	
Growth Rate	0.3-3.0 m (1-12 ft)
Mature Height	60 ft. (18.3 m)
Life Span	
Reproductive Age	3-5 years
Flowering Period	May - June
Flower Type	Dioecious & monoecious
Pollination	Insects, mostly bees, and wind
Seed Set	August through September
Seed Per Plant	5 seeds per fruit
Scarification Required	Yes
Cold Stratification	Yes
Seed Longevity	Typically 1-year, possibly 2
Seed Germination Rate	95%
Seedling Density	
Other Propagules	root suckering
Dispersal Vectors	Birds, small mammals, humans

Sources

Boelk, D. (2007) *Lepidium latifolium* L. Encycloweedia, California Department of Food and Agriculture, APWG: WEED US.

http://www.texasinvasives.org/invasives_database/detail.php?symbol=LFLA2

Boelk, D. (2006) *Lepidium latifolium* L. Mustard family (Brassicaceae). Plant Conservation Alliance, Alien Plant Working Group.

<http://www.nps.gov/plants/ALIEN/fact/lela1.htm>

Jacobs, J. and J. Mangold. (2007) Ecology and Management of Perennial Pepperweed [*Lepidium latifolium* L.]. Natural Resources Conservation Service.

<http://www.msuextension.org/ruralliving/Dream/PDF/pepper.pdf>

NMSU Board of Regents (2007) *Lepidium latifolium* L. New Mexico State University.

http://weeds.nmsu.edu/factsheet.php?weed_id=50

Perron, C. (2008) Best Management Practices for Roadside Invasive Plants. New Hampshire Department of Transportation.

<http://www.nh.gov/dot/bureaus/environment/documents.htm>

Orth, J. F., Gammon, M., Abdul-Basir, F., Stevenson, R. D., Tsirelson, D., Ebersole, J., et al. (2006) Natural history, distribution, and management of *Lepidium latifolium* (Brassicaceae) in New England. *Rhodora*, 108(934), 103-118.

Renz, Mark. (2000) *Lepidium latifolium* L. The Nature Conservancy.

<http://www.invasive.org/weedcd/pdfs/tncweeds/lepilat.pdf>