



VEGETATION MANAGEMENT GUIDELINE

Round-leaved bittersweet (*Celastrus orbiculatus* Thub.)

SPECIES CHARACTER

DESCRIPTION

Round-leaved bittersweet is a deciduous twining woody vine. Older individuals become spreading, trailing shrubs. Leaves are alternate and are 5-10 cm long in size and shape from oblong-obovate to suborbicular. Margins are crenate-serrate. Petioles are 0.4-1.2 inches (1-3 cm) long. Stems and branches are round, glabrous and light to dark brown with discernible lenticels. The small greenish flowers occur in a cluster terminating the secondary branches, with terminal flowers blooming first. The green globose, three-valved fruit is borne in clusters of 1-3 in July and becomes orange in color in September; opening to reveal the fleshy orange-red aril surrounding the seeds.

SIMILAR SPECIES

This vine is distinguished from purple winter creeper (*Euonymus fortunei*) which has opposite, elliptical leaves. It differs from the native climbing bittersweet (*Celastrus scandens*), which has alternate elliptical or ovate leaves that are usually not as round as those of round-leaved bittersweet (Table1). Round-leaved bittersweet should be accurately identified before attempting any control measures. If identification of the species is in doubt, the plant's identity should be confirmed by a knowledgeable individual and/or by consulting appropriate books.

Table 1.	Round-leaved Bittersweet (exotic)	Climbing Bittersweet (native)
Leaf shape	Obovate, broadly obovate or orbicular	Ovate to ovate-oblong
Leaf apex	Abruptly acute or abruptly acuminate	Tapering acuminate
Inflorescence	Single flowers or few-flowered clusters axillary on main stem and on lateral branches	Terminal panicles on main and lateral branches

DISTRIBUTION

Oriental bittersweet is native to Japan, Korea, and northern China. It was introduced into the United States in 1860 and was naturalized by 1916. Round-leaved bittersweet occurs from New York to Virginia and southwestward in the U.S. This exotic invasive has been reported in the north, south and central portions of Illinois.

HABITAT

Round-leaved bittersweet has a wide range of habitat preferences



including roadsides, old home sites, where it has escaped from cultivation, and thickets. It occurs in a variety of forest types, including undisturbed mesic and dry-mesic forests. Round-leaved bittersweet is shade tolerant, readily germinating and growing under a closed forest canopy.

LIFE HISTORY

Round-leaved bittersweet flowers in May to June. Bees are the primary pollinators, but wind pollination is also successful. Fruits ripen August to September and remain on the stem into the winter. Seeds are dispersed by birds and small mammals. Seed germination is high (up to 95%) and is even higher in lower light intensities. Germination begins in mid to late spring. The plants expand by layering stolons and rootsuckers. Annual growth rate is from 1-12 feet (0.3-3.6 meters).

This aggressive, perennial, woody vine climbs on rocks, trees and sometimes covers the ground and vegetation. It spreads rapidly into openings and undisturbed woodlands. Since it is shade tolerant, seedlings may stay suppressed for some time before being released by disturbance.

EFFECTS UPON NATURAL AREAS

At Fern Rocks Nature Preserve in Jackson County, Illinois, round-leaved bittersweet has covered the ground and vegetation, actually eliminating native ground cover species in mesic and dry-mesic forests. In the south, it climbs up to 60 feet (18 meters) in trees and reaches 4 inches (10 cm.) in diameter. This vine constricts shrubs and eventually kills them by shading. It is a serious potential threat because it spreads rapidly, invades mesic woods, and replaces ephemerals.

CONTROL RECOMMENDATIONS

RECOMMENDED PRACTICES IN NATURAL COMMUNITIES OF HIGH QUALITY

Round-leaved bittersweet produces numerous seeds and extensive viable seed reserves can be built up in the soil in a few years. Control actions must continue until seed sources are eliminated.

Where practical, individual vines should be pulled by the roots and removed from the area by hand. All plant parts, including mature fruit, should be bagged and disposed of in a trash dumpster to prevent reestablishment. Any portion of the root system not removed will potentially resprout.

If hand removal is not possible, due to large populations, vines should be cut by hand as close to the root collar as possible and cut stems spot-treated with 100% Roundup (a formulation of glyphosate) just after the last killing frost. A squirt bottle may be used to spot-treat the cut stumps or else herbicide can be wiped on each stump with a sponge applicator. Treatment should be prior to emergence of spring ephemerals. The herbicide applicator should carefully avoid contacting nontarget plants when applying herbicide, because Roundup is non-selective. By law, herbicides may only be applied per label instructions and by licensed herbicide applicators or operators when working on public properties.

To maintain control, round-leaved bittersweet should be totally eradicated from the

surrounding area where possible. Invading individuals should be pulled immediately and removed upon discovery. Adjacent land owners should be contacted and encouraged to remove this plant from their lands.

RECOMMENDED PRACTICES ON BUFFER AND SEVERELY DISTURBED SITES

Same as above where hand labor is available and practical. For large populations in severely degraded sites, foliar spraying with Crossbow (a mixture of 2, 4-D and triclopyr), using backpack sprayers, will reduce the population. Crossbow should be mixed according to label directions for foliar application. As with Roundup, care should be taken to avoid contacting nontarget plants with herbicide. **Do not spray so heavily that herbicide drips off the target plants.** The herbicide should be applied while backing away from the treated area to avoid walking through the wet herbicide. Crossbow is effective when applied in mid to late October.

FAILED OR INEFFECTIVE PRACTICES

Hand control is slow and labor intensive.

Fire often is not desirable in mesic woodland environments.

Herbicides should not be used during the growing season when spring ephemerals and other native species may likely be affected.

No biological controls are known that are feasible in natural areas.

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PERSONAL COMMUNICATION

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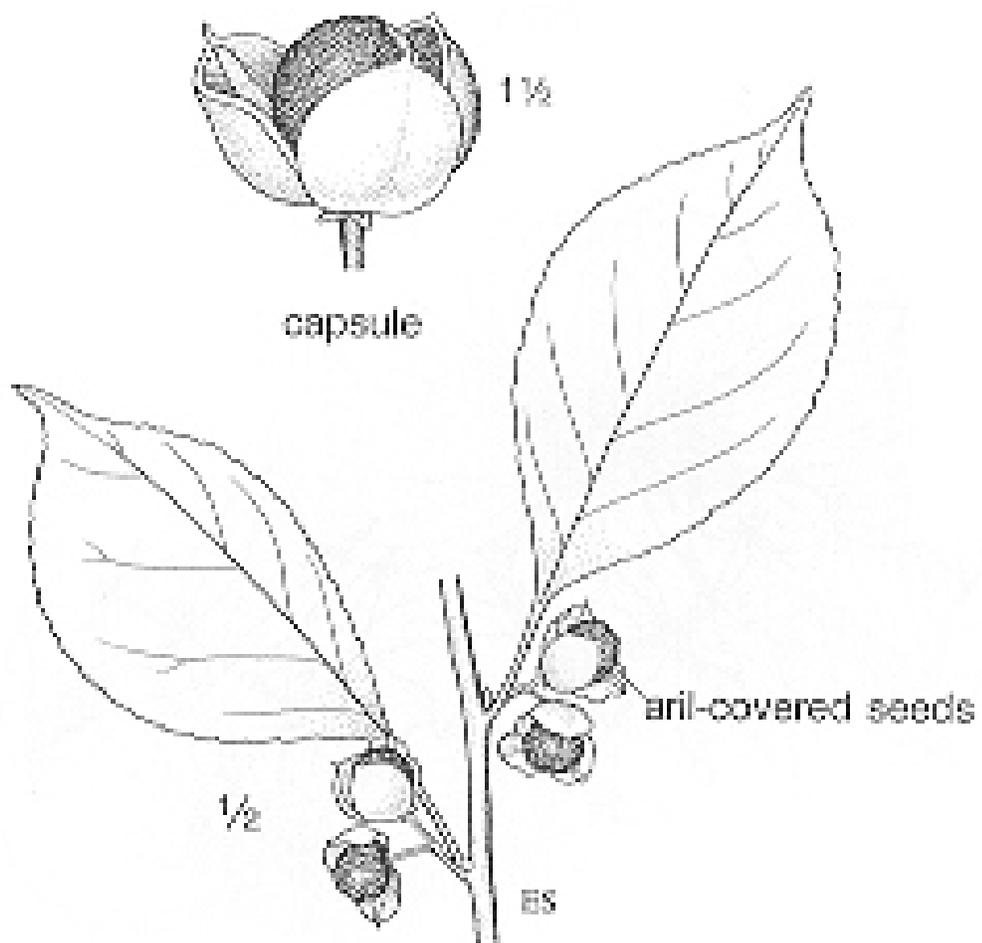
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2. *Celastrus orbiculatus*