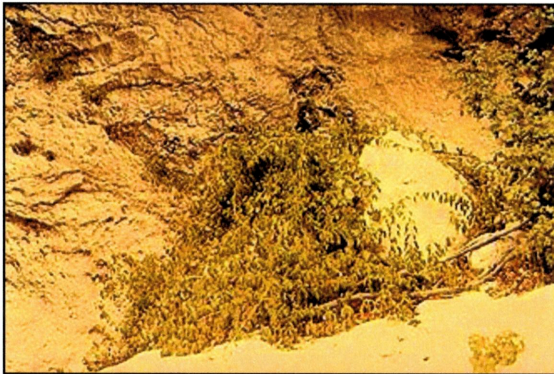


AMERICAN BITTERSWEET

Celastrus scandens L.
Plant Symbol = CESC

Contributed by: USDA NRCS Plant Materials Program



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Uses

The climbing growth habit of American bittersweet makes it a valuable ornamental plant both outdoors and indoors. It is easily trained to climb walls, trellises, and fences. When added to existing shrub plantings, this twining vine produces excellent wildlife cover and aids in erosion control as well. The berry-like fruit provides winter food for wildlife species such as grouse, pheasant, quail, rabbit, and squirrel.

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status (e.g. threatened or endangered species, state noxious status, and wetland indicator values).

Description

Bittersweet is a twining vine that, if permitted to ascend trees or poles, may reach heights of 20 feet, although it generally grows close to the ground. The leaves are alternate, dark green, oval shaped, and turn yellow before dropping in the fall. It is often confused with oriental bittersweet, which is a weedy pest. Oriental bittersweet (*Celastrus orbiculata*) can reach much greater heights than American

bittersweet and produces much more seed. As a result it tends to dominate woody vegetation and *should not be used*. American bittersweet has been aggressive on some sites, and should be used with caution. Oriental bittersweet is distinguished from American bittersweet by leaves that are rounded at the tip, whereas those of the native species are pointed. Also, fruit of oriental bittersweet are few per stalk and close to the stem. American has several seeds on stalks that extend out beyond the leaves.

Adaptation and Distribution

American bittersweet tolerates diverse climatic conditions, but prefers a neutral soil and a sunny location. It occurs throughout the Northeast and Mid-Atlantic region.

For a current distribution map, please consult the Plant Profile page for this species on the PLANTS Website.

Establishment

Two year old nursery seedlings should be used for planting banks and other large areas. Container-grown plants are ideal for ornamental plantings. Clear at least a one square foot area around the newly established plant to reduce competition.

Management

Because of its aggressive nature, do not plant in areas where it may easily climb favorable trees. Bittersweet can be controlled by allowing deer and rabbits to browse the plants (this only works for young plants) and by herbicides and hand removal.

Prepared By & Species Coordinator:

USDA NRCS Northeast Plant Materials Program

Edited: 01Feb2002 JLK; 01Jun06 jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

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Celastrus scandens L.
CELASTRACEAE

American bitterweet

Synonyms: *Celastrus bullata* L.
Euonymoides scandens (L.) Medic.



Illustration source: Britton and Brown 1897

General Description.—American bitterweet is the name used most often in North America to refer to this native vine. Other common names include climbing orange root, false bitterweet, fever twig, staff-tree, waxwork, and yellow-root (Dillingham 1907). The woody roots can be up to 2 cm thick and are yellow to orange. American bitterweet is multistemmed with brown, round twigs; the pith is solid and white. It can behave like a shrub but it is usually a climbing woody vine that can reach up to 10 m in height. The plant lacks tendrils or aerial roots. The leaves of American bitterweet are deciduous, glabrous, alternate, spiral, stipulate, and measure (including the petiole) 4.5 to 14.8 by 2.7 to 5.5 cm, with the blades elliptic to ovate in outline with serrulate margins. The lateral veins are ascending. The leaf scars are flush with the stem. The small, greenish-white, five-parted flowers are in terminal racemes of 14 to 50 functionally unisexual flowers, with

the partially fused sepals 3 to 7 by 1 to 2 mm and the petals 1.8 to 4.0 by 0.9 to 1.2 mm. The functional male flowers have five stamens about as long as the petals and a vestigial pistil. The functional female flowers have a syncarpous pistil with a three-lobed stigma, short columnar style, and well-developed superior ovary. The fruit of the American bitterweet is a bright orange, three-valved, globose to ellipsoid capsule, with each valve covering one or two seeds that are enclosed in a fleshy, crimson aril. The seeds (sans aril) are smooth, light orange, ellipsoid, 3.5 to 4.5 by 1.8 to 2.0 mm (Clemants 2003). The genus name is derived from the ancient Greek name *Celastros* (*Kelastros*), which in Greek was applied to a Mediterranean evergreen tree probably in the genus now known as *Phillyrea* (Rehder 1940).

Range.—American bitterweet has been reported throughout most of the United States, except Florida and the Western States of Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah and Washington (USDA, 2003). It is also known in Canada from Manitoba, New Brunswick and Quebec (Scoggin 1978). Reports (Bailey 1949, Britton and Brown 1897) of this plant from New Mexico (then a territory with the same area as the present state) are probably in error. No voucher specimens exist for these reports and there has been no other report of American bitterweet from New Mexico.

Systematic Botany.—American bitterweet is similar to the Oriental bitterweet (*Celastrus orbiculatus* Thunb.) and can be distinguished from it on the basis of its leaves and inflorescences (Hou 1955). The leaves of American bitterweet are elliptic to oblong and are usually twice as long as wide, whereas the leaves of Oriental bitterweet are suborbicular to obovate and are usually less than twice as long as wide. The flowers (and fruits) of American bitterweet are in long terminal clusters; the flowers (and fruits) of Oriental bitterweet are in short axillary clusters. Both species have the same chromosome number ($n = 23$; Bowden 1945) and they have been hybridized (White and Bowden 1947, Pooler and others 2002). The presence of some intermediate material

in the wild with both lateral and terminal inflorescences has led to the speculation that the two species may hybridize in the wild (Dreyer and others 1987, Mehrhoff in Pooler and others 2002).

Ecology.—American bittersweet grows in a wide variety of habitats, including dune thickets, fencerows, forests, forest edges, and roadsides. The native American bittersweet is declining, while the nonnative Oriental bittersweet (*Celastrus orbiculatus* Thunb.) is spreading and increasing in abundance (Dreyer and others 1987, Forman and Stark 2001, Steward and others in press). Pooler and others (2002) have hypothesized that the spread of Oriental bittersweet and its hybridization with American bittersweet may be threatening the genetic identity of the American bittersweet. The very properties—faster growth (Bailey 1922, Rehder 1940), greater fecundity (Clemant and others 1991, Dreyer and others 1987, Hart 1928), greater tolerance of environmental heterogeneity (Baker 1974, Newsome and Noble 1986, Sakai and others 2001)—that made early horticulturists prefer Oriental bittersweet over American bittersweet are the same characteristics that enable Oriental bittersweet to outcompete American bittersweet.

Reproduction.—American bittersweet blooms in the spring and is pollinated by hymenopterous insects, especially bees, although wind may also be involved (Brizicky 1964). The fruit ripens in the fall. The seeds are dispersed by birds and small mammals (Dreyer 1994). American bittersweet can also reproduce asexually through root suckering.

Growth and Management.—American bittersweet does well in many conditions. It is a rapid grower, adding up to several meters in one growing season. Adequate sun is important for fruit production. It can be planted in Hardiness Zones 3 to 8, in soils with pH ranges from 3.7 to 6.5. It cannot tolerate saturated soils. Propagation can be effected either through layering or seed (Chittenden and Synge 1956). Seeds should be stratified in the dark at about 4 °C for 3 months (Young and Young 1992)

Benefits.—The branches of American bittersweet were used by Native Americans, including the Chippewa, as a last resort food source (Dillingham 1907, Palmer 1871). The leaves have been reported as being poisonous to cattle (Brizicky 1964). Fruiting stems of the species are often used in dried arrangements.

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