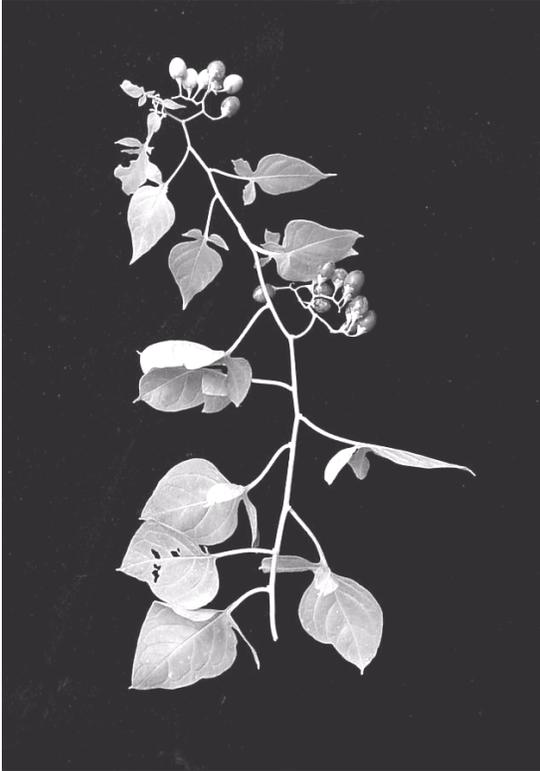


*Solanum dulcamara* L.  
SOLANACEAE

bittersweet nightshade

Synonyms: none



**General Description.**—Bittersweet nightshade is also known as bitter nightshade, climbing nightshade, woody nightshade, scarlet berry, fellenwort, poison bittersweet, and dulcamara. The name bittersweet comes from the report that stems first taste bitter, then sweet when chewed. It is a vine or slender scrambling shrub up to 7 m in extension and 2 or 3 cm in basal diameter. The base of the plant is woody, and the upper herbaceous branches die back to the woody portion each year. The slender branches are green becoming gray-brown and finely furrowed in the lower stem. The wood, which has annual rings, is creamy-white, brittle, and of light to medium density. The main root grows horizontally just below the surface and suckers frequently. Its bark is tan, corky, and knotty. The crushed bark and foliage have an unpleasant smell. The alternate, dark-green leaves are ovate to lanceolate, entire, simple or with small, opposite lobes or leaflets near the base. The blades are 5 to 12 cm long and the petioles 1 to 4 cm long. Inflorescences are

drooping lateral cymes of usually more than 10 flowers. The corolla is deeply five-lobbed (star shaped), 12 to 16 mm in diameter, blue to violate (occasionally white), with exerted yellow anthers about 5 mm long. The ripe fruits (berries) are bright red, ovoid to globose, 8 to 12 mm long, and contain numerous flattened, pale-yellow seeds. Chromosome number of the species is  $2n = 24$  (Abrams 1951, Stance 1997).

**Range.**—Bittersweet nightshade is native to temperate Eurasia and northern Africa (Crossley 1974, Steyermark 1963). It is generally considered to be naturalized well into Canada and the United States including all the conterminous states except Arizona, New Mexico, Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, and South Carolina (Natural Resources Conservation Service 2003). Its observation by early botanists and its presence in native habit led one author to conclude that it is native to North America (Dean 1940). The species has been widely planted for ornamental and medicinal purposes.

**Ecology.**—Bittersweet nightshade often grows in wet sites or sites close to water, but also grows in moist upland sites: river banks, weedy ditches, sea shores, at the edges of lakes, bogs, and fens, roadsides, fencerows, orchards, and open forests. A wide variety of soils are colonized. The species tolerates dormant-season temperatures well below freezing but for unknown reasons has not invaded tropical climates. Continuous soil moisture is required. Seedlings are tolerant enough to grow under a moderate forest canopy (Samodien and others 2003). However, mortality of seedlings tends to be high (89 to 94 percent) (Kollmann and Grubb 1999). Plants in full sun or light shade flower and fruit much more heavily than those in moderate to medium shade. Bittersweet nightshade climbs into small trees, shrubs, weeds, and fences or remains prostrate as opportunities avail themselves. Plants of the species grow singly or in small patches.

**Reproduction.**—Bittersweet nightshade flowers from May to September (Horticulture Purdue 1998). Fruit and seed production can be abundant. Fresh fruits collected by the author in Utah ( $n =$

50) averaged  $0.441 \pm 0.013$  g/fruit. They contained an average of  $30.9 \pm 1.6$  seeds/fruit, and the air-dried seeds averaged  $0.00149 \pm 0.00002$  g/seed or 670,000 seeds/kg. Crossley (1974) reports 938,000 seeds/kg. The fruits can be collected by hand, cleaned by macerating and wet screening, and stored at 6 percent moisture for periods of less than 1 year. When seeds are germinated under light, stratification is not necessary and total germination percentages of 61 to 98 percent may be reached. Stems and branches layer (root) whenever they come in contact with the ground. Plants coppice when they are cut or damaged. Nursery propagation is usually by seeds, but the species can be propagated asexually by root or stem cuttings (Crossley 1974). Seeds of wild plants are dispersed by birds (Samodien and others 2003).

**Growth and Management.**—Bittersweet nightshade branches grow and die back 1 to 3 m or more each year. Larger stems examined by the author had two or three growth rings. Plants probably live much longer by resprouting, suckering, and layering. Bittersweet nightshade usually is not abundant or aggressive enough to need control. Occasional plants or patches in gardens, orchards, or landscaped areas can be eliminated by grubbing or spot spraying with broadleaf or broad-spectrum herbicides.

**Benefits and Detriments.**—Bittersweet nightshade contributes to the aesthetics of wildlands where it grows and furnishes food and cover for wildlife. It is a pretty plant, cultivated as an ornamental for its colorful flowers and fruits and dark green foliage. Several species of moths use it for larval food (Savela 2003). The fruits are eaten by birds, including pheasants (*Phasianus colchicus*). Although all parts are poisonous to cattle, horses, and sheep, which normally will not eat it, the stems are eaten by muskrats (*Ondatra zibethica*). The berries have been used to poison rabbits and dogs (Steyermark 1963). Although the fruits have an attractive appearance, the flavor is so disagreeable that it is doubtful that anyone would mistakenly eat enough to be poisoned. Also, poisonous principals are low in ripe fruits (Lambo Seeds 2003). Bittersweet nightshade contains the alkaloid solanine (the poisonous principal) and the glycoside dulcamarin (responsible for the bitter-sweet taste). Decoctions, usually of the twigs, were once used to treat a variety of ailments. These have been largely discontinued because of severe side effects. The herb is used today to treat scaly skin

afflictions and deficient capillary circulation in the skin (Herbdata New Zealand 2003).

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