Sambucus nigra L.

Caprifoliaceae

LOCAL NAMES
English (European elderberry,elder,European elder,common elder,black-berried European elder,elderberry,black elder); French (seu,sureau noir,sureau); German (schwarzer holunder); Portuguese (sabugueiro,sabugueiro-negro); Spanish (sambugo,saúco,sauco común)

branch (USDA-NRCS PLANTS Database / USDA NRCS. Wetland flora: Field office illustrated guide to plant specie)

BOTANIC DESCRIPTION
S. nigra is a bushy, fast-growing deciduous to semi-evergreen shrub or small tree reaching 8-10 m tall and 20-30 cm diameter often multiple-stemed from the base, branches often arching with a rounded crown. Its hollow stems tend to fracture unless it grows in a very sheltered spot.

Leaves opposite, pinnately compound, dark green, with 5-11 elliptical, serrate leaflets, 10-28 cm long; bottom leaflets often 3-lobed; produces unpleasant odor when crushed.

Flowers small, white borne in dense flat topped clusters 10-25 cm in diameter.

Fruits small berry like drupe that turn from green through red-brown to shiny black, very juicy, 6-8 mm in diameter, borne in flat topped clusters, each containing 3-5 seeds. Fruits are covered with a white, waxy bloom (glaucous).

Twig stout yellow grey with prominent warty lenticels and white, large, continuous pith. Buds are very small red brown and pointed, terminal buds mostly lacking.

Bark is brownish-grey, becoming deeply furrowed and corky with age.

BIOLOGY
Flowering is generally in June-July in Europe followed by fruiting in late summer. Birds feeding on the fruit are the main dispersal agents of seed, though other small mammals may also have a role.

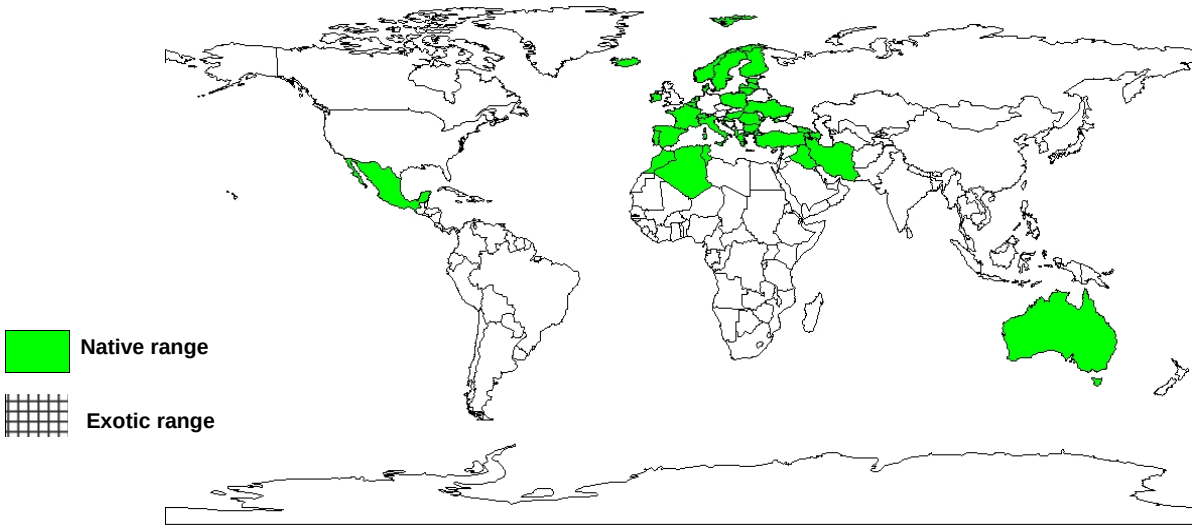
ECOLOGY
Black elder is found in moist, shady places and among underbrush, along hedgerows, in woods and waste places. It is frequent in scrub and croft land. Under natural conditions the species is a component of brushwood of various types of forest communities on fertile and relatively humid soils containing carbonates.

BIOPHYSICAL LIMITS
Altitude: 0-2300 m
Temperature: 4-20ºC
Mean maximum temperature of hottest month: 15 - 31ºC
Mean minimum temperature of coldest month: 17 - 7ºC
Absolute minimum temperature: > -39ºC
Rainfall: mean of 400-1800 mm
Soil type: S. nigra adapts to a wide range of soils, including dry ones and those of low fertility and exposed areas but grows best on fertile, well-drained and relatively humid soils containing carbonates. The Elder flourishes in soil with high nitrogen content and is naturally found growing in deep, rich, neutral soils, though it can also grow in poor acidic ones.

DOCUMENTED SPECIES DISTRIBUTION

Native: Albania, Algeria, Andorra, Armenia, Australia, Azerbaijan, Belgium, Bosnia and Herzegowina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Greece, Hungary, Iceland, Iran, Iraq, Ireland, Italy, Latvia, Lithuania, Luxemburg, Macedonia, The Former Yugoslav Republic, Mexico, Moldova, Republic of, Morocco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Spain, Sweden, Switzerland, Syrian Arab Republic, Tunisia, Turkey, Ukraine, United Kingdom, Yugoslavia (Former)

Exotic: Bolivia, China, Colombia, Cote d'Ivoire, Ecuador, India, New Zealand, US



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Food: Black elder fruits are not palatable fresh off the plant, but can be quite tasty when cooked for use in sauces, jam, jellies, juice, chutney, ketchup and pies. The flowers are used to make cordial and white wine. The ripe berries, popular with birds, bees and butterflies, is the basis of a red elderberry wine. The leaves however are poisonous.

Timber: The wood of S. nigra is heavy and quite durable, but poorly used due to the rather small dimensions of the timber. It has been used as a source of sawn or hewn building timbers and for the production of exterior fittings. Due to its whiteness, close grain and good cutting and polishing properties, the wood is very suitable for making pegs, tool handles, brushes, cutlery and other small wooden items including use by watchmakers and in making delicate instruments, needles for weaving nets, also for making combs, mathematical instruments and musical instruments. It is also used for fence poles.

Medicine: An ointment can be prepared from leaves and flowers by infusion in warm lard and used as a pain reliever and to promote healing of bruises, sprains, wounds, burns and scalds, chilblains, eczema and dermatitis when applied as poultice. Tea made with the dried flowers, in proper dosages can be used to treat colds, influenza, hay fever, sinusitis, catarrhal deafness, coughs and rheumatic complaints, urinary problems, kidney problems, dropsy, edema and constipation. S. nigra has been identified to be frequently used to treat malaria.

Tannin and dyestuff: The Romans made use of Elderberry juice as a hair-dye. The bark of the older branches and roots has been used in the Scotch Highlands as to produce a black dye. The leaves yield, with alum, a green dye and the berries dye blue and purple.

Essential oils: Although the plant is toxic (especially its roots), elderberry contains varying amounts of essential oils as well. These include volatile terpenes, various glucosides and rutin, which is the basis of its use as a cosmetic.

Pesticide: The medicinal properties of S. nigra and its toxicity have been used as a source of natural pesticides. The leaves have an unpleasant odour when bruised, which is offensive to most insects, and a decoction of the young leaves is sometimes employed by gardeners to sprinkle over delicate plants and the buds of the flowers to keep off the attacks of aphids and minute caterpillars. To safeguard the skin from attacks of mosquitoes, midges and other troublesome flies, an infusion of the leaves may be dabbed on with great results. Farmers have used the leaves for driving mice away from granaries and moles from their usual haunts.

Apiculture: Black elder is attractive to bees and is a source of nectar for honey making.

Other products: The pith from 1-year-old branches is used in microscopy for making sections of plants and the pith of the younger stems, which is exceedingly light, is cut into balls and is used for electrical experiments and for making small toys, it is also considerably used for holding small objects for sectioning in microscopic analysis. Native Americans reportedly bored out the soft pith from twigs to make flutes.

SERVICES
Boundary or barrier or support: elderberry can be planted to mark borders especially in open woodland gardens or wood margins where suckering spread is usually acceptable or to mark stream/pond peripheries or low spots.

Ornamental: The species has been planted as a garden tree for centuries, and as an ornamental, decorative plant for amenity purposes. It is a magnificent plant for garden design and makes an excellent environmental planting since it can mix gracefully and easily with other species in a wide range of garden soils.

Erosion control: it has also been planted for erosion control due to the nature of its rooting system.

TREE MANAGEMENT
Black elder tree has a somewhat invasive character and mostly spreads by root suckers to form large colonies. Suckers should be pruned as soon as they appear. Dead or weakened stems should be pruned to shape in late winter. To increase berry production, severe pruning should be done in spring. Since black elder trees require consistently moist soil, it requires regular watering.

GERMPLASM MANAGEMENT
Black elder seed dormancy is described as orthodox and needs stratification. Collected seeds should be dried in a cool dry place and may be stored for 1-2 years in a tight glass jar kept in a refrigerator at 50° C.

PESTS AND DISEASES
Black elder is susceptible to canker, powdery mildew and leaf spot; and can be attacked by borers, spider mites and aphids. Specific fungal infections include Armillaria mellea (armillaria root rot), Eutypa lata (Eutypa dieback), Fusarium, Phytophthora ramorum (sudden oak death syndrome (SODS)); and is susceptible to Arabis mosaic virus (hop bare-bine), Cherry leaf roll virus (walnut ringspot) Elderberry symptomless virus, Raspberry ringspot virus (Pfeffinger disease of sweet cherry, Tomato black ring virus.

Pests include Aphis sambuci (elder aphid), Otiorhynchus armadillo (armadillo weevil), Placochela nigripes, Xyleborinus saxesenii (fruit-tree pinhole borer), Xyleborus dispar (pear blight beetle), Trichodorus (stubby root nematodes) and Xiphinema diversicaudatum (dagger nematode).

Branches are susceptible to damage from high winds or from heavy snow/ice in winter.

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SUGGESTED CITATION

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