

Buddleja davidii

BUTTERFLY BUSH

ENGLISH NAMES	Butterfly bush, summer lilac
SCIENTIFIC NAME	<i>Buddleja davidii</i> Franchet (also seen as <i>Buddleia davidii</i> Franchet)
FAMILY	Buddlejaceae (Buddleja)



Photo Credit: © J.S. PETERSON
© USDA-NRCS PLANTS Database

Butterfly bush is an attractive ornamental shrub with fragrant purple flowers.

RANGE/KNOWN DISTRIBUTION

Butterfly bush is native to China but has been imported to North America since about 1900 for use as a garden shrub. It has escaped cultivation in Australia, New Zealand, the Pacific (including Hawaii), Europe and North America, including the eastern seaboard and Pacific Northwest. Butterfly bush has been placed on the noxious weed lists of Oregon and Washington. In British Columbia, infestations occur on southeastern Vancouver Island, in Greater Vancouver and on the Sunshine Coast. To date, butterfly bush has rarely been observed in Garry oak ecosystems, and it appears to be limited currently to highly disturbed, urban sites or moist arbutus (*Arbutus menziesii*) zones.

IMPACTS ON GARRY OAK AND ASSOCIATED ECOSYSTEMS

The potential impact of butterfly bush on Garry oak and associated ecosystems is not yet known. Butterfly bush can alter proportions of nitrogen and phosphorous in the soil. This shrub displaces native species, particularly in riparian areas. In streambeds in Oregon, it forms thick monocultures and displaces native willows, which are essential hosts for native butterflies. In forests, it competes with replanted Douglas-fir trees. The range and invasiveness of butterfly bush may increase as a result of global warming.

FIELD DESCRIPTION

Butterfly bush is a deciduous, often lanky and wide-spreading shrub 1-5 m tall. Showy flowers grow in long, spike-shaped clusters at the ends of the shrub's branches. Each small, trumpet-shaped flower is purple, with a yellow to orange "eye." Cultivars can bear flowers ranging from white to many shades of pink and purple. Leaves are egg-shaped to lance-shaped and up to 25 cm long. They are green above and grey and woolly below. Fruits are sharply pointed, two-segmented capsules 5-6 mm long, with many winged seeds.

BUDDLEJA DAVIDII

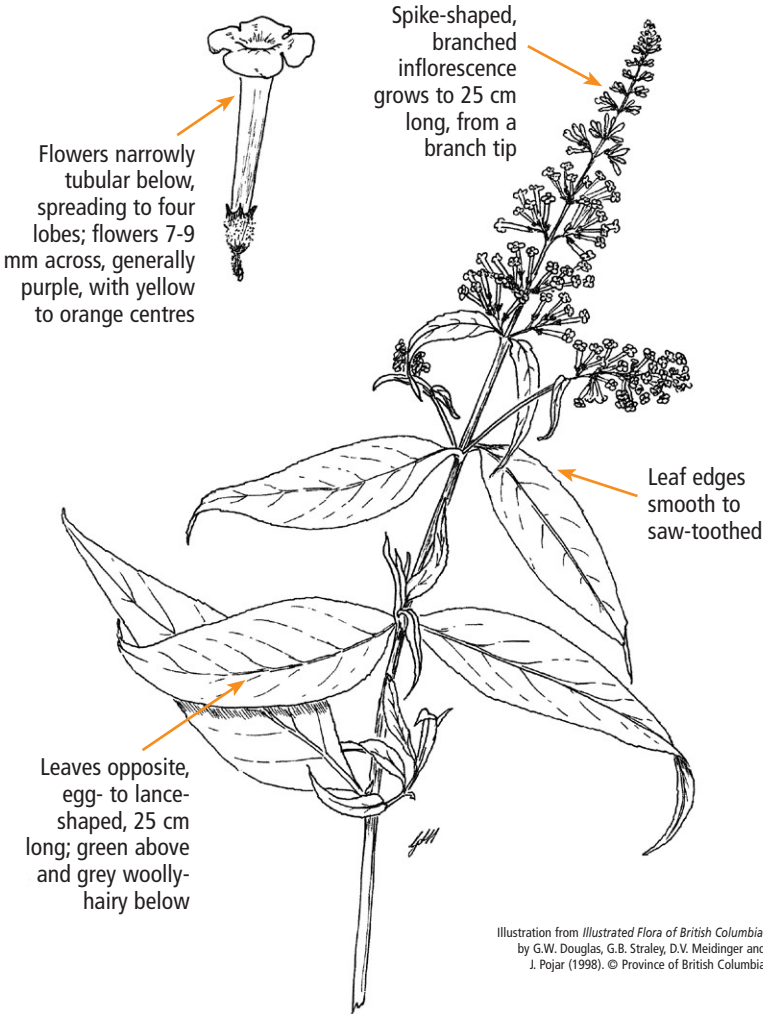


Illustration from *Illustrated Flora of British Columbia*, by G.W. Douglas, G.B. Straley, D.V. Meidinger and J. Pojar (1998). © Province of British Columbia

LIFE HISTORY

Butterfly bush blooms and produces viable fruits after one year, allowing it to spread quickly. It flowers from midsummer to fall and sets seed during the fall months. Butterfly bush is a prolific seed producer, and a single flower cluster of some varieties can produce over 40,000 seeds. Seeds are dispersed by wind and water, and may remain dormant in the soil for many years. Although butterfly bush does not reproduce vegetatively by underground parts, new plants can grow from cuttings. Plants up to the age of 37 years have been recorded, possibly in garden conditions.

HABITAT

Butterfly bush grows in a wide range of habitats, including relatively moist (mesic) to dry disturbed areas, such as riparian zones, stream-beds, roadsides and rocky slopes. The distribution and spread of this species is influenced by the location of an established seed source; however, in Oregon, plants have been recorded kilometres away from any residential area or planted seed source. Butterfly bush prefers moderate to high nutrient levels but is also highly tolerant of nitrogen-poor or calcium-rich soils.

In British Columbia, butterfly bush infestations occur primarily where there is a large seed source, deep soils and mineral soil exposure. In Garry oak ecosystems, butterfly bush may invade rocky outcrops. The plant is moderately drought tolerant, but the lack of summer moisture in Garry oak ecosystems may be a limiting factor to the growth and spread of this species.

MANAGEMENT

Develop a long-term, realistic program for invasive species removal before undertaking any work. Before taking action, obtain expert advice. Please refer to the introductory section of this manual.

Butterfly bush does not yet pose a serious problem in North America, but it is spreading rapidly. In New Zealand, seedlings can establish at densities of several million plants per hectare, self-thinning to about 2,500 plants per hectare by 10 years of age.

PHYSICAL CONTROL: The best time to remove butterfly bush plants is when they are just coming into flower but have not yet produced seeds. Small plants can be easily hand-pulled when the soil is moist. Larger bushes can be removed effectively by cutting the plant at the base and either digging up the stump or covering it with a thick plastic bag or mulch to prevent regeneration from the roots. Remove new shoots until the rootstock dies, and do not leave stems on the ground, or they may root. Extremely large plants may be winched for removal, but care should be taken to limit soil disturbance.

BIOLOGICAL CONTROL: A leaf-feeding weevil, *Cleopus japonicus*, and a stem-boring beetle, *Mecysolobus erro*, are being considered for release in New Zealand, but no biological agents are currently available in Canada.

CHEMICAL CONTROL: After a plant is cut to ground level, applying a glyphosate herbicide on the stump prevents the plant from regenerating. Areas should be reseeded with desirable native plants.

Herbicides should be used in sensitive Garry oak ecosystems only with extreme caution and expert advice.

PREVENTIVE MEASURES: Gardeners should be discouraged from planting butterfly bush, and ideally should replace any established plants with an alternative species (such as *B. globosa*) that is not as invasive. Gardeners are encouraged to deadhead or prune plants in the fall to reduce the chance of seed dispersal. Soil disturbance should be minimized to prevent regeneration from the seed bank.

PERSISTENCE: Butterfly bush plants do not reproduce vegetatively by underground parts, so they are fairly easy to remove. Plants tend to form the greatest infestation densities in the first 10 years. Seeds may lie dormant in the soil for many years, although no precise age for the seed bank has been reported.

GENERAL COMMENTS

The first part of the scientific name honours Adam Buddle (1660-1715), an English botanist. The second part honours Pere Armand David (1826-1900), a French Jesuit missionary and keen naturalist.

In New Zealand, butterfly bush is estimated to cost the forest industry up to \$2.9 million annually in control and lost production because its seedlings hinder tree growth.

There are no native members of the Buddlejaceae in British Columbia.

SELECT REFERENCES

Douglas, G. W., G. B. Straley, D. V. Meidinger, and J. Pojar (eds.). 1998. *Illustrated Flora of British Columbia, Volume 2: Dicotyledons (Balsaminaceae through Cuscutaceae)*. BC Ministry of Environment, Lands and Parks and BC Ministry of Forests, Victoria, BC. 401 pp.

USDA-NRCS. 2005. *The PLANTS Database*. National Plant Data Center, Baton Rouge, LA. <http://plants.usda.gov> (accessed 24 May 2005).

A comprehensive annotated bibliography of literature specific to butterfly bush is available at <http://www.goert.ca/resources/biblio.htm>.

For more information contact the Garry Oak Ecosystems Recovery Team, or see the website at www.goert.ca