

Mini data sheet on *Cardiospermum grandiflorum* (Sapindaceae)

Added in 2012 - Deleted in 2013

Reasons for deletion:

Cardiospermum grandiflorum was added to the EPPO Alert List in 2012 and according to the conclusions of the prioritization process assessment, it was transferred to the List of Invasive Alien Plants in 2013.

Why

Cardiospermum grandiflorum (Sapindaceae) is a climbing vine originating from tropical Africa and Central and South America. It is used as an ornamental plant. It only reproduces by seeds, which are spread by wind and water. The plant smothers other plants in riparian habitats and forests, and is considered invasive in South Africa and Australia. In the EPPO region, it is recorded in Sicilia (IT), the Islas Canarias (ES) and Madeira (PT).

Geographical distribution

EPPO region: Italy (Sicilia), Malta, Portugal (Madeira), Spain (Islas Canarias).

Africa (native): Angola, Benin, Botswana, Cameroon, Central African Republic, Congo, Côte d'Ivoire, Ghana, Guinea, Kenya, Liberia, Malawi, Namibia, Nigeria, Sierra Leone, South Africa (alien, KwaZulu-Natal, Gauteng, Mpumalanga and Limpopo Provinces), Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, Zimbabwe.

North America: USA (Hawaii).

Central America (native): Belize, Costa Rica, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama.

South America (native): Argentina, Bolivia, Brazil, Ecuador, Guyana, Paraguay, Peru, Uruguay, Venezuela.

Oceania: Australia (New South Wales, Queensland), Cook Islands, French Polynesia, New Zealand (North Island: Auckland, Waikato).

Note: the species is regulated in Australia, in South Africa and in the USA. It is casual in France in the Landes and Alpes-Maritimes departments.

Morphology

C. grandiflorum is a vine which can climb up to 8 m high in the canopy. Stems are hairy. The plant common name in English is 'balloon vine' because of the shape of its fruit. *C. grandiflorum* fruit are inflated capsules with pointed tips releasing 3 seeds when mature. Leaves are composed and made of 9 leaflets, triangular-shaped, dark green, with tooth margins, 16 cm long. Flowers are fragrant and growing in compact clusters, composed of 4 petals, white or yellow. A pair of tendrils grows at the base of flowers and leaf axils. The membranous, inflated fruit capsules are about 60 mm long, green turning brown. Seeds are black, heart-shaped, 6 to 8 mm.

In which habitats

The plant is found along waterways, roadsides and in disturbed sites, as well as forest edges. According to the Corine Land Cover nomenclature, the following habitats are invaded: mixed forests, broad-leaved forests, banks of continental water, riverbanks/canalsides (dry river beds), road and rail networks and associated land, other artificial surfaces (wastelands).

Biology and ecology

C. grandiflorum prefers moist soils and will tolerate occasional flooding. Riparian habitats therefore represent the ideal location. *C. grandiflorum* is a perennial species reproducing mainly by seeds, but vegetative reproduction through roots is also reported. Germination can occur at any time during the year and seeds can germinate in dark conditions, but the plant is most vigorous in full sun. It also tolerates shade. Seed longevity is estimated to be around 2 years.

Pathways

The plant is used as an ornamental plant. It can also spread naturally as the light fruits of the plants are spread by wind and by water.

Impacts

C. grandiflorum forms dense but localized stands which can smother other plants and reduce their ability to photosynthesize. The weight of vines can cause breakage of branches, and the dense thickets can also restrict the movement of native fauna. The presence of the vine leads to ecosystem changes of riparian zones, which is reported to contribute to the destruction of the rainforest canopy in Australia. The species is also reported to invade pasture land in New Zealand, and to have negative impacts on forestry plantations in the Pacific, as well as soybean seed productions, this is further complicated as the seeds are the same size.

Control

Manual removal by pulling out the plant and its roots is recommended for small infestations. Manual removal can be combined with chemical control as the plant usually regrows, though limited success has been observed with the use of glyphosate. Biological control agents from South America are under study to be released in South Africa: a seed-feeding butterfly (*Chlorostrymon simaethis*, *Lepidoptera*: *Lycaenidae*) and a rust fungus (*Puccinia arechavaletae*, *Pucciniaceae*).

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