EPPO Datasheet: *Baccharis halimifolia*

Last updated: 2024-01-02

IDENTITY

Preferred name: *Baccharis halimifolia*
Authority: Linnaeus
Taxonomic position: Plantae: Magnoliophyta: Angiospermae: Campanulids: Asterales: Asteraceae: Asteroideae
Common names: Florida groundsel bush, consumption weed, eastern baccharis, groundsel baccharis (US), groundsel bush, groundsel tree, salt bush, saltmarsh elder, sea myrtle, seepwillow, tree groundsel, waterbrush
view more common names online...
EPPO Categorization: A2 list
view more categorizations online...
EU Categorization: IAS of Union concern
EPPO Code: BACHA



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GEOGRAPHICAL DISTRIBUTION

History of introduction and spread

In Australia, the plant was first introduced for ornamental purposes around 1900 in Queensland. By 1930 it was considered invasive, spreading to neighboring areas, and is now recorded in New South Wales (Sims-Chilton & Panetta, 2011).

The first record of *B. halimifolia* in the EPPO region dates back to 1683 in France, where it was introduced for ornamental reasons (Fournier, 1936). There are indications of its cultivation in several botanical gardens, for instance, in Paris in 1796 (Jardin des Plantes) or in Montpellier in 1824 (AME & CBNMP, 2003). During the 19th century, the cultivation of *B. halimifolia* as an ornamental plant was recommended in several horticultural books (Duhamel du Monceau, 1800; Dupuis & Herincq, 1884). The plant was particularly used for its tolerance to salinity, both in soil and in wind spray. It is also widely used as an ornamental plant on roadsides and roundabouts in coastal areas, and is also used on canal shores for stabilization, and more rarely in areas where small game are raised.

In Spain, *B. halimifolia* was reported for the first time by Allorge (1941) in the Basque Country (from Lekeitio to Deba). The Gobierno Vasco (2011) noted that although the species did not seem to be available in nurseries in the Basque country, *B. halimifolia* was nevertheless found in gardens in Asturias (Gonzalez Costales, 2007). The species is suspected to have invaded some natural areas in the Spanish Basque country through natural spread by wind from the French Basque Country (Estela Beteta, Gobierno Vasco, pers. comm., 2012).

In Belgium, the plant was mentioned for the first time as introduced in 1924. It is thought to have been introduced intentionally in coastal dunes as a windbreak (Verloove, 2011). This plant is now recorded to be used in soil bioengineering systems to stabilize tidal shorelines because of its ability to root from a dormant, unrooted cutting (Invasive Alien Species in Belgium Website).

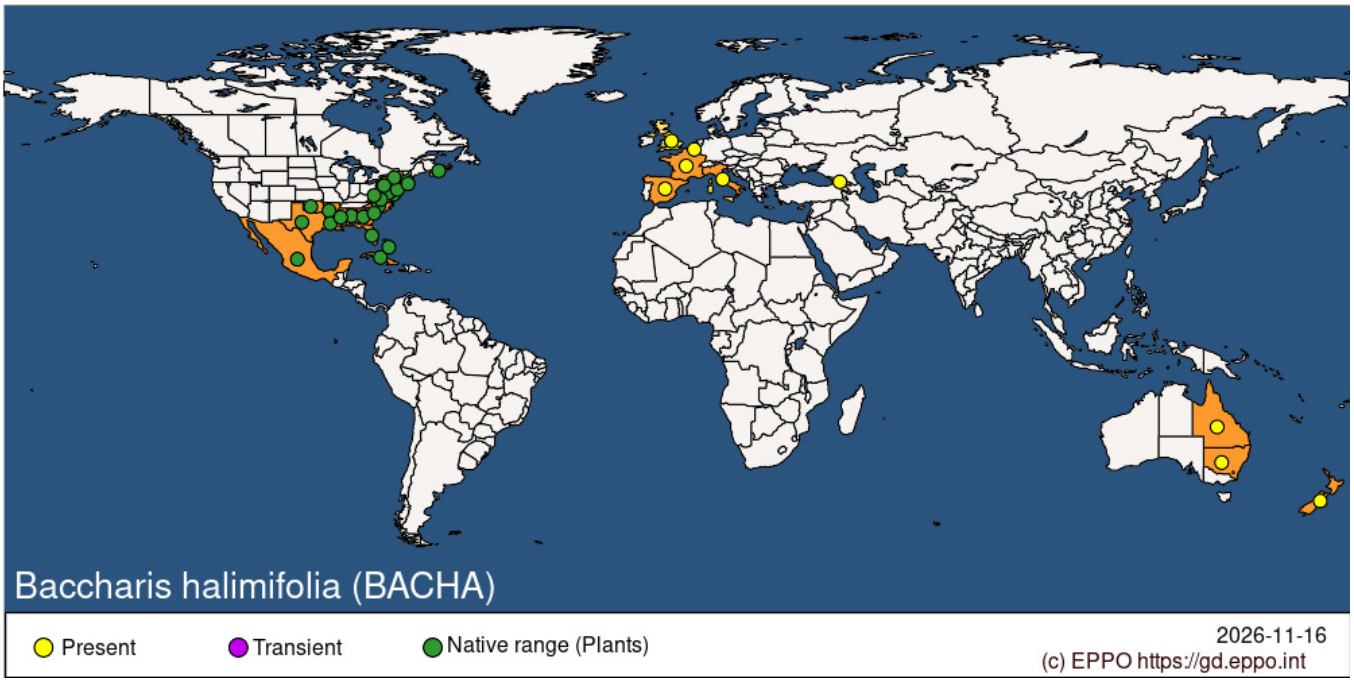
There are only two records of *B. halimifolia* in the UK, where the plant is known to have occurred since 1942 (Clements & Foster, 1994). The introduction of the species has been reported more recently in Italy in the Veneto region (Zanetti, 1997; Minelli, 2009; Pizzo & Buffa, 2009) and in the Tuscany region (Coaro, 1987; Arrigoni & Viegi, 2011), in both cases in coastal areas.

Notes

In Canada, *B. halimifolia* reaches its northern limit range and it is considered as an extremely rare Atlantic coastal plains species, occurring only in Tusket River estuary and its vicinity. Official conservation programmes are being implemented in this area (Nova Scotia Website, Species at Risk Conservation Fund 2009 Approved Projects).

In New Zealand, according to Webb *et al.* (1988), the species was recorded as locally established on Banks Peninsula (Canterbury) only: Evans Pass, Lyttelton, Victoria Park and Barrys Bay (Lynne Huggins, Department of Conservation, New Zealand, pers. comm., 2012).

The species had been recorded in the Netherlands, but is not known to be present anymore in this country (van Valkenburg *et al.*, 2013). The plant is also recorded as planted in the Ataturk arboretum in Istanbul, but has so far not been recorded in the wild (Ibreliler Website, www.ibreliler.com).



EPPO Region: Belgium, France (mainland), Georgia, Italy (mainland), Spain (mainland), United Kingdom
North America: Canada (Nova Scotia), Mexico, United States of America (Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Louisiana, Maryland, Massachusetts, Mississippi, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, West Virginia)
Central America and Caribbean: Bahamas, Cuba
Oceania: Australia (New South Wales, Queensland), New Zealand

MORPHOLOGY

Plant type

Baccharis halimifolia is a branching shrub or small tree growing up to 4 m high.

Description

Baccharis halimifolia's trunk can reach 16 cm in diameter. Its leaves are alternate, pale green, thick; those of the stem and lower branches are obovate to elliptic or oblanceolate, 2–7 cm long and 1–5 cm wide; those of the branchlets are smaller, cuneate at the base, several-toothed above the middle. *B. halimifolia* is dioecious. Flowers are small, female ones are whitish, male ones are greenish. Flower heads are situated in terminal or axillary clusters of 1–5. Achenes are 1–2 mm long, pappus is bright-white, 6–8 mm long (Weber, 2003; Muller, 2004).

BIOLOGY AND ECOLOGY

General

Baccharis halimifolia is generally an evergreen, but in the cooler parts of its native range, it is deciduous (Sims-Chilton & Panetta, 2011). *B. halimifolia* grows fast, up to 30 to 40 cm per year (Herrera & Campos, 2010). Shrubs are mature within 2 years and flower every year (Panetta, 1979b). The species reproduces mainly by seeds, but can also reproduce vegetatively by sprouting from the base, following disturbance (Westman *et al.*, 1975). *B. halimifolia* flowers at the end of the summer (August to October in France) and is wind-pollinated. Seeds are produced from October to November (in France). They are abundant, estimations range between 10 000 (Auld, 1970) to 1 500 000 per year for a healthy adult plant growing in full sunlight (Westman *et al.*, 1975), and are dispersed by wind, potentially over long distances, as well as by water. Seeds germinate easily (usually in 1–2 weeks) if sufficient soil moisture is available (Westman *et al.*, 1975). The seed bank is expected to persist for at least 2 years (Panetta, 1979a).

Habitats

In its native range, *B. halimifolia* occurs in open sandy places, wet fields, marshes, beaches, disturbed sites, roadsides, old fields, from 0 to 100 metres above sea level (Sundberg & Bogler, 2006). It is considered as a common species in upland fringes of coastal saline marshes and back dune habitats (Cronquist, 1980). It is also capable of establishing in disturbed habitats such as fallow fields and hedgerows, as well as inland saline soils (Krischik & Denno, 1990).

In Australia, *B. halimifolia* established within a wide variety of plant communities, from dry Eucalyptus forests to native tea-tree (*Melaleuca quinquenervia*) swamps (Westman *et al.*, 1975). It is particularly suited to moist gullies, salt marsh areas and wetlands. It also grows on high, cleared slopes (Anonymous, 2007a). As in its native range, *B. halimifolia* is also found in disturbed habitats, including cleared unused land, cleared slopes (Anonymous, 2007a), tropical pastures, irrigation channels and coastal canals (Westman *et al.*, 1975) or exotic pine plantations, e.g. *Pinus elliottii* (Panetta, 1979a,b).

On the Atlantic coast of Europe, *B. halimifolia* is known to escape from cultivation (private gardens, hedges and roundabouts) and to establish first in artificial habitats: along roadsides, along canals, in agricultural, industrial or on old saltworks wastelands (Le Moigne & Magnanon, 2009). From these habitats, it invades coastal wetlands such as saltmarshes, moist and wet dune slack, water-fringing reedbeds, meadows and open woodlands (Muller, 2004) and humid prairies (Zendoia *et al.*, 2006). It is also found in drier habitats such as heathlands with *Ulex europaeus* or in the upper beach area (Anonymous, 2007b). It also invades cliffs (Campos *et al.*, 2004).

The main habitats in which *B. halimifolia* is known to occur in the EPPO region according to the EUNIS habitat classification are provided in the EPPO PRA Record for *B. halimifolia.*

Environmental requirements

Baccharis halimifolia can be found on a wide range of soil types. It grows most typically in moist soils with high organic content (Sims-Chilton & Panetta, 2011). However, in Spain, *B. halimifolia* was also associated with high elevations and coarse sand (Onaindia *et al.*, 2001; cited in Sims-Chilton & Panetta, 2011). The plant is observed on soils with pH values ranging from 3.6 to 9 (Westman *et al.*, 1975). In both its native and exotic ranges, it is often found in soil covered by water with salinity ranging from 0 to 3.6% (Westman *et al.*, 1975).

In its native area, *B. halimifolia* is found from Florida, which has a humid subtropical to tropical climate, to areas such as Massachusetts, which has snowfall in winter (USDA-ARS Website). It covers four plant hardiness zones from 9 to 6 with mean annual minimum temperatures of -17.8°C/-23.3°C in the latter zone (Ervin, 2009). It is frost tolerant, and can withstand temperatures as low as -15°C (Huxley, 1992 in Muller, 2004). Westman *et al.* (1975) found that optimal germination occurs between 15 and 20°C with cold pre-treatment at 5°C. This shows the temperate to subtropical range of the species.

Uses and benefits

The species is reported to be used as a food supplement for its medicinal value and as a cleanser promoting weight loss (Fédération des Conservatoires Botaniques Nationaux, undated).

PATHWAYS FOR MOVEMENT

Natural dispersal

Baccharis halimifolia seeds are very small, their mass is approximately 0.11 mg (Panetta, 1977) and they are crowned by a pappus and are therefore readily dispersed by wind (Boldt, 1987) but also by water (Panetta, 1977).

Movement in trade

The plant is used as an ornamental and amenity plant due to its tolerance to salinity. 'Ornamental' and 'amenity' are defined according to Lambdon *et al.* (2008):

(1) Ornamental species are cultivated on a small scale (especially in private gardens).

(2) Amenity species are cultivated on a large to moderate scale in public places for landscaping purposes (e.g., for soil stabilization or aesthetic enhancement).

Trade for ornamental purposes can occur both via the internet and by direct retail at the nursery. The plant is widely available in garden centres and nurseries in Europe.

IMPACTS

Effects on plants

In its native range, *B. halimifolia* is considered a weed as it invades overgrazed rangeland in the Southern United States (Nesom, 2006). In Australia, *B. halimifolia* is a pest of pastures, where thick stands can inhibit the movement of stock and reduce the productivity of grazed areas (Ensbey, 2001). Nevertheless, there are currently no records of impacts on pastures in the EPPO region.

Environmental and social impact

Baccharis halimifolia can outcompete other plants. It forms dense monospecific stands that are persistent as each shrub can live up to 25 years, and can have detrimental impacts on native populations and communities. Once established, the shrub blocks the light to other species, modifying micro-climatic conditions, leading to a regression of herbaceous species (Muller, 2004). Studies conducted at the habitat scale demonstrate that *B. halimifolia* significantly reduces the species richness (Pierre, 2012; Fried *et al*., 2014). Invasion by *B. halimifolia* also leads to a marked change in the structure and physiognomy of the invaded community (Campos *et al.*, 2004). *B. halimifolia* can also cause physical modifications of habitats. As leaves and wood of *B. halimifolia* secrete an inflammable resin (Bean, 1981), dense thickets of *B. halimifolia* could increase fire frequency in invaded habitats (Muller, 2004). Lozano Valencia & Alagon Cardoso (1995) report modifications in productivity and in nutrient cycling, including changes in the rates of erosion and sedimentation of the affected estuaries. Such impacts are recorded to occur in threatened habitats listed in the Annex I of the EC *Habitats Directive* (Directive 92/43), in particular in France and in Spain (e.g. Atlantic salt meadows, Mediterranean salt meadows, Mediterranean and thermo-Atlantic halophilous scrubs, Embryonic shifting dunes, see the EPPO PRA record for *B. halimifolia* for further details).

In addition, *B. halimifolia* may threaten rare or vulnerable species. In the Spanish Basque country, *B. halimifolia* is thought to have reduced the populations of *Matricaria maritima* (Campos *et al.*, 2004), which is included within the

category ‘danger of extinction’ in the ‘Basque Catalogue of Threatened Species of the Wild and Marine Fauna and Flora’. Other estuarine species present in invaded rush marshes such as *Cochlearia aestuaria*, *Frankenia laevis*, L *imonium humile*, *Salicornia* spp. or *Sarcocornia perennis* are already endangered at the regional level in the Basque country (Uribe-Echebarr?a & Campos, 2006). Galarza & Hidalgo (2005–2006) also report that the stands of *B. halimifolia* have an impact on bird populations associated with invaded habitats. The plant is considered to reduce the attractiveness and use of the habitats for nesting, roosting and feeding. *B. halimifolia* is then suspected to threaten *Acrocephalus arundinaceus* (Acrocephalideae, registered on the Annexe 2 of the Bonn and the Bern Conventions) and *Emberiza schoeniclus* (Emberizideae, registered on the Annex 2 of the Bern Convention).

Concerning social and human health impacts, the establishment of *B. halimifolia* occurs in areas where mosquitoes are present. Dense thickets of *B. halimifolia* protect mosquito larvae from insecticide treatments and impede access for mosquito control (Bouterin & Canonge, 1999 in Muller, 2004). *B. halimifolia* is also reported to cause hay fevertype allergies (Moss, 1967; cited in Panetta, 1979b; DeLoach *et al.*, 1986) caused by airborne pollen and seed ‘fluff’ (Anonymous, 2007a). Moreover, as *B. halimifolia* is highly flammable its establishment in fallow lands may increase the fire hazard and threaten security (on industrial sites for instance) (Muller, 2004; Invasive Alien Species in Belgium Website). When established near salt marshes, *B. halimifolia* is detrimental to salt production as it forms a wind break and contaminates salt with seeds (David, 1999).

As the species is difficult to control, management costs are quite expensive. To give an indication, the manual pulling out of plants coupled with the use of herbicide over 298 ha cost 630 000 EUR in 2011 in the framework of the Basque country Life + project (LIFE project 08NAT/E/ 000055 Website).

CONTROL

The first step in controlling *B. halimifolia* is the reduction of its use as an ornamental plant, in particular along roads. Flooding with marine water could limit the spread of the species. Nevertheless, such a technique can only be considered in salt marshes (Muller, 2004). Cutting and uprooting can locally control the plant, but these expensive measures have to be repeated several times because of the resprouting ability of the species, and its large seed bank. If plants are removed manually, the roots should be cut well below the soil surface to prevent resprouting. When uprooting is not possible, regularly cutting the shrubs before they set seeds can stop the spread of the plant. Sheep grazing can reduce the spread of *B. halimifolia* locally, when there is a heavy pasture load (the species has a low palatability) (Muller, 2004; Charpentier *et al.*, 2006).

Chemical control is providing satisfactory results with 2,4-D, dicamba plus MCPA, glyphosate, picloram plus 2,4-D, and tryclopyr (Weber, 2003). Control through fire has proven to be inefficient (Muller, 2004). Several biological control agents have been tested, but are not regarded as highly efficient.

REGULATORY STATUS

In 2016, *B. halimifolia* was included in the EU Regulation 1143/2014 and the species is now on the list of species of Union concern.

In Spain, *B. halimifolia* is registered on the Catalogue of Invasive Alien Species for which introduction, possession, trade and transport of the species listed is prohibited (Ministerio de agricultura, alimentacion y medio ambiente, Bolet?n Official de Estado, 2011).

Baccharis halimifolia has been declared an unwanted organism under the New Zealand Biosecurity Act 1993, which makes it illegal to knowingly release, spread, display or sell, breed, propagate or otherwise distribute plants or part thereof.

In Australia, the species is considered noxious and is regulated in Queensland and New South Wales (as well as in Northern Territory where it is not recorded as present) (Weeds Australia Database).

PHYTOSANITARY MEASURES

EPPO (2013) recommend a prohibition of import and trade in the EPPO region and within countries of *B. halimifolia* plants for planting

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Datasheet history

This datasheet was first published in the EPPO Bulletin in 2014 and is now maintained in an electronic format in the EPPO Global Database. The sections on 'Identity' and 'Geographical distribution' are automatically updated from the database. For other sections, the date of last revision is indicated on the right.

EPPO (2014) Datasheets on invasive alien plants. *Alternanthera philoxeroides* (Mart.) Griseb. *EPPO Bulletin* **44**(1), 5-10. https://doi.org/10.1111/epp.12089