

spearmint

Mentha spicata L.

peppermint

Mentha ×piperita L. (pro sp.) [*aquatica* × *spicata*]

Introduction: Spearmint and peppermint share very similar biological and ecological attributes. For this reason, discussions of their descriptions, ecological impacts, biological traits, legal listings, distributions, and control methods are combined.

Invasiveness Rank: 43 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Synonyms for *Mentha spicata*: *Mentha longifolia* auct. non (L.) Huds., *M. longifolia* var. *mollissima* (Borkh.) Rouy, *M. longifolia* var. *undulata* (Willd.) Fiori, *M. pudina* Buch.-Ham. ex Benth., *M. spicata* var. *longifolia* L., *M. spicata* L. var. *spicata*, *M. spicata* var. *viridis* L., *M. sylvestris* L., *M. viridis* L.

Other common names: bush mint

Synonyms for *Mentha ×piperita*: *Mentha aquatica* var. *crispa* (L.) Benth., *M. crispa* L., *M. dumetorum* Schultes

Other common names: none

Family: Lamiaceae

Description

Spearmint is a rhizomatous, perennial herb that grows from 30 to 100 cm tall. The entire plant has a strong, pleasant, minty smell. Stems are erect, branched, glabrous, grooved, and four-angled. Leaves are ovate to lanceolate, 2 to 7 cm long, 5 to 25 mm wide, pointed at the tips, and rounded at the bases with toothed margins. They are mostly glabrous, although they may be hairy on the main veins of the lower surfaces. They are sessile or have petioles less than 3 mm long. Inflorescences are dense, terminal, 3 to 12 cm long, and 5 to 10 mm wide. Flowers appear whorled but arise from the axils of opposite, subtending bracts. Petals are pale lavender to white, fused, tubular, four-lobed, and 2 to 4 mm long. Calyxes are 1.5 to 2 mm long and glabrous but often glandular with hairy, toothed margins. Bracts are linear to lanceolate and shorter than or equal to the flower length. Flowers produce four nutlets each. Nutlets are ovoid and dark brown (DiTomaso and Healy 2007, eFloras 2008, Klinkenberg 2010).



Inflorescence of *Mentha spicata* L. Photo by R. Old.

Peppermint, a sterile hybrid of spearmint and water mint (*Mentha aquatica*), is similar to spearmint, but it often has red- or purple-tinted stems. Leaves have short petioles. Flowers are pale pink or purple (Stace et al. 2005, Abbaszadeh et al. 2009).



Inflorescence of *Mentha x piperita* L. Photo by H. Zell.

Similar species: Both spearmint and peppermint can be confused with the native field mint (*Mentha arvensis*). Field mint grows in all three ecogeographic regions of Alaska south of the Brooks Range (Hultén 1968, UAM 2010). It can be distinguished from spearmint and peppermint by the presence of flowers that are borne in widely separated clusters in the leaf axils and stems that are terminated by leaves. Unlike spearmint and peppermint, field mint often has hairy stems and leaves (Hultén 1968). Other Lamiaceae species in Alaska lack a minty smell.

Ecological Impact

Impact on community composition, structure, and interactions: Spearmint has been documented growing in a natural, marshy area in Tennessee, but no ecological impacts were documented (Drake et al. 2002). Spearmint and peppermint were found growing around springs in southwestern Wisconsin, but, again, no ecological impacts were documented (Tenorio and Drezner 2006). These *Mentha* species establish mainly in moist to wet, disturbed areas (DiTomaso and Healy 2007, Klinkenberg 2010). They may increase the density of vegetation and limit the sizes of native plant populations in these habitats by extensive spread from

rhizomes (DiTomaso and Healy 2007, Abbaszadeh et al. 2009), competition for nutrients, and the allelopathic action of their essential oils (Azirak and Karaman 2008). We are not aware of perceivable impacts to existing vegetation structure in Alaska. Spearmint and peppermint generally repel pest insects and attract beneficial insects. These species are susceptible to herbivory from whiteflies and aphids (Abbaszadeh et al. 2009). They are pollinated by bees and other insects (Plants for a Future 2010); therefore, the presence of spearmint and peppermint may alter native plant-pollinator interactions. The impacts of these *Mentha* species on associated trophic levels are largely undocumented.

Impact on ecosystem processes: Spearmint and peppermint are likely to reduce the nutrients available to native plant species, but only in moist to wet, disturbed sites (DiTomaso and Healy 2007).



(Left) Short-petiolated leaf and red-tinted stem of *Mentha x piperita* L. Photo by S. Porse. (Right) Sessile leaves and green stem of *Mentha spicata* L. Photo by R. Old.

Biology and Invasive Potential

Reproductive potential: Spearmint and peppermint both reproduce vegetatively from wide-spreading rhizomes (DiTomaso and Healy 2007, Abbaszadeh et al. 2009). The shoot yield of both species ranges from approximately 1,800 to 2,100 kg per hectare in Iran. Peppermint is sterile and produces no viable seeds (Abbaszadeh et al. 2009, Ling 2010). Neither the seed production nor the amount of time seeds remain viable has been quantified for spearmint.

Role of disturbance in establishment: Spearmint escapes cultivation and grows in disturbed vegetation (DiTomaso and Healy 2007, Klinkenberg 2010, Western Australian Herbarium 2010). It is not likely to spread to natural areas (Drake et al. 2002).

Potential for long-distance dispersal: The long-distance dispersal of peppermint is limited by its exclusively vegetative reproduction (Abbaszadeh et al. 2009). The fruits of spearmint, which consist of four nutlets enclosed by the calyx, can be dispersed by water and can cling to animal fur (DiTomaso and Healy 2007).

Potential to be spread by human activity: Spearmint and peppermint are commonly planted in gardens throughout the U.S. and escape from cultivation into disturbed, moist areas (Hultén 1968, DiTomaso and Healy 2007). Rhizome fragments and seeds can be spread on agricultural and construction equipment (DiTomaso and Healy 2007).

Germination requirements: Spearmint seeds usually germinate quickly (Plants for a Future 2010).

Growth requirements: Spearmint and peppermint grow best in wet or moist, slightly acidic soils (Abbaszadeh et al. 2009, Plants for a Future 2010). They tolerate light conditions ranging from full sunlight to partial shade (Abbaszadeh et al. 2009).

Congeneric weeds: Pennyroyal (*Mentha pulegium*) and apple mint (*M. suaveolens*) are considered non-native weeds in California (DiTomaso and Healy 2007).

Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

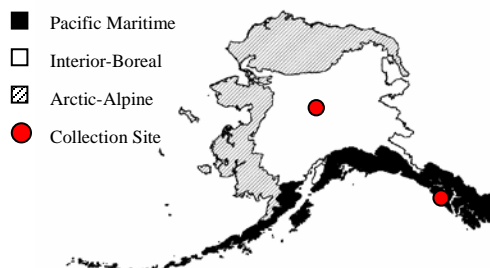
Distribution and Abundance

Spearmint and peppermint are cultivated commercially for use in flavorings and medicines. They are also cultivated in gardens throughout much of the world as food herbs and medicinal herbs (Lawrence 2006, eFloras 2008, Abbaszadeh 2009). In North America, spearmint grows in moist to wet disturbed areas, aquatic sites, stream banks, swamps, ditches, and meadows (Klinkenberg 2010, Ling 2010).

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- GBIF New Zealand, New Zealand National Plant

Native and current distribution: Spearmint is native to the Balkan Peninsula and Turkey, and it has been naturalized throughout much of Europe, the Mediterranean region, and Southwest Asia (Kokkini and Vokou 1989, eFloras 2008). It has been introduced to North America, Japan, Australia, and New Zealand (Mito and Uesugi 2004, GBIF New Zealand 2010, USDA 2010, Western Australian Herbarium 2010). Spearmint grows in all states of the U.S. except North Dakota, and it is present throughout much of Canada. Peppermint grows in 44 states of the U.S. (USDA 2010). Neither spearmint nor peppermint has been documented from arctic regions. Spearmint has been documented from the Pacific Maritime and Interior-Boreal ecogeographic regions of Alaska (Hultén 1968, UAM 2010). Peppermint has escaped from cultivation in Alaska, but no specific locations are known (Hultén 1968).



Distribution of spearmint in Alaska

Management

The vegetative spread of spearmint and peppermint in gardens can be controlled by planting these species in plastic containers sunk into the ground (Abbaszadeh et al. 2009). Small infestations and individual plants can be removed manually as long as all rhizomes are dug out (DiTomaso and Healy 2007). Control efforts may need to be repeated to remove plants that regenerate from rhizome fragments.

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