

## California Pest Rating Proposal for

*Gypsophila paniculata* L. (Baby's breath)

Synonym: *Saponaria paniculata* (L.) H. Neumayer

Family: Caryophyllaceae

Current Pest Rating: B

Proposed Pest Rating: B | Proposed Seed Rating: N/A

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Comment Period: **4/22/2019 – 6/6/2019**

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Figure 1: Baby's breath (*Gypsophila paniculata*) Photo: Barry Breckling

## Initiating Event:

A new find of this plant was submitted to the CDFA plant laboratory for identification in September, 2018.

## History & Status:

Background: Baby's breath (*Gypsophila paniculata*) is an herbaceous perennial. It has branching stems bearing clouds of tiny, white flowers. It forms mounds that reach approximately four feet in width and height. The plant prefers dry, sandy, stony, often calcareous soils. The genus name *Gypsophila* translates to "chalk-loving," but it can grow on a variety of soils and can survive wide variations in temperature and moisture. It is resistant to drought, wind, and blown sand. It has a woody taproot that can penetrate the soil to 4 meters (BMCA, 2015) allowing the plant to overwinter in cold climates (Darwent, 1975). New shoots arise from the rootstock in the spring. The species name "paniculata" refers to the inflorescence, which is many-branched. The common name "baby's breath" refers to the cloud-like appearance of the plant when it is in flower. Baby's breath is a common flower found in ornamental bouquets and is raised primarily for the florist trade. The fruit of baby's breath is a small (1 to 2 mm), disk or bean-shaped capsule, red-brown to black in color. Baby's breath was widely introduced as an ornamental plant and florists' crop in North America (Pringle, 2005). It grows well in response to human disturbance and is found as a widespread weed in areas such as grasslands, pastures, and sand dunes (Pringle, 2005). Baby's breath can be difficult to remove once mature due to its deep tap root. Heavy grazing and mowing prior to flowering reduces seed production. However, those measures will not kill existing plants (BMCA, 2015). Herbicides used to control it have been limited in effectiveness except at high application rates (BMCA, 2015).

Worldwide Distribution: Baby's breath is native to Central and Eastern Europe and across Central Asia as far as western China. It was introduced to North America as a garden ornamental in the late 1800s. It occurs sporadically as a weed in eastern North America, and occasionally forms sizable local populations in soils that are not strongly acidic (Pringle, 2005). In parts of central and western North America it has become an abundant and widespread weed in hayfields and pastures (Pringle, 2005).

Official Control: Baby's breath is a B-list noxious weed in California and a Class C noxious weed in Washington state (NRCS, 2019). It is a Class N (nuisance weed) in British Columbia (Invasive Species Council of BC,

2019).

California Distributions: The Consortium of California Herbaria has records of baby's breath specimens from Siskiyou, Lassen, Placer, Mono, Stanislaus, Tulare, Santa Barbara, San Luis Obispo, and San Diego counties. CalFlora has an additional find in Plumas County. It is actively spreading in Siskiyou County (J. Aceves, pers. comm.).

California Interceptions: Baby's breath has been intercepted as a weed in Contra Costa, Plumas, and Mono counties. It has also been intercepted as both cuttings and seeds at various border stations.

The risk baby's breath would pose to California is evaluated below.

### Consequences of Introduction:

- 1) **Climate/Host Interaction:** Risk is **Medium (2)**. Baby's breath's natural habitat is characterized by a dry climate and sandy, stony, often calcareous soils. Its natural range in Europe (Barkoudah and Chader, 1964), as well as its central distribution in North America (Pringle, 2005) indicate that it does best in drier habitats with stony or sandy soil. However, it rarely naturalizes in areas of Mediterranean style climate with very dry summers. It is also not found in lowland desert. Therefore, it is likely to be invasive only in northern California and in areas east of the Sierra crest.

Evaluate if the pest would have suitable hosts and climate to establish in California. **Score: 2**

- Low (1) not likely to establish in California; or likely to establish in very limited areas.
- **Medium (2) may be able to establish in a larger but limited part of California.**
- High (3) likely to establish a widespread distribution in California.

- 2) **Host Range:** Risk is **High (3)** as weeds do not require any one host, but grow wherever ecological conditions are favorable.

Evaluate the host range of the pest. **Score: 3**

- **Low (1)** has a very limited host range.
- **Medium (2)** has a moderate host range.
- **High (3) has a wide host range.**

**3) Pest Dispersal Potential:** Baby's breath produces a flower with a pleasant, sweet odor that is pollinated by insects. A single plant can produce more than 13,000 seeds (BMCA, 2015). After flowering, the plants become brittle and dry. Most seeds fall near the plant, but they can disperse long distances when the plant stalk breaks and the plant rolls freely as a tumbleweed (BMCA, 2015). Seeds show little dormancy and may survive in the soil for one to two years (BMCA, 2015). Baby's breath receives a **High (3)** in this category.

Evaluate the natural and artificial dispersal potential of the pest. **Score: 3**

- Low (1) does not have high reproductive or dispersal potential.
- Medium (2) has either high reproductive or dispersal potential.
- **High (3) has both high reproduction and dispersal potential.**

**4) Economic Impact:** As a commercial crop, baby's breath is important to the flower industry. Baby's breath is used as a common component of bouquets in the florist trade. The flowering stems used in bouquets do not have mature seed. Baby's breath seed is however, occasionally packaged and sold for home gardening use. This could be problematic if baby's breath escapes the home garden and becomes established as a weed. As a weed, baby's breath is often a problem in sandy farmlands and infestations can reduce the protein content of hay (Darwent, 1975). Baby's breath is also recorded as a host for phytopathogenic fungal organisms (USDA, 2019). Baby's breath receives a **High (3)** for Economic Impact.

Evaluate the economic impact of the pest to California using the criteria below. **Score: 3**

- A. **The pest could lower crop yield.**
  - B. **The pest could lower crop value (includes increasing crop production costs).**
  - C. The pest could trigger the loss of markets (includes quarantines).
  - D. The pest could negatively change normal cultural practices.
  - E. **The pest can vector, or is vectored, by another pestiferous organism.**
  - F. The organism is injurious or poisonous to agriculturally important animals.
  - G. The organism can interfere with the delivery or supply of water for agricultural uses.
- Low (1) causes 0 or 1 of these impacts.
  - Medium (2) causes 2 of these impacts.
  - **High (3) causes 3 or more of these impacts (A, B, E).**

**5) Environmental Impact:** Baby's breath has exhibited an ability to invade several habitats and compete with other plant species. It has disrupted ecosystems such as the Great Lakes Barren, Interdunal Wetlands, and Open Dunes natural community types in Michigan (Cohen et al., 2013). Agencies in Michigan have expended considerable resources controlling baby's breath in the Great Lakes area (Nature Conservancy, 2013). It is also a known invasive in areas of Canada and the Pacific Northwest, where it tends to invade bunchgrass prairie and outcompete native bunchgrasses. Since baby's breath has shown an ability to disrupt ecosystems and trigger treatment programs, it receives a **High (3)** in this category.

Evaluate the environmental impact of the pest on California using the criteria below.

- A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.**
- B. The pest could directly affect threatened or endangered species.
- C. The pest could impact threatened or endangered species by disrupting critical habitats.
- D. The pest could trigger additional official or private treatment programs.**
- E. The pest significantly impacts cultural practices, home/urban gardening or ornamental plantings.

Score the pest for Environmental Impact. **Score: 3**

- **Low (1)** causes none of the above to occur.
- **Medium (2)** causes one of the above to occur.
- **High (3)** causes two or more of the above to occur (A, D).

### **Consequences of Introduction to California for Baby's breath: High (14)**

Add up the total score and include it here.

- Low** = 5-8 points
- Medium** = 9-12 points
- High** = 13-15 points

**6) Post Entry Distribution and Survey Information:** Baby's breath has been found as a landscape weed along highways and in disturbed areas in both northern and southern California counties. Although it may be

spreading in Siskiyou County (J. Aceves, pers. comm.), the distribution appears to be patchy at this point (CalFlora, 2019). It receives a **Low (-1)** in this category.

Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication, or have been delimited with no further detections should not be included.

-Not established (0): Pest never detected in California or known only from incursions.

**-Low (-1): Pest has a localized distribution in California or is established in one suitable climate/host area (region).**

-Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.

-High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.

The final score is the consequences of introduction score minus the post entry distribution and survey information score: **High (13)**

### **Uncertainty:**

The degree to which baby's breath currently is established in California is unknown. The known finds are widely spaced throughout the state and the weed could have a wider distribution than currently known.

### **Conclusion and Rating Justification:**

Proposed Rating: based on the score listed above the pest is a risk for further invasive spread in California and poses a potential risk to several ecological communities. It has been found in multiple counties and is not a waif; therefore, a **B** rating is justified. The primary commercial use for baby's breath in California is as a flowering stem in the florist's trade. This flowering stem is not a likely pathway for weed introduction. A minor use for baby's breath is a packaged seed for home gardening. This could be a potential route for weed introduction if the baby's breath were to escape from home gardens.

### How to report a plant pest:

Suspected plant pests can be reported to the Pest Hotline (1-800-491-1899). You can also take a contained sample to your nearest Agricultural Commissioner office.

<https://www.cdfa.ca.gov/exec/county/countymap/>

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**\*Comment Period: 4/22/2019 – 6/6/2019**

**\*NOTE:**

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at [plant.health\[@\]cdfa.ca.gov](mailto:plant.health[@]cdfa.ca.gov).

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### Comment Format:

- ❖ Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

#### Example Comment:

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*Gypsophila paniculata* L

Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to “Climate/Host Interaction” here.]

- ❖ Posted comments will not be able to be viewed immediately.
  
  - ❖ Comments may not be posted if they:
    - Contain inappropriate language which is not germane to the pest rating proposal;
    - Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;
    - Violates agency regulations prohibiting sexual harassment or other forms of discrimination;
    - Violates agency regulations prohibiting workplace violence, including threats.
  
  - ❖ Comments may be edited prior to posting to ensure they are entirely germane.
  - ❖ Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.
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**Proposed Pest Rating: B | Proposed Seed Rating: N/A**