



Figure 1: *Genista X spachiana* (Sweet broom).

California Pest Rating Proposal for

***Genista x spachiana* Webb: Sweet broom**

Synonyms: *G. racemosa*, *Cytisus spachiana*, *C. racemosus*

Family: Fabaceae

Current Pest Rating: Z

Proposed Pest Rating: D

Comment Period: 4/16/2020 through 5/31/2020

Initiating Event:

This plant has been occasionally submitted to CDFA as a potential plant pest. However, sweet broom has not been reviewed under the current pest rating system. A pest rating proposal is required to evaluate the current rating and status of sweet broom in the state of California.

History & Status:

Background: Sweet broom (*Genista x spachiana*) is a woody perennial shrub and a legume. It grows between 1 and 3 meters tall and has evergreen trifoliolate leaves with three narrow obovate leaflets, 1 to 2 cm long. Like other legumes, it develops its seeds within a pod, although under most cultivated circumstances sweet broom does not bear seeds. Sweet broom is an attractive flowering plant and is a popular landscape ornamental in California. Originally named as a species (Webb, 1845), it has long been recognized as a garden hybrid (Rolfe, 1888). Various hybrid origins have been proposed for sweet broom, but morphological and genetic evidence indicate that it is likely a hybrid of two Canary Islands species (*G. canariense* and *G. stenopetala*), with some possible contribution of the Mediterranean species French broom, *G. monspessulana* (Malécot et al., 2009; annotation of CDA4103 by P.E. Gibbs, 1968). When sweet broom is planted near naturalized colonies of French broom, a widespread weedy species in California, it freely backcrosses with its ancestral species and forms colonies of mixed hybrids (Kleist and Jasieniuk, 2011).

Worldwide Distribution: Sweet broom is a garden hybrid. It is widely planted in warmer regions but does not occur naturally except as hybrids with French broom.

Official Control: Sweet broom has not been subject to official control.

California Distribution: Sweet broom is a garden hybrid. It is widely planted in warmer regions but does not occur naturally except as hybrids with French broom.

California Interceptions: Sweet broom is occasionally submitted to CDFA for identification from nursery surveys, when it has usually been assigned a “Z” rating.

The risk sweet broom would pose to California is evaluated below.

Consequences of Introduction:

- 1) Climate/Host Interaction:** Sweet broom can interbreed with French broom in areas where French broom occurs in California (Kleist and Jasieniuk, 2011). The impact of sweet broom hybridization on these preexisting populations of French broom is unknown. Therefore, Sweet broom receives a **Low (1)** in this category. Sweet broom does not reproduce or establish where it is planted away from French broom.

Evaluate if the pest would have suitable hosts and climate to establish in California.

Score: 1

- 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) Known Pest Host Range: Risk is **High (3)** as sweet broom does not require any one host but grows 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: Sweet broom does not generally form seeds, except when grown near French broom (Dean Kelch, personal observation). When growing near French broom (and possibly with other clones of *Genista* from within this species group), it is fertile. Most sampled populations of invasive broom in California contain no genetic content from sweet broom (Kleist and Jasieniuk, 2011). Sweet broom receives a **Low (1)** in this category.

Evaluate the natural and artificial dispersal potential of the pest.

Score: 1

- **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: Sweet broom is widely offered for sale in California nurseries in early spring during its blooming season (D.G. Kelch, pers observation). It's contribution, if any, to the spread of invasive brooms in the state is unknown. Alkaloids in the leaves of French broom can be poisonous but unpalatable to livestock (McClintock, 1985) and it is possible that sweet broom shares these alkaloids with its close relatives. Sweet broom receives a **Low (1)** in this category.

Evaluate the economic impact of the pest to California using the criteria below.

Economic Impact: 1

- 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.
-

Economic Impact Score: 1

- **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.

- 5) Environmental Impact:** Sweet broom contributes to some invasive broom populations in California (Kleist and Jasieniuk, 2011). However, its impact on the invasiveness or size of these populations is unknown. Most weedy populations of *Genista* broom in California are French broom (Kleist and Jasieniuk, 2011). If sweet broom contributes to the invasiveness of French broom, then it could reduce arthropod diversity (Lanford and Nelson 1992). It can also shade out and prevent regeneration of native species including endangered species such as Santa Cruz tarplant (*Holocarpha macradenia*) and Monterey spineflower (*Chorizanthe pungens*). Therefore, it receives a **High (3)** in this category.

Environmental Impact: 3

- 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.

Environmental Impact Score:

- 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.**

Consequences of Introduction to California for Sweet broom: Medium (9)

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:** Sweet broom is widely planted in California and, at times, contributes to weedy broom populations. It receives a **High (-3)** in this category.
-

Score: -3

-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.

- 7) **The final score is** the consequences of introduction score minus the post entry distribution and survey information score:

Final Score: *Score of Consequences of Introduction – Score of Post Entry Distribution and Survey Information = Low (6)*

Uncertainty:

Sweet broom has been present in California for many years. Most horticultural plantings of sweet broom do not reproduce or form populations or colonies. When planted near populations of invasive French broom, sweet broom can interbreed and contribute to that population. Any qualitative or quantitative differences it makes in these situations is currently unknown.

Conclusion and Rating Justification:

There is little evidence that sweet broom directly harms California or the environment, so a "D" rating is justified.

References:

California Department of Food and Agriculture. Pest and damage record database. Accessed March 13, 2020: <https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx>

Consortium of California Herbaria (CCH). 2019. Data provided by the participants of the CCH. Regents of the University of California 2019. Accessed: March 15, 2020: <http://ucjeps.berkeley.edu/consortium/>

Kleist A. and Jasieniuk M. 2011. A Molecular Phylogenetic Analysis of Invasive and Ornamental Brooms and their Relationships Within the Genistoid Legumes. *Molecular Phylogenetics and Evolution* 61:970-977.

Lanford, J. and Nelson, L. 1992. Arthropod populations at three Golden Gate habitats compared. *Park Science*, Spring Issue. Washington DC, USA: National Park Service

Malécot, V., Macquaire-Le Pocreau, N., Auvray, G. and Kapusta, V. 2009. Polymorphic ITS as a Tool to Identify Hybrids and their Parents in Cultivated Genisteae (Fabaceae). *Acta Horticultura* 836: 91-96.

McClintock E. 1985. Status Reports on Invasive Weeds: Brooms. *Fremontia*, 12: 17-18.

Rolfe, R. A. 1888. *Cytisus racemosus* and its allies. *Garden Chronicle* 3rd series 3: 523

Webb, P. B. 1845. *Genista spachiana* in Curtis' *Botanical Magazine* Vol. 71: Pl. 4195. Reeve. Brothers, London.

Author:

Dean Kelch, PHPPS Permits & Regulations, California Department of Food and Agriculture, 2800 Gateway Oaks Drive, Suite #200, Sacramento, CA 95833.
Phone: 916-403-6650, [plant.health\[@\]cdfa.ca.gov](mailto:plant.health[@]cdfa.ca.gov).

Responsible Party:

Robert Price, Primary State Botanist; California Department of Food & Agriculture; Seed Laboratory and Herbarium; 3294 Meadowview Road, Sacramento, CA 95832; Tel. (916) 738-6700; [plant.health\[@\]cdfa.ca.gov](mailto:plant.health[@]cdfa.ca.gov)



***Comment Period: 04/16/2020 through
05/31/2020**

***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).

Comment Format:

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

Example Comment:

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.

Proposed Pest Rating: D
