

California Pest Rating Proposal for

Limonium duriusculum (Girard) Fourr.: European sea lavender

Family: Plumbaginaceae

Pest Rating: B

Comment Period: **5/26/2020 through 7/10/2020**

Initiating Event:

Limonium duriusculum has been observed growing in the coastal tidal marshes of California since 2007. It has a CDFA rating of Q. A pest rating proposal is needed to assign a permanent rating to this species.

History & Status:

Background: European sea lavender, *Limonium duriusculum* is an erect glabrous perennial or sometimes annual herb up to 30 cm in height, native to Mediterranean Europe and now occurring in the San Francisco Bay area and the central and south coast of California (Pignatti, 1972; Preston and McClintock, 2012). The rosette leaves have a distinct petiole and are oblanceolate to spoon-shaped with an obtuse tip and approximately 1 to 4 cm in length and 5-9 mm in width. The inflorescence is a branched spike with small clusters of one to three flowers sparsely distributed along the axes. The corolla is light pink and approximately 8 mm long. This species is similar to another non-native sea lavender, *L. ramosissimum*, which differs in often being larger (up to 50 cm in height), having larger basal leaves up to ten cm in length and 20 mm in width, and having flowers in clusters of two to five. *Limonium duriusculum* may have also been mistaken for *L. californicum* in the San Francisco Bay estuary and may have been overlooked for a decade or more.

Limonium duriusculum prefers saline marshes and coastal strand habitat and is dispersed by seed (Robison, 2017). This species has invaded estuarine wetlands on the west coast of North America from the San Francisco Bay area south into Baja California (Archbald and Boyer, 2014). It can establish in disturbed and undisturbed marsh areas. It may have been introduced to California through the horticultural trade as a cultivated plant and dispersed through human activities. It has possibly also been introduced into California as seed in bilge water from ships arriving from Europe or Australia.

Worldwide Distribution: *Limonium duriusculum* is native to Mediterranean Europe, specifically Spain, France, and Italy (Robison, 2017). It is also known to occur as a naturalized plant in Australia and New Zealand.

Official Control: *Limonium duriusculum* is a Q-rated weed in California. It has not been listed previously as a harmful organism in any countries of the world (USDA APHIS PCIT, 2020).

California Distribution: *Limonium duriusculum* was first detected in 2007, growing in dense patches in the San Francisco Bay region in Strawberry Marsh in Marin County and Richardson and San Pablo Bays (Archbald and Boyer, 2014). The species occurs in California from the San Francisco Bay south to San Diego County in coastal salt marshes. It has been observed growing in 12 counties: Alameda, Orange, San Diego, Los Angeles, Riverside, San Luis Obispo, Monterey, Santa Barbara, San Mateo, Marin, San Bernardino, and Yolo (Calflora, 2020; Consortium of California Herbaria, 2020).

California Interceptions: The plant has been observed growing naturally as noted under California distribution (CDFA Pest and Damage Record Database, 2020).

The risk *Limonium duriusculum* would pose to California is evaluated below:

Consequences of Introduction:

- 1) Climate/Host Interaction:** *Limonium duriusculum* is invasive in San Francisco Bay area and central and south coast of California (Robison, 2017). This species occurs frequently in coastal salt marshes and coastal strand in disturbed areas (Preston and McClintock, 2012). This species grows most vigorously at higher elevations in the upper high marshes with reduced moisture and salinity. It has a high invasive potential in wetland areas of California by outcompeting native perennial halophytes (Archbald and Boyer, 2014). It receives a Medium (2) in this category.

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) Known Pest Host Range:** Risk is **High (3)** as *Limonium duriusculum* 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.
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- Medium (2) has a moderate host range.
- **High (3) has a wide host range.**

3) Pest Dispersal Potential: *Limonium duriusculum* reproduces from seeds and can produce up to 11,000 seeds per plant (Archbald and Boyer, 2014; Robison, 2017). Dense populations can produce more than 1000 viable seeds per square meter and can double in population in 10 years. The species flowers in California between September and June (Preston and McClintock, 2012). This species can disperse readily by water as the dry flower stalks with seeds shatter easily and can float on fresh or saltwater. The species can also be spread by human activities including intentional planting and unintentional contamination of restoration plantings (Archbald and Boyer, 2014). It 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: *Limonium duriusculum* is reported as highly invasive in limited areas of California. The eradication of limited infestations in wetlands can be challenging without significant economic expenditure (Perlmutter et al., 2011). Because of its habitat preferences, the species is not likely to have significant economic impact on California's agricultural and urban environment. If established in California, it is likely to impact cultural practices in coastal areas of the state. It receives a **Low (1)** in this category.

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

Economic Impact: D

- 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.
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5) Environmental Impact: The ability of *Limonium duriusculum* to invade salt marsh habitats can cause native plants to decrease in numbers. The species can compete with the endangered salt marsh bird's beak (*Chloropyron maritimum*), causing the abundance of bird's beak to decrease. *Limonium duriusculum* is also likely to displace native plants such as Pacific swamp fire, marsh jaumea, and saltgrass, which could result in changes to ecosystem functions. Displacement of native species in upper marsh habitats by *Limonium duriusculum* will provide less effective cover where endangered vertebrate species can hide from predators. Hybridization with *L. duriusculum* may also impact populations of the native sea lavender (*L. californicum*), but the latter species has a much larger geographic distribution in California, Oregon, and Baja California (Preston and McClintock, 2012; Robison, 2017). Therefore, *Limonium duriusculum* receives a **High (3)** in this category.

Environmental Impact: A, B, C, D

- 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 *Limonium duriusculum*: Medium (12)

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: *Limonium duriusculum* has established in two well separated geographic areas along the coast of California and receives a score of **Medium (-2)** in this category.

Score: -2

- 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).
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-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 = Medium (10)*

Uncertainty:

It is unclear how widely *Limonium duriusculum* is spread in on higher salt marsh habitats in California outside of the documented areas of Richardson and San Pablo Bay.

Conclusion and Rating Justification:

Limonium duriusculum is reported as invasive, growing on coastal marsh habitats of California. It is present from San Francisco Bay south to San Diego county. If this species gets fully established in the state, it could negatively impact critical habitat of rare plants and endangered vertebrate species. A “B” rating is justified.

References:

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***Comment Period: 5/26/2020 through 7/10/2020**

***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.
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Pest Rating: B
