

California Pest Rating Proposal for

Senecio linearifolius A. Rich., fireweed groundsel, linear-leaved Australian fireweed

Family: Asteraceae

Pest Rating: B



Photo Credit: R. Vanderhoff

Comment Period: 12/19/2022 through 02/02/2023

Initiating Event:

Senecio linearifolius has been assigned a B-rating by the California Department of Food and Agriculture (CDFA), Plant Health and Pest Prevention Services. *Senecio linearifolius* is designated as a noxious weed as defined by the California Food and Agricultural Code (FAC) Section 5004 and is listed in Title 3, California Code of Regulations (CCR), Section 4500. A pest rating proposal is required to evaluate its current rating and status in the state of California.

History & Status:

General Description

Senecio linearifolius is an aromatic perennial subshrub with erect, closely spaced stems growing to approximately two meters in height (Trock, 2012; Wapstra et al., 2008). Stems and lower leaf surfaces initially have fine “cobwebby” hairs and become glabrous as they age (Trock, 2012). Leaves are narrowly oblanceolate to linear-oblong, 2-7 centimeters (cm) long and 1-4 mm wide, with triangular basal lobes and entire to finely toothed, often rolled-under margins. The species has yellow, composite flower heads growing in dense, flat-topped clusters. The flowering heads have four to eight marginal ray flowers and eight to 20 central disc flowers. The one-seeded achene fruit is flattened, oblong, 1.5–2.5 mm long, with a pappus of fine bristles. The plants of the species present in California have been referred to *S. linearifolius* var. *linearifolius* (Trock, 2012).

Worldwide Distribution

Senecio linearifolius is native to eastern Australia (New South Wales, A.C.T., Victoria, South Australia, and Tasmania) and is reported as naturalized in New Zealand (North Island) and in the United States in California (Plants of the World Online, 2022; USDA GRIN, 2022).

Official Control:

Senecio linearifolius is listed on CCR Section 4500 as a noxious weed defined by California FAC Section 5004. The Department is mandated by California FAC, Division 1, Chapter 3, Section 403 to prevent the introduction and spread of noxious weeds. *Senecio linearifolius* is listed as a restricted noxious weed seed in California defined by California FAC Section 52258. Any shipment into California of agricultural seed found to be infested with *Senecio linearifolius* seed is subject to stringent tolerances.

California Distribution:

Since 1985, *Senecio linearifolius* has been collected from multiple localities in Orange County and San Diego County, with vouchers recorded in the Consortium of California Herbaria database (CCH, 2022). The earliest report in the CCH database was from 1985 in Orange County. In addition to these occurrences in southern California, three near coastal occurrences have recently been reported from northern California (Calflora database, 2022), although these reports have apparently not yet been documented from vouchered collections (CCH, 2022). In 2020, *Senecio linearifolius* was reported in the Calflora database from a site in Santa Clara County, and in 2022 from individual sites in Marin County and southern Mendocino County.

California Interceptions:

There are no records of interceptions of *Senecio linearifolius* in the CDFA PDR database (2022).

Consequences of Introduction

1) Climate/Host Interaction: Score is Medium (2)

In its native habitat, *Senecio linearifolius* grows in disturbed soils of forests and coastal scrub areas (Wapstra et al., 2008). In California, the species occurs on disturbed sites in areas of medium to high rainfall (Lindstrand et al., 2008) at elevations of 15 to 300 meters above sea level, and has been reported to occur in seasonal wetlands, sandy soils, drainage sites, and disturbed areas (Trock, 2012). According to CalFlora (2022), the species is drought tolerant and can occur on highly saline soils.

- 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: Score is High (3)

Senecio linearifolius can occur wherever general ecological conditions exist that are conducive to its survival.

- 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: Score is Medium (2)

Senecio linearifolius reproduces by seed and can potentially produce over 1000 one-seeded achene fruits per plant. The fruits have an easily detached fine-bristled pappus that can facilitate dispersal by wind, usually at short distances from the parent plant. The small achene fruits could be dispersed as seed contaminants if the species spreads into agricultural settings. Lindstrand et al. (2008) suggest that the initial California occurrences of *Senecio linearifolius* might have escaped ornamental cultivation.

- 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: Score is Medium (2)

Pyrrolizidine alkaloids are generally present in plants of the genus *Senecio* and are known to be toxic to livestock, though the green plants are unpalatably bitter. Consumption of plants or of hay contaminated with *Senecio* can cause chronic liver disease to cattle and horses if consumed over time. Sheep and goats are less affected (UC/ANR, 2010). The species *S. linearifolius* has been implicated in poisoning of horses in Tasmania (Everist, 1974).

In 2019, the revenue generated from cattle production in California was \$3.1 billion, and from milk and cream production was \$7.3 billion. Organic pasture and rangeland accounted for 647,288 acres throughout California (CDFA, Agricultural Statistics Review, 2019-2020). The American Horse Council summarized that in 2017, the California horse industry, including horse-related goods, services, salaries, wages, and benefits, contributed over \$2.6 billion to the state's gross domestic product (HorsesOnly.com, 2022).

Agricultural shipments that are infested with *Senecio linearifolius* that are shipped into or within California are subject to regulatory actions, including reconditioning, typically at the owner's expense.

- 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:

- 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: Score is High (3)

In its native environment, *Senecio linearifolius* can form dense thickets up (Wapstra et al., 2008) and can become a dominant component of understory vegetation, especially in disturbed areas (Lindstrand et al., 2008). Because the species can invade seasonal wetland habitats it is a threat to displace native vegetation.

- 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:

- 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 *Senecio linearifolius*: **Medium (12)**

Low = 5-8 points

Medium = 9-12 points

High = 13-15 points

1) Post Entry Distribution and Survey Information: Score is Medium (1)

-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) Final Score: Medium (12-1=11)

Conclusion and Rating Justification:

Due to the spread of this introduced species in coastal California and its risks to agriculture and the environment of California, a B-rating is recommended.

Uncertainty: Although the occurrence of the species in southern California is well documented, reports of occurrence of populations in central to northern California should be confirmed from vouchered collections.

References

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***Comment Period: 12/19/2022 through 02/02/2023**

***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 permits[@]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.
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- ❖ 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
