CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal for

Scolymus hispanicus L., Golden thistle, Spanish salsify

Family: Asteraceae

Current Pest Rating: A

Proposed Pest Rating: A

Photo credit: Bernadette Baud

Comment Period: 07/27/2022 through 09/10/2022

Initiating Event:
Scolymus hispanicus has previously been assigned an A-rating by the California Department of Food and Agriculture (CDFA), Plant Health and Pest Prevention Services, but has not undergone the current pest risk assessment process. *Scolymus hispanicus* 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.

History & Status

General Description
Scolymus hispanicus is a biennial or perennial thistle-like herb with milky sap. It grows from a thick tap root and has erect, branched stems that can reach heights of 1-2 meters. *Scolymus hispanicus* has both basal and stem leaves, but mostly stem leaves at flowering. Basal leaves can reach 45 cm in length, are soft (not rigid), deeply lobed and weakly spiny (Keil and Stebbins, 2012). Stem leaves can reach 20 cm in length, are rigid, oblong to ovate, dentate or shallowly lobed, spiny, glabrous, and clasp the stem. Stems have spiny, interrupted wings. The inflorescence is spike-like, with single sessile flower heads located in the leaf axils along the main stem, subtended by two or three spiny bracts. Florets (approximately 30-60) are strap-shaped and yellow to orangish, giving the head an appearance typical of the chicory tribe (Strother, 2006; Vasquez, 2000). The one-seeded fruits (achenes) are oval, dorsally compressed and enclosed by a thin, winged receptacle scale which aids in dispersal. The pappus at the top of the fruit consists of 2-5 bristle-like deciduous scales.

The species has been used as a root vegetable (Spanish salsify) and as a traditional medicinal herb in the Mediterranean region of Europe (Strother, 2006).

Worldwide Distribution
Scolymus hispanicus is native to western Asia (Iran, Cyprus, Turkey, Syria, Lebanon, Israel, Jordan), the Caucasus, northern Africa (Algeria, Egypt, Morocco, Tunisia and possibly in the Canary Islands) and southern and eastern Europe (Russian Federation, Ukraine, Albania, Bulgaria, Bosnia and Herzegovina, Greece, Croatia, Italy, North Macedonia, Montenegro, Romania, Serbia, Slovenia, Spain, France, and Portugal) (USDA, GRIN, 2022). It is considered introduced but adventive rather than established in portions of northern Europe (United Kingdom, Belgium, Switzerland, Germany, Poland), and naturalized in some portions of Africa and Macaronesia, Australia (New South Wales, Victoria), South America (Argentina, Chile), and North America (reported from Alabama, California, New York, and Pennsylvania).

Official Control:
Scolymus hispanicus 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. *Scolymus hispanicus* is listed as a restricted noxious weed seed in California defined by California FAC Section 52258. Shipments of agricultural seed infested with *Scolymus hispanicus* are subject to stringent tolerances. *Scolymus hispanicus* is listed as a Harmful Organism subject to import restrictions in the country of New Zealand (USDA/PExD, 2022).

Scolymus hispanicus is on the 2010 list of species targeted for Early Detection and Rapid Response by the Bay Area Early Detection Network (Frey et al., 2015) and was the target of eradication efforts in Alameda and Solano Counties beginning in 1968 and 1972, respectively (Rejmanek et al., 1991) and in parts of Australia (Agriculture Victoria, 2020).

California Distribution:

Scolymus hispanicus is uncommon but naturalized in California. It has been historically reported from the San Francisco Bay Area, north Central Coast area, and northern and central Sacramento Valley, but current populations are much more limited. There are 54 records of *Scolymus hispanicus* from California, from the counties of Alameda (28), Fresno (1), Sacramento (1), San Mateo (6), Santa Clara (10), Solano (6) (CalFlora Database, 2022; CCH1 Portal, 2022), dating to as early as the late 1800's in Santa Clara County. According to DiTomaso and Healy (2007) most populations of the species in California had been greatly reduced or extirpated by eradication efforts. The most recent vouchered specimen records in the CCH database date from 1974 in Alameda and Solano counties, and there are no records for the species from the last 20 years in the CDFA PDR database (2022), but there is a report from the Alum Rock area of Santa Clara County from 2018 in the CalFlora database.

California Interceptions:

There are no records of interceptions of *Scolymus hispanicus* in the California Department of Food and Agriculture, Pest and Damage Record database. (CDFA PDR database, 2022).

Consequences of Introduction

1) **Climate/Host Interaction:** Score is **High (3)**
   Scolymus hispanicus occurs in disturbed, grassy areas, roadsides, and waste areas at elevations between 0-100 meters above sea level. Per Vasquez (2000), *Scolymus hispanicus* can be found growing in both "sandy and clayey" soils. In its native range, *Scolymus hispanicus* can be found on coastal sand dunes (Spanou et al., 2006). Studies by Papadimitriou et al. (2021) found that *Scolymus hispanicus* grown in soilless greenhouse conditions "exhibits a considerable resilience to moderate salinity."

   -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)**
   Scolymus hispanicus 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 **High (3)**
   Per Agriculture Victoria (2020), seeds of *Scolymus hispanicus* are dispersed when the aerial (above ground) growth of the plant breaks off at ground level and tumbles large distances with the wind or is blown into streams or channels and transported by water. "Seeds can also be caught in wool and

other agricultural produce. Some spread is possible by cultivation equipment dragging pieces of cut root to clean areas" (Agriculture Victoria, 2020).

- 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 **High (3)**

Per Agriculture Victoria (2020), "Grazing animals do not eat the aerial growth of [*Scolymus hispanicus*] due to the stout spines on the plant's rigid leaves. The spiny nature of the plant also discourages animals from grazing near it." Large infestations of *Scolymus hispanicus* may impede the growth of desirable forage species (Agriculture Victoria, 2020). In 2019, organic pasture and rangeland accounted for 647,288 acres throughout California (CDFA, 2020). Revenue generated from all cattle production in California in 2019 was estimated at $3.1 billion (CDFA, 2020).

Shipments, including agricultural seed, that are found infested with *Scolymus hispanicus* are subject to rejection, treatment, reconditioning, or destruction, 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)**

Scolymus hispanicus can displace native plant species, lowering biodiversity and reducing foraging opportunities for grazing animals (Agriculture Victoria, 2000).

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 *Scolymus hispanicus* **High (15)**

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

1) **Post Entry Distribution and Survey Information**: Score is **Low (-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: High (15-1=14)**

Conclusion and Rating Justification:
Due to the limited distribution and high score of the species, its potential detrimental effects on rangelands, and its status as a target of Early Detection and Rapid Response activities in the San Francisco Bay Area, an A-rating is recommended.

Uncertainty: It is unclear to what degree the plant has been utilized as a food or traditional medicinal plant in California, which may have contributed to its introduction into the state.

References

Agriculture Victoria, 2020. Victoria State Government, Department of Jobs, Precincts and Regions. Biosecurity, Weeds, Priority Weeds, Golden thistle. https://agriculture.vic.gov.au/biosecurity/weeds/priority-weeds/golden-thistle Accessed April 25, 2022

Calflora: Information on California plants for education, research, and conservation, with data contributed by and private institutions and individuals, including the Consortium of California Herbaria. 2025. Berkeley, California. https://www.calflora.org/ Accessed April 18, 2022

Consortium of California Herbaria (CCH1) Portal. 2022. Biodiversity data provided by the participants of the Consortium of California Herbaria https://ucjeps.berkeley.edu/consortium/list.php?taxon_name=Scolymus%20hispanicus Accessed on April 25, 2022

California Department of Food and Agriculture, California Agricultural Statistics Review (Crop Report), 2019-2020. https://www.cdfa.ca.gov/Statistics/PDFs/2020_Ag_Stats_Review.pdf Accessed April 18, 2022

California Department of Food and Agriculture (CDFA), Plant Pest Diagnostics Branch, Pest and Damage Record (PDR) Database. Accessed April 25, 2022.

DITomaso, J.M., and Healy, E.A. 2007. Weeds of California and Other Western States. University of California Agriculture and Natural Resources Publication 3488.

Frey, M., Perlmutter, M., Williams, A., Gluesenkamp, D. 2015. The San Francisco Bay Area Early Detection Network. Management of Biological Invasions, Volume 6, Issue 3: 231–241. https://www.reabic.net/journals/mbi/2015/Issue3.aspx Accessed April 25, 2022

Keil, D.J. and Stebbins, G.L. 2012. *Scolymus hispanicus*, in Jepson Flora Project (eds.) Jepson eFlora, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=4661 Accessed on April 25, 2022

Papadimitriou, D., Daliakopoulos, I., Manios, T., and Savvas, D. 2021. Tolerance in *Scolymus hispanicus* L: Preliminary Findings from A Soilless Cultivation (Abstract only) European Geosciences Union (EGU) General Assembly 2021 . https://meetingorganizer.copernicus.org/EGU21/EGU21-14357.html?msclkid=24d4c5f9c58611ec8a8d882304d8257f Accessed April 25, 2022

Strother, J.L. 2006. *Scolymus* Linnaeus. P. 220 in Flora of North America (FNA) Editorial Committee (eds.). Flora of North America North of Mexico, Volume 19. Oxford University Press, New York and Oxford. http://beta.floranorthamerica.org Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA. Accessed April 22, 2022

Rejmanek, M., Thomsen, C., & Peters, I. (1991). Invasive vascular plants of California. Pp. 81-102 In Groves, R. and Di Castri, F. (Eds.), Biogeography of Mediterranean Invasions. Cambridge University Press. https://www.researchgate.net/profile/Marcel-Rejmanek/publication/284421285_Invasive_alien_plants_in_California_1993_summary_and_comparison_with_other_areas_in_North_America/links/58a1dd8592851c7fb4c1bc79/Invasive-alien-plants-in-California-1993-summary-and-comparison-with-other-areas-in-North-America.pdf

United States Department of Agricultural (USDA), Agricultural Research Service, National Plant Germplasm System. 2022. Germplasm Resources Information Network (GRIN Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomydetail?id=33399 Accessed April 25, 2022.

United States Department of Agriculture (USDA), Phytosanitary Certificate Issuance and Tracking System (PCIT), Phytosanitary Export Database (PExD). 2022. https://pcit.aphis.usda.gov/PExD/faces/ViewPExD.jsf Accessed April 18, 2022

Vázquez, F. M. 2000. The genus *Scolymus* Tourn ex L. (Asteraceae): Taxonomy and Distribution. Anales del Jardín Botánico de Madrid 58: 83-100 https://www.redalyc.org/pdf/556/55658104.pdf Accessed April 25, 2022

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***Comment Period: 07/27/2022 through 09/10/2022**

***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.

- 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: [A]