

California Pest Rating Proposal for

Physalis viscosa L., grape groundcherry,
Physalis cinerascens (Dunal) Hitchc., starhair groundcherry

Family: Solanaceae

Current Pest Rating: B

Proposed Pest Rating: C

Synonyms: *Physalis curassavica* L.; *P. fuscomaculata* Dunal;
P. pennsylvanica L.; *P. viscosa* var. *cinerascens* (Dunal) Waterf.

Comment Period: 04/29/2022 through 06/13/2022

Initiating Event:

Physalis viscosa has been previously assigned a B rating by the California Department of Food and Agriculture (CDFA), Plant Health and Pest Prevention Services. *Physalis viscosa* 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 risk proposal is needed to assess the current status and rating of this species.

History & Status:

Physalis viscosa in the broad sense is listed on the CCR 4500 list of noxious plant species, but the species is part of a complex group of species (Sullivan, 1985; Turner and Martinez, 2011; USDA GRIN, 2022), and the native North American species in this group are now treated as several distinct species, of which *P. cinerascens* is the most widespread and is likely to include most or all of the three documented collections from coastal California (CCH, 2022). Because the name *P. viscosa* in the broad sense is still in use for California material (Nee, 2012; Calflora, 2022, which shows a 1945 collection of *P. viscosa* var. *cinerascens* = *P. cinerascens*) it is included in this proposal along with *P. cinerascens*.

Physalis viscosa is a rhizomatous, perennial herb with 10-40 centimeter (cm) long, branched stems. Stems and leaf margins are sparsely covered with minute, branched, non-glandular hairs. Leaves are 3-5 cm long, ovate to lanceolate, with entire to irregularly wavy or toothed margins. Flowers arise singly from leaf axils on a short (5–25-millimeter (mm)) pedicel (Nee, 2012; Sullivan, 2004). Flowers are yellow to pale-yellow, bell-shaped, generally nodding, five-parted, and may have dark green veins in the center. The fruit is a small, yellowish-green berry surrounded by a papery, inflated calyx. The seeds are numerous, approximately 2 mm long, disc-shaped, and pale-yellow to brown (Sullivan, 2004). *Physalis cinerascens* is a member of this species group with the leaves irregularly wavy to toothed and the corolla of the flower reflexed when fully opened (Turner and Martinez, 2011).

Worldwide Distribution

The *Physalis viscosa* L. complex includes species native to North, Central, and South America. *Physalis viscosa* L. in the strict sense is reported to be native in Bolivia, Paraguay and Argentina and possibly elsewhere in South America (USDA/GRIN, 2022), and is reported as naturalized in Australia, especially in Victoria and New South Wales, where it occurs in disturbed or cultivated areas (eFSA, 2007). *Physalis cinerascens* is broadly distributed in Texas and Oklahoma and occurs in adjacent areas of New Mexico, Kansas, Missouri, and Arkansas, and south to southern Mexico, while the related species *P. angustifolia* Nutt. occurs in sandy coastal areas from Louisiana to Florida, and *P. mollis* Nutt. occurs in interior sandy soils in Texas and southern Oklahoma, Arkansas, and Louisiana (Sullivan, 1985; Turner and Martinez, 2011).

Official Control:

Physalis viscosa in the broad sense 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. *Physalis viscosa* is listed as a restricted noxious weed seed defined by California FAC Section 52258 and is subject to tolerances when found in agricultural seed shipments.

California Distribution:

Physalis viscosa is identified as a waif in California. *Physalis viscosa* var. *cinerascens* (= *P. cinerascens*) was reported from vouchered collections from one location in Orange County in 1943 and one location in Ventura County from 1945. One collection from Santa Barbara County in 1971 was not designated as to variety (CalFlora, 2022; Consortium of California Herbaria, 2022). As indicated by Nee (2012), *Physalis viscosa* is not listed as naturalized in the flora of California and current populations are not documented in the Calflora or CCH databases.

California Interceptions: There are no recorded interceptions of *Physalis viscosa* 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 Medium (2)

Physalis viscosa occurs in disturbed places (CalFlora, 2022) at elevations of less than 300 meters above sea level (Nee, 2012). In South Australia, *Physalis viscosa* occurs along railways and in cultivated areas, especially under irrigation (eFSA, 2007).

- 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)

Physalis viscosa 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**
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3) Pest Dispersal Potential: Score is Medium (2)

Physalis viscosa reproduces by seed and can form colonies (Nee, 2012) via rhizomatous growth. Fruits can also be spread by birds or mammals.

- 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)

The CalFlora Database (2022) characterizes *Physalis viscosa* as having “Major” toxicity.

- 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 Medium (2)

Physalis viscosa is considered weedy in south-eastern Australia and may be difficult to eradicate due to its vigorous, rhizomatous root system (eFSA, 2007).

- 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 *Physalis viscosa* **Medium (11)**

Low = 5-8 points

Medium = 9-12 points

High = 13-15 points

1) Post Entry Distribution and Survey Information: Score is Low (-0)

The CalFlora and CCH databases contain individual records of *Physalis viscosa* from 1943 in Orange County, 1943 in Ventura County, and 1971 in Santa Barbara County, and there is no documentation of the current presence of the species in the state.

-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 (11-0=11)

Conclusion and Rating Justification:

Due to the score of this analysis, and to help prevent the spread of *Physalis viscosa* or the closely related members of the species group such as *P. cinerascens* to new areas within California, a C-rating is recommended.

Uncertainty: Because of the complex taxonomic history of the *Physalis viscosa* species group, it has been unclear which species are involved in the naturalized populations in California and other parts of the world, though it is most likely that the California introductions have involved the North American species *P. cinerascens*. The risks to agriculture and the environment entailed by *P. viscosa* and *P. cinerascens* are likely to be similar.

References

Calflora: Information on California plants for education, research, and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. 2022. Berkeley, California. <https://www.calflora.org/> Assessed March 11, 2022

Government of South Australia, Department for Environment and Water, Electronic Flora of South Australia (eFSA), Fact Sheet for *Physalis viscosa*, 2007. <http://www.flora.sa.gov.au/> Assessed March 11, 2022

California Department of Food and Agriculture (CDFA), Plant Pest Diagnostics Branch, Pest and Damage Record (PDR) Database. Accessed March 11, 2022.

Consortium of California Herbaria (CCH). 2022. <https://ucjeps.berkeley.edu/consortium/> Accessed March 25, 2022.

National Plant Board (NPB), State Law and Regulation Summaries. <https://nationalplantboard.org/laws-and-regulations> Accessed March 11, 2022

Nee, M. H. 2012. *Physalis viscosa*, in Jepson Flora Project (eds.) Jepson eFlora, <https://ucjeps.berkeley.edu/> Accessed March 11, 2022

Sullivan, J.R. 1985. Systematics of the *Physalis viscosa* complex (Solanaceae). Systematic Botany 10:426-444. www.aspt.net/systematic-botany

Sullivan, J.R., 2004. The genus *Physalis* (Solanaceae) in the southeastern United States. Rhodora 106: 305-326. https://www.jstor.org/stable/23313648?seq=1#metadata_info_tab_contents Accessed March 11, 2022

Tropicos, 2022. Missouri Botanical Garden. <https://www.tropicos.org/name/29600208> Accessed March 11, 2022

Turner, B.L., and Martinez, M. 2011. Systematic reassessment of the North American *Physalis viscosa* complex (Solanaceae). Phytologia 93:260-269. <http://www.phytologia.org/uploads/2/3/4/2/23422706/932260-269turnerphysalis.pdf> Accessed March 29, 2022

United States Department of Agriculture, 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/> Accessed March 11, 2022.

United States Department of Agriculture, Natural Resources Conservation Service, PLANTS Database, National Plant Data Team, Greensboro, NC 27401-4901 USA. <https://plants.usda.gov/home/plantProfile?symbol=PHVI17> Accessed March 11, 2022

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***Comment Period: 04/29/2022 through 06/13/2022**

***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](mailto: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: [C]
