CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile for

Mentha pulegium L., pennyroyal

Family: Lamiaceae

Pest Rating: C

Seed Rating: N/A

Comment Period: 09/26/2025 through 11/10/2025

Initiating Event:
Pennyroyal*, Mentha pulegium*, has been assigned a Q-rating by the California Department of Food and Agriculture (CDFA), Plant Health and Pest Prevention Services. Per Title 3, California Code of Regulations (CCR), Section 3162, this pest rating proposal is required to support a permanent pest rating for pennyroyal.

History & Status

General Description
Pennyroyal is a perennial plant in the mint family that spreads via rhizomes and has a variable growth habit (Cal-IPC, undated). Stems of pennyroyal can either grow upright or prostrate, forming either a sub-shrub or a low and spreading plant (CABI, 2019). Stems of pennyroyal are branched, angled, and have short hairs (CABI, 2019). Stems of pennyroyal are hairless when the plant is growing in water (CABI, 2019). Leaves of pennyroyal are narrowly ovate to elliptic and have short hairs on the lower surface except when growing in water (CABI, 2019). The Inflorescence of pennyroyal is axillary, head-like, and made up of densely packed, violet to lavender flowers (Jepson eFlora, 2024; CABI, 2019). Each flower has five lobes and a prominent, white, hairy tuft in the throat (CABI, 2019). The fruit of pennyroyal are small [0.5-0.75 millimeter (mm) long], somewhat elliptical, pale brown nutlets (CABI, 2019; Jepson eFlora, 2024).

Worldwide Distribution
Pennyroyal is native to Central Asia, the Middle East, Europe and North Africa (CABI, 2019). Specifically, pennyroyal is listed as native to Africa in Cabo Verde, Algeria, Egypt, Libya, Morocco, Tunisia, Ethiopia, and the Azores and Canary and Maderia Islands; to Asia in Cyprus, Iran, Israel, Lebanon, Syria, Turkey, Russian Federation, Armenia, Azerbaijan, Georgia, Kazakhstan, and Turkmenistan; and to Europe in the United Kingdom, Ireland, Czechoslovakia, Austria, Belgium, Switzerland, Germany, Hungary, Netherlands, Poland, Russian Federation, Moldova, Ukraine, Former Yugoslavia, Albania, Bulgaria, Greece, Italy, Romania, Spain, France, and Portugal (USDA/GRIN Taxonomy, 2024).

Per USDA/GRIN Taxonomy (2024), pennyroyal is cultivated in Europe in Georgia; in Asia in India and Indonesia; in North America in Canada, Mexico, and the United States; in the Caribbean in Cuba; and in South America in Brazil and Chile.

Pennyroyal is considered naturalized in Australia, New Zealand, and parts of North and South America (USDA/GRIN Taxonomy, 2024). In the United States, pennyroyal has been reported in the states of Arizona, California, Colorado, Hawaii, Illinois, Iowa, Louisiana, Kansas, Kentucky, Missouri, Nebraska, New Jersey, North Dakota, Oklahoma, Oregon, Pennsylvania, South Dakota, Virgina, West Virginia, Washington (EDDMapS, 2024). In South America, pennyroyal is considered naturalized in Brazil, Argentina, Chile, and Uruguay (USDA/GRIN Taxonomy, 2024).

Official Control:
Pennyroyal is designated as a high priority invasive plant species for early detection in the Golden Gate National Recreation Area (GGNRA) (CalFlora, 2024) and in the 2013 South San Francisco Bay Weed Management Plan (Marriott et al., 2013). Per data contained on the EDDMapS website (2024), numerous occurrences of pennyroyal around the San Francisco Bay Area have been subject to treatment and eradication efforts.

Pennyroyal is considered an environmental weed in Victoria and Western Australia, and as a minor or potential environmental weed in South Australia and New South Wales (CABI, 2019).

California Distribution:
The CalFlora Database contains approximately 1,870 records of pennyroyal collected from California, with approximate number of unique collections per county as follows: Alameda (36), Amador (9), Butte (37), Calaveras (7), Colusa (1), Contra Costa (32), Del Norte (10), El Dorado (25), Fresno (84), Glenn (7), Humboldt (114), Kings (5), Lake (11), Los Angeles (3), Madera (40), Marin (518), Mariposa (13), Merced (11), Mendocino (137), Modoc (2), Monterey (23), Napa (32), Nevada (8), Placer (4), Riverside (1), Sacramento (52), San Benito (3), San Bernadino (1), San Diego (2), San Francisco (5), San Joaquin (9), San Luis Obispo (16), San Mateo (119), Santa Barbara (3), Santa Clara (66), Santa Cruz (32), Shasta (39), Solano (12), Sonoma (242), Stanislaus (4), Sutter (3), Tehama (26), Trinity (15), Tulare (19), Tuolumne (1), Ventura (3), Yolo (25), and Yuba (4) (CalFlora Database, 2024). An attempt was made to delete duplicate collection records. The earliest recorded collection of pennyroyal from California was from San Joaquin County in 1901 (CalFlora Database, 2024).

California Interceptions: Pennyroyal has been intercepted one time in California in field-grown nursery stock in San Mateo County in 2024.

Consequences of Introduction

1) **Climate/Host Interaction:** Score is **High (3)**
   Per Cal-IPC (undated), pennyroyal "occurs in the Sierra foothills, Central Valley, and most coastal counties from the Mexican border to Oregon. It is common as an obligate wetland indicator species in seasonally inundated soils of valley bottomlands," usually at elevations below 500 meters (1,640 feet) above sea level" (Cal-IPC, undated). Pennyroyal grows in flooded or seasonally wet areas such

as seeps, streamsides, vernal pools and swales, marshes, ditches, riparian areas and freshwater wetlands (Jepson eFlora, 2024; Cal-IPC, undated; CABI, 2019).

Per CABI (2019), pennyroyal flourishes on frequently disturbed sites such as heavily grazed pastures or areas with "seasonal depositions of silt or organic debris." pennyroyal grows optimally where other vegetation shades stems and rhizomes (CABI, 2019) and prospers in habitats that were once dominated by native plants such as vernal pools (Cal-IPC, undated).

-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)**
Pennyroyal 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)**
Pennyroyal plants reproduce vegetatively and spread quickly by rhizomatous growth (Amsberry and Meinke, 2008; Jepson eFlora, 2024). Pennyroyal plants are also prolific seed producers. Per Panetta (1985), seed bank studies revealed levels of buried seed of Pennyroyal in grazed pastures ranging from 55,000–176,000 seeds per square meter. Panetta (1985) also found that seed densities were sixteen times greater in grazed pastures with higher levels of soil disturbance than in ungrazed pastures. Per CABI (2019), seed of pennyroyal may be carried in wool or hair or in the digestive systems of livestock.

Per Jepson eFlora (2024), many cultivated and naturalized populations of pennyroyal are derived from hybridization, generally polyploid, with some sterile and reproducing vegetatively.

- 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 Amsberry and Meinke (2008), pennyroyal is unpalatable and poisonous to cattle, pastures infested with pennyroyal provide little forage, and hay made from infested fields is of poor quality. Per CABI (2019), pennyroyal is disliked by some New Zealand farmers because of its strong aroma which can taint milk and, because infested areas are avoided by livestock, pennyroyal can reduce available pasture area.

Pennyroyal is on the list of Harmful Organisms for The Republic of Korea. Shipments, including agricultural seed, that are destined for The Republic of Korea may be subject to phytosanitary restrictions pertaining to pennyroyal (USDA/PCIT/PExD, 2024).

Pennyroyal contains high levels of the organic compound pulegone, higher than in the culinary mint peppermint and much higher than in spearmint (Franzios et al., 1997). Pulegone is a chemical with significant biological effects in mammals as well as being insecticidal. Traditionally, pennyroyal was used to regulate menses and as an abortifacient. A slightly higher dose can prove toxic and carcinogenic (Franzios et al., 1997).

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)**

Studies in Oregon found that, due to allelopathy, pennyroyal had a detrimental effect on seed germination and recruitment of *Plagiobthrys hirtus* (rough popcorn flower), a federally endangered native plant (Amsberry and Meinke, 2008), although they also found that, once established, *Plagiobthrys hirtus* plants could grow larger in the presence of pennyroyal.

Amsberry and Meinke (2008) also found that pennyroyal can outcompete other native plants due to its fast growth and high reproductive rate, and its presence "may be contributing to the decline of native wetland vegetation in southwestern Oregon and may be the cause of reductions in population sizes of native wetland species."

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 pennyroyal **High (15)**

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

1) **Post Entry Distribution and Survey Information**: Score is **High (-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) **Final Score:** Medium **(15-3=12)**

Conclusion and Rating Justification:
Because pennyroyal is so widespread in California, effective eradication is not feasible and regulation will have limited effect on its distribution. Nevertheless, local control is important because of its potential injurious impacts on livestock and its role in outcompeting native plant species in limited and important habitat types, e.g., marginal freshwater wetlands and stream banks. In support of the on-going eradication, treatment, and monitoring efforts for Pennyroyal in parts of the state, and to discourage its sale in nurseries to unsuspecting consumers, a **B-rating** is recommended.

Uncertainty: As pennyroyal has long been established in California, there is little uncertainty in this analysis.

References
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Responsible Party: CDFA Environmental Compliance, Permits and Regulations team

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***Comment Period: 09/26/2025 through 11/10/2025**

***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.

Pest Rating: [C]