

California Pest Rating

Cochlicella barbara (Linnaeus): Small Pointed Snail

Gastropoda: Cochlicellidae

Pest Rating: B

Initiating Event:

In February 2015 CDFA was notified of the discovery of *Cochlicella barbara*, small pointed snail, in Santa Clara County during the Citizen Science Association Conference BioBlitz. A pest rating proposal is required to designate a permanent pest rating for this snail.

History & Status:

Background: *Cochlicella barbara* is an air-breathing land snail that is considered a pest of cereal crops and pastures in Australia^{1,3}. Like most snails it is polyphagous and may be moved long distances when infested plants are moved or as a contaminating pest.

Worldwide Distribution: *Cochlicella barbara* is native to the Mediterranean region. From there it has spread to Australia, New Zealand, and South Africa.

Official Control: *Cochlicella barbara* is listed as a harmful organism by Chile, Japan, and the Republic of Korea².

California Distribution: Specimens in the California State Collection of Arthropods and records in the PDR Database indicate that *Cochlicella barbara* may have been present in California since the 1970's. It has been found in the following locations: Santa Cruz County: Watsonville (1974), Davenport (1975), and Santa Cruz (1988 and 1993); San Diego County: Santee (1985); Santa Barbara County: Santa Barbara (2001); San Joaquin County: Tracy (2001); and Santa Clara County: Moffet Field (2007).

California Interceptions: *Cochlicella barbara* was intercepted once on *Dracena reflexa* plants imported from Florida in 2001.

The risk *Cochlicella barbara* poses to California is evaluated below.

Consequences of Introduction:

1) Climate/Host Interaction: *Cochlicella barbara* is widespread in Europe and the Mediterranean and similar climates exist in California. The snail can be expected to establish a widespread distribution in the state and receives a **High (3)** in this category.

Evaluate if the pest would have suitable hosts and climate to establish in California. Score:

- **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: *Cochlicella barbara* is polyphagous and receives a **High (3)** in this category.

Evaluate the host range of the pest. Score:

- **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: Snails are capable of rapid reproduction and can move long distances when infested plants are moved or as a contaminating pest on a wide variety of consignments. *Cochlicella barbara* receives a **High (3)** in this category.

Evaluate the natural and artificial dispersal potential of the pest. Score:

- **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: *Cochlicella barbara* has not had any significant economic impacts since it was first reported in California in the 1970's. However, it is listed as a harmful organism by several other nations and has the potential to cause trade disruptions as it expands its distribution and increases in abundance. The snail has not lowered any crop yields, reduced crop values, changed cultural practices, injured animals, or interfered with water supplies. It is considered a vector of nematode-caused diseases such as sheep lungworm³. *Cochlicella barbara* receives a **Medium (2)** in this category.

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

- 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.

- **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: Since its first reports in California in the 1970's, no significant environmental impacts have been reported from *Cochlicella barbara*. The snail has not been observed to lower biodiversity, disrupt natural communities, or change ecosystem processes. It has not known to have affected any threatened or endangered species or disrupted critical habitats. It is not known to have triggered any additional treatment programs or impacted any cultural practices, home/urban gardens, or ornamental plantings. *Cochlicella barbara* receives a **Low (1)** in this category.

Evaluate the environmental impact of the pest on California using the criteria below.

- 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.

Score the pest for 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.

Likely consequences of the presence of *Cochlicella barbara* for California: 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: *Cochlicella barbara* is only known from 9 samples of snails collected in California in Santa Cruz, San Diego, Santa Barbara, San Joaquin, and Santa Clara counties over a period of more than 40 years. It may or may not be established in these areas. It receives a **Medium (-2)** in this category.

Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication, or have been delimited with no further detections should not be included.

- **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.

Final Score:

The final score is the likely consequences of introduction score minus the post-entry distribution and survey information score: **Medium (10)**

Uncertainty:

There have not been any recent statewide surveys for snails in California. Snails are most active at night and at low population densities are unlikely to be observed during typical daytime visual surveys for other pests. It is possible that *Cochlicella barbara* is more widespread in the state than is presently known. Alternatively, it may have failed to establish in some of the locations where it was found.

Conclusion and Rating Justification:

Nine samples of snails identified as *Cochlicella barbara* have been found in California over the last 40 years. However, the present distribution of the species is unknown. Although no significant economic or

environmental impacts have yet to be reported from this snail there are potential economic impacts. A “B” rating is appropriate.

References:

¹ Baker, Geoff H. 2002. Helicidae and Hygromiidae as Pests in Cereal Crops and Pastures in Southern Australia. In: Molluscs as Crop Pests. CABI Publishing New York. 468 pp. <http://www.cabi.org/bookshop/book/9780851993201>

² USDA Phytosanitary Certificate Issuance & Tracking System (PCIT) Phytosanitary Export Database (PEXD). <https://pcit.aphis.usda.gov/pcit/>

³ Herbert, David G. 2010. The introduced Mollusca of South Africa. South Africa National Biodiversity Institute. 109 pp. <http://www.sanbi.org/sites/default/files/documents/documents/bioseries15introterrestmollusca.pdf>

Responsible Party:

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Comment Period:

The 45-day comment period was opened on Monday, March 16, 2015 and closed on Thursday, April 30, 2015.