CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile

Pseudococcus lycopodii Beardsley: a mealybug

Hemiptera: Pseudococcidae

Pest Rating: C

Comment Period: 12/21/2021 – 02/04/2022

Initiating Event:

Pseudococcus lycopodii is occasionally intercepted on *Lycopodium* sp. from Hawaii. It has not been rated. Therefore, a pest rating proposal is needed.

History & Status:

Background: *Pseudococcus lycopodii* is a mealybug that is only reported to occur in Hawaii and is only known to live on the pantropical club moss *Lycopodium* (*Palhinhaea*) *cernua* there (Nakahara, 1981). It is reported to live at the bases of the leaves of that plant (Beardsley, 1959).

Worldwide Distribution: *Pseudococcus lycopodii* is only reported from the United States (Hawaii only) (García Morales et al., 2016; Nakahara, 1981).

Official Control: *Pseudococcus lycopodii* is not known to be under official control anywhere.

California Distribution: *Pseudococcus lycopodii* is not known to be in California.

California Interceptions: *Pseudococcus lycopodii* is occasionally intercepted on *Lycopodium* sp. from Hawaii (California Department of Food and Agriculture).

The risk *Pseudococcus lycopodii* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Pseudococcus lycopodii* is only known to occur on the island of Oahu in Hawaii. The climate of most of that island is tropical, although the exact locations and therefore elevations of the populations there are not known. It is possible that the California natives *Lycopodium clavatum* and *Lycopodiella inundata*, both present in coastal northern California, could be suitable hosts (Calflora). Therefore, *P. lycopodii* receives a **Low (1)** in this category.

   – 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:** *Pseudococcus lycopodii* is reported to feed on a single species of plant. Therefore, it receives a **Low (1)** in this category.

   – Low (1) has a very limited host range.

   – Medium (2) has a moderate host range.

   – High (3) has a wide host range.

3) **Pest Reproductive and Dispersal Potential:** *Pseudococcus lycopodii* could be spread with infested plant material. Therefore, it receives a **Medium (2)** in this category.

   – 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**. *Pseudococcus lycopodii* is not known to cause economic impacts. Therefore, *P. lycopodii* receives a **Low (1)** in this category.

Economic Impact:

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 Score: Low

– 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**. Two native species of Lycopodiaceae are present in California: *Lycopodium clavatum* and *Lycopodiella inundata*. It is possible that if *P. lycopodii* becomes established in northern coastal California, it could impact these native plants. Therefore, *P. lycopodii* receives a **Medium (2)** in this category.

Environmental Impact: A

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 Score: Medium (2)

– 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 *Pseudococcus lycopodii*: Low (7)

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:** *Pseudococcus lycopodii* is not known to be established in California. It receives a **Not established (0)** in this category.

–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:

7) The final score is the consequences of introduction score minus the post entry distribution and survey information score: Low (7)

Uncertainty:

There is uncertainty regarding the ability of this mealybug to become established in California. The area that appears most likely to tolerate climatically (southern coastal California) does not overlap with the part of the state with possible host plants (northern coastal California). This is further complicated with uncertainty regarding the range of elevation (and therefore climate) that this mealybug occurs within in Hawaii.

Conclusion and Rating Justification:

Pseudococcus lycopodii is a mealybug that appears to pose little risk to California. There is some uncertainty, but any environmental impacts in California would presumably be limited to two species of native Lycopodiaceae and would appear to require a shift in not only host plant but climatic tolerance as well. For these reasons, a C rating is justified.

References:

Beardsley, J. W. 1959. New species and new records of endemic Hawaiian mealybugs (Homoptera: Pseudococcidae). Proceedings of the Hawaiian Entomological Society 17:38-55.

California Department of Food and Agriculture. Pest and damage record database. Accessed October 12, 2021:
https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

Calflora. Accessed December 13, 2021:
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García Morales, M., Denno, B.D., Miller, D.R., Miller, G.L., Ben-Dov, Y., and N.B. Hardy. 2016. ScaleNet: A literature-based model of scale insect biology and systematics. Accessed December 12, 2021:
http://scalenet.info.

Nakahara, S. 1981. List of the Hawaiian Coccoidea (Homoptera: Sternorhyncha). Proceedings of the Hawaiian Entomological Society 23:387-424.

Responsible Party:

Kyle Beucke, 1220 N Street, Sacramento, CA 95814, 916-698-3034, permits[@]cdfa.ca.gov

***Comment Period: 12/21/2021 – 02/04/2022**

***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.

Pest Rating: C