CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile

Fromundus pygmaeus (Dallas): Oceanic burrower bug

Hemiptera: Cydnidae

Pest Rating: A

Comment Period: 02/23/2022 – 04/09/2022

Initiating Event:

Fromundus pygmaeus is occasionally intercepted on sweet potato tubers, ti leaves, ginger root, and other articles from Hawaii. It has not been rated. A pest rating proposal is needed.

History & Status:

Background: *Fromundus pygmaeus* is reported to occur in soil and be associated with roots of pineapple ("diseased"), grass, *Glycine* sp. (feeding on roots), and *Trifolium* sp. (feeding on roots) (Illingsworth, 1926; Kobayashi, 1964, 1974, and 1981 as cited in Schaeffer, 1988; Ruckes, 1963). It is apparently not limited to belowground portions of plants, as it was collected by beating from *Canthium barbatum* (Van Duzee, 1934). It was reported to suck sap from various plants, although neither the portions nor the species of plant was given (Illingsworth, 1926). It has also been found in horse dung and associated with the remains of unspecified test animals (Goff et al., 1986; Van Duzee, 1934). Lastly, *F. pygmaeus* was reported to bite a human being (Miller, 1931 as cited in Schaeffer and Panizzi, 2000).

Schaeffer and Panizzi (2000) did not cite any reports of feeding damage attributed to *F. pygmaeus* and listed it as a "less important" species. Although this insect evidently feeds on roots, no reports of damage were found anywhere. Schaeffer and Panizzi (2000) note that cydnid damage to roots could be confused with other non-pest plant health issues and may not be recognized.

Worldwide Distribution: **Asia:** Brunei, Cambodia, Chagos Archipelago, Christmas Islands, China, Cocos (Keeling) Islands, Hong Kong, India, Indonesia, Iraq, Israel, Japan, Korea (South), Laos, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Saudi Arabia, Singapore, Sri Lanka, Taiwan, Thailand, Turkey, Vietnam, Yemen; **Oceania:** Australia, Fiji, Hawaii, Marquesas Islands, Micronesia, Midway Atoll, New Caledonia, Papua New Guinea, Society Islands, Solomon Islands, (Bismarck Archipelago), Philippines, Samoa (Çerçi and Koçak, 2017; Froeschner, 1967; Froeschner, 1976; Kim et al., 2017; Linnavuori, 1993; Lis, 1996; Lis, 1997; Lis, 1999; Suehiro, 1960; Van Duzee, 1934).

Official Control: *Fromundus pygmaeus* is considered reportable by the USDA (U.S. regulated plant pest table).

California Distribution: *Fromundus pygmaeus* is not known to be established in California.

California Interceptions: *Fromundus pygmaeus* is occasionally intercepted on sweet potato tubers, ti leaves, ginger root, and other plant material from Hawaii (California Department of Food and Agriculture).

The risk *Fromundus pygmaeus* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Fromundus pygmaeus* appears to mostly be reported from areas with a subtropical or tropical climate. Literature suggests it may feed on the roots of a wide variety of plants and perhaps other material (plant and animal) as well. Climate, not food, is likely to be a factor that limits this species in California. It seems likely that establishment would be limited to coastal central and southern regions of California. Therefore, it receives a **Medium (2)** 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:** Literature suggests that *F. pygmaeus* feeds on plants in at least three families (Bromeliaceae, Fabaceae, and Poaceae), although the true host range is likely much broader; for example, it has been intercepted on plants in several additional families. Therefore, it receives a **Medium (2)** 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:** *Fromundus pygmaeus* can be moved with infested plant material, possibly including potted plants. 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**. *Fromundus pygmaeus* is reported to feed on roots of various plants. Cydnid damage can be confused with general root damage and is likely not attributed to a pest species in many cases. Therefore, although reports of economic impacts were not found for *F. pygmaeus*, it is plausible that this species could impact crop species in California. In addition, it is considered reportable by the United States Department of Agriculture, and its presence in California could trigger loss of domestic markets (U.S. regulated plant pest table). Therefore, *F. pygmaeus* receives a **Medium (2)** in this category.

Economic Impact: B, C

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: Medium

– 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**. Infestations of *F. pygmaeus* could trigger treatments. Therefore, *F. pygmaeus* receives a **Medium (2)** in this category.

Environmental Impact: D

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 *Fromundus pygmaeus*: Medium (10)

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:** *Fromundus pygmaeus* 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: Medium (10)

Uncertainty:

There are no ongoing surveys for *F. pygmaeus,* so it is possible that this bug is already established in California. There is a high degree of uncertainty regarding the potential for this bug to have impacts

in California. No reports of economic damage resulting from this species were found, and a cautious approach was taken because of the damage caused by some cydnids coupled with the possibility that damage caused by *F. pygmaeus* may have not been recognized as being caused by that species.

Conclusion and Rating Justification:

Fromundus pygmaeus is a member of a group of insects (the Cydnidae) with cryptic habits that cause damage that is likely misattributed in many cases. It may impact crops in California. This species is considered reportable by the United States Department of Agriculture, and the presence of this bug in California could threaten domestic trade between this and other states. It is not known to be established in California. For these reasons, an "A" rating is justified.

References:

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Responsible Party:

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***Comment Period: 02/23/2022 – 04/09/2022**

***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.

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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: A