CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

Euwallacea interjectus (Blandford): Boxelder ambrosia beetle

Coleoptera: Curculionidae

Current Rating: Q

Proposed Rating: B

Comment Period: 01/03/2025 – 02/17/2025

Initiating Event:

Euwallacea interjectus has been found in the environment in Santa Cruz County. It is currently Q-rated. A pest rating proposal is needed.

History & Status:

Background:

Like most ambrosia beetles, *Euwallacea interjectus* depends on symbiotic fungi for adult and larval food. Fungal spores are carried by the adult female beetle in structures called mycangia. The fungus grows in tunnels excavated by the beetle and the "garden" is fed upon by adults and larvae. The fungus, in addition to the tunneling by the beetle, can negatively impact and even kill the host tree, and some ambrosia beetles are serious tree pests. This appears to be more common with stressed (e.g., by drought) trees.

Ambrosia beetles, and other wood-boring insects, can be present in wood packing material and other wood articles when these items have not been properly treated. For this reason, wood packing is considered to be a very risky pathway for the introduction of exotic wood-boring pests.

Many ambrosia beetles are highly specific in the fungi they use as food. Some ambrosia beetles, including *Euwallacea* species, have been reported to switch symbiotic fungi in new habitats that they have been introduced to (Jiang et al., 2021). In the case of *E*. *interjectus*, which is native to Asia, including China, the fungus *Fusarium kuroshium* was isolated from mycangia in beetle collected from Japan (Jiang et al., 2021). Specimens collected in Santa Cruz County, California had the fungus *Fusarium floridanum* (California Department of Food and Agriculture).

Ambrosia beetles usually have broad (tree) host ranges, and *E*. *interjectus* is no exception. It has been reported to attack *Acer negundo*, *Ficus carica*, *Platanus racemosa*, *Populus* x *canadensis*, *Populus deltoides*, *Quercus agrifolia*, and *Salix lasiolepis* (B. Woodward, pers. comm.; J. Hulcr, pers. comm. in Cognato et al., 2015; Landi et al., 2019; Morita et al., 2012; Wang et al., 2020). According to the literature, this beetle is reported to mostly use dead and dying trees and where it is observed attacking living trees, there is often some other factor, such as drought, flooding, or disease (Cognato et al., 2015; Wang et al., 2020). However, this should not be taken as an indication this insect does not pose a threat to living trees. This beetle was reported to mass-attack living water-stressed *A*. *negundo* (J. Hulcr, pers. comm. in Cognato et al., 2015) and to attack living *Populus* x *canadensis* in China (Wang et al., 2020), and sap was observed flowing from beetle tunnels in *Populus deltoides* trees in Argentina (Landi et al., 2019). In Japan, *E*. *interjectus* has been reported to spread the fig wilt fungus *Ceratocystis ficicola* within infested trees but not to spread the disease to new trees (Kajii et al., 2013). *Ceratocystis ficicola* is not known to be present in the United States (H. Martin, pers. comm.). In Santa Cruz, California, *E*. *interjectus* is reported to kill *A*. *negundo* (Lynch et al., 2024).

Worldwide Distribution: *Euwallacea interjectus* is native to Asia. Its distribution includes: **Asia:** China, India, Japan, Indonesia, Korea, Laos, Philippines, South Korea, Thailand; **North America:** United States (Alabama, California, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, Texas, Virginia); **Oceania:** Hawaii, New Guinea, Solomon Islands; **South America:** Argentina (Cognato et al., 2015; Gomez et al., 2018; Landi et al., 2019; Park et al., 2020; Smith et al., 2020).

Official Control: *Euwallacea interjectus* is not known to be under official control.

California Distribution: Euwallacea interjectus is present in a forest in Santa Cruz County. The infestation is reported to have an extent of at least 75 acres (B. Woodward, pers. comm.).

California Interceptions: *Euwallacea interjectus* has not been intercepted in California (California Department of Food and Agriculture, 2024).

The risk *Euwallacea interjectus* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** The known distribution of *E*. *interjectus* appears to generally correspond to a warm temperate or subtropical climate. However, it is established in Santa Cruz County, California. It's tree hosts are varied and include *Acer negundo* and *Quercus agrifolia*, common native trees in California. This beetle could likely establish over much of the state, including much of the coast (including the Coast Range) and Central Valley. Therefore, *E. interjectus* receives a **High (3)** 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:** *Euwallacea interjectus* has been reported to attack a wide variety of trees. Therefore, it receives a **High (3)** 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:** *Euwallacea interjectus* can fly. It could also be dispersed via movement of infested wood. *Euwallacea* species are able to reproduce via parthenogenesis. An unmated female can lay eggs that develop into males, and the mother can mate with her sons. Therefore, *E*. *interjectus* receives a **High (3)** 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**. *Euwallacea interjectus* is reported to kill trees. It may be that only stressed trees are attacked and/or killed, but drought stress is presumed to be common in California. Some wood resources (e.g., handicrafts and timber) may be impacted in California. Regarding fig wilt, *E*. *interjectus* is thought not to be able to vector the causative fungus to new trees, and the causative fungus is not known to be present in the United States. However, this beetle is known to attack fig trees. Therefore, it receives a **Medium (2)** in this category.

Economic Impact: A, B

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**. *Euwallacea interjectus* attacks a wide variety of trees and is reported to kill them. It has already killed *Acer negundo* in Santa Cruz County, California. This beetle could have ecosystem-level impacts in California. It could also affect street trees. Therefore, *E. interjectus* receives a **High (3)** in this category.

Environmental Impact: A, E

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: High (3)

– 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 *Euwallacea interjectus*: High (14)

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:** *Euwallacea interjectus* is established in Santa Cruz County. It receives a **Low (-1)** 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: High (13)

Uncertainty:

There is uncertainty regarding the degree of impacts this beetle may have to native and crop trees (including fig) in California and to what degree such impacts depend on stress, including drought. There is also uncertainty regarding the distribution of this beetle in the state. It may be more widespread than is currently known.

Conclusion and Rating Justification:

Euwallacea interjectus is one of several ambrosia beetle species that have recently been introduced to California. Ambrosia beetles, as a group, are generally considered to feed primarily on dead or weakened trees. However (though some of this may be related to drought and other stress that may sometimes be unrecognized), some ambrosia beetles kill trees in large numbers when they are introduced to new areas and these species can have environmental impacts. Wood-boring insects in general, and ambrosia beetles in particular are not well suited to eradication for reasons that include living inside of trees. *Euwallacea interjectus* is established in Santa Cruz County and it is not likely to

be eradicated. It may also be present in additional locations in the state. For these reasons, a "B" rating is justified.

References:

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Responsible Party:

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***Comment Period: 01/03/2025 - 02/17/2025**

***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.

CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Proposed Pest Rating: B