CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile for

Cyclorhipidion distinguendum (Eggers): an ambrosia beetle

Synonyms: *Xyleborus distinguendus* Eggers, *Xyleborus fukiensis* Eggers, and *Xyleborus ganshoensis* Murayama

Coleoptera: Curculionidae

Previous Pest Rating: Q

Pest Rating: C as of 04/30/2021

Comment Period: 3/16/2021 – 4/30/2021

Initiating Event:

One adult specimen of *Cyclorhipidion distinguendum* was caught in a Lindgren funnel trap with ethanol lure in Santa Cruz County in 2019. Additional specimens were caught from the same location since then. This species has not been rated. Therefore, a pest rating proposal is needed.

History & Status:

Background: *Cyclorhipidion distinguendum* is an ambrosia beetle. Like other members of the tribe Xyleborini, the female either leaves the gallery already mated and able to lay fertilized eggs or (if not mated) she lays unfertilized eggs that will develop into males and she can mate with them. Fungal spores are carried in oral mycangia (pocket-like structures) and the new gallery is inoculated with these fungi, which serve as food for the adults and larvae. Very little information is available on the biology of *C. distinguendum*. It is reported to use trees in the family Fagaceae, including the genera *Castanea*, *Lithocarpus*, and *Quercus*. This beetle is attracted to ethanol, like many other ambrosia beetles. It appears to only live in wood that is already dead. No reports were found of this beetle attacking living trees or otherwise being a pest (Barnouin et al., 2020). There does not appear to be

any damage associated with the infestation in Oregon (J. Vlach, Oregon Department of Agriculture, per. comm.).

Worldwide Distribution: *Cyclorhipidion distinguendum* is native to southeast Asia, including China, India, Nepal, South Korea, Taiwan, Thailand, Japan, and Vietnam (Beaver and Liu, 2018; Smith et al., 2020). It has been introduced to France and the United States (California, Oregon, and South Carolina (Barnouin et al., 2020; Hoebeke et al., 2018; S. Smith, pers. comm.).

Official Control: *Cyclorhipidion distinguendum* is not known to be under official control anywhere.

California Distribution: Five adult specimens of *C. distinguendum* were trapped with a Lindgren funnel trap and ethanol lure in a residential area of Santa Cruz County in 2019 (one in June, three in August, and one in October). 30 specimens were trapped in January 2021 at the same location (California Department of Food and Agriculture).

California Interceptions: *Cyclorhipidion distinguendum* has not been intercepted in California (California Department of Food and Agriculture).

The risk *Cyclorhipidion distinguendum* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Cyclorhipidion distinguendum* is present in temperate areas of Asia and Europe as well as in South Carolina and Santa Cruz County, California. It may be somewhat limited by moisture to the coastal, northern, and higher mountain areas of California. Hosts are not likely to be the critical deciding factor in its potential distribution in this state, as there are numerous species in reported host genera in 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:** *Cyclorhipidion distinguendum* is reported to feed (via its presumed ambrosia fungi) on trees in one family, the Fagaceae. 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:** *Cyclorhipidion distinguendum* can fly. It can also be moved with infested wood. Regarding reproductive potential, it is presumed to be parthenogenic like other beetles of the tribe Xyleborini. Therefore, it 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**. No reports were found of this beetle attacking living trees or otherwise being a pest. Therefore, it 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**. No reports were found of this beetle attacking living trees. This beetle could potentially compete with native ambrosia beetles if it became established in California. Therefore, *C. distinguendum* receives a **Low (1)** in this category.

Environmental Impact:

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: Low (1)

– 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 *Cyclorhipidion distinguendum*: Low (8)

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:** *Cyclorhipidion distinguendum* 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: Low (7)

Uncertainty:

There is some uncertainty regarding potential for this beetle to attack living trees in California. However, as no reports have been found of *C. distinguendum* attacking living trees either in its native range in Asia or in its introduced range in Europe or the United States, such an apparent shift in behavior seems very unlikely. This beetle could compete with native ambrosia beetles. Lastly, this beetle may be more widely distributed in the United States than is currently known, because wood-boring beetle survey efforts are not consistent from state to state.

Conclusion and Rating Justification:

Cyclorhipidion distinguendum was found in Santa Cruz County in 2019 and again (in large numbers) in 2021. The absence of reports of this beetle attacking living trees anywhere in its native or introduced range, suggests it is very unlikely to impact living trees in California. It therefore seems to pose little risk to California agriculture or environment. For these reasons, a "C" rating is justified.

References:

Barnouin, T., Soldati, F., Roques, A., Faccoli, M., Kirkendall, L. R., Mouttet, R., Daubree, J. -B., and Noblecourt, T. 2020. Bark beetles and pinhole borers recently or newly introduced to France (Coleoptera: Curculionidae, Scolytinae and Platypodinae). Zootaxa 4877:051-074.

Beaver, R. A. and Liu, L. -Y. 2018. A synopsis of the bark and ambrosia beetles of Nepal with a key to the genera (Insecta: Coleoptera: Curculionidae: Platypodinae and Scolytinae). pp. 521-553 *in* Hartmann, M., Barclay, M., and Weipert, J. (eds.), Biodiversität und Naturausstattung im Himalaya VI. Naturkundemuseum Erfurt, Erfurt, Germany.

California Department of Food and Agriculture. Pest and damage record database. Accessed February 24, 2021: https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

Hoebeke, E. R., Rabaglia, R. J., Knížek, M., and Weaver, J. S. 2018. First records of *Cyclorhipidion fukiense* (Eggers) (Coleoptera: Curculionidae: Scolytinae: Xyleborini), an ambrosia beetle native to Asia, in North America. Zootaxa 4394:243-250.

Smith, S. M., Beaver, R. A., and Cognato, A. I. 2020. A monograph of the Xyleborini (Coleoptera, Curculionidae, Scolytinae) if the Indochinese Peninsula (except Malaysia) and China. ZooKeys 983:1-442.

Responsible Party:

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***Comment Period: 3/16/2021 – 4/30/2021**

***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