

California Pest Rating Proposal

Ceratapion basicorne (Illiger): a weevil

Coleoptera: Apionidae

Current Rating: Q

Proposed Rating: D

Comment Period: **11/12/2019 through 12/27/2019**

Initiating Event:

A permit for the release of *Ceratapion basicorne* in California has been applied for. The purpose of the proposed release is to provide biological control against yellow starthistle, *Centaurea solstitialis*. *Ceratapion basicorne* has not been rated. A pest rating proposal is needed.

History & Status:

Background: *Ceratapion basicorne* is a small (2-3 mm in length), black weevil (Balciunas and Korotyaev, 2007). Eggs are laid in leaves. After they hatch, the larvae tunnel into the plant and down into the roots, where they feed. There is one generation per year (Smith, 2006).

Host specificity testing suggests that *C. basicorne* is limited to plants in the tribe Cardueae. In no-choice experiments that included 13 tribes in two subfamilies of Asteraceae, *C. basicorne* only laid eggs on species in the tribe Cardueae. Larval development was highest on species of *Centaurea*, *Cnicus*, *Carthamus*, and *Crupina*, all members of the subtribe Centaureinae. Adult feeding damage was reported to be minor, consisting of holes less than one square millimeter (Smith, 2006). In a field study in Turkey, *C. basicorne* did not infest safflower, and this weevil has not been reported as a pest of safflower in Europe, where both species occur. *Cirsium* and *Cynara* (including artichoke) species do not appear to be suitable hosts (Balciunas and Korotyaev, 2007; Clement et al., 1989; Smith, 2006; Smith et al., 2006; Uygur et al., 2005).

Worldwide Distribution: *Ceratapion basicorne* is native to Europe and western Asia, including Armenia, Greece, Russia, Spain, and Turkey (Balciunas and Korotyaev, 2007; Smith, 2006).

Official Control: *Ceratapion basicorne* is not known to be under official control anywhere.

California Distribution: *Ceratapion basicorne* is not known to be present in California.

California Interceptions: *Ceratapion basicorne* has not been intercepted in California.

The risk *Ceratapion basicorne* poses to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** *Ceratapion basicorne* is found in areas with Mediterranean and temperate climates. Its hosts include yellow starthistle, which is widespread in California. It is likely that *C. basicorne* could become established over much of California. Therefore, *C. basicorne* 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:** In no-choice experiments, *C. basicorne* only oviposited on plants in the tribe Cardueae, and field trials suggests its host range is even more narrow. 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:** *Ceratapion basicorne* flies. 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:** Initial concerns regarding potential for *C. basicorne* to attack safflower have not been supported by field trials. *Cynara* species, including artichoke, were not found to be suitable hosts. There are no other crops that appear to be at risk from this weevil. 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:** There are rare species of *Cirsium* in California. However, this genus was not found to support development of *C. basicorne*. Some species of *Centaurea* are grown as ornamentals and could be impacted by the establishment of *C. basicorne*. Therefore, it receives a **Medium (2)** in this category.

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

Environmental Impact: 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: Medium

– 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 *Ceratapion basicorne*: 10 (Medium)

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:** *Ceratapion basicorne* is not known to be present 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 is low uncertainty associated with this species.

Conclusion and Rating Justification:

Ceratapion basicorne has been shown to have a fairly narrow host range and it could be a successful biological control agent against yellow starthistle, a serious weed. This weevil does not appear to pose a threat to crops or rare plants in California. For these reasons, a “D” rating is justified.

References:

Balciunas, J. K. and Korotyaev, B. A. 2007. Larval densities and field hosts of *Ceratapion basicorne* (Coleoptera: Apionidae) and an illustrated key to the adults of *Ceratapion* spp. that feed on thistles in the eastern Mediterranean and Black Sea regions. *Environmental Entomology* 36:1421-1429.

California Department of Food and Agriculture. Pest and damage record database. Accessed September 20, 2019:

<https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx>

Clement, S. L., Alonso-Zarazaga, M. A., Mimmocchi, T., and Cristofaro, M. 1989. Life history and host range of *Ceratapion basicorne* (Coleoptera: Apionidae) with notes on other weevil associates (Apioninae) of yellow starthistle in Italy and Greece. *Annals of the Entomological Society of America* 82:741-747.

Smith, L. 2006. Risk assessment of *Ceratapion basicorne*, a rosette weevil of yellow starthistle. pp. 47-54 in California Conference on Biological Control V.

Smith, L., Hayat, R., Cristofaro, M., Tronci, C., Tozlu, G., and Lecce, F. 2006. Assessment of risk of attack to safflower by *Ceratapion basicorne* (Coleoptera: Apionidae), a prospective biological control agent of *Centaurea solstitialis* (Asteraceae). *Biological Control* 36:337-344.

USDA-APHIS. U.S. regulated plant pest table. Accessed September 20, 2019:
<https://www.aphis.usda.gov/aphis/ourfocus/planthealth/import-information/rppl/rppl-table>

Uygur, S., Smith, L., Uygur, F. N., Cristofaro, M., and Balciunas, J. 2005. Field assessment in land of origin host specificity, infestation rate and impact of *Ceratapion basicorne* a prospective biological control agent of yellow starthistle. *BioControl* 50:525-541

Responsible Party:

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***Comment Period: 11/12/2019 through 12/27/2019**

***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 plant.health[@]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.

Proposed Pest Rating: D