CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

***Sericothrips staphylinus* Haliday: Gorse thrips**

Thysanoptera: Thripidae

Current Rating: Q

Proposed Rating: D

Comment Period: 5/5/2020 – 6/19/2020

Initiating Event:

An application was submitted for a permit for the release of *Sericothrips staphylinus* in California for the control of gorse (*Ulex europeaus*). In 2019, the USDA issued a Decision and Finding of no significant impact approving the release of *S. staphylinus* in the Contiguous United States. This thrips has not been rated. A pest rating proposal is needed.

History & Status:

Background: Adult *S. staphylinus* are approximately 1 mm in length. In the micropterous form, which is the most common, the wings are reduced to stubs and the thrips is flightless, although it can jump (Hill et al., 2001). Eggs are laid in stems of the host plant (USDA-APHIS, 2019). This thrips is considered a specialist of gorse; it has been reported from other plants, but some of these likely reflect resting rather than feeding. Host specificity testing suggests it is highly specific (see below, Under Known Pest Host Range). It feeds on leaves, spines and stems (Hill et al., 2001). Gorse is a noxious weed in the family Fabaceae that is now present in at least 20 counties in California (R. Price, pers. comm.). In tests, *S. staphylinus* is capable of killing gorse seedlings within 65 days (USDA-APHIS, 2019).

Worldwide Distribution: *Sericothrips staphylinus* is reported to be native to western Europe. It has spread to other parts of Europe and has been released as a biological control agent (and become established) in Australia, New Zealand, and Hawaii (Andjus et al., 2008; USDA-APHIS, 2019).

Official Control: *Sericothrips staphylinus* is not known to be under official control in any country.

California Distribution: *Sericothrips staphylinus* is not known to be present in California.

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

The risk *Sericothrips staphylinus* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** The main host plant of *S. staphylinus*, gorse, is found in northern coastal California. As this thrips can clearly tolerate a temperate climate, *S. staphylinus* could probably become established over much of this area. 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:** *Sericothrips staphylinus* has been the subject of host specificity testing preliminary to its approval for release as a biological control agent. In the United Kingdom and New Zealand, Hill et al. (2001) tested 83 species of plants, most of them in the family Fabaceae. Only one of these non-gorse plants, *Chamaecytisus palmensis*, supported full development of *S. staphylinus*, although damage to this plant species was reported to be light. In the field, *S. staphylinus* was not reported to infest *C. palmensis* even when *S. staphylinus*-infested gorse plants were nearby. In Oregon,

63 species of plants (mostly Fabaceae) were tested including native species such as *Lupinus* species. Development resulting in a second (F1) generation of thrips only occurred on five species in addition to gorse; all five of these species are introduced to North America. These five species are all in the same subfamily as gorse and four are in the same tribe as that weed (Genisteae); the fifth species is *Vicia tetrasperma*. Development on all five of these species was much lower than on gorse and an F2 generation was not produced on any of them (USDA-APHUS, 2019). 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:** The macropterous form of *S. staphylinus* can presumably fly. Although the macropterous form is reported to be relatively uncommon, from 0.1 to 16% of *S. staphylinus* were macropterous at a release site in Tasmania (Ireson et al., 2008). 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**. *Sericothrips staphylinus* is not known to damage any economically-significant plant. 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**. In host-specificity tests, *S*. *staphylinus* was not found to complete development (reach F1 adult) on any plant native to North America. Many non-gorse plants did suffer light feeding damage, but none of them were reported to have been killed or significantly damaged, in contrast to gorse, which was killed in 7-12 weeks (Hill et al., 2001; USDA-APHIS, 2019). *Sericothrips staphylinus* has not been reported to impact the native Hawaiian species *Vicia menziesii*. *Sericothrips staphylinus* is not expected to have a significant impact on native plant species in California. Therefore, *S. staphylinus* receives a **Low (1)** in this category.

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

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 *Sericothrips staphylinus*: 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:** *Sericothrips staphylinus* 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: Low (7)

Uncertainty:

It is possible that *S. staphylinus* may attack native California plants that were not included in the host specificity testing. It is also possible that *S. staphylinus* will not prove to be an effective biological control agent in California.

Conclusion and Rating Justification:

Sericothrips staphylinus is a highly host-specific thrips that does not appear to pose a risk to California agriculture or environment. It could be useful in controlling gorse, a noxious weed already widely established in California. For these reasons, an “D” rating is justified.

References:

Andjus, L., Trdan, S., and Jović, M. 2008. Species of the genus *Sericothrips* and *Neohydatothrips* (Thysanoptera: Thripidae) in the collection of the natural history museum in Belgrade. Bulletin of the Natural History Museum in Belgrade 1:179-186.

California Department of Food and Agriculture. Pest and damage record database. Accessed April 7, 2020:
https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

Hill, R. L., Markin, G. P., Gourlay, A. H., Fowler, S. V., and Yoshioka, E. 2001. Host range, release, and establishment of *Sericothrips staphylinus* Haliday (Thysanoptera: Thripidae) as a biological control agent for gorse, *Ulex europaeus* L. (Fabaceae), in New Zealand and Hawaii. Biological Control 21:63-74.

Ireson, J. E., Gourlay, A. H., Holloway, R. J., Chatterton, W. S., Foster, S. D., and Kwong, R. M. 2008. Host specificity, establishment and dispersal of the gorse thrips, *Sericothrips staphylinus* Haliday (Thysanoptera: Thripidae), a biological control agent for gorse, *Ulex europaeus* L. (Fabaceae), in Australia. Biological Control 45:460-471.

USDA-APHIS. Field release of the thrips *Sericothrips staphylinus* (Thysanoptera: Thripidae) for biological control of gorse, *Ulex europeaus* (Fabaceae), in the contiguous United States. Environmental Assessment, July 2019.

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Responsible Party:

Kyle Beucke, 2800 Gateway Oaks, Suite #200, Sacramento, CA, 95833, 916-403-6741, permits[@]cdfa.ca.gov

***Comment Period: 5/5/2020 through 6/19/2020**

***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.

Proposed Pest Rating: D