CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Proposal

Aceria salsolae de Lillo and Sobhian: Tumbleweed mite

Acari: Eriophyidae

Current Rating: Q

Proposed Rating: D

Comment Period:07/02/2026-08/16/2026

Initiating Event:

There is interest in releasing *Aceria salsolae* to control the weed *Salsola tragus* in California. A pest rating proposal is necessary before a release permit can be issued.

History & Status:

Background: *Aceria salsolae* is a free-living mite, i.e, in contrast to some Eriophyidae, it does not form galls. It is typically hidden in spaces in the leaf axils, flowers, or other structures of its host plant. Its only known host in nature is *Salsola tragus* (prickly Russian thistle, or tumbleweed) (Smith et al., 2009). *Salsola tragus* is a common and widespread noxious weed in California.

Laboratory and field experiments indicate, based on persistence on plants and observed impacts, that *A*. *salsolae* is highly host-specific. No impacts were observed on non-target (non-*Salsola*) plants (Smith et al., 2009; USDA, 2025a).

In field experiments involving six species of plants in the genera *Bassia* and *Salsola*, *A*. *salsolae* only caused visible damage to *Salsola tragus*. The results suggest this mite only reproduced significantly on *Salsola* species (Smith et al., 2009).

Host specificity testing by Smith (2006) involved 36 species of nontarget plants in five families: Chenopodiaceae, Amaranthaceae, Aizoaceae, Caryophyllaceae, and Nyctaginaceae. After four weeks, no live mites were found on any nontarget plants, whereas live mites were present on *Salsola* species and high numbers of mites were present on *S. tragus*. The infested *S. tragus* plants were smaller, which indicates that this mite impacted growth of that plant (Smith, 2006).

Based in part on the host specificity testing, the USDA-APHIS issued a Decision and finding of no significant impact for the release of *A. salsolae* in the Continental United States in August, 2025 (USDA-APHIS, 2025b).

Worldwide Distribution: *Aceria salsolae* is reported from the Mediterranean region of Europe, the Middle East, and Central Asia. It has only been found in nature on *Salsola tragus* (Smith et al., 2009).

Official Control: *Aceria salsolae* is not known to be under official control.

California Distribution: *Aceria salsolae* is not known to be present in California.

California Interceptions: *Aceria salsolae* has not been intercepted in California.

The risk *Aceria salsolae* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Aceria salsolae* feeds on *Salsola tragus*, a common weed that is widespread in California. It occurs in the Mediterranean. Therefore, it 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:** *Aceria salsolae* feeds on *Salsola tragus*. Experiments suggest it may be limited to plants in this genus. 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:** *Aceria salsolae* could be moved with infested plant parts. 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:** *Aceria salsolae* is not reported to have negative economic impacts. Based on experiments, it only has impacts to *Salsola*. Control of *Salsola tragus* would likely have economic benefits to California, for example, by decreasing costs of controlling this weed. 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 no native California plants in the genus *Salsola*. *Aceria salsolae* does not appear likely to have negative environmental impacts in California. It is likely to have positive environmental impacts through control of *Salsola*. Therefore, it 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

– 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 *Aceria salsolae*: 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:** *Aceria salsolae* 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 (8)

Uncertainty:

It is not feasible to completely test the host range of a phytophagous mite (or insect). Nevertheless, there appears to be low uncertainty regarding the potential for this mite to impact crops or native plants in California.

Conclusion and Rating Justification:

Aceria salsolae is unlikely to have any negative impacts in California. It appears likely to have positive impacts in the state through control of *Salsola tragus*. For these reasons, a “D” rating is justified.

References:

Smith, L. 2006. Enhanced biological control of yellow starthistle and tumbleweed (Russian thistle). Final report for the California Department of Transportation.

Smith, L., Cristoforo, M., de Lillo, E., Monfreda, R., and Paolini, A. 2009. Field assessment of host plant specificity and potential effectiveness of a prospective biological control agent, *Aceria salsolae*, of Russian thistle, Salsola tragus. Biological Control 48:237-243.

USDA-APHIS. 2025a. Field release of *Aceria salsolae* (Acari: Eriophyidae), a mite for biological control of Russian thistle (*Salsola tragus*), in the Contiguous United States. Environmental assessment.

USDA-APHIS. 2025b. Decision and Finding of No Significant Impact for the Field Release of *Aceria salsolae* (Acari: Eriophyidae), a Mite for Biological Control of Russian Thistle (*Salsola tragus*), in the Contiguous United States August 2025.

Responsible Party:

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***Comment Period: 07/02/2026-08/16/2026**

***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