

California Pest Rating Proposal
***Aspidiella hartii* (Cockerell): a scale**
Hemiptera: Diaspididae
Current Rating: Q
Proposed Rating: A

Comment Period: 4/15/2021 – 5/30/2021

Initiating Event:

Aspidiella hartii is occasionally intercepted in California on turmeric and yams from Ghana and unknown origins. It has not been rated. Therefore, a pest rating proposal is needed.

History & Status:

Background: The scale *Aspidiella hartii* is somewhat polyphagous and is reported to feed on plants in at least seven families. Hosts include: Convolvulaceae: *Ipomoea batatas* (sweet potato), Dioscoreaceae: *Dioscorea* spp. (yams); Araceae: *Colocasia* spp. (taro); Zingiberaceae: *Zingiber officinale* (ginger) and *Curcuma longa* (turmeric); Cyperaceae: *Cyperus odoratus*; Poaceae: *Tripsacum laxum*; and Melastomataceae: *Miconia robinsoniana* (Gomez, 1941; Loncango et al., 2010; Korada et al., 2010; ScaleNet). This scale is a pest of yams, ginger, and turmeric. It feeds on foliage as well as tubers and causes wilting and death of the plant and shriveling of stored tubers (for example, yams and ginger) (Korada et al., 2010; Patiram et al., 1995).

Worldwide Distribution: *Aspidiella hartii* is widespread and reported from Africa, the Caribbean, Central and South America, and Oceania (Waterhouse, 1997).

Official Control: : *Aspidiella hartii* is considered reportable by the United States Department of Agriculture (USDA site). It is considered a quarantine pest by Japan (Quarantine pest list (annexed table 1 of the Ordinance for Enforcement of the Plant Protection Act)).

California Distribution: *Aspidiella hartii* is not known to be established in California.

California Interceptions: *Aspidiella hartii* has been intercepted eight times on turmeric and yams from Ghana and unknown origins (California Department of Food and Agriculture).

The risk *Aspidiella hartii* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Aspidiella hartii* appears to be limited to areas with warmer climates, perhaps mostly tropical. The main economic hosts are not grown widely outdoors in California, but this scale is somewhat polyphagous and could find other hosts. 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:** *Aspidiella hartii* is reported to feed on at least eight families of plants. 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:** *Aspidiella hartii* is often present on infested plant material, including tubers harvested for consumption. The fact that it is a recognized pest of tubers in storage is further evidence that it is capable of surviving on harvested tubers. It could be moved on infested plant material. 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.** Known economic hosts of *Aspidiella hartii* are not grown outdoors in California on a large scale. It appears unlikely that this scale would have a significant impact on California crops. This scale is a quarantine pest in Japan, so its presence in California could lead to a loss of markets. Therefore, it receives a **Low (1)** in this category.

Economic Impact: C

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.** Some of the economic host plants of this scale are grown outdoors in California for personal use. Infestations of *A. hartii* could lead to private treatments. Therefore, *A. hartii* receives a **High (3)** in this category.

Environmental Impact: D, 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 *Aspidiella hartii*: Medium (10)

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:** *Aspidiella hartii* is not known to be established 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:

Aspidiella hartii may be able to feed on additional hosts in California. In that case, it could be a more significant economic pest here if it became established, although climate may limit its distribution. It is possible that it might not be capable of becoming established anywhere in California, or if it can establish, it may be very limited in distribution.

Conclusion and Rating Justification:

Aspidiella hartii is a scale that is moderately polyphagous and feeds on crops grown outdoors by California residents. It may be capable of feeding on additional plants in this state. It is considered a quarantine pest by Japan, and its presence in California could lead to loss of markets. It is not known to be in California. For these reasons, an “A” rating is justified.

References:

California Department of Food and Agriculture. Pest and damage record database. Accessed March 12, 2021:

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

Korada, R. R., Naskar, S. K., and Edison, S. 2010. Insect pests and their management in yam production and storage: A world review. *International Journal of Pest Management* 56:337-349.

Lincango, P., Hodgson, C., Causton, C., and Miller, D. 2010. An updated checklist of scale insects (Hemiptera: Coccoidea) of the Galapagos Islands, Ecuador. *Galapagos Research* 67:3-7.

Gómez-Menor Ortega, J. 1941. Cócidos de la República Dominicana (Hem. Cócc.) *Eos*:16:125-143.

Patiram, R., Upadhyaya, C., and Singh, L. N. 1995. An appraisal of ginger (*Zingiber officinale* Rosc.) production in Sikkim, India. *Journal of Spices & Aromatic Crops* 4:111-118.

Quarantine pest list (annexed table 1 of the Ordinance for Enforcement of the Plant Protection Act). Accessed March 15, 2021:

https://www.maff.go.jp/pps/j/law/houki/shorei/E_AnnexedTable1_from_20201111.html

Salerno, M., Mazzeo, G., Suma, P., Russo, A., Diana, L., Pellizari, G., and Porcelli, F. 2018. *Aspidiella hartii* (Cockerell 1895) (Hemiptera: Diaspididae) on yam (*Dioscorea* spp.) tubers: a new pest regularly entering the European part of the EPPO region. *Bulletin OEPP/EPPO Bulletin* 48:287-292.

Waterhouse, D. F. 1997. *The Major Invertebrate Pests and Weeds of Agriculture and Plantation Forestry in the Southern and Western Pacific*. The Australian Centre for International Agricultural Research, Canberra, Australia.

Responsible Party:

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

***Comment Period: 4/15/2021 – 5/30/2021**

*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](mailto: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: A