

California Pest Rating Proposal

***Solenopsis geminata* (Fabricius): Tropical fire ant**

Hymenoptera: Formicidae

Current Rating: Q

Proposed Rating: A

Comment Period: 01/30/2023 – 03/16/2023

Initiating Event:

Solenopsis geminata is frequently intercepted in California. This ant has been introduced widely and is reported to have agricultural and environmental impacts. It is not known to be present in California. A pest rating proposal is needed.

History & Status:

Background: Adult *Solenopsis geminata* are very similar in appearance to *S. invicta* (red imported fire ant). They nest in the ground, often around vegetation or under objects, such as rotting wood. The nests often have large piles of dirt (Smith, 1985). Multi-queen colonies are reported (Lenancker et al., 2019). Their foods include insects, snail eggs, grains, and other plant parts (Smith, 1985; Trager, 1991).

Solenopsis geminata was reported to destroy germinating soybeans (Kenfack et al., 2022). Besides direct damage to crops through feeding, this ant was also reported to chew holes in plastic irrigation tubes, damaging them (Chang and Ota, 1990 in Yates et al., 1994). It also tends aphids, which could allow them to be more problematic (Nipitwattanaphon et al., 2020).

Solenopsis geminata is reported to attack land tortoises and petrels (birds), and is considered “one of the most serious threats to the terrestrial fauna of Galápagos” (Wauters et al., 2014).

This ant is known to sting people (including farmers), including covering the feet and legs and stinging at the same time (Longino, 2005; Nipitwattanaphon et al., 2020). It is also reported to be common in human-inhabited areas (Longino, 2005).

On the other hand, *S. geminata* is reported to feed on some pests, including the eggs of banana weevil (*Cosmopolites sordidus*) and the eggs of the snail *Pomacea canaliculata*, a rice pest (Mollot et al., 2012; Yusa, 2001). It therefore may be providing a significant level of control of some pests.

Worldwide Distribution: *Solenopsis geminata* is apparently native to North, Central, and South America. **Africa:** tropical west Africa, including Côte d’Ivoire; **Asia:** India and Taiwan south to the Malay archipelago and Polynesia; **Caribbean:** West Indies; **Central America:** Costa Rica (and north?); **North America:** United States, Mexico (?) (from Texas to South Carolina and Florida; **Oceania:** Galápagos; **South America:** Brazil, Colombia, Peru (Kouakou et al., 2014; Smith, 1985; Trager, 1991; Wauters et al., 2014; Wetterer, 2011).

Official Control: *Solenopsis geminata* is not known to be under official control.

California Distribution: *Solenopsis geminata* is not known to be in California.

California Interceptions: *Solenopsis geminata* is intercepted frequently in California on various articles, including nursery stock and vegetables (California Department of Food and Agriculture).

The risk *Solenopsis geminata* poses to California is evaluated below.

Consequences of Introduction:

- 1) **Climate/Host Interaction:** *Solenopsis geminata* is a generalist and would likely find suitable foods over most of California. The known distribution of this pest suggests that it may require a warm, humid climate. Therefore, *S. geminata* 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:** *Solenopsis geminata* is a generalist and feeds on a wide variety of plant and animal materials. Therefore, it receives a **High (3)** 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:** *Solenopsis geminata* has been introduced widely, presumably as a hitchhiker on various articles. The reproductives fly. 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.** This ant tends plant-feeding insects. If it became established in California, it could lead to increased impacts from certain plant pests or make it more difficult to control such pests. This ant is reported to attack vertebrates, so it is possible that it may injure agriculturally-important animals that are in infested areas. It also stings humans. It is reported to damage

plastic irrigation tubes. It has also been considered a biological control agent, so it is possible that it could help control certain pests in the state as well. Therefore, it receives a **High (3)** in this category.

Economic Impact: A, B, D, F, G

- 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: High

- 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.** *Solenopsis geminata* is reported to attack animals. It may also exclude other ant species in areas it has invaded. Infestations could impact the use of gardens and yards by residents and may trigger treatments in agricultural or residential areas. Therefore, *S. geminata* receives a **High (3)** in this category.

Environmental Impact: A, 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 *Solenopsis geminata*: High (13)

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:** *Solenopsis geminata* 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: High (13)

Uncertainty:

Solenopsis geminata may be established in California. It is similar to *S. invicta*, which is present in the state. This ant has been introduced widely across the world, and yet it appears to be mostly limited to warm, humid areas. This suggests that much of California may not be suitable for the species, except for possibly irrigated agricultural and residential areas in milder areas of the state.

Conclusion and Rating Justification:

Although it may be unlikely to establish over more than a small portion of the state, *Solenopsis geminata* is an ant that poses a threat to agriculture, environment, and people of California. It is not known to be present here. For these reasons, an “A” rating is justified.

References:

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Responsible Party:

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***Comment Period: 01/30/2023 – 03/16/2023**

***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