CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile for

Cryptotermes brevis (Walker): West Indian drywood termite

Isoptera: Kalotermitidae

Pest Rating: A

Comment Period: 04/07/2025 – 05/22/2025

Initiating Event:

This termite, which is not known to be established in California, was found in a residence in San Diego County. It has not been rated. A pest rating proposal is needed.

History & Status:

Background:

Cryptotermes brevis is a wood-feeding pest and is reported to generally be restricted to human structures and furniture (e.g., Scheffrahn and Krecek, 1999, reported all samples collected from the West Indies were from buildings) and only rarely being reported from the environment (McMahan, 1962; Messenger et al., 2002). This termite tunnels in and feeds on wood and it produces water through metabolic processes (Gordon et al., 2020). Besides causing severe damage to wooden structures (old, historic buildings are especially vulnerable, for example, an 18th-century church in Brazil), the swarming alates and the wings they leave are a nuisance (Nunes, 2008; Rede, 2017; Scheffrahn et al., 1988). In Florida and Hawaii, it was reported by Gordon et al. (2020) that nearly all structural fumigation was for the control of *C. brevis*.

Cryptotermes brevis is known from the environment in the deserts of coastal Chile and Peru, where it is thought to be native. It has been found there in (mostly in dead wood on living trees) *Geoffroea*

decorticans, *Salix humboldtiana*, *Prosopis* sp., *Acacia* spp., *Arundo donax*, *Baccharis* sp., *Inga feuillei*, *Punica granatum*, *Schinus terebinthifolia*, *Tipuana tipu*, *Eucalyptus globulus*, *Agave* sp., *Vitis vinifera*, *Prunus persica*, *Prunus armeniaca*, *Ficus elastica*, *Hibiscus rosa-sinensis*, and *Pyrus communis* (Scheffrahn et al., 2009).

Worldwide Distribution: *Cryptotermes brevis* is reported from (assumed to be indoors unless indicated): **Africa:** Morocco; **Caribbean:** Widespread, including Bahamas, Cuba, Dominican Republic, Jamaica, and Puerto Rico; **Central America:** Belize, Costa Rica, Honduras, Nicaragua; **Europe:** Portugal, Spain; **North America:** United States (southeastern United States, including Florida, Louisiana, and Texas); **Oceania:** Australia, Hawaii; **South America:** Widespread, including Brazil, Chile (outdoors), Peru (outdoors) (Bobadilla et al., 2020; Gordon et al., 2020; McMahan, 1962; McDonald et al., 2022; Messenger et al., 2002; Najjari et al., 2023; Nunes, 2008).

Official Control: *Cryptotermes brevis* is considered a quarantine pest in China (EPPO global database).

California Distribution: *Cryptotermes brevis* was found in one residence in California. It is not known to be established in the state outside of that residence.

California Interceptions: *Cryptotermes brevis* has been intercepted in California, including with pallets (California Department of Food and Agriculture).

The risk *Cryptotermes brevis* poses to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** *Cryptotermes brevis* feeds on dry wood of many different tree species and is primarily found in buildings. Its widespread distribution includes areas with a

Mediterranean climate. This termite is probably capable of establishing over much of the state of California. 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:** *Cryptotermes brevis* feeds on wood from a wide variety of trees. 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:** *Cryptotermes brevis* could be moved with infested wood, and its widespread distribution (apparently mostly reflecting human-aided introduction) suggests this is a common occurrence. 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**. *Cryptotermes brevis* is reported to be an important termite pest of wood. Besides being an important structural pest, it could affect biomass yield and timber, and it is a quarantine pest in China. Therefore, it receives a **Medium (2)** in this category.

Economic Impact: A, 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: Medium

– 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**. *Cryptotermes brevis* could trigger treatments in structures to control infestations. Therefore, this termite receives a **Medium (2)** in this category.

Environmental Impact: D

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 (2)

– 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 *Cryptotermes brevis*: Medium (12)

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:** *Cryptotermes brevis* was found in one residence in San Diego County. 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 (11)

Uncertainty:

There is little or no uncertainty regarding the suitability of the climate of California for *C. brevis*; the climate of much of the state, perhaps except for the high mountains, is likely very suitable. There is uncertainty regarding the distribution of this termite in California. There is also uncertainty regarding the pest significance of this termite in the state, primarily, the degree to which the termite problem will change if it becomes widely established; presumably, this will, in part, depend on building and structural pest control practices.

Conclusion and Rating Justification:

Cryptotermes brevis is a termite that has the potential to cause significant impacts to structures, and possibly biomass, in California. It is not known to be established in the state outside of one residence in San Diego County. For these reasons, an "A" rating is justified.

References:

Bobadilla, I., Martínez, R. D., Martínez-Ramírez, M., and Arriaga, F. 2020. Identification of *Cryptotermes brevis* (Walker, 1853) and *Kalotermes flavicollis* (Fabricius, 1793) termite species by detritus analysis. Forests http://dx.doi.org/10.3390/f11040408

California Department of Food and Agriculture. Pest and damage record database. Accessed January 24, 2025:
https://pdr.cdfa.ca.gov/PDR/pdrmainmenu.aspx

EPPO global database. Accessed January 24, 2025:
https://gd.eppo.int/taxon/EUTEOR

Gordon, J. M., Scheffrahn, R. H., and Su, N. -Y. 2020. West Indian drywood termite *Cryptotermes brevis* (Walker) (Insecta: Isoptera: Kalotermitidae). Accessed March 17, 2025:
https://edis.ifas.ufl.edu/publication/IN236

McMahan, E. 1962. Laboratory studies of colony establishment and development in *Cryptotermes brevis* (Walker) (Isoptera: Kalotermitidae). Proceedings of the Hawaiian Entomological Society 18:145-153.

McDonald, J., Fitzgerald, C., Hassan, B., and Morrell, J. 2022. Non-destructive detection of an invasive drywood termite, *Cryptotermes brevis* (Blattodea: Kalotermitidae), in timber. Sociobiology DOI: 10.13102/sociobiology.v69i4.7881

Messenger, M. T., Su, N. -Y., and Scheffrahn, R. H. 2002. Current distribution of the Formosan subterranean termite and other termite species (Isoptera: Rhinotermitidae, Kalotermitidae) in Louisiana. Florida Entomologist 85:580-587.

Najjari, A., Taheri, A., Hernández-Teixidor, D., and Wetterer, J. K. 2023. First outdoor records in the Old World of the invasive drywood termite, *Cryptotermes brevis* (Walker, 1853) (Kalotermitidae). Journal of Applied Entomology DOI: 10.1111/jen.13156

Nunes, L. 2008. Termite infestation risk in Portuguese historic buildings. pp. 117-122 in Joseph Gril (edited by), Wood Science for Conservation of Cultural Heritage –Braga 2008: Proceedings of the International Conference held by COST Action IE0601 (Braga – Portugal

Rede, 2017. *Cryptotermes brevis* (Isoptera: Kalotermitidae) control methodology on a historic baroque church. pp. 381-383 in Matthew P. Davies, Carolin Pfeiffer, and William H Robinson (editors) Proceedings of the Ninth International Conference on Urban Pests.

Scheffrahn, R. H. and Krecek, J. 1999. Termites of the genus *Cryptotermes* Banks (Isoptera: Kalotermitidae) from the West Indies. Insecta Mundi 13:111-171.

Scheffrahn, R. H., Křeček, J., Ripa, R., and Luppichini, P. 2009. Endemic origin and vast anthropogenic dispersal of the West Indian drywood termite. Biological Invasions 11:787-799.

Scheffrahn, R. H., Mangold, J. R., and Su, N. -Y. 1988. A survey of structure-infesting termites of peninsular Florida. The Florida Entomologist 71:615-630.

Responsible Party:

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***Comment Period: 04/07/2025 – 05/22/2025**

***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.

Pest Rating: A