

A False Spider Mite, *Brevipalpus californicus* (Banks) (Archnida: Acari: Tenuipalpidae)¹

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Introduction

Brevipalpus californicus (Banks), sometimes called the "omnivorous mite" in the U.S., has an extensive host range and may cause economic damage, depending on the host. Mites in the family Tenuipalpidae are called false spider mites (they do not spin a web) or flat mites.



Figure 1. Adult false spider mite, *Brevipalpus* sp. Credits: Rayanne Lehman, Pennsylvania Department of Agriculture, www.forestryimages.org

Synonymy

Hystripalpus californicus Mitrofanov & Strunkova, 1979

Brevipalpus australis Baker, 1949

Brevipalpus browningi Baker, 1949

Brevipalpus confusis Baker, 1949

Brevipalpus woglumi McGregor, 1949

Tenuipalpus vitis Womersley, 1940

Tenuipalpus australis Tucker, 1926

Tenuipalpus californicus Banks, 1904

(from Crop Protection Compendium)

Banks (1904) described this mite as *Tenuipalpus californicus* from specimens collected at Redlands, California, feeding on oranges. McGregor (1949) placed it in the genus *Brevipalpus*.

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Distribution

Brevipalpus californicus has been reported from Algeria, Angola, Australia (as "bunch mite"), Brazil (São Paulo), Congo, Cyprus, Egypt, European Union, French Guiana, Greece (including Crete), India, Israel, Italy (including Sicily), Japan (Ryukyu Islands), Libya, Malaysia (Peninsular), Mauritania, Mexico, Mozambique, Nepal, Papua New Guinea, Portugal, Senegal, Sri Lanka, South Africa, Thailand, United States, Zimbabwe (EPPO).

In the U.S. it is reported from Arizona, California, Florida, Hawaii, Kansas, Louisiana, Maryland, and Texas. In Florida it has been reported from the following counties: Alachua, Baker, Brevard, Dade, Duval, Hillsborough, Indian River, Jefferson, Martin, Orange, Palm Beach, Pinellas, Polk, Putnam, Sarasota, Seminole, and Volusia.

Description

The female is 228 microns long. It is reddish in immature specimens and rufous amber in adults. The body shape from above is ovate-sagittate with the width approximately 2/3 that of the length. The dorsal cuticular surface of body is conspicuously reticulated.

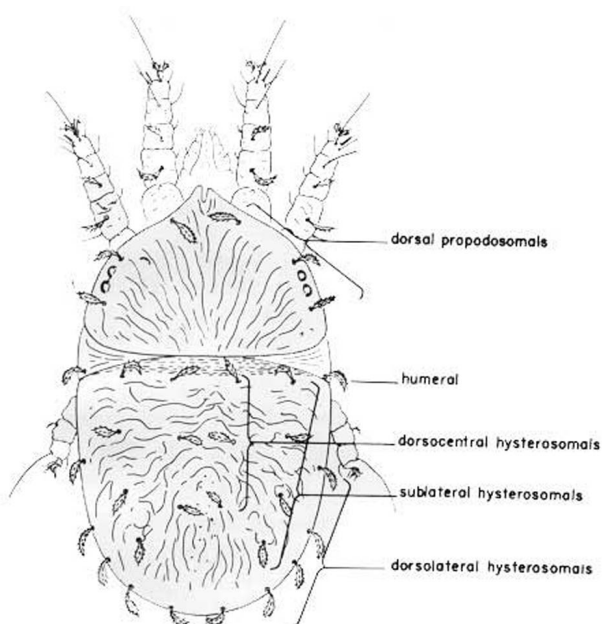


Figure 2. Dorsal view of a typical female false spider mite, *Brevipalpus* sp. Credits: Division of Plant Industry (After Baker)

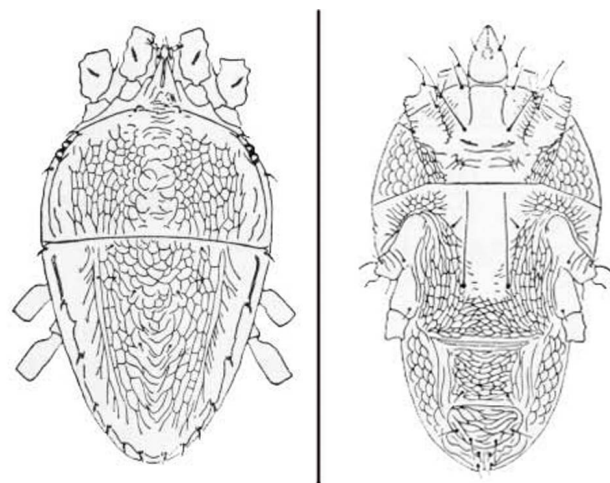


Figure 3. Dorsal (left) and ventral (right) views of female false spider mite, *Brevipalpus californicus* (Banks). Credits: Division of Plant Industry (After Baker)

The areolae on cephalothorax laterad of mandibular plate is about 1/3 longer than wide. Dorsally, the cephalothorax bears three pairs of rather weak setae; one pair at anterior margin between coxae 1, one pair just in front of and one pair just behind eyes.

Abdomen bears 20 very weak setae dorsally: 7 along each lateral margin from the main suture back to the caudal tip; 3 submedian pairs, the first near the main suture, the 2nd and 3rd pairs opposite the 2nd and 3rd marginal setae, respectively. All dorsal setae appear to be simple, unpectinate, and unserrate.

A pair of dusky-bordered pores open dorsally on the abdomen a short distance behind the main suture. The legs are short, stout, and the posterior pair barely reaches beyond the tip of abdomen.

Hosts

The following genera contain one or more species of host plants:

Acacia, *Acer*, *Acineta*, *Allamanda*, *Anguloa*, *Anthurium*, *Antidesma*, *Aphelandra*, *Bletia*, *Brassia*, *Callicarpa*, *Callistemon*, *Calycanthus*, *Catasetum*, *Citrus*, *Clausena*, *Clerodendrum*, *Cocos*, *Codiaeum*, *Columnnea*, *Cordia*, *Cupressus*, *Crescentia*, *Croton*, *Dendrobium*, *Dodonaea*, *Dolichos*, *Epidendrum*, *Euphorbia*, *Ficus*, *Flacourtia*, *Flaveria*, *Gardenia*, *Gongor*, *Hibiscus*, *Houletia*, *Howea*, *Ilex*, *Jacaranda*, *Ligustrum*, *Liquidambar*, *Lycaste*, *Magnolia*, *Malus*,

Melia, *Odontoglossum*, *Peristeria*, *Persea*, *Pilea*,
Podocarpus, *Poinsettia*, *Rhododendron*, *Sida*,
Solanum, *Stantropea*, *Tabebuia*, *Thea*, *Thunbergia*,
Trevesia, *Trichophila*, *Vitis*, *Wisteria*.

Economic Importance

Brevipalpus mites inject toxic saliva into fruits, leaves, stems, twigs, and bud tissues of numerous plants including citrus. Feeding injury symptoms on selected plants include: chlorosis, blistering, bronzing, or necrotic areas on leaves (Childers et al. 2003). Injury to *Pittosporum* sp. is shown below.



Figure 4. Injury to pittosporum leaf caused by false spider mite, *Brevipalpus* sp. Credits: Division of Plant Industry

Stunting of leaves and the development of *Brevipalpus* galls on terminal buds were recorded on sour orange, *Citrus aurantium* L., seedlings heavily infested with *B. californicus* in an insectary (Childers et al. 2003).

Several mites in the genus *Brevipalpus* may transmit the citrus leprosis virus, but only has been experimentally confirmed to transmit the virus. However, *B. californicus* and *B. obovatus* also are suspected transmitters. (USDA 2004).

Citrus leprosis causes yield reduction and eventual death of the trees if its mite vectors are not controlled. Citrus leprosis, while not currently a problem in the U.S., substantially damaged Florida's orange crop in the early 20th century but was eradicated in the mid-1920s. However, it is slowly progressing northward from its outbreak epicenter in South America (USDA 2004).

Survey and Detection

Look for necrotic areas on the underside of leaves and the presence of white molt skins or reddish, flat mites that move slowly when disturbed.

Management

In the past, sulfur was used as a control method for *Brevipalpus* spp. in Florida, but the use of sulfur in today's management programs should be minimized given its toxic effects on beneficial arthropods (Childers et al. 2005).

- Florida Citrus Pest Management Guide: rust mites, spider mites, and other phytophagous mites (<http://edis.ifas.ufl.edu/CG002>)
- Mites, Privet (Acari: Tenuipalpidae (false spider mites)) control measures available to commercial flower producers in Florida (http://edis.ifas.ufl.edu/IN398#TABLE_15)

Selected References

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