

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

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The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.

Introduction

Brevipalpus californicus (Banks), sometimes called the omnivorous mite in the United States, 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.

Synonymy

Hystripalpus californicus Mitrofanov & Strunkova, 1979

Brevipalpus australis Baker, 1949

Brevipalpus browningi Baker, 1949

Brevipalpus confusus 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*.

Distribution

Brevipalpus californicus has been reported from Algeria, Angola, Australia (as “bunch mite”), Brazil (São Paulo), Congo, Cyprus, Egypt, the European Union, French

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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, the United States, and Zimbabwe (EPPO).

In the United States, 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. Immature specimens are reddish and adults are rufous amber. The body shape from above is ovate-sagittate with the width approximately $\frac{2}{3}$ that of the length. The dorsal cuticular surface of the body is conspicuously reticulated.

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

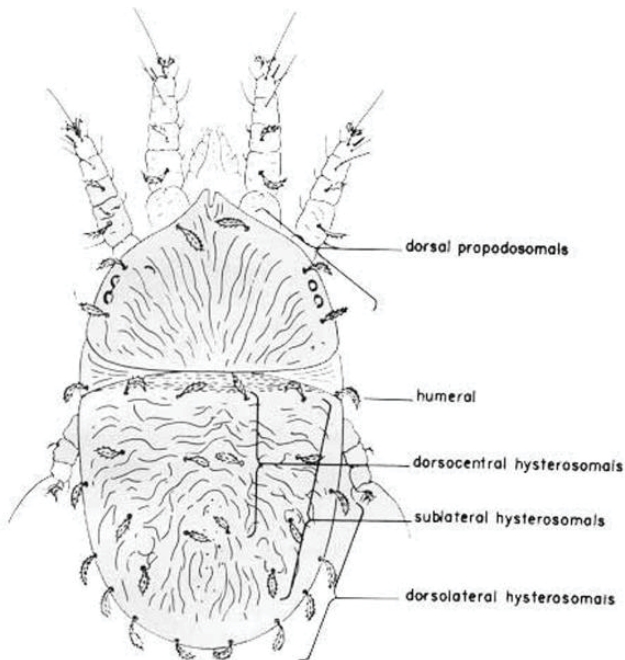


Figure 2. Dorsal view of a typical female false spider mite, *Brevipalpus* sp.

The abdomen bears 20 very weak setae dorsally: seven along each lateral margin from the main suture back to the caudal tip; three submedian pairs, the first near the main suture and the second and third pairs opposite the second and third marginal setae, respectively. All dorsal setae appear to be simple, unpectinate, and unserrate.

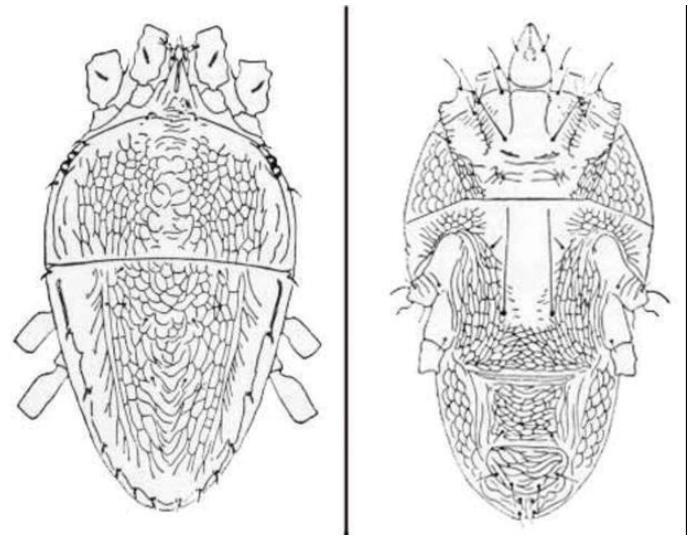


Figure 3. Dorsal (left) and ventral (right) views of female false spider mite, *Brevipalpus californicus* (Banks).

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

Hosts

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

Acacia, *Acer*, *Acineta*, *Allamanda*, *Anguloa*, *Anthurium*, *Antidesma*, *Aphelandra*, *Bletia*, *Brassia*, *Callicarpa*, *Calolistemon*, *Calycanthus*, *Catasetum*, *Citrus*, *Clausena*, *Clerodendrum*, *Cocos*, *Codiaeum*, *Columnnea*, *Cordia*, *Cupressus*, *Crescentia*, *Croton*, *Dendrobium*, *Dodonaea*, *Dolichos*, *Epidendrum*, *Euphorbia*, *Ficus*, *Flacourtia*, *Flaveria*, *Gardenia*, *Gongor*, *Hibiscus*, *Houlletia*, *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*, and *Wisteria*.

Economic Importance

Brevipalpus mites inject toxic saliva into fruits, leaves, stems, twigs, and bud tissues of numerous plant species, 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.

Stunting of leaves and the development of *Brevipalpus* galls on terminal buds were recorded on sour orange seedlings, *Citrus aurantium* L., seedlings heavily infested

with *Brevipalpus californicus* in an insectary (Childers et al. 2003).

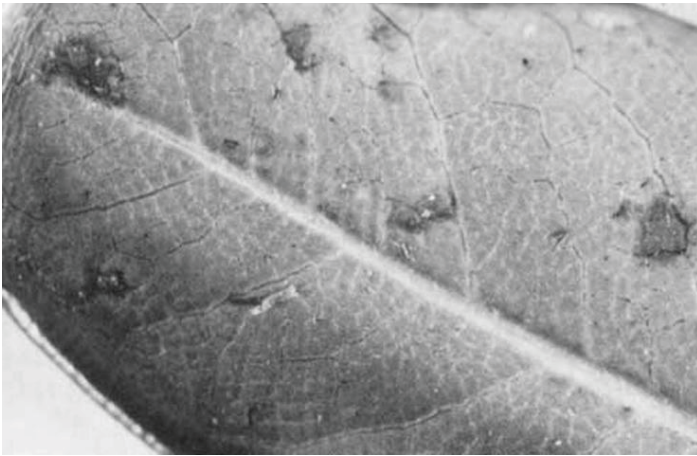


Figure 4. Injury to *Pittosporum* leaf caused by false spider mite, *Brevipalpus* sp.

Several mites in the genus *Brevipalpus* may transmit the Citrus leprosis virus (CiLV), but only *Brevipalpus californicus* has been experimentally confirmed to transmit the virus. However, *Brevipalpus californicus* and *Brevipalpus 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 United States, substantially damaged Florida's orange crop in the early 20th century but was eradicated in the mid-1920s. However, it has been 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 molted 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. The use of sulfur in today's management programs should be minimized given its toxic effects on beneficial arthropods (Childers et al. 2005).

- See [Florida Citrus Pest Management Guide: Rust Mites, Spider Mites, and Other Phytophagous Mites](#) for more information.

Selected References

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