AN ERIOPHYID *TEGOLOPHUS PERSEAFLORAE* (ACARI:ERIOPHYIDAE) NEW TO FLORIDA AND THE USA

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Keifer (1969) described an eriophyid mite *Tegolophus perseaflorae* sent to him by C. W. Fletchman collected from *Persea gratissima* from Recife, Pernambuco, Brazil. Dr. Fletchman reported this mite caused flower damage and decreased fruit production. In 1977, Dr. R. Baranowski (UF/TREC, Homestead, FL) collected this mite in the bud of avocado, *Persea americana* Miller, at Irupana, Bolivia.

In May 1991, excessive flower drop and fruit deformation was observed in avocado trees in the vicinity of Homestead, Dade Co., Florida. In a preliminary survey, an avocado orchard was sampled in May of 1991. Sampling consisted of collections of ten floral clusters, fruitlets and buds from each of 10 trees. *Tegolophus perseaflorae* were collected from buds and fruits. The mites were observed feeding on buds, causing necrotic spots on apical leaves, and subcircular, irregular openings on mature leaves. Mites were also found in petioles, the underside of leaves and fruitlets (Fig. 1) The mite is also reported to feed on the peduncle, calyx and stylar area (Medina et al. 1978, Jeppson et al. 1975). Feeding by this mite on fruitlets may cause fruit deformation and discoloration.

A preliminary survey was initiated in June 1991 through May 1992 to determine the relative frequency of *T. perseaflorae* on fruits, leaves and flowers. Initially, ten fruits, buds, and flower clusters were collected twice a month from each orchard. They were placed in an ice chest (about 10°C) and transported to the laboratory where the mites were counted. Voucher specimens were identified by the junior author. A total of 508 *T. perseaflorae* were collected from leaf buds and fruitlets. A significant difference in frequency of mites was observed between buds and fruits [Chi-square 0.05 (1) = 3.84]. More mites were observed on the buds ($x \pm SE = 5.85 \pm 1.06$) than in fruits (2.29 ± 0.72). Population peaks (18 - 35 mites per bud) were observed from March to May 1992. These warm dry months correspond with blooming and fruit formation on avocado in the area. No mites were observed on flowers, fruits or leaves from June through February. The above accounts would imply that warm weather is most favorable for this eriophyid and that the presence of developing avocado plant organs might influence its development.

Description. (See Figs. 2 - 7.) Adult females are 155-170 μ long, about 37 μ thick, abdominal thanosome with about 55-60 rings; rostrum 20 μ long, curved down, shield design not clear; forelegs 24 μ long; tibia 5 μ long, tarsus 4.5 μ, and claw 5.5 μ long; featherclaw 5-rayed; lateral sets 18 μ long on about 5-7 behind the shield; first ventral seta 38 μ long on ring 20, second ventral seta 31 μ long on ring 36. Telesome with 5-6 rings, the granules fine. Accessory seta 3 μ long. Female genitalia 19 μ wide, 12 μ long, covering flap with about 18 close-set longitudinal ribs; genital seta 13 μ long.

The presence of this mite in Florida represents another piece in the "puzzle" in the continuous appearance of neotropical pests in this state. Since, avocado grafting material is often transported by commerce, it may be that *T. perseaflorae* is an immigrant species that was introduced in Florida, unintentionally, by human transport.

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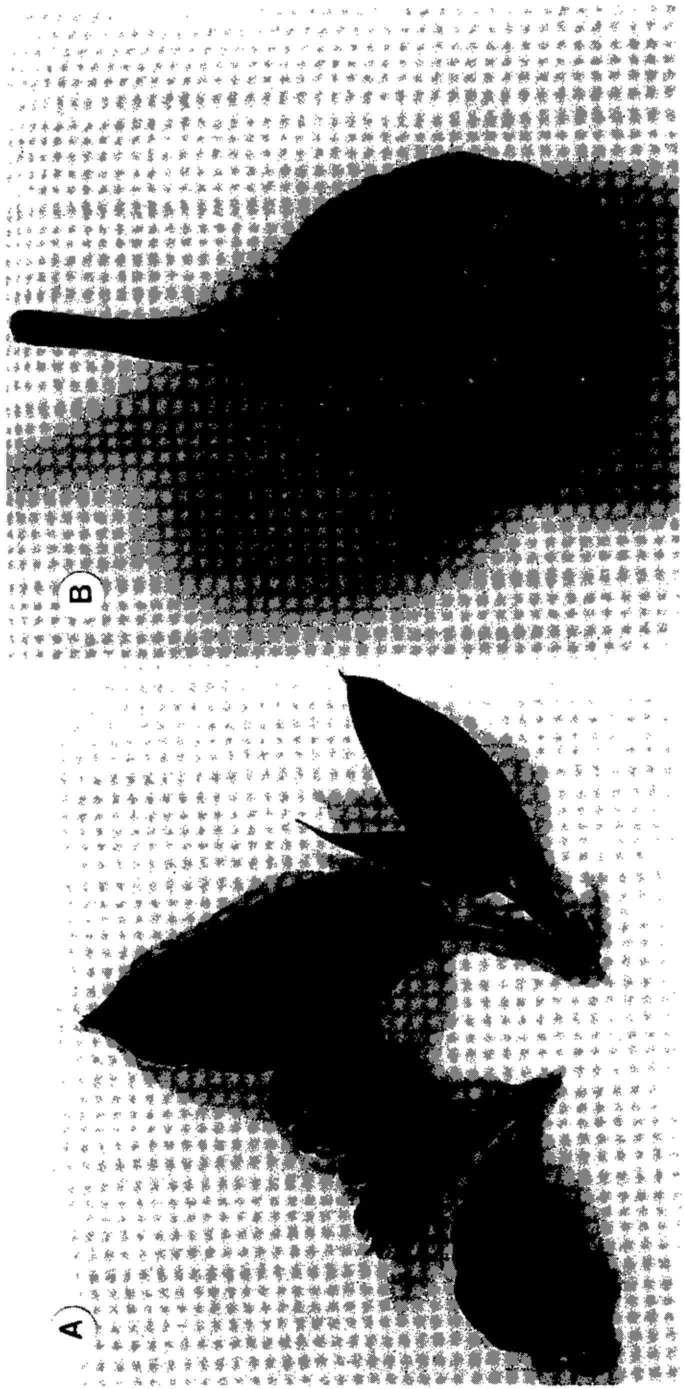
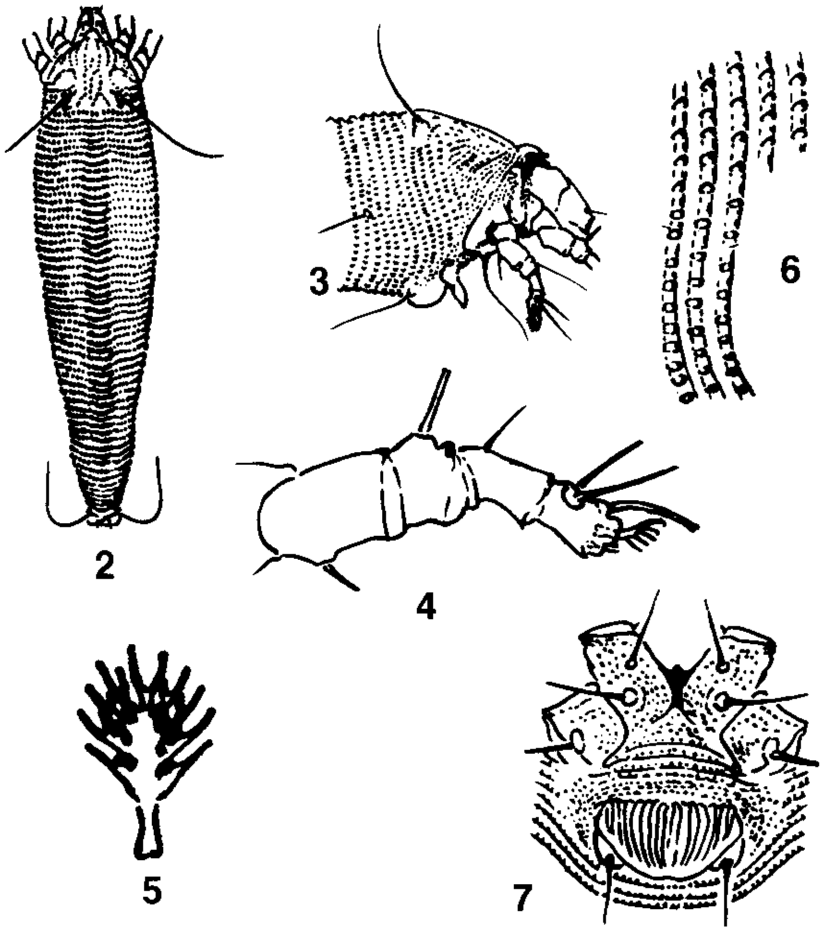


Figure 1. *Tegolophus perseaflorae* damage to buds (A) and fruit (B).



Figures 2 - 7. Adult female *Tegolophus perseaflorae* (2), side of anterior section(3), left foreleg (4), featherclaw (5), lateral rings and microtubercles on thanosome (6), female genital structures and coxae (7) (after Keiffer).

SUMMARY

The status, damage and description of *Tegolophus perseaflorae* Keifer, a newly introduced mite into southern Florida, are discussed.

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TEN YEAR PERSISTENCE OF A NON-AUGMENTED POPULATION OF THE BROWNBANDED COCKROACH (ORTHOPTERA: BLATTELLIDAE) PARASITOID, *COMPERIA MERCETI* (HYMENOPTERA: ENCYRTIDAE)

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The oothecal parasitoid *Comperia merceti* (Compere) has been used as a biological control agent against the brownbanded cockroach, *Supella longipalpa* (F.) (Orthoptera: Blattellidae), in environments where pesticide use is undesirable (Slater *et al.* 1980). In an experimental study of brownbanded cockroach populations, Coler *et al.* (1984) released *C. merceti* in 1978 in two insect rearing rooms at the University of Massachusetts at Amherst. In one room, cockroach populations were augmented during the study by provision of food. Parasitism at that site increased as the brownbanded cockroach population density increased, followed by the collapse of the cockroach population (Coler *et al.* 1984). After the end of the Coler *et al.* study in 1983, no further parasitoid releases were made in the building in which these rearing rooms were located. This note reports the status of the parasitoid populations in 1993 at the two sites used by Coler *et al.* (1984), fifteen years after the initial release and ten years after the last parasitoid release. Insect rearing has been conducted continuously in these same rearing rooms with little change since the initial parasitoid releases. In this note we demonstrate the ability of this parasitoid to persist under such conditions without augmentation for long periods and to cause high levels of mortality to host oothecae.

On 8 and 22 November, 1993, *S. longipalpa* oothecae were collected from each of the two insect rearing rooms used in the Coler *et al.* study. These rooms were of moderate size (39.8 m^3 and 35.7 m^3) with loose construction providing cockroach harborage. Rooms were searched thoroughly for oothecae; search areas included walls, shelving, molding, along electrical conduits, inside light timing boxes, and the underside of tables. Oothecae inside electrical conduits, in deep wall cracks, or around insect rearing cages could not be retrieved. All oothecae (both currently live oothecae and older, emerged or dead ones) encountered in accessible areas were collected and examined for parasitism. Most oothecae contained neither live cockroaches nor parasitoid stages, but rather were oothecae which had either died, or from which cockroaches or parasitoids had previously emerged. These oothecae were probably no more than two to three years old, as the rearing rooms are periodically repainted. In the laboratory, all oothecae were examined under a stereoscope for either wasp emergence holes or the oviposition stalks present on the surface of parasitized oothecae. Oothecae from which cockroach nymphs had emerged were easily identified by opening the oothecae and observing the remnants of hatched eggs. Oothecae from which neither cockroaches nor wasps emerged were held for 60-70 days and those producing either cockroach nymphs or parasitoids recorded. Oothecae from which no emergence occurred were dissected. Of the 556 oothecae collect, only three were classified as having died, with nothing emerged. The remaining oothecae all resulted in emergence of hosts or parasitoids, either in the field prior to collection, or during rearing.

As a separate measure of parasitism, oothecae from a laboratory colony were exposed at one study site as "trap hosts" for a 14 day period (22 November-6 December, 1993). Trap host oothecae were evenly distributed on walls and shelving. These oothecae were then recovered and reared to determine the rate of parasitoid attack during