

**DISCOVERY OF *CENOPALPUS PULCHER* (C. & F.)
(ACARI: TENUIPALPIDAE) IN THE NEW WORLD**

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Abstract.—A new exotic mite species, *Cenopalpus pulcher* (Camestrini and Fanzago), the flat scarlet mite, is reported in Benton and Linn counties, Oregon, USA infesting both apples and pears. This is the first published record of the genus *Cenopalpus* in the New World. *Cenopalpus pulcher* is a pest of pome and stone fruits in the Old World. Based on a 1990 collection and current surveys, it now appears that it is well established in the indicated area. *Cenopalpus pulcher* is an invasive species capable of spreading into new areas by its own means or as a passive contaminant of plant materials transported across geographical regions.

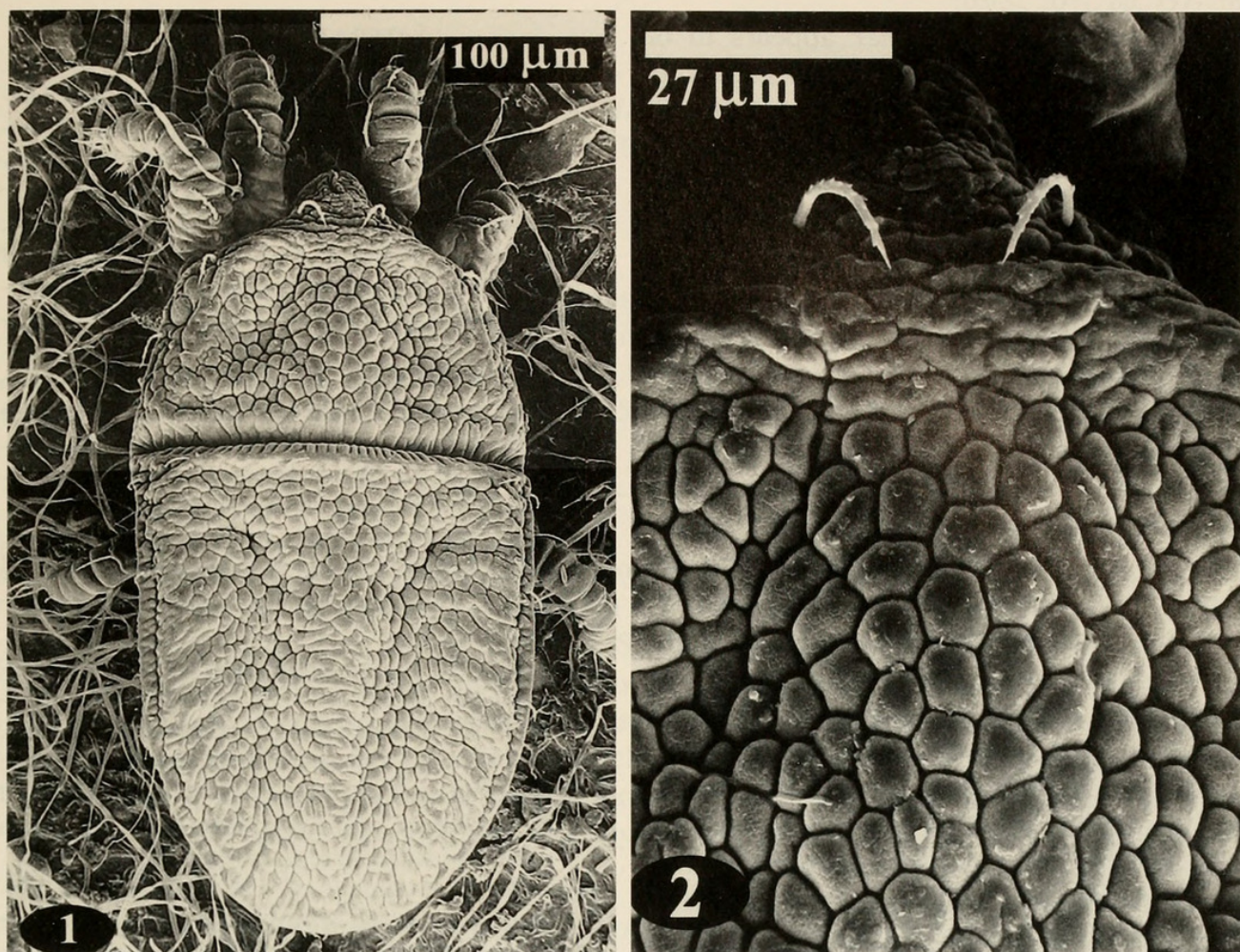
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Members of the false spider mite genus *Cenopalpus* Pritchard and Baker (*Brevipalpus spinosus* Donnadieu species group of Meyer 1979) feed on a variety of plant hosts in Europe, Asia, and Africa, but have never been recorded from the New World.¹ Recently, we collected a tenuipalpid mite species from pear and apple foliage and bark in Benton and Linn counties, Oregon, USA. GWK identified it as the flat scarlet mite, *Cenopalpus pulcher* (C. & F.), a recognized pest of pome and stone fruits in the Old World. The identification was confirmed by the Systematic Entomology Laboratory, USDA, Beltsville, Maryland, based on low temperature scanning microscope (LT-SEM) photographic analysis as de-

scribed by Wergin et al. (2000). The voucher specimens are preserved in the Oregon State Arthropod Collection, Corvallis. Based on 1990–1994 collections taken from apple leaves in Corvallis by the senior author, it now appears that *C. pulcher* has been established in the Willamette Valley of western Oregon for at least 10 years.

A brief account of the morphology, biology, and ecology of *C. pulcher* is presented by Jeppson et al. (1975). *Cenopalpus pulcher* is small, broadly rounded, and scarlet in color (Fig. 1). Females are about 320 μm long and 160 μm wide. The male is shorter and paler than the female. The eggs are bright red, oval, and about 70 μm by 110 μm . The propodosoma of *C. pulcher* is evenly reticulate dorsomedially (Fig. 2), and the hysterosoma possesses 6 pairs of dorsolateral setae and a pair of dorsosub-lateral setae. The dorsal body setae are tapering and setiform, and the rostrum is short and does not reach the end of femur

¹ However, Dr. Ronald Ochoa, USDA, ARS, Beltsville, MD, reports that two females of *C. pulcher* were collected from apple in Rio Negro-Cinco Saltos, Argentina, in February 1982, and that immature specimens were identified from the same site two months later.



Figs. 1–2. *Cenopalpus pulcher*, scanning electron micrographs of adult female. 1, Dorsal view; on an apple leaf. 2, Detail of diagnostic reticulations on propodosoma.

I. The mite feeds on the leaves, soft twigs, and fruit of apple, pear, peach, apricot, quince, plum, and cherry, and is also found on rose, walnut, cotoneaster, dogwood, and willow. Depending on climatic conditions, *C. pulcher* may go through 1–3 generations/year. The adult fertilized females overwinter in bark crevices and under bud scales of their host plants, usually in groups of 3–9 individuals. According to Sepasgossarian (1970), overwintering females can survive temperatures as low as -30°C . The first eggs are produced in early spring on the tree bark, but later generations place their eggs on the leaf undersurface near the midrib. Mating occurs late in the summer.

Cenopalpus pulcher is widely distributed in Europe, the Middle East, Central Asia, and North Africa (Pritchard and Baker 1958, Jeppson et al. 1975, Lattin and Oman

1983, El-Halawany et al. 1990), where populations may be regulated by natural enemies including the predatory phytoseiid mites *Amblyseius gossipi* Elbadry, *Phytoseius finitimus* Ribaga, and *Typhlodromus negevi* (Swirski and Amitai), and by the stigmatid mite *Agistemus exsertus* Gonzalez (El-Tawab et al. 1971; El-Laithy and Fouly 1998; Rasmy et al. 1991a, 1991b). None of these predators is known to occur in Oregon, or in the USA. Co-occurrence of *C. pulcher* with predatory mite species found in pome and stone fruit trees in Oregon is discussed by Bajwa (1996), who found the phytoseiids *Typhlodromus pyri* Scheuten, *Amblyseius andersoni* Chant, *Kampimodromus abberans* (Oudemans), and the stigmatid *Zetzellia mali* (Ewing) associated with *C. pulcher* colonies. However, predation was not observed.

The fact that *C. pulcher* appears to be well established in the Corvallis area suggests that the mite is sufficiently mobile and invasive to spread within and between orchards. In addition, the quiescent, sequestered overwintering females are ideally adapted for long range passive dispersal in shipments of vegetative plant material. Thus, the distribution of *C. pulcher* may well include other locales in the state of Oregon and beyond. Results of our preliminary surveys show that *C. pulcher* is a predominant faunal component in various pear varieties under study by the senior author in Corvallis. It is possible that *C. pulcher* was introduced into the Corvallis area via infested plants or plant material (e.g., scion wood) received by a nursery, a grower, or a research institution from an Old World site where the mite is already established.

Our recent studies showed that *C. pulcher* populations on three pear varieties (Anjou, Bartlett, and Nijisseiki) reached their peaks from early August to early September, and remained high until mid-October. Pear trees with high mite populations (1.23–2.88 mites/leaf, 7.25–10.41 overwintering females/twig) were found to have lower incidences of active and overwintering tetranychid mites than trees with lower populations of *C. pulcher* (0–0.05/leaf, 0–0.1 overwintering females/twig), suggesting the possibility of antagonism between *C. pulcher* and its co-occurring established tetranychid neighbors.

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