BUCHANANIELLA CONTINUA (WHITE) (HEMIPTERA: HETEROPTERA: ANTHOCORIDAE) FROM CALIFORNIA, WITH NEW SYNONYMY

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Abstract.—Buchananiella continua (White), originally described from the island of Madeira, now is known from many widely separated localities around the world. Cardiastethus cavicollis Blatchley, 1934, was described from southern California, and is synonymized with B. continua (n. syn.). Recent collections of this bug were taken from plant litter and shrubs infested with psocids, white flies, and mites. Details leading to the identification of B. continua and subsequent synonymy of C. cavicollis are given, and a diagnosis of the adult and pertinent other characters are provided to assist in recognition.

Key Words: Hemiptera: Heteroptera, Anthocoridae, non-indigenous species, California

F. Buchanan White (1879) described Cardiastethus continua from the island of Madeira—an unlikely prospect to be discovered in California (Los Angeles, 1928; San Francisco, 1998 and 1999; and Ocean-side, 1999). Buchananiella Reuter (1884) was described to include three species: Cardiastethus sodalis White from Hawaii, Cardiastethus continua White from Madeira, and Buchananiella whitei, new species, from “Vandiemeus Land.” No type of the genus was designated. Subsequently, Kirkaldy (1906) designated Cardiastethus continua White as the type species. Herring (1965) clarified the position of Buchananiella with the type B. continua (White), and other included species, annulata (Carayon), crassicomis Carayon, sodalis (White), and whitei Reuter. He (Herring) later made Buchananielia sodalis (White) the type of the genus Alofa Herring in 1976. Hiura (1966) illustrated the adult and the male capsule of B. continua based on specimens from Picton, New Zealand, and for the first time showed the pair of large punctures on the scutellum. His drawing of the genital clasper agrees with the earlier illustration by Carayon (1957) of B. continua.

Carayon (1972) published a drawing of Buchananielia continua that closely resembled the specimens we examined from California; again, the pair of large punctures on the scutellum are very distinct. Péricart (1972) provided an excellent review of B. continua in his treatise on the Anthocoridae, Cimicidae, and Microphysidae. His drawing of the adult and a figure showing details of the male capsule, apex of the female abdomen, ostiolar canal, antennae, rostrum, and the outline of the head and pronotum provided our basis for positive identification of Buchananielia continua.

The key characters are small size (2.2–2.7 mm); dark color (lighter in color in southern California specimens); dorsum with distinct, pale, rather dense, decumbent setae; antennal segments one and two greater in diameter than segments three and four; second segment slightly enlarged apically; pronotum with sides tapered anteriorly, col-
lar narrow, posterior margin concave, calli well developed, posteriorly defined by distinct transverse impression, posterior half with distinct median impression, ostiolar canal distinct, almost straight and then broadly curved anteriorly; scutellum with two large, distinct punctures arranged transversely; hemelytra with indistinct punctations on clavus, membrane with three distinct veins, innermost vein branched at base to form small cell; male genital segment distinctive (see Péricart 1972); female with omphalophore at center of anterior margin of sternite VII.

Blatchley (1934) described Cardiastethus cavicollis from two specimens, one from Griffith Park, Los Angeles (21 February 1928) (the holotype) and another from Santa Monica Beach (13 January 1928). The description contained many of the characters eventually compiled from the specimens from San Francisco and Los Angeles, although no mention was made of the scutellum or the very distinct pair of large punctures on it. Ultimately, we examined the holotype through the courtesy of Arwin Provonsha. The specimen had the exact information of date and place and showed the distinct pair of large punctures on the scutellum. Cardiastethus cavicollis Blatchley proved to be identical to Buchananiella continua (White), new synonymy. We also note that the holotype is a female, not a male. Blatchley indicated that this specimen was a male, as he did for the “paratype.” Upon examination of the holotype, however, the specimen turned out to be a female—an easy mistake since the females of Buchananiella have greatly reduced external female genitalia and appear to lack the characteristic ovipositor found on many Anthocoridae. Further, the characteristic female omphalophore, just before the apex of the abdomen, is not generally visible in dry specimens. The paratype “male” cited but not seen here also may be a female for the same reason.

Carayon (1958a) reported B. continua from Atlantic islands, “La Réunion,” oriental Africa (Kenya) and South America (Argentina). Péricart (1972) considered it to be pantropical. Péricart (1996) gave the known distribution of B. continua as Europe (France, Italy, Poland, Spain), North Africa (Azores, Madeira), Asia (Turkey, Israel), tropical Africa, tropical America, Australia, and Reunion. It is known from Continental United States, and it was reported from the Hawaiian Islands (Brenner and Lattin 2001). The wide-spread occurrence of this species makes it difficult to determine its native range.

Blatchley (1934) collected specimens in southern California from “... leaves of a dead oak ...” and “... beneath a bunch of weeds just above high water line ...” in January and February 1934 (as Cardiastethus cavicollis Blatchley). Péricart (1972) found B. continua in dry grass in France where he believed their food likely consisted of associated Psocoptera. He also reported Daumal and Carayon’s observation that specimens had been taken with the hibernating larvae of the pyralid moth Myelois ceratoniae Zell. Elsewhere, Carayon (1958b) reported B. crassicomis from the nests of weaver birds in the Ivory Coast.

Contemporary collection details of Buchananiella continua in California follow. It was collected on two occasions in Golden Gate Park, San Francisco, California. On July 30, 1998, females were beaten from Acacia sp. litter with old blossoms and dead vine leaves. On July 28, 1999, several females, two males, and a large nymph were beaten from an unidentified ornamental shrub. Leaves of the shrub were covered with a black sooty mold and were infested with psocids and mites. On April 6, 1999, at Newport Beach, Los Angeles County, females were beaten from an unidentified ornamental hedge that was heavily infested with whitefly and mites. Leaves of the hedge were covered with a black sooty mold. On May 21, 1999, a male was beaten from the flowering head of a thistle in Dawson Canyon near Oceanside, San Diego County, California.
Two generations of *B. continua* were successfully reared in the Wapato, WA, laboratory on pear seedlings infested with spider mites and with eggs and nymphs of the pear psylla, *Cacopsylla pyricola* ( Förster). Females deposited reddish-pink eggs (−0.65 mm in length) on plant and container surfaces. Young nymphs were red, darkening to brown in later instars. Development time from egg to adult was about four weeks at 23°C.

Extensive movement of plant materials of all types enhance the possibilities of discovering additional non-indigenous species. All seasons of the year could produce specimens, particularly around ports in warmer climates. We now know of at least 21 non-indigenous species of Anthocoridae in Canada and the continental United States.

**ACKNOWLEDGMENTS**

We thank our colleagues Debra Broers, Carrie Colby, Tonya Hinojosa, Richard Lewis, and Brian Reed (U.S. Department of Agriculture Laboratory, Wapato, WA) for obtaining specimens and assisting in their care; A. Provonsha, (Purdue University, West Lafayette, Indiana) for the loan of the Blatchley type; three anonymous reviewers who provided helpful suggestions, and L. Parks (Oregon State University) for her assistance in manuscript preparation.

**LITERATURE CITED**


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