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SCIENTIFIC NOTE

ASSIGNMENT OF TWO NORTH AMERICAN SPECIES OF *AEDES* TO SUBGENUS *RUSTICOIDUS*

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ABSTRACT. *Aedes bicristatus* and *Aedes provocans* are transferred to subgenus *Rusticoidus* from subgenus *Ochlerotatus*. Primary morphologic features of *Rusticoidus* are provided for separating this subgenus from all other subgenera of genus *Aedes*.

KEY WORDS *Rusticoidus, Aedes bicristatus, Aedes provocans,* mosquito

Reinert (1999) provided an expanded definition of subgenus *Rusticoidus* Shevchenko and Prudkina of genus *Aedes* Meigen. He also included a chronology of published articles concerning the status of European and western Asian species assigned to the subgenus (i.e., *Aedes krymmontanus* Alekseev, *Ae. lepidonotus* Edwards, *Ae. quasirusticus* Canamares, *Ae. refiki* Medschid, *Ae. rusticus* (Rossi), and *Ae. subdiversus* Martini). *Aedes albescens* Edwards was questionably included in *Rusticoidus.*

Two North American species, *Aedes bicristatus* Thurman and Winkler and *Ae. provocans* (Walker), clearly belong to subgenus *Rusticoidus* and are herein transferred to it from subgenus *Ochlerotatus* Lynch Arribalzaga. Both species fit the expanded definition of the subgenus and the primary features as outlined below.

All life stages of *Rusticoidus* are generally similar to some species of *Ochlerotatus*; however, the following primary features of subgenus *Rusticoidus,* as outlined by Reinert (1999), clearly distinguish it from the other subgenera of genus *Aedes,* including the species of subgenus *Ochlerotatus.* Adults are separated by the combination of the following 6 characters: both antecoxal and postcoxal membranes of foreleg have a patch of broad white scales; membrane posteromesad of metapostnotum has a patch of broad scales; parascutellar area has 1–6 scales in addition to 1–3 setae; hypostigmal area has a patch of broad scales; postpronotum is covered with broad scales; and antennal pedicel of female has 2 large patches of partially overlapping broad white scales, 1 patch covering the mesal surface and the other covering the lateral surface (patches may be contiguous dorsally in some species). Male genitalia are distinctive in the development of the aedeagus, which is simple, more or less troughlike, relatively long and narrow, has the median area narrower than the basal and apical portions, has the basal opening more or less circular, and the apex has a median small lobe separating a short flattened area with tiny, stout spicules on each side. The claspette is moderately thick and has a short, transversely annulated filament. Fourth-stage larvae are unique in having the siphon with a short (usually branched) accessory seta laterally before midlength and inserted slightly above the pecten and proximal to seta 1-S. Eggs have a characteristic shape and are short and very wide. They are almost subtriangular in profile with rounded corners, the ventral surface is arched in the middle, and both ends are equally rounded. Other characters of the adults, female and male genitalia, pupae, 4th-stage larvae, and eggs that are useful in distinguishing the subgenus *Rusticoidus* also are given by Reinert (1999). The nomenclature used follows Harbach and Knight (1980).

Aedes provocans was described by Walker (1848) and occurs in much of Canada and the northern tier of states of the United States below Canada. Wood et al. (1979), in the most complete, current, taxonomic treatment of the species, included descriptions and/or illustrations of the female, male (including the genitalia), and 4th-stage larva. They listed the following synonyms for *Ae. provocans*: *Culex trichurus* Dyar, *Culex cinereoborealis* Felt and Young, *Aedes pagetonotum* Dyar and Knab, and *Aedes poliochros* Dyar. Kalpage and Brust (1968) provided a rather complete description and illustrations of the egg (as *trichurus*) based on light microscopy. Dyar (1904) previously had provided a very brief description and illustration of the egg (as *trichurus*). Darsie (1951) described and illustrated the pupa (as *trichurus*). Thurman and Winkler (1950), in their description of *Ae. bicristatus,* described the female, male, pupa, and 4th-stage larva. A description of the egg of this species was provided by Myers (1967). The species has been reported from 2 small areas of California. Darsie and Ward (1981) provided illustrated keys

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to adult females and 4th-stage larvae of North American (north of Mexico) species of *Aedes* and included these 2 species as well as maps outlining their geographical distribution. These articles should be consulted for morphologic details of the 2 species. Adults (both sexes), female and male genitalia, pupal exuviae, and 4th-stage larvae and exuviae of both *Ae. bicristatus* and *Ae. provocans* were examined during this study.

Both *Ae. bicristatus* and *Ae. provocans* compare very well with the European species of the subgenus and fit the expanded definition of *Rusticoidus*. Minor deviations from this definition follow. In *Ae. bicristatus* pupal seta 2-VII is slightly mesad of seta 1-VII. Adults of *Ae. provocans* have moderately broad, somewhat curved, pale scales on the antepronotum and upper proepisternum. The maxillary palpus of the female has only a few pale scales or is completely dark-scaled. The antennal pedicel of the female has a large patch of broad white scales on the mesal margin that extends over the dorsal surface, but scales are absent from the lateral margin, and pupal seta 2-VII is at the same level as seta 1-VII.

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