Notes on the Status of *Aedes cinereus hemiteleus* Dyar

William E. Bickley
6516 40th Avenue
University Park, MD 20782

ABSTRACT. Evidence is presented to show that *Aedes cinereus hemiteleus* which was described as a race by Dyar cannot be separated from other elements of the *Ae. cinereus* complex on the basis of currently known morphological characters.

Bohart and Washino (1978) gave specific status to *Aedes hemiteleus* which was described as a race of *Ae. cinereus* Meigen by Dyar (1924) and subsequently synonymized with *Ae. cinereus* by Carpenter and LaCasse (1955). They assigned to *hemiteleus* "Californian material" that would be identified as *Ae. cinereus* if one used the keys of Carpenter and LaCasse (1955). The change in status of *hemiteleus* obviously raises questions about populations of the *cinereus* complex in the Nearctic Region outside of California.

The characters which distinguish *hemiteleus* from other members of the complex as reviewed by Bohart and Washino (1978) are (1) the outer part of the bifurcation of the longer arm of the dististyle is longer than the inner part (see Peus, 1972); (2) the scutal integument is dark brown; (3) the white scaling on the dorsum of the abdomen is usually reduced to a few scales; and (4) the 2 submedian patches of dark appressed scales on the head contrast sharply.

An examination of 50 male specimens from the Nearctic Region was made, and in each specimen the outer fork (lateroapical fork) of the dististyle arm was longer than the inner fork (mesoapical fork). The specimens were from the following areas: Alabama, Alaska, Alberta, British Columbia, California, Idaho, Manitoba, Maryland, Massachusetts, Minnesota, Montana, Newfoundland, New Hampshire, New York, Ontario, Oregon, Quebec, Saskatchewan, Wyoming, and Yukon. On the basis of this survey it can be assumed that Nearctic populations of the *cinereus* complex differ from Palearctic populations. Peus (1972) reported that in *cinereus* the outer fork of the dististyle arm is shorter than the inner fork. It can also be assumed that this character is of no value in separating populations from different parts of the Nearctic Region.

A study of the integument of the scutum of 897 specimens from 35 states and provinces of North America produced inconclusive results. Dyar (1924) reported that the scutal integument of *Ae. cinereus fuscus* Osten-Sacken is pale in contrast to the bronzy-brown scutum of *hemiteleus*. Cambridge, Massachusetts is the type-locality of *fuscus* (Osten-Sacken, 1877). One could speculate that specimens from eastern North America might be *fuscus* and from western North America, *hemiteleus*. The color of the scutal integument does not provide an answer. All 307 specimens from Alaska, Oregon, California, Minnesota, Saskatchewan, and Yukon were dark. All 82 specimens from British Columbia and Utah were pale. Specimens from Manitoba, Idaho, Montana, and Washington were predominantly pale. Specimens from 9 eastern states and provinces were pale, but there is one dark specimen from Rhode Island.

Bohart and Washino (1978) reported that specimens of *hemiteleus* from the mountains of California and Oregon have the wide scaling on the dorsum of the abdomen usually reduced to a few scales. Dyar (1924) stated that the abdominal bands of *hemiteleus* are variable, often well developed, the lateral widenings touching but not forming an even lateral band. The width of the dorsal abdominal bands from 35 states and provinces of North America was observed by me to vary. This character is of no value in identifying elements of the *cinereus* complex.

In their redescription of *Ae. cinereus* Carpenter and LaCasse (1955) stated: "Occiput with narrow pale-yellow to light golden-brown scales on median area bounded on either side by a large submedian patch of broad appressed brown scales; lateral region of occiput with broad yellowish-white scales; erect forked scales on dorsal surface brown." I examined at 80 X magnification the vertices of over 900 specimens from 35 U. S. states and Canadian provinces, and from 4 European countries; I concluded that it is impossible to improve upon the above description, assuming that occiput and vertex are the same (see Knight, 1970).

The principal character used by Dyar to justify the creation of the new race, *hemiteleus*, is the width of the "channel of narrow scales on the vertex of head." Dyar stated that in *hemiteleus* the channel of narrow scales on the vertex is wider than in *cinereus fuscus* and that in *fuscus* it is wider than in European *cinereus*. A close inspection of the type and 5 paratypes of Dyar's *hemiteleus* reveals that the channel of narrow scales is indeed wider than that usually seen. In addition to the types I have seen 11 specimens from California with a "wide channel." I have also seen over 80 specimens from California without the wide channel. The wide channel was seen on specimens from Manitoba, Massachusetts, Minnesota, Montana, New Jersey, and Washington. To be considered wide, each half of the channel of narrow scales should extend, at its narrowest point, at least one-fourth of the distance from the coronal suture (sulcus) to the lateral margin of the head (Fig. 1). Broad, pale, decumbent (=spatulate) scales are sometime intermingled with narrow scales. The number of erect, dark, forked scales varies considerably.

My study of the adult characters leads to the conclusion that *hemiteleus* cannot be separated from other elements of the *cinereus* complex. The validity of *hemiteleus* as a species will have to be established through the discovery of morphological characters in one or more of the immature stages. Unfortunately, adequate series of reared specimens with associated skins are not available for analysis. Although the structure of the longer arm of the dististyle differs in European and North American populations of *Ae. cinereus* there is now insufficient evidence to support the use of 2 names. This opinion agrees with that of Wood et al. (1979).

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REFERENCES CITED

Bohart, R. M. and R. K. Washino. 1978. Mosquitoes of California. 3rd ed. Univ. of Calif. Div. Agr. Sci. Publ. 4804. 153 pp.

Carpenter, S. J. and W. J. LaCasse. 1955. Mosquitoes of North America (North of Mexico). Univ. of Calif. Press, Berkeley and Los Angeles. 360 pp., 127 Pl.

Dyar, H. G. 1924. The American forms of *Aedes cinereus* Meigen (Diptera: Culicidae). Insecutor Inscit. Menstr. 12:179-180.

Knight, K. L. 1970. A mosquito taxonomic glossary I. Adult head (external). Mosq. Syst. Newslett. 2:23-33.

Osten-Sacken, C. R. 1877. Western Diptera: Descriptions of new genera and species of Diptera from the region west of the Mississippi and especially from California. Bull. U. S. Geol. & Geog. Surv. of the Territory 3:189-354.

Peus, F. 1972. Über das subgenus *Aedes* senso stricto in Deutschland. (Diptera: Culicidae). Zeit. Angew. Entomol. 72:177-194.

Wood, D. M., P. T. Dang and R. A. Ellis. 1979. The insects and arachnids of Canada. Part 6. The mosquitoes of Canada. Diptera: Culicidae. Biosystematics Research Institute Publ. 1686. 390 pp.

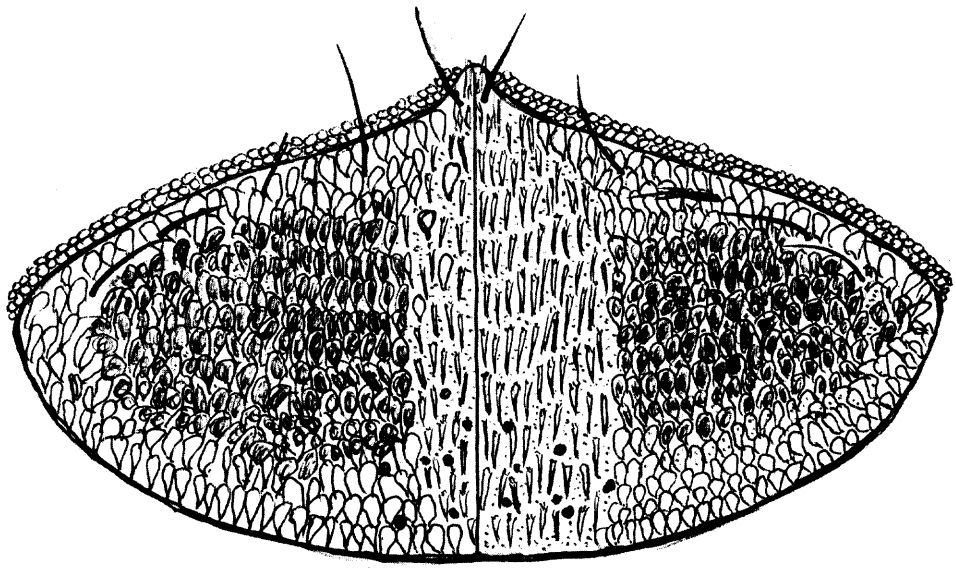

Fig. 1. Diagram of vertex of *Aedes cinereus*. Left half represents a female with relatively few narrow scales at the middle. Right half represents a specimen with a wide channel of narrow scales.