NOTES ON THE IDENTITIES OF SOME COMMON NEARCTIC *AEDES* MOSQUITOES

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ABSTRACT. The names of two common nearctic species of *Aedes*, *barri* Rueger and *trichurus* (Dyar) are shown to be junior synonyms of *Ae. euedes* Howard, Dyar and Knab, and *Ae. provocans* (Walker), respectively. *Ae. beklemishevi* Denisova and *Ae. grandilarva* Sazonova, as senior synonyms of *barri*, are automatically included as synonyms of *euedes*. *Ae. mediolineatus* (Ludlow) is transferred from the synonymy of *Ae. dorsalis* (Meigen)to that of *Ae. melanimon* Dyar; though the older name, *mediolineatus* is fortunately not available because it is preoccupied in the genus *Aedes*. Two other names of *Aedes* also in synonymy, *albertae* Dyar, and *masamae* Dyar, are transferred to the synonymy of *mercurator* Dyar, and *hexodontus* Dyar respectively, and some of the variation in *hexodontus* is discussed. Evidence is presented in support of Danilov's (1974) recognition of *Ae. mercurator* as a species distinct from *A. stimulans* (Walker). Finally, *Ae. aloponotum* Dyar, used by various authors alternately as a synonym of *excrucians* (Walker) or as a distinct species, is briefly redescribed and compared to *excrucians*, *euedes*, *fitchii* (Felt and Young) and *riparius* Dyar and Knab.

Changes in the specific names of mosquitoes, especially of well-known species, though regrettable, are sometimes necessary. A common reason, of which there are several recent examples, results from the recognition of a species complex, as when a common widely-used name, such as *Aedes varipalpus* (Coquillett), becomes restricted to an obscure species of much smaller range. The recognition that type specimens, either holotypes or lectotypes, have been misidentified also requires changes of names. Such changes can be particularly troublesome when a well-known name must be transferred from one species to become the valid name of another, as was the case with *Ae. impiger* (Walker) (Vockeroth 1954a).

The present paper was prepared as a result of a routine check of the holotypes and lectotypes of some Canadian mosquitoes. The identities of 5 of these types were not what they had been previously considered to be. All of these had been considered as synonyms for nearly 50 years. Three names, *albertae* Dyar, *masamae* Dyar and *mediolineatus* (Ludlow), remain as synonyms, but of *mercurator* Dyar, *hexondontus* Dyar and *melanimon* Dyar respectively, not of *stimulans (Walker), communis* (De Geer) and *dorsalis* (Meigen) as previously believed. The other 2 names, *euedes* Howard, Dyar and Knab, and *provocans* (Walker), antedate and must therefore replace the currently used names, *beklemishevi* Denisova (synonym *barri* Rueger) and *trichurus* (Dyar) respectively. As the names *euedes* and *provocans* have been cited frequently as synonyms in recent years they cannot be considered "forgotten names," and I do not therefore believe application for their suppression to the International Commission on Zoological Nomenclature would be justifiable. A 6th name, *aloponotum* Dyar, was considered a synonym of *excrucians* until resurrected by Boddy (1948) and Gjullin et al. (1968). The female is deceptively similar to that of *riparius* and *euedes*, but reared adults with associated larval skins show that it is distinct from either of these. It is briefly redescribed and compared with related species.

Thus it is of considerable importance that holotypes and lectotypes, even of mosquitoes, be studied and restudied, including those bearing names now in

synonymy, in spite of the widespread assumption among culicidologists that such types have been correctly placed long ago.

Aedes euedes Howard, Dyar and Knab

Aedes euedes Howard, Dyar and Knab, 1913: pl. 28, fig. 191
Aedes euedes Howard, Dyar and Knab, 1917: 714 (description).
Aedes riparius: Rempel, 1950, fig. 35B, not Dyar and Knab, 1907.
Aedes beklemishevi Denisova, 1955: 58. (synonymy with *barri* Rueger, 1958, after Danilov, 1975). *N. syn.*
Aedes grandilarva Sazonova, 1955: 99. (synonymy with *barri* after Danilov, 1975). *N. syn*
Aedes barri Rueger, 1958: 34. *N. syn.*

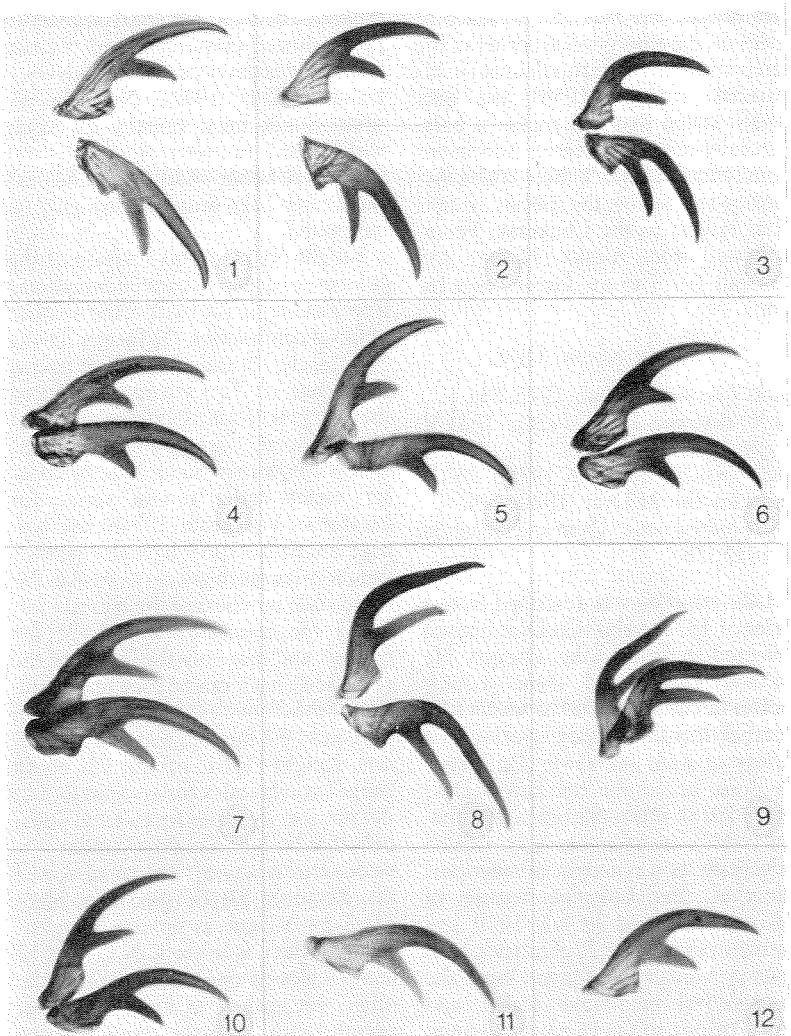
The name *euedes* was relegated to the synonymy of *excrucians* long before the diagnostic value of the tarsal claw was recognized (Vockeroth 1950), and before *barri* was described as a separate species (Rueger, 1958). It takes priority over *beklemishevi*, with which *barri* was very recently synonymized (Danilov 1975).

The species was originally described from an unspecified number of males and females collected at Ottawa and Trenton, Ontario, by J. Fletcher, and deposited in the U.S. National Museum. A male from Trenton, 24.5.1900, J. Fletcher, U.S.N.M. type No. 12272, with terminalia mounted on slide no. 466, was selected as lectotype by Stone and Knight (1956) from a syntype series that included a male and female from Ottawa, and a female from Trenton. I have not examined these 3 syntypes, since a lectotype once designated cannot be reversed.

The lectotype male is in reasonably good condition, but has a denuded scutum and all legs damaged except, fortunately, the right mid and hind legs. The tarsal claws of the latter were slide mounted for the preparation of Fig. 1. For comparison, Fig. 2 shows the hind claws of a male, selected at random from a series of both sexes, all reared from larvae I identified as "*barri*," mainly by the widely "detached" distal pecten teeth, the last of which arises well beyond the middle of the siphon, by the presence of the siphonal tuft situated at ⅔ the distance from the base of the siphon, by the comb scale number of 16 to 18, by the brownish anal papillae (transparent in related species) and by the very large size which is second in length only to *flavescens* (Müller). The subbasal tooth of the hind claw of a male *excrucians* (Fig. 3) reared from an identified larva is still relatively parallel to the main claw compared to that of *euedes* though more remote and divergent from the primary claw than in any other specimen in the Canadian National Collection (C.N.C.). In addition, the terminalia of the lectotype are well-mounted, showing the apical lobe extending beyond the base of the gonostylus rather than not reaching it as in *excrucians*. I therefore conclude, that while *euedes* is not conspecific with *excrucians*, it is conspecific with *barri*, and the latter name must become its junior synonym. I have not seen specimens of *beklemishevi* or *grandilarva*, but include them in the synonymy of *euedes* on the strength of Danilov's (1975) argument.

Both Rueger (1958) and Danilov (1975) noted the similarity of this species (as *barri* and *beklemishevi*, respectively) to Rempel's (1950) figure 35B, which illustrates the characteristic siphon of *euedes*, but with the rather low comb scale number of 11. I have seen one *euedes* larva with only 11 scales on one side (14 on the other) but the usual number is 16–18, at least in Ontario specimens (Rueger gives a range of 14–19). Carpenter and La Casse (1955) have given a range of 6–9 comb scales for *riparius*.

Danilov's (1975) only reservation about synonymizing *barri* (= *euedes*)



Figs. 1–3. Male hind tarsal claws.
Fig. 1. Lectotype of *Aedes euedes*, Trenton, Ontario.
Fig. 2. *A. euedes*, Perth, Ontario, reared from larva.
Fig. 3. *A. excrucians*, Osgoode, Ontario, showing as great a gap between claw and subbasal tooth as could be found in C.N.C. material; reared from larva.
Figs. 4–12. Female fore tarsal claws.
Fig. 4. Holotype of *A. aloponotum*, Lake Cushman, Washington.
Fig. 5. *A. aloponotum*, Harrison, lower Frazer Valley, B. C.
Fig. 6. *A. riparius*, Osgoode, Ontario. reared
Fig. 7. *A. euedes*, North Gower, Ontario, reared
Fig. 8. *A. excrucians*, Perth, Ontario. reared
Fig. 9. *A. excrucians*, Tuktoyaktuk, N.W.T.
Fig. 10. *A. fitchii*, Hull, Quebec. reared
Fig. 11. *A. mercurator*, Norman Wells, N.W.T.
Fig. 12. *A. stimulans*, Rondeau, Ontario. reared

with *beklemishevi* was the presence of scales on the anterodorsal corner of the katepisternum (= sternopleuron) in his material. Rueger (1958) and Barr (1958) stated that this region is bare. Carefully-prepared reared specimens from Ontario also lack these scales. According to Danilov, the species extends from Poland to the Chukotski Peninsula, and from Alaska (Nielsen and Horsfall 1973) to the Great Lakes region.

Aedes hexodontus Dyar

Aedes hexodontus Dyar, 1916: 83.
Aedes masamae Dyar, 1920a: 166. *N. syn.*
Aedes cyclocerculus Dyar, 1920b: 23.
Aedes leuconotips Dyar, 1920b: 24.
Aedes labradorensis Dyar and Shannon, 1925: 78.

Aedes masamae was described from a series of 187 females that Dyar himself collected at Crater Lake, Oregon. He evidently considered these a new species but lacking males he wasn't sure whether to call it a new species or a variety of *Aedes communis* (De Geer). He soon opted for the latter (Dyar 1922, 1928). From the time of Matheson (1929), *masamae* has been treated universally as a synonym of *communis*. However, the holotype female of *masamae*, collected 29 July 1920, and the majority of some 20 paratypes, each bearing a small red square, have the postprocoxal membrane scaled, and hence belong to the *punctor* subgroup, not to *communis* which lacks these scales. Because females are scarcely distinguishable I cannot be certain whether the holotype of *masamae* is *aboriginis* Dyar, *punctor* (Kirby), or *hexodontus*, but I believe it to be the latter because of its heavily-scaled probasisternum, because of the series of *hexodontus* (Dyar's determination) which he took at the same time and place, which I cannot distinguish from *masamae*, because *aboriginis* appears to prefer lower elevations, and because *punctor* does not occur in Oregon (Gjullin and Eddy 1972). Nevertheless, some doubt must remain, especially with regard to *aboriginis*, until these species are better understood, and until the Crater Lake area is thoroughly investigated.

Knight (1951) in his revision of the *punctor* subgroup separated *hexodontus* from *punctor* on the basis of the number of larval comb scales, the former having 5–9 (rarely 10) scales, the latter having more than 10. This separation resulted in two forms of adults for each species, a "type *punctor*" variety and a "tundra" variety for *punctor*, and a "type *hexodontus*" variety and a "tundra" variety for *hexodontus*. Vockeroth (1954b), and Kalpage and Brust (1968) have since shown that there is a much greater overlap in the comb scale numbers of the two species, 4—12 for *hexodontus* and 5—25 for *punctor*, and that only the length of the comb scale itself can be used for separation of these species (less than 0.08 mm in *punctor*, 0.1 mm or greater in *hexodontus*). Knight (1951, pp 90, 93) noted "large" comb scales for *hexodontus*, but did not specify a size for *punctor*. I suspect that both of Knight's "tundra" varieties are *hexodontus*. The larval skin of the Reindeer Depot specimen, identified by Knight as *punctor* "tundra" variety, which is in the C.N.C., has 12 comb scales on one side and 14 on the other, yet each is as long as the last pecten tooth, with the terminal spine distinctly longer than the scale base and, in total length, between 0.11 and 0.12 mm, as in *hexodontus*. The associated adult female has an unstriped, uniformly brown-scaled scutum, and small patch of white scales at the base of the costa, i.e., a typical northern *hexodontus*. The C.N.C. material of *hexodontus* "tundra" variety labelled by Knight from Frobisher Bay, Ft. Chimo and Great Whale River all share these

characters. The holotype of *labradorensis*, a female collected 20 July 1908 at Hawk's Harbor, Labrador, by Peary's North Pole Expedition of 1908 USNM Type #27862), also has an unbanded, brown-scaled scutum. I believe that if the arctic population is ever recognized as a species distinct from *hexodontus*, the name *labradorensis* would be applicable.

The identity of Knight's "type *hexodontus*," particularly from British Columbia (Prince Rupert, Kwinitsa), is more difficult to establish. It includes the names *cyclocerculus* Dyar, and *leuconotips* Dyar, both described from Prince Rupert, which is a coastal environment although alpine tundra exists only a few miles inland. Nevertheless, the material was reared from larvae which possessed "six or seven large (comb) scales, each with long pointed tip, shortly and sparsely fringed at base," which one presumes were collected near Prince Rupert, therefore near sea level. The type material of *hexodontus* was reared from larvae collected at Fallen Leaf Lake, near Lake Tahoe, California, each of which has 6 comb scales (hence the specific name) "each with a very sharp central spine and slight lateral fringes" (Dyar 1916). The scutum of *hexodontus* is described as having a pair of sub-median dark-brown-scaled bands separated by a narrow, yellow-scaled median band, and with yellow sublateral areas. A year later Dyar (1917) admitted greater variation, including a "wholly brown" scutal pattern, but he did not say whether this was based on California material or from other specimens he thought were conspecific. The scuta of *cyclocerculus* and *leuconotips* are described as for *hexodontus*, and together with *hexodontus* they are differentiated from *punctor* by the undivided, mid-longitudinal dark scutal band of the latter. The larval exuvium, #FJ13, associated with the lectotype of *hexodontus*, has 7 comb scales on one side, 5 on the other, most of which are close to 0.1 mm long. The exuvium of the lectotype of *leuconotips* has 10 comb scales crowded together (presumably 5 on each side, or 6 and 4), all of which are between 0.09 and 0.11 mm long. The exuvium of the lectotype of *cyclocerculus* has 12 comb scales (presumably 6 per side) about 0.1 mm. long. Thus, it seems reasonable to retain *leuconotips* and *cyclocerculus* as synonyms of *hexodontus;* however the problem is worthy of more investigation.

In conclusion, there is a widespread species, generally called *hexodontus*, which is composed of a cordilleran population and a slightly differing arctic population. The latter is prevalent at treeline and on the tundra of Canada and Alaska, and, at least in eastern Canada, is uncommon south of the treeline. It is larger than *punctor*, usually has an unbanded, medium brown-scaled scutum and 12 or fewer comb scales which are generally longer than 0.1 mm. If the arctic population is shown not to be *hexodontus* then the name *labradorensis* is available for it (*masamae*, though the older name, belongs to the cordilleran population and would remain a synonym of *hexodontus* s. str). *Ae. punctor,* which may be associated with it at the treeline, has an undivided median dark-scaled scutal band, and 5–25 comb scales (but usually more than 12) that are shorter than 0.08 mm long. *Ae punctor* occurs throughout the boreal forest of Canada and Alaska, south to Washington State, Colorado, Illinois, New York and the Atlantic provinces of Canada. The cordilleran population, *A. hexodontus* s. str., inhabits the mountains of British Columbia and Alberta south to California and Colorado (Knight 1951), and apparently cannot be distinguished from the tundra form except that the submedian scutal bands are darker. Only additional collecting and study may determine whether the coastal forms in

northern B.C. (i.e. *cyclocerculus* and *leuconotips*) are really *hexodontus* as their larvae would suggest, or whether they are *punctor* with abnormally large comb scales as their habitat and range would suggest.

Aedes melanimon Dyar

Grabhamia mediolineata Ludlow, 1907: 129. (preoccupied in *Aedes* by transfer of *Culex mediolineatus* Theobald, 1901, to *Aedes*). *N. syn.*
Aedes melanimon Dyar, 1924a: 126.
Aedes klotsi Matheson, 1933: 69.

The name *A. mediolineatus* (Ludlow) appears as a synonym of *A. dorsalis* (Meigen) at least as early as Dyar (1922). The species was described from several females, of which there were at least 2 available to Stone and Knight (1956) who selected as lectotype the one bearing the locality label, Fort Lincoln, N.D., and the determination label "*Grabhamia mediolineata* n. sp. Ludlow."

This lectotype is in good condition; the scutum has a well-defined, reddish-brown mid-dorsal band, in which there are a few short narrow streaks of whitish scales, flanked by sublateral areas of whitish rather than yellowish scales. The tarsal claws, however, combined with predominantly dark-scaled wing veins, provide the most satisfactory evidence of conspecificity with *melanimon* rather than with *dorsalis*.

Fortunately it is not necessary to substitute the name *mediolineatus* (Ludlow) for *melanimon* even though it is the older of the 2, because *mediolineatus* (Ludlow) is a secondary homonym in the genus *Aedes*, preoccupied by *Aedes (Aedemorphus) mediolineatus* (Theobald), 1901.

Aedes mercurator Dyar

Aedes mercurator Dyar, 1920b: 13.
Aedes albertae Dyar, 1920c: 115 (described as subspecies of *stimulans*). *N. syn.*
Aedes riparius ater Gutsevich, 1955. (synonymy after Danilov, 1974).
Aedes stimulans in part, of authors, not Walker.

Gjullin et al. (1961) were the first to recognize that larvae of Alaskan "*stimulans*," which had the upper head seta (5–C) 3–4 branched rather than single or double, corresponded to Dyar's (1920a) description of the larva of *mercurator*. Evidently they did not consider this distinction of great importance, and no further mention of it was made until Danilov (1974) discovered the larvae of *Aedes riparius ater* which he realized had no immediate relationship to *riparius* Dyar and Knab. Instead, these larvae matched the description of *mercurator*, as did the male terminalia of reared material, and thus he resurrected the name *mercurator* for it. Simultaneously, Enfield (pers. comm.) working in southern Alberta, discovered similar larvae which he realized were not *stimulans* Walker and from which he was able to rear adults that I have used for comparison with the type material of *mercurator* and *albertae*.

Aedes mercurator was described from a long series of both sexes that Dyar collected at Dawson, Yukon Territory, 16 July 1919. Stone and Knight (1956) selected a male as lectotype. It is dated 15 July 1919, not the 16th as recorded, and bears two other labels with the numbers 1165 and 2H30 respectively. All the legs, except the right hind leg, are complete. The scutum is partially denuded, but enough scales remain to show a well-defined, dark-brown, median band and yellow sublateral areas (both areas are darker than in *fitchii* or in *stimulans*). The terminalia are mounted on slide no. 1165. The spine of the basal lobe of the gonocoxite is, as Dyar mentioned in the description,

longer than that of *stimulans*; this is one of the few diagnostic characters.

All the material formerly identified as *stimulans* in the C.N.C., from western and northern Canada, has, on re-identification, proven to be *mercurator* (as well as some *fitchii* and *euedes*). The most westerly material of *stimulans* I have seen is from Winnipeg, Man., where many essentially eastern plants and animals reach the north-western limit of their range. Dyar (1920b), when discussing *stimulans*, drew attention to the lack of its preferred habitat, flooded river bottomland, in Saskatchewan and Alberta, and postulated (p. 12–13) that it had changed its habits at Edmonton, Alta. He also remarked on the slightly longer spine on the basal lobe of his Edmonton material. He (Dyar 1920c) later described this Edmonton material as *stimulans albertae*, based on 2 males and a female. Stone and Knight (1956) selected as lectotype one of the males, collected 17 May 1919, with terminalia mounted on slide no. 1226. The scutum of the lectotype is undamaged, and has a dark brown median band of scales and a sublateral yellow-scaled area characteristic of *mercurator*. Enfield (this number of *Mosquito News*) has found only *mercurator* in extensive collections from Edmonton, and I therefore conclude that *albertae* should be transferred from the synonymy of *stimulans* to that of *mercurator*.

The species now appears to occur from Alaska and southern Alberta east at least to James Bay. It appears to be most common in the boreal forest, and is uncommon or local farther south. I know of no specimens that are sympatric with *stimulans*. The two species may be entirely allopatric; records of both are apparently lacking along a broad zone from central Manitoba across Lake Superior to southcentral Quebec. The larva, in addition to having 3–4 branched upper head setae (5–C), has the mesothoracic hair 1–M longer than 3–M or 4–M and as long as 5–C itself.

Aedes provocans (Walker)

Culex provocans Walker, 1848: 7.
Culex trichurus Dyar 1904: 170. *N. syn.*
Culex cinereoborealis Felt and Young, 1904: 312. *N. syn.*
Aedes pagetonotum Dyar and Knab, 1909: 253. *N. syn.*
Aedes poliochros Dyar, 1919: 35. *N. syn.*

Culex provocans was described from an unstated number of males from "North America" and from "Nova Scotia." Thus a female in the British Museum (Natural History), doubtfully ascribed to *provocans* by Walker (1848), cannot be considered as one of the syntypes (Belkin 1968). The species remained unrecognized until Dyar received the following (1920b: 4), from F. W. Edwards, "*C. provocans* Walk. is quite unrecognizable, but *might* be *punctor*." Dyar then synonymized *provocans* with *punctor*, where it has since remained (Knight 1951, Stone 1965). Only one male was known to Knight, and perhaps also to Edwards. It is undoubtably this same male, labelled "N. Amer.," that Belkin (1968) designated as the lectotype and who commented only that it was "possibly conspecific with *punctor*."

Dr. J. R. Vockeroth and I have examined this lectotype and have concluded, independently, that it is what is commonly known as *Ae. trichurus* (Dyar). At first glance the specimen appears to be in hopelessly bad condition, all the legs except the right hind leg are broken off; another leg, consisting only of a femur and tibia is glued to the mounting card. Only 1 denuded palpus, minus its 5th segment remains glued to the card. The antennae and proboscis are damaged, and the terminalia are missing (Knight 1951 refers to them as "lost" so presumably they have not recently been placed on a slide). Nevertheless, the

basal tarsomere, fully scaled, and without a trace of either the apical or basal white ring, remains. Also enough of the pleural and scutal scales are present to enable the species to be recognized.

The scales of the lateral and sublateral areas of the scutum and postpronotum are all relatively broad and flat, with a waxy white appearance characteristic of those of *trichurus*. Most black-legged *Aedes* in North America have narrow, yellowish or reddish-brown scales on the upper half of the postpronotum and lateral edges of the scutum. The hypostigmal area and anterodorsal corner of the katepisternum are both generously endowed with scales. Most convincing is the presence of a group of scales on the membranes both in front of, and behind the front coxa, i.e., the anteprocoxal and postprocoxal membranes (Knight and Laffoon 1970). Scales are present also on the dorsal and ventral margins of the proepisternum (= propleuron of Knight & Laffoon, 1970). Among black-legged male *Aedes* known to me, *niphadopsis* Dyar and Knab, *pionips* Dyar, *cataphylla* Dyar, *implicatus* Vockeroth and the species of the *punctor* subgroup can have scales on all of these areas. However, except for *niphodopsis* and *implicatus* these species have narrow, curved, colored scales on the upper half of the postpronotum and the lateral area of the scutum. *Ae. niphadopsis* has the costa predominantly white-scaled (entirely dark scaled in *provocans*, except for extreme base) and *implicatus* lacks scales on the anterodorsal angle of the katepisternum. Neither of these species has such extensive white scaling on the scutum as has *provocans*.

One final character needs to be mentioned. *Aedes trichurus* is the only species in Canada that has a group of scales on the membrane between the tergite and sternite of the 1st abdominal segment. While the lectotype of *provocans* does not have as many scales on this membrane as do most males of *trichurus*, their presence is characteristic, and along with the aforementioned thoracic characters, serves as evidence for establishing the synonymy.

Aedes aloponotum Dyar

Aedes aloponotum Dyar, 1917b: 98.

Aedes aloponotum was described from a female taken at Lake Cushman, Washington, 28 June 1917 (H. G. Dyar). Dyar (1924b) commented on its "striking resemblance" to *riparius*, but larvae and males he later acquired were similar to *excrucians* so that he continued to regard *aloponotum* as a separate species. The latter name was apparently first synonymized with *excrucians* by Matheson (1929) where it remained until resurrected by Boddy (1948), who found larvae that differed from *excrucians* in having the lateral hairs on abdominal segments 3–6 usually double rather than single, the upper head hairs 3 or even 4-branched rather than double, the terminal, detached pecten teeth "thornlike," and the body densely covered with small spicules. Boddy added that the tip of the claw of the clasper (presumably the terminal spine of the gonostylus) was bifurcate, and that the apical lobe of the gonocoxite was longer than that of *excrucians*. Gjullin et al. (1968) figured a female tarsal claw of *aloponotum* alongside one of *excrucians*, thus providing further evidence that two different species were involved. They also provided a key to separate larvae of *aloponotum* from those of *fitchii* and *excrucians*.

After examining the holotype female of *aloponotum*, and in particular, its tarsal claw (Fig. 4) I was at first convinced that this was a specimen of *riparius* (c/f Fig. 6) and that the species discussed by Boddy and by Gjullin et al. might have been *euedes*, in spite of several serious discrepancies between their description

and my specimens of the latter. Neither of these conclusions proved to be correct, however, and a brief description of *aloponotum* is provided below to augment details provided by Boddy, and by Gjullin et al., lest anyone else be deceived by the striking similarity between its tarsal claw and that of *riparius*. A series of males and females with associated larval skins, collected at Idanha, Marion Co., Oregon, in April and May, 1966 by L. F. Lewis, and preserved in the U.S. National Museum, forms the basis of the following description.

The females have tarsal claws like those of *riparius*, or intermediate between *riparius* and *euedes*; the hind claw of the male is similar, quite unlike any *excrucians*, yet the male terminalia are hardly different from the latter, nor are the larvae, except for an unusual fur-like body covering of minute hairs, visible at 40X stereo magnification.

Female. Integument reddish-brown; proboscis almost entirely dark-scaled (some scattered pale scales in *excrucians*, many pale scales in *euedes* and *riparius*); palpus dark-scaled with narrow pale-scaled ring at base of each of 3rd and of 4th palpomere; pedicel pale-scaled on median half; postprocoxal membrane with scales; hypostigmal area without scales (often with scales in *riparius*); scales of upper margin of katepisternum continuing to anterodorsal corner (this area bare in *excrucians* and *euedes*); lower 3rd to 4th of mesepimeron without scales; mesepimeral setae absent; upper 3rd of antepronotum, upper half of postpronotum and scutum predominantly yellowish-brown scaled (reddish-brown in *excrucians* and *euedes*, orange in *riparius*), pale scales, if present, restricted to mid-dorsocentral spot, scutal fossa, lateral margin of scutum, and periphery of prescutellar depression; femora and tibiae with mixed dark and pale scales; 1st tarsomere mostly dark-scaled, the basal white-scaled ring narrow but distinct; remaining tarsomeres dark-scaled, each with broad basal ring of white scales, except last fore tarsomere, which is entirely dark-scaled; tarsal claw long, straight or nearly so on basal half, moderately, not abruptly, curved beyond subbasal tooth; subbasal tooth varying between that shown in Figs. 4 and 5, usually slightly longer than in *riparius* (Fig. 6), but not as long as in *euedes* (Fig. 7), *fitchii* (Fig. 10) or *mercurator* (Fig. 11); wing veins predominantly dark-scaled, C, Sc, R and M usually with a few scattered pale scales; abdominal tergites dark-scaled, each with broad basal pale-scaled band or median patch of pale scales, usually a narrow distal pale-scaled band as well and some scattered pale scales; cerci dark-scaled, with a few scattered pale scales.

Male. Palpus scarcely longer than proboscis; scales of scutum pale, yellowish, without mid-longitudinal reddish brown band found in *excrucians*; otherwise apparently indistinguishable from male of *excrucians* except by hind claw which resembles that of female *aloponotum*; apical lobe of gonocoxite slightly longer than that of *excrucians*, but not extending to base of gonostylus, i.e. not as long as that of *euedes*; tip of terminal spine of gonostylus minutely cleft, as described by Boddy (1948), but not differing from *excrucians*, as he supposed.

Larva. Head seta 5–C with 2 to 4 branches (1 to 3 in *excrucians*); seta 6–C with 2 or 3 branches (1 or 2 in *excrucians*); integument of thorax and abdomen with fur-like vestiture of minute hairs, longer and much more dense than those of *Aedes spencerii* (Theobald) (body integument of larvae of *excrucians, euedes* and *riparius* lacking such vestiture); prothoracic seta 1–P single (double or triple in *fitchii*); mesothoracic seta 1–M minute, much

shorter than head seta 5–C (as long as seta 5–C in *fitchii*); dorsolateral abdominal setae (series 1) strongly developed only on segments 4, 5 and 7, as in *excrucians*, (on segments 3–7 in *fitchii*); upper lateral setae (series 6) double on segments 3 to 6 (as in *fitchii, euedes*, but unlike most *riparius* and *excrucians*); comb scales 26–37 in the Idanha series, (Gjullin and Eddy (1972) give a range of 17–33), typically each with long apical spine and short subapical spinules, but some comb scales, especially near middle of patch, with a few long subapical spinules as well as shorter ones; usually at least the most distal pecten tooth more widely spaced than others; last pecten tooth arising before mid-length of siphon; siphon 4.5 to 5 times as long as greatest (basal) width, more than 7 times as long as apical width (as in *excrucians* and *fitchii*, but unlike *euedes* or *riparius* in which siphon is not more than 4 times as long as width at base); seta (9–S) at apex of lateral apical flap long, thick and strongly curved (as in *excrucians* and *fitchii*).

I believe that records of *riparius* from southwestern British Columbia (Curtis 1967) include *aloponotum*, as well as *euedes*. In the C.N.C. there are a few females of both from the lower Frazer Valley, most in poor condition. *Ae. aloponotum* appears to reach its northern limit here, ranging south to Oregon along the Coast and Cascade Ranges (see Gjullin et al. (1968) and Gjullin and Eddy (1972) for detailed distribution).

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