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HYDRACHNELLAE
AUSTRALASIAN
REGION
POLYNESIAN
DISTRICT

ABSTRACT: Seven new species of water mites (Acari. Hydracarina) are described from the Palau Islands. These include the genera Neolimnochares, Hygrobates (four species), Encentridophorus and Arrenurus.

HYDRACHNELLAE
RÉGION
AUSTRALASIENNE
SECTEUR
POLYNÉSIEN


The water mite fauna of the Caroline Islands is poorly known and the specimens taken by one of us (BRIGHT) on Palau have added a number of interesting new species or records. Three small, previously published papers (COOK, 1957 and UCHIDA, 1935, 1939) list Neumania nodosa (Daday, 1898) and Arrenurus toxopeusi Viets, 1923 from Palau, and Arrenurus laticodulus Pier-sig, 1898, and Arrenurus multicornutus Walter, 1915 from Yap. The present contribution includes ten additional species, seven of which are described as new.

In presenting measurements in this paper, those of the holotype and allotype are given first. If a series of specimens is available, the range of variation is given in parentheses following the measurements of the primary types. Holotypes and allotypes will be placed in the Field Museum of Natural History (Chicago).

1. Neolimnochares (s. s.) pacificana, new species
(Figs. 1-7)

Male: Length of body (idiosoma) 1 290 ±m; integument papillate; dorsum with two medial platelets and four pairs of lateral platelets, the shape and arrangement of which are better illustrated (fig. 5) than described; second pair of lateral platelets 182 ±m in length; most anterior of the medial platelets 130 ±m in length; ocular plate 266 ±m in length, 81 ±m in width in region of the eye capsules; ocular plate covered with relatively large tubercles, and bearing four pairs of long setae; figure 7 shows the proportions of the ocular plate; anterior coxal groups slightly separated medially and with well developed anterolateral apodemal processes; greatest dimension of one of the anterior coxal groups 258 ±m; posterior coxal

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Figs. 1-5: Neolinnochares pacificana n. sp. male;
1. — Lateral view of capitulum, chelicera and palp; 2. — Palp, medial view; 3. — Posterior coxal group and genital field;
4. — Anterior coxal group; 5. — Dorsal view.
groups widely separated; genital acetabula 23-25 on each side, these stalked and arranged in a short loop on each side; numerous setae flanking the gonopore; excretory pore surrounded by a ring of sclerotization 66 μm in length; figure 3 illustrates the structure of the genital field region; dorsal lengths of the palpal segments: P-I, 7 μm; fused P-II and P-III, 55 μm; P-IV, 24 μm; P-V (including terminal setae) 23 μm; fusion area between P-II and P-III almost completely obliterated, indicated only by a slight indentation dorsally; figure 2 shows the proportions and chaetotaxy of the palp; capitulum and chelicera approximately the same length, each about 325 μm in length; palp inserted far anteriorly on the capitulum (fig. 1); dorsal lengths of the distal segments of the first leg: I-Leg-4, 79 μm; I-Leg-5, 104 μm; I-Leg-6, 103 μm; figure 6 illustrates the proportions and chaetotaxy of these segments; all claws simple; some long setae present but true swimming hairs absent on all legs.

**Female**: Unknown.

**Holotype**: Adult male, from a riffle in the Metengalakumer River, Babeldaob Island, June 7, 1979.

**Discussion**: Members of the typical subgenus of *Neolimnochares* have previously been taken in southern South America, Africa and North America. Of the previously described species with dorsal platelets, the present form seems most similar to *N. placophora* Lundblad, 1937, known from southern Brazil. The dorsal platelets of the latter are comparatively much larger, the ocular plate is much wider, the acetabula more numerous, and the appendages are much stockier.

2. *Hygrobates* (s. s.) *piersigi*, new species (Figs. 8, 10, 11)

**Female**: Body 684 μm in length; length between anterior end of capitulum and posterior end of genital field 593 μm; length of the anterior coxal group 296 μm; width of capitulum 126 μm; capitulum only slightly narrowing posteriorly; suture line between first coxae evident; anterior coxal group moderately wide posteriorly; one pair of setae on first coxae noticeably thickened; suture line between third and fourth coxae noticeably bowed in region of the glandularia of the fourth coxae and only somewhat widened laterally; fourth coxae bowed and with a posterior projection; length between ends of pre- and post-genital sclerites 170 μm; length of the individual acetabular plates 96 μm; width of the entire genital field 204 μm; three pairs of genital acetabula, these arranged in an arc; figure 10 illustrates the ventral sclerites; antenniform setae short and thickened; dorsal lengths of the palpal segments: P-I, 26 μm; P-II, 133 μm; P-III, 89 μm; P-IV, 148 μm; P-V, 32 μm; palp segments relatively short and stocky; ventral side of P-II and P-III with many papillae; figure 11 illustrates the structure of the palp; chelicera 318 μm in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 133 μm; I-Leg-5, 141 μm; I-Leg-6, 125 μm; segments of the first leg relatively stocky; I-Leg-6 gradually expanded distally and ending in relatively large claws; distoventral heavy setae on I-Leg-4 and 5 relatively long (fig. 8); swimming hairs absent.

**Male**: Unknown.

**Holotype**: Adult female, from a rapid stream (Ngertebechel River) on Babeldaob Island, March 30, 1978.

**Discussion**: This is one of four members of the *soari* group of *Hygrobates* taken in the Palau Islands. This species group, though few in numbers, has a widespread distribution. *H. soari* Viets, 1911 has been collected in numerous areas of Africa south of the Sahara. *H. hamatus hamatus* Viets, 1935 is known from Indonesia and the subspecies *bharatensis* Cook, 1967 was described from India. Surprisingly, a member of this group, *H. amplipalpis* Lundblad, 1953, is also known from the New World (Colombia and Mexico). It is tempting to speculate that the spe-
Figs. 6-7: Neolimnophares pacifica n. sp., male; distal segments of first leg (6); ocular plate (7).
Figs. 8, 10, 11: Hygrobates piersigi n. sp., female; first leg (8); ventral sclerites (10); palp, medial view (11).
Fig. 9: Hygrobates pacificus n. sp., female, first leg.
cies from the Palau Islands may be the result of an adaptive radiation in this faunistically improve-
rished area. However, as the faunas of the larger, relatively nearby islands (the Philippines and New Guinea are both roughly 600 miles away) are so poorly known, it is presently impossible to determine origins. The present species seems most closely related to the following, *H. pacifi-
cus*, but differs as follows. Although both have a comparatively short and stocky palp, P-IV is somewhat stockier and the papillae on P-II and P-III fewer and somewhat larger in *piersigi*. Other differences are the comparatively narrow capitulum, more bowed posterior margin of the fourth coxae and much longer thickened setae at the distoventral portion of I-Leg-4 and 5 in the present species.

3. *Hygrobes* (s. s.) *pacificus*, new species
(Figs. 9, 12, 15, 16)

**Female**: Body 684 μm (760 μm-836 μm) in length; length between anterior end of capitulum and posterior end of genital field 592 μm (668 μm-684 μm); length of anterior coxal group 304 μm (308 μm-330 μm); width of capitulum 163 μm (163 μm-177 μm); capitulum only slightly narrowed posteriorly; suture lines between first coxae evident; anterior coxal group relatively wide (for a member of this species group) posteriorly; one pair of setae on the first coxae noticeably thickened; suture line between third and fourth coxae only slightly bowed in region of the glandularia of the fourth coxae and only somewhat widened laterally; fourth coxae more or less truncate posteriorly, with only a small posterior projection; length between ends of the pre- and postgenital sclerites 170 μm (189 μm-207 μm); length of the individual acetabular plates 96 μm (115 μm-118 μm); width of genital field 200 μm (219 μm-233 μm); three pairs of genital acetabula, these arranged in an arc; figure 12 shows the ventral sclerites; antenniform setae short and thickened; dorsal lengths of the palpal segments: P-I, 32 μm (30 μm-35 μm); P-II, 170 μm (170 μm-176 μm); P-III, 118 μm (108 μm-118 μm); P-IV, 192 μm (194 μm-207 μm); P-V, 39 μm (35 μm-42 μm); palpal segments, especially P-II and P-III, relatively short and stocky; ventral side of P-II and P-III with numerous, very small papillae; setae at tip of P-V only slightly downturned and projection on ventral side of this segment only slightly developed; figure 15 shows the proportions and chaetotaxy of the palp; chelicera 310 μm (333 μm) in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 148 μm (148 μm-152 μm); I-Leg-5, 155 μm (153 μm-163 μm); I-Leg-6, 155 μm (155 μm-163 μm); segments of first leg relatively stocky; I-Leg-6 gradually expanded distally and ending in relatively large claws; distoventral heavy setae on I-Leg-4 and 5 relatively short (fig. 9); swimming hairs absent.

**Male**: Body 608 μm (577 μm-593 μm) in length; length between anterior end of capitulum and posterior end of genital field 547 μm (502 μm-526 μm); length of anterior coxal 285 μm (278 μm-289 μm); width of capitulum 125 μm (125 μm-133 μm); venter, except for genital field, as described for the female; genital field (including anterior projection) 133 μm (122 μm-126 μm) in length, 130 μm (118 μm-126 μm) in width; gonopore 69 μm (67 μm-71 μm) in length, 35 μm (33 μm-37 μm) in width; three pairs of genital acetabula, these occupying most of the area of the genital field; figure 16 illustrates the ventral sclerites; dorsal lengths of the palpal segments: P-I, 30 μm (26 μm-28 μm); P-II, 133 μm (133 μm-134 μm); P-III, 89 μm (85 μm-89 μm); P-IV, 148 μm (133 μm-144 μm); P-V, 32 μm (30 μm); palp similar to that illustrated and described for female; chelicera 266 μm in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 120 μm (122 μm-128 μm); I-Leg-5, 133 μm (131 μm-135 μm); I-Leg-6, 139 μm (141 μm); legs as described for female.

**Holotype**: Adult female, from a rapid stream (Ngertebechel River) on Babeldaob Island, March 30, 1978.

**Allotype**: Adult female, same data as holotype.

**Paratypes**: 3 females, 2 males, same data as holotype.
FIGS. 12, 15, 16: *Hygrobanes pacificus* n. sp.; ventral sclerites, female (12); palp, medial view, female (15); ventral sclerites, male (16).

Fig. 13: *Hygrobanes micronesiensis* n. sp., female, first leg.

Fig. 14: *Hygrobanes palauensis* n. sp., female, palp, medial view.
Discussion: The relatively short, stocky palp (fig. 15) will separate H. pacificus from all other members of the species group except H. piersigi. See remarks under the latter for characters which will separate the two.

4. Hygrobatides (s. s.) palauensis, new species
(Figs. 14, 17-19)

Female: Body 755 µm (770 µm) in length; length between anterior end of capitulum and posterior end of genital field 638 µm (673 µm); length of anterior coxal group 327 µm (342 µm); width of capitulum 157 µm (152 µm); capitulum noticeably narrowing posteriorly; suture line between first coxae evident; anterior coxal group noticeably narrowed posteriorly; one of the anterior pair of setae on the first coxae thickened; suture line between third and fourth coxae noticeably bowed in region of the glandularia of the fourth coxae and greatly widened laterally; posterior coxal groups with both medial and posterior projections; length between ends of pre- and postgenital sclerites 118 µm (133 µm); length of the individual acetabular plates 96 µm (99 µm); width of the entire genital field 170 µm (183 µm); three pairs of genital acetabula, these arranged in an arc; figure 18 illustrates the ventral sclerites; antenniform setae relatively short and thickened; dorsal lengths of the palpal segments: P-I, 37 µm (32 µm); P-II, 177 µm (167 µm); P-III, 137 µm (126 µm); P-IV, 244 µm (248 µm); P-V, 44 µm (46 µm); palp comparatively slender; ventral side of P-II and P-III with many small papillae; setae at tip of P-V downturned; a well developed projection present on ventral side of P-V; figure 14 shows the proportions and chaetotaxy of the palp; chelicera 303 µm in length; dorsal lengths of the distal segments of the first leg; I-Leg-4, 199 µm (192 µm); I-Leg-5, 211 µm (207 µm); I-Leg-6, 155 µm (162 µm); segments of first leg relatively stocky; I-Leg-6 gradually expanded distally and ending in very large claws; a noticeable row of setal bases present on I-Leg-5 and 6; figure 17 shows the structure of the first leg; swimming hairs absent.

Male: Body 502 µm in length; length between anterior end of capitulum and posterior end of genital field 456 µm; length of anterior coxal group 254 µm; width of capitulum 96 µm; venter, except for genital field, as described for the female; genital field (including anterior projection) 89 µm in length, 103 µm in width; gonopore 52 µm in length, 37 µm in width; three pairs of genital acetabula, these occupying most of the area of the genital field; figure 19 shows the ventral sclerites; dorsal lengths of the palpal segments: P-I, 22 µm; P-II, 96 µm; P-III, 78 µm; P-IV, 126 µm; P-V, 30 µm; except that it is much smaller, palp much as described and illustrated for the female; chelicera 185 µm in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 135 µm; I-Leg-5, 140 µm; I-Leg-6, 126 µm; proportions of the first leg much as shown for the female; swimming hairs absent.

Holotype: Gravid female, from a rapid stream (Ngerbeku River) on Babelda Island, June 1, 1978.


Paratype: 1 female, same data as holotype.

Discussion: The present species may be separated from all other members of its group by its proportionally very long P-IV (fig. 14) and very noticeable narrowing of the capitulum posteriorly (figs. 18, 19).

5. Hygrobatides (s. s.) micronesiensis, new species
(Figs. 13, 20, 21, 23, 24)

Female: Body 745 µm (684 µm-760 µm) in length; length between anterior end of the capitulum and posterior end of genital field 623 µm (608 µm-638 µm); length of anterior coxal group 319 µm (297 µm-325 µm); width of capitulum 111 µm (106 µm-118 µm); capitulum only slightly narrowed posteriorly; suture line between first coxae evident; anterior coxal group narrowed posteriorly; one pair of setae on the anterior edge
Figs. 17-19: Hygroabtes palauensis n. sp., female, first leg, female (17); ventral sclerites (18); male, ventral sclerites (19).
Figs. 20-21: Hygroabtes micronesiensis n. sp., female, I-Leg-5 and 6 (20); palp, medial view (21).
Figs. 22, 25, 26: *Enceptridophorus palauensis* n. sp., male, IV-Leg-6, male (22); fema.e, palp, medial view (25); female, distal segments of first leg (26).

Figs. 23-24: *Hygrobates micronesiensis* n. sp.; ventral sclerites, male (23); female (24).
of the first coxae thickened; suture line between third and fourth coxae bowed in region of the glandularia of the fourth coxae and noticeably widened laterally; fourth coxae angled posteriorly and with well developed posterior projections; length between ends of pre- and postgenital sclerites 111 μm (125 μm-140 μm); length of the individual acetabular plates 89 μm (89 μm-100 μm); width of the entire genital field 163 μm (167 μm-185 μm); three pairs of genital acetabula, these arranged in an arc; figure 24 illustrates the ventral sclerites; antenniform setae short and thickened; dorsal lengths of the palpal segments: P-I, 24 μm (24 μm-27 μm); P-II, 124 μm (121 μm-134 μm); P-III, 114 μm (107 μm-121 μm); P-IV, 176 μm (145 μm-169 μm); P-V, 34 μm (31 μm-34 μm); P-II and P-III with many ventral papillae; distal seta of P-V noticeably downturned; figure 21 shows the proportions and chaetotaxy of the palp; chelicera 325 μm (281 μm-345 μm) in length; dorsal lengths of the distal segments of the first leg: I-Leg-4 200 μm (163 μm-192 μm); I-Leg-5, 222 μm (163 μm-214 μm); I-Leg-6, 177 μm (141 μm-170 μm); I-Leg-6 only slightly expanded distally; leg segments less stocky than in the previous three species; figure 13 shows the typical proportions and chaetotaxy of the first leg (including the holotype), but in other females, the heavy distoventral setae of I-Leg-5 are shorter and more distally placed (fig. 20); swimming hairs absent.

**Male**: Body 532 μm (532 μm-608 μm) in length; length between anterior end of capitulum and posterior end of genital field 486 μm (509 μm-540 μm); length of anterior coxal group 239 μm (251 μm-255 μm); width of capitulum 81 μm (81 μm-89 μm); venter, except for genital field region, as described for the female; genital field (including anterior projection) 89 μm (91 μm-99 μm) in length, 113 μm (108 μm-111 μm) in width; gonopore 56 μm (58 μm-66 μm) in length, 30 μm (30 μm-37 μm) in width; three pairs of genital acetabula, these occupying most of the area of the genital field; figure 23 illustrates the ventral sclerites; dorsal lengths of the palpal segments: P-I, 20 μm (17 μm-21 μm); P-II, 90 μm (90 μm-97 μm); P-III, 83 μm (81 μm-86 μm); P-IV, 121 μm (121 μm-128 μm); P-V, 27 μm (24 μm-26 μm); palp similar to that illustrated and described for the female; chelicera 222 μm-244 μm in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 133 μm (135 μm-148 μm); I-Leg-5, 163 μm (155 μm-177 μm); I-Leg-6, 133 μm (135 μm-148 μm); legs as described for the holotype female.

*Holotype*: Adult female, taken is submerged roots in a pool in the Kaud River, Babeldaob Island, June 14, 1978.

*Allotype*: Adult male, same data as holotype.

*Paratypes*: 1 female, same data as holotype; 1 female, 2 males, from a rapid stream (Ngerebeku River), Babeldaob Island, June 1, 1978; 2 females, 1 male, from a rapid stream (Ngertebechel River), Babeldaob Island, March 30, 1978.

**Discussion**: The present species seems more closely related to the Indonesian species, *H. hamatus* Viet., than to other members of its species group in the Palau Islands. *H. mikronesensis* differs in having the suture line between the third and fourth coxae more bowed in the region of the glandularia of the fourth coxae, and the distal two segments of the first leg are proportionally longer and narrower. In the male, the widest portion of the gonopore is found posteriorly rather than near the middle as in *hamatus*. The apodemal projection at the anterior end of the male genital field is also much longer in the present species.

(Figs. 22, 25-28, 30, 31)

**Male**: Length of body 714 μm (718 μm); length between anterior end of first coxae and posterior end of fourth coxae 502 μm (517 μm); suture line between third and fourth coxae incomplete; figure 28 shows the structure of the coxal area; genital field 434 μm (410 μm) in width; genital acetabula in four groups, those in the two lateral groups lying free in the integument; typi-
Figs. 27, 28, 30: *Encentridophorus palauensis* n. sp.; ventral sclerites, female (27), male (28); distal segments of third leg (30).

Fig. 29: *Encentridophorus indicus* Cook, male, distal segments of third leg (setae not illustrated).
cally with eight acetabula in each lateral group (only one acetabulum on one side in the paratype male, but this seems to be an atypical condition); five or six acetabula on each side in the medial groups and these tend to be fused with the postgenital sclerite into a common sclerite (fig. 31); length between ends of the pre- and postgenital sclerites 89 \( \mu \)m (81 \( \mu \)m); a row of five to nine setae on each side between the pregenital sclerite and the acetabular plates; body idented posteriorly, and with two rows of small setae (five to six on each side) associated with this indentation; a group of four heavy setae on each side at the posterior end of body; dorsal lengths of the palpal segments: P-I, 22 \( \mu \)m (20 \( \mu \)m); P-II, 137 \( \mu \)m (133 \( \mu \)m); P-III, 80 \( \mu \)m (74 \( \mu \)m); P-IV, 177 \( \mu \)m (155 \( \mu \)m); P-V, 53 \( \mu \)m (51 \( \mu \)m); structure of palp similar to that of female; capitulum 170 \( \mu \)m in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 233 \( \mu \)m (215 \( \mu \)m); I-Leg-5, 236 \( \mu \)m (226 \( \mu \)m); I-Leg-6, 229 \( \mu \)m (200 \( \mu \)m); dorsal lengths of the distal segments of the third leg: III-Leg-4, 167 \( \mu \)m (163 \( \mu \)m); III-Leg-5, 219 \( \mu \)m (204 \( \mu \)m); III-Leg-6, 148 \( \mu \)m (133 \( \mu \)m); III-Leg-3 with 35-40 lateral swimming hairs, III-Leg-4 with 14-15 lateral swimming hairs, III-Leg-5 with 12 lateral swimming hairs; leg segments relatively heavy (fig. 30); dorsal lengths of the distal segments of the fourth leg: IV-Leg-4 207 \( \mu \)m (200 \( \mu \)m); IV-Leg-5, 244 \( \mu \)m (240 \( \mu \)m); IV-Leg-6, 240 \( \mu \)m (229 \( \mu \)m); IV-Leg-6 not expanded (fig. 22).

**Female:** Length of body 805 \( \mu \)m (850 \( \mu \)m-910 \( \mu \)m); length between anterior end of first coxae posterior end of fourth coxae 532 \( \mu \)m (560 \( \mu \)m-577 \( \mu \)m); suture lines between third and fourth coxae complete; figure 27 shows the coxal region; genital field 486 \( \mu \)m (532 \( \mu \)m-592 \( \mu \)m) in width; length between ends of pre- and postgenital sclerites 259 \( \mu \)m (274 \( \mu \)m-281 \( \mu \)m); genital acetabula 13-14 (12-16) on each side, these tending to lie free in the integument; figure 27 shows the structure of the genital field; dorsal lengths of the palpal segments: P-I, 22 \( \mu \)m (22 \( \mu \)m-25 \( \mu \)m); P-II, 170 \( \mu \)m (164 \( \mu \)m-170 \( \mu \)m); P-III, 93 \( \mu \)m (89 \( \mu \)m-97 \( \mu \)m); P-IV, 202 \( \mu \)m (204 \( \mu \)m-207 \( \mu \)m); P-V, 67 \( \mu \)m (63 \( \mu \)m-69 \( \mu \)m); figure 25 shows the proportions and chaetotaxy of the palp; chelicera 200 \( \mu \)m (204 \( \mu \)m-207 \( \mu \)m) in length; dorsal lengths of the distal segments of the first leg: I-Leg-4, 237 \( \mu \)m (233 \( \mu \)m-237 \( \mu \)m); I-Leg-5, 241 \( \mu \)m (237 \( \mu \)m-244 \( \mu \)m); I-Leg-6, 199 \( \mu \)m (192 \( \mu \)m-200 \( \mu \)m); figure 26 shows I-Leg-4-6; second leg with a few, third and fourth legs with several swimming hairs.

**Holotype:** Adult male, from an impoundment of Ngerksong Stream, Arakabesang Island, June 8, 1978.

**Allotype:** Adult female, same data as holotype.

**Paratypes:** 1 male, 4 females, same data as holotype.

**Discussion:** The present species is closely related to *E. indicus*, described by COOK (1967) from artificial ponds in India. Males have a similar arrangement of the setae and possess a deep cleft at the posterior end. Males of *palauensis* have more acetabula fused with the postgenital sclerite and a proportionally stockier third leg. Also the third leg of the new species bears many more swimming hairs, especially on III-Leg-3 (compare figures 24 and 25 — only setal bases of swimming hairs shown for *indicus*). The female genital field of the species, from Palau is much wider and proportionally narrower than in *indicus*.

7. *Arrenurus (Megalurascarus) lohmanni*

Piersig, 1898

(Figs. 33-35)

**Male:** Length of body 1 200 \( \mu \)m; width of body proper 988 \( \mu \)m; greatest width of cauda 958 \( \mu \)m; width between outer edges of the dorsal projections of the ventral shield 836 \( \mu \)m; cauda with a broad medial indentation posteriorly; the structure of the dorsum better illustrated (fig. 33) than described; projections of the dorsal portion of the ventral shield very high when viewed laterally; acetabular plates relatively wide (fig. 34); dorsal lengths of the palpal segments: P-I,
Fig. 31: *Encentridophorus palauensis* n. sp., male, posterior end of venter.

Fig. 32: *Arrenurus carolinensis* n. sp., male, palp, medial view.

Figs. 33-35: *Arrenurus lohmanni* Piersig, male; dorsal view (33); lateral view (34); palp, medial view (35).
44 μm; P-I, 103 μm; P-III, 62 μm; P-IV, 118 μm; P-V, 52 μm; figure 35 shows the proportions and chaetotaxy of the palp; dorsal lengths of the distal segments of the first leg: I-Leg-4, 214 μm; I-Leg-5, 222 μm; I-Leg-6, 325 μm; IV-Leg-4 without a distal projection; third and fourth legs with swimming hairs.

Female: Not known with certainty.

Material Examined: 1 male, 1 nymph, from the Airai Reservoir, Babeldaob Island, March 9, 1978; 2 males, from a water-filled bomb crater on Babeldaob Island, June 8, 1978.

Discussion: This species, described by Piersig (1898), had previously been taken from islands in the Bismark Archipelago (approximately 1500 miles to the southeast) and Buru Island (approximately 700 miles to the southwest). It is closely related to A. bicornutus, Piersig, 1898, also described by Piersig from the above two islands. The latter, however, is shown as having much narrower male acetabular plates. The female of lohmanni was not taken in Palau but, if Piersig’s assignment of the female of bicornutus is correct, we suspect the female mite described as A. matupitensis by Piersig (1903) is the female of lohmanni.

A. lohmanni is a member of a species group, (others are bicornutus Piersig, multicornutus Walter, 1915 and toxopeusi Viets) which are primarily confined to Pacific islands. Recently, however, an additional species, A. guatemaltecus, was described by K. O. Viets (1975) from Guatemala (it is presently known from tropical Mexico also). This distribution, plus that of the Hygrobates species group discussed earlier, indicates there has been some faunal exchange between the Pacific islands and the northern portion of the Neotropics.

8. Arrenurus (s.s.) carolinensis, new species (Figs. 32, 36-38)

Male: Body, including petiole, 780 μm in length, 611 μm in width; pygal lobes short and directed posteriorly; width between tips of pygal lobes 373 μm; dorsal furrow passing onto sides of body at base of pygal lobes; dorsal shield bearing low humps in region of the second pair of glandula; dorsal portion of ventral shield without humps; anterior end of body projecting and slightly concave between the eyes; posterior portion of ventral shield projecting well beyond, and much narrower than, the dorsal shield; width of this posterior projection 236 μm; posterior projection bearing a petiole which is approximately 111 μm in length, 44 μm in width; basal piece of petiole with distal papillae; central piece of petiole tapering to a point posteriorly when viewed dorsally; acetabular plates extending well up onto sides of body; proportions of dorsal and lateral aspects of body and petiole better illustrated (figs. 37, 38) than described; dorsal lengths of the palpal segments: P-I, 31 μm; P-II, 69 μm; P-III, 48 μm; P-IV, 69 μm; P-V, 48 μm; figure 32 illustrates the proportions and chaetotaxy of the palp; dorsal lengths of the distal segments of the first leg: I-Leg-4, 107 μm; I-Leg-5, 110 μm; I-Leg-6, 148 μm; dorsal lengths of the distal segments of the fourth leg: IV-Leg-4, 163 μm (237 μm to tip of ventral projection); IV-Leg-5, 110 μm; IV-Leg-6, 111 μm; figure 36 illustrates these segments; first leg with a few swimming-hair-like setae; second leg with a few, third and fourth leg with many swimming hairs.

Female: Unknown.

Holotype: Adult male, from a water-filled bomb crater on Babeldaob Island, June 8, 1978.

Discussion: The new species is related to A. projectus Cook, 1967 (known from India) and A. spinosus Walter, 1929 (collected in Java). The most noticeable difference is the proportionally longer and narrower petiole, and lack of lateral humps on the dorsal portion of the ventral shield in the present species.

Two previously named species were also taken but not redescribed. These are Hydrodroma monticola (Piersig, 1906) (which is widely distri-
buted in Asia and the Australian region), and Frontipoda spinosa K. O. Viets, 1976. A male and female of the latter were taken in a pool at the headwaters of Arakitaoch Stream, Babelthuap Island. The latter species was recently described from material collected in Queensland (K. O. Viets, 1976).

REFERENCES


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