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## Results of the Archbold Expeditions. No. 77 Two Species of *Megachernes* (Pseudoscorpionida, Chernetidae)

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During the Fourth Archbold Expedition to New Guinea (1953), Hobart M. Van Deusen, of the Department of Mammals of the American Museum, obtained three collections of pseudoscorpions from rodents taken on Mt. Dayman, Maneau Range, Territory of Papua, New Guinea. The specimens belong to two species of the genus *Megachernes*. One of the species is described as new in the present paper. For the other species, *M. papuanus* Beier, supplemental data are given for the female, and the previously unknown male is briefly described. Except for two females of *M. papuanus* retained in the author's collection, the specimens have been deposited in the American Museum of Natural History. For an excellent account of the itinerary of this expedition and a description of the habitats of the host mammals, the reader is referred to Brass (1956).

The genus *Megachernes* was erected by Beier in 1932 and now contains the type species (*Chernes grandis* Beier) and 11 other species, exclusive of the new species described in the present paper. The genus *Megachernes* has a fairly wide distribution, with species recorded from continental Asia, Japan, the East Indies, and Australia. The species are characteristically associated with small mammals, chiefly rodents, and are frequently taken from the nests and bodies of these animals. For a description of the genus, reference may be made to publications by Beier (1932, 1933).

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*Megachernes papuanus* Beier

*Megachernes papuanus* BEIER, 1948, Oesterreichische zool. Zeitschr., vol. 1, pp. 481-483, figs. 10, 11.

Beier based his description of this species on a single female from a specimen of *Mus* taken at Sattelberg, Huon Gulf, North Eastern New Guinea (formerly Kaiser Wilhelm's Land), Territory of New Guinea (formerly German New Guinea). The species has not been reported since the original description. In one of our collections we have found nine females and one male and in another collection one female of this species. As Beier had a single female on which to base his description, it seems appropriate to give brief descriptions of our specimens from Mt. Dayman, Territory of Papua, New Guinea.

Our 10 females agree well with the holotype, with measurements and ratios given by Beier falling within ranges based on our 10 females except that the holotype has a body length just below the range for our specimens, a palpal femur that is slightly less in width than in any of our females, and a smaller number of branches in the galea, which Beier states has seven side branches in contrast to the nine branches usually found in the galeae of our specimens. These small differences are not considered significant, especially as the slightly smaller width of the palpal femur in Beier's female is not sufficient to prevent the length/width ratio from falling within the limits of range for our present females. In view of the difficulty of obtaining an accurate count of the galeal rami in poorly oriented specimens and the possibility that Beier may have counted only the side branches (*Seitenästen*), we associate no particular significance to the slight difference in numbers of the galeal rami. For our 10 females the body length ranges from 3.3 to 3.8 mm.; the galeae have from eight to 10 rami, but the usual number is nine; in most specimens there are 22 or 23 plates in the serrula exterior, but the extreme range is from 21 to 24. The palps of our 10 females have the following ranges of absolute sizes and ratios: trochanter 0.57-0.70 mm. long, 0.37-0.455 mm. wide, length 1.5 to 1.85 times the width; femur 0.95-1.09 mm. in length, 0.385-0.45 mm. in width, length/width ratio 2.3 to 2.6; tibia 0.96-1.10 mm. long, 0.38-0.45 mm. wide, length 2.4 to 2.6 times the width; chela without pedicel 1.58-1.81 mm. in length, 0.45-0.57 mm. in width, with the length/width ratio 3.15 to 3.6; chelal hand without pedicel 0.78-0.89 mm. in length, 0.41-0.51 mm. in depth, length 1.67 to 2.05 times the depth; length of movable chelal finger 0.82-1.00 mm. Fourth leg with entire femur 1.02-1.18 mm. in length, 0.275-0.362 mm. in depth,

with length 3.62 to 3.74 times the depth; tibia 0.81–0.94 mm. long, 0.159–0.183 mm. deep, length 4.85 to 5.3 times the depth; tarsus 0.47–0.58 mm. in length, 0.135–0.155 mm. in depth, length 3.23 to 3.94 times the depth; tactile seta of tarsus removed by 0.20–0.31 mm. (40% to 55% of the length of the tarsus) from the proximal margin of the tarsus. In the vials containing alcoholic specimens were four separated egg masses. As no other species of pseudoscorpions occurred in our two collections, we assume that these egg clutches belong to females of *M. papuanus*. One of the clutches contains 14 embryos and each of the other three contains 12 embryos.

A single male specimen occurs in our collections. Because the male of this species has not been described, it seems advisable to give some observations and measurements. In general the male is slightly smaller than the females found in our collections. The body length of the male is 3.1 mm. The chelicera is like that of the female; one cheliceral hand has two accessory setae, the other has three; fixed cheliceral finger with four to five marginal teeth in addition to two denticles on the inner margin of the apical tooth; serrula exterior with 22 to 23 plates; galea with eight to nine branches. The palpus has a trochanter 0.55 mm. long, 0.32 mm. wide; femur 0.90 mm. long, 0.395 mm. wide, length 2.28 times the width; tibia 0.90 mm. long, 0.395 mm. wide, length 2.28 times the width; chela without pedicel 1.48 mm. in length, 0.43 mm. in width, with a length/width ratio of 3.45; chelal hand without pedicel 0.76 mm. in length, 0.39 mm. in depth, length/depth ratio 1.95; the movable chelal finger 0.81 mm. in length; marginal teeth of chelal fingers between 50 and 55 on each finger, eight external accessory teeth and eight internal accessory teeth on the fixed finger and six external and seven internal accessory teeth on the movable finger. Fourth leg with entire femur 1.00 mm. long, 0.28 mm. deep; tibia 0.81 mm. long, 0.164 mm. deep; tarsus 0.46 mm. in length and 0.135 mm. in depth; tactile seta of the tarsus removed by 0.20 mm. (43.5% of total length of tarsus) from the proximal margin of the tarsus.

**RECORDS:** Nine females and one male from the north slopes of Mt. Dayman, Maneau Range, Territory of Papua, New Guinea, collected from a female *Rattus niobe* (A.M.N.H. No. 157714) in mossy forest at Top Camp, 2230 meters elevation, by Hobart M. Van Deusen on May 20, 1953. A single female from the same locality and elevation but taken from a female *Melomys levipes* (A.M.N.H. No. 158073) in mossy forest on June 2, 1953, by Van Deusen.

*Rattus niobe* and *Melomys levipes* are small rodents with a wide distribution in New Guinea. Closely related forms of *Melomys levipes*

have also reached northern and eastern Australia. The American Museum specimen records indicate an altitudinal range from 1370 to 4050 meters for *Rattus niobe*; from 365 to 2400 meters for *Melomys levipes*. Both rodents are commonly found in the oak, beech, and mossy forest zones. *Rattus niobe* is also found in the subalpine zone, while *Melomys levipes* ranges downward into the mixed rain forest.

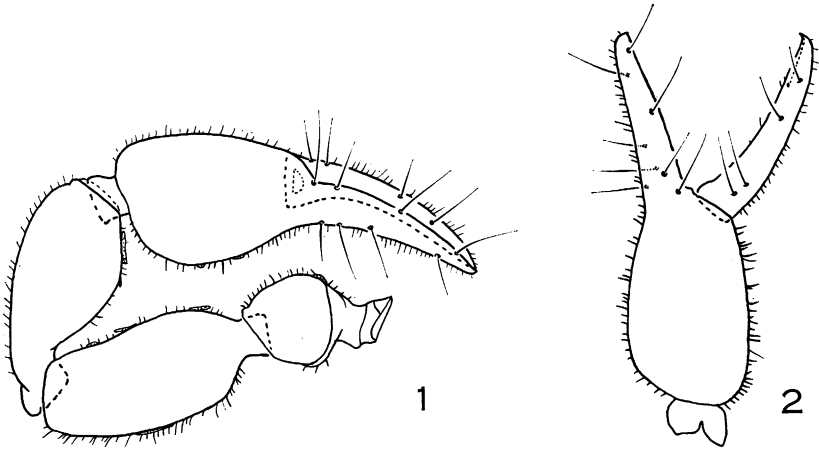
**Megachernes limatus, new species**

Figures 1, 2

FEMALE: The description of the female is based on the holotype and one paratype. Measurements and ratios for the paratype follow in parentheses the corresponding measurements and ratios of the holotype. Body 4.4 (3.9) mm. in length. Carapace rich golden brown in color, surface densely and evenly granulate, with granules more strongly developed on the lateral surfaces than on the dorsal face; posterior margin of carapace with 12 to 14 short, spine-like, subacuminate to acuminate setae; truncate anterior margin of carapace with six to eight setae, these stouter, longer, and terminally and subterminally more spinulate than the setae of the posterior carapacial margin; setae of surface of carapace short, spine-like, subacuminate, and not especially numerous; carapace with two transverse furrows, the median one somewhat posterior to the midpoint of the carapace and the posterior one a little nearer to the posterior carapacial margin than to the median furrow; carapace 1.37 (1.35) mm. in length, greatest width across the posterior margin equal to 1.32 (1.28) mm. Abdomen strongly ovate, in general slightly lighter in color than the carapace; tergites medially divided, with the tergites of the middle portion of the abdomen bearing nine to 12 marginal setae, with a longer seta on the medial margin and one to three setae along the lateral margin of each tergal half; setae of tergites short and spine-like, paucidenticate to acuminate; surface of tergites moderately granulate; sternites medially well divided, sternites of the middle portion of abdomen with halves well separated by a striated membrane; sculpturing and color of sternal halves similar to those of the tergal halves; each half of the fourth sternite with a medially placed transverse row of five to seven spine-like setae; each sternal half of central part of abdomen with a marginal row of usually 10 or 11 spine-like setae, most of which appear acuminate and none of which shows more than two or three minute subterminal and terminal spinules; a larger seta along the medial margin and one or two setae along the lateral margin of each half sternite; anterior stigmatic plate with eight (seven) more or less spine-

like setae; posterior plate with five to six (five to eight) setae; setae of stigmatic plates chiefly paucidenticulate; pleural membranes roughly striate to rugose; abdomen 2.2 (2.0) mm. in width in prepared mount.

Chelicera stout, yellow golden color; base of hand with a few net-like markings; two accessory setae on hand; setae of cheliceral hand strongly developed and each with a few subterminal and terminal spinules; flagellum of three strongly developed blades, the anterior blade serrate along the distal half of the anterior margin, other two



FIGS. 1-2. *Megachernes limatus*, new species. 1. Dorsal view of palp, female holotype. 2. Lateral view of chela, female holotype.

blades shorter and with the serrations confined to the distal one-fourth or one-fifth of the blade; length of chelicera 0.45 (0.40) mm., width of base 0.22 (0.225) mm., length of movable finger 0.31 (0.30) mm. Fixed finger gently and evenly curved, lamina exterior well developed and with moderately convex outer margin; serrula interior with the terminal five to seven plates free and with margins serrate; distal one-third of inner finger margin with six (five) irregularly developed retroconical teeth, terminal tooth with two (four) denticles along the inner margin. Movable cheliceral finger nearly straight; apical tooth strongly developed, subapical tooth little less well developed than the apical tooth; serrula exterior with 25 (23-25) ligulate plates; galea stout and with nine or 10 simple rami confined to the distal two-thirds; galeal seta reaching almost to the level of the tip of the galea.

Palp with podomeres stout, of very deep reddish golden color; sur-

face of podomeres moderately to strongly granulate, with the granules evenly and closely distributed on all surfaces; setae of podomeres short, paucidentate, and somewhat evenly distributed except fewer setae on the flexor margins of the femur and tibia than elsewhere; some periderm adhering to the surfaces of podomeres. Trochanter stout, pedicel irregular in outline and well separated from the rest of the podomere; strongly developed extensor and subdorsal protuberances; length 0.78 (0.74) mm., width 0.475 (0.45) mm. Femur with well-separated pedicel; flexor margin of femur gently S-shaped; extensor margin strongly differentiated from the pedicel, central portion flattened but becoming rounded between the distal one-third and one-fourth of the length of the femur; greatest width of femur near the center; length 1.22 (1.18) mm., width 0.52 (0.51) mm. Tibia with well-developed pedicel that is about as long as wide; extensor margin flatly convex in the basal half but moderately convex beyond; flexor margin more strongly convex and either straight or with a slight concavity near the distal end; length 1.18 (1.17) mm., width 0.54 (0.515) mm. Chela in dorsal view with hand relatively stout, fingers moderately slender; pedicel of hand a little wider than long and displaced towards the extensor margin of the hand; basal margin of hand fairly well developed, extensor margin weakly convex, flexor margin more strongly convex and joining the basal margin without interruption; fingers in dorsal view appearing gently curved and very slightly longer than the hand without the pedicel, but being virtually equal in length to the length of the hand with the pedicel; chela without pedicel 1.95 (1.95) mm. long, 0.665 (0.63) mm. in width. Chelal hand in lateral view somewhat quadrangular in general outline; pedicel strongly displaced towards the ventral side of the hand; both margins of hand more or less evenly and gently convex; hand deepest near the midpoint. In lateral view, fixed finger nearly straight, inner margin very gently convex throughout and the outer margin very slightly concave in the middle portion; 52 (51) weakly retroconical marginal teeth with well-defined cusps; 10 (eight) external accessory teeth and nine (nine) internal accessory teeth. Movable finger in lateral view gently curved, outer margin slightly convex, inner margin weakly concave; movable finger with 53 (53) marginal teeth like those of the opposing finger; eight (seven) external accessory teeth and nine (seven) internal accessory teeth. Accessory teeth of both fingers well spaced throughout the distal two-thirds or more of the finger length; nodus ramosus of movable finger much nearer to tactile seta *t* than to tactile seta *st*; tactile setae of fingers as shown in the figures; from the side chelal hand with-

out pedicel 0.96 (0.91) mm. long, 0.615 (0.62) mm. deep; movable finger 1.09 (1.12) mm. in length.

Legs relatively slender; reddish golden color; setae varying in length, but with rare exceptions always terminally and subterminally paucidentate. First leg with trochanter 0.30 (0.27) mm. long, 0.225 (0.205) mm. deep; pars basalis with over-all length 0.36 (0.34) mm., depth 0.24 (0.225) mm.; pars tibialis with the flexor and extensor margins weakly and gently convex, with the flexor slightly less convex than the extensor, over-all length 0.65 (0.60) mm., depth 0.22 (0.215) mm.; tibia weakly S-shaped, length 0.57 (0.54) mm., depth 0.14 (0.15) mm.; tarsus subcylindrical, with the extensor margin nearly straight and the flexor margin very weakly convex, especially in the central portion, length 0.43 (0.40) mm., depth 0.11 (0.12) mm. Fourth leg with trochanter 0.50 (0.48) mm. long, 0.285 (0.30) mm. deep; entire femur with extensor margin gently convex, flexor margin very weakly concave except convex in the proximal half of the pars basalis, entire femur 1.26 (1.19) mm. long, 0.33 (0.33) mm. deep; tibia relatively long and slender, extensor margin very gently and weakly concave except convex in the proximal one-fifth, flexor margin gently but evenly convex, length 1.02 (0.92) mm., depth 0.195 (0.20) mm.; tarsus subcylindrical, extensor margin virtually straight except very near the proximal end, flexor margin very weakly convex in the central part, length of tarsus 0.57 (0.55) mm., depth 0.155 (0.155) mm.; tactile seta of tarsus well developed, about as long as the length of the extensor margin of the tarsus, seta located near the midpoint or slightly basal to the midpoint of the tarsus, being removed by a distance of 0.29 (0.25) mm. from the proximal margin of the tarsus.

Female genitalia with 17 (15) acuminate setae in an irregularly bi-seriate row along the posterior margin of the posterior operculum; anterior operculum with about 40 somewhat spine-like acuminate setae arranged chiefly in a compact group except for a few of the setae scattered posterior to the group. Seminal receptacle with a well-developed median trunk that divides to form two long, slender, and well-coiled tubules. When received, the vial containing the two type specimens in alcohol also contained a clutch of 14 eggs. It seems reasonable to assume that the clutch of eggs belongs to either the holotype or the paratype, as no other pseudoscorpions were in the vial.

MALE: Unknown.

REMARKS: The present new species differs from other species of the genus *Megachernes* chiefly in the chaetotaxy of the palp, in the shape and size of palpal podomeres, and in length/width ratios of the pod-

meres of the fourth leg. Our new species appears related to *M. grandis* (Beier) from Sumatra (Beier, 1930) and east Java (Beier, 1948), to *M. sinensis* Beier from China (Beier, 1932, 1933, 1948), and to *M. papuanus* Beier from the Territory of New Guinea (Beier, 1948) and from the Territory of Papua as mentioned above in the present paper. Relationship of our new species to each of the three species mentioned is indicated by similarities in the investing setae of the palpal podomeres, in the chaetotaxy of the tergites, in the number of plates in the serrula exterior, and in the general shape of palpal tibia and femur. Based on descriptions of *M. grandis* by Beier (1930, 1932, 1948), our new species is readily separated from *M. grandis* by the smaller size of palpal podomeres in *M. limatus*. In addition the podomeres of the fourth leg are much stouter in our species, and the tactile seta of the tarsus of the fourth leg is near the midpoint of the tarsus and not distal to the midpoint as in *M. grandis*. While *M. limatus* has palpal podomeres of almost the same size as those of *M. sinensis*, our species is readily separated from *M. sinensis* (based on descriptions by Beier, 1932, 1933, 1948) by the more slender palpal femur, by the somewhat shorter movable finger in proportion to the length of the hand including the pedicel, by the larger number of branches in the galea, and by the somewhat stouter podomeres of the fourth leg in *M. limatus*. From *M. papuanus* Beier, the only other species of *Megachernes* previously reported from New Guinea, our form is readily distinguished by a number of differences. In *M. limatus* the serrula exterior usually has 25 ligulate plates, in *M. papuanus* usually 22 or 23; the length/width ratio of the palpal tibia is less than 2.3 in *M. limatus* and 2.4 or more in *M. papuanus*; the length of the chela without the pedicel is 1.95 mm. in our two specimens of *M. limatus*, but less than 1.85 mm. in our specimens of *M. papuanus*; the depth of the chelal hand is more than 0.60 mm. for *M. limatus*, but less than 0.55 mm. for *M. papuanus*; the length (without pedicel)/depth ratio of the chelal hand is less than 1.6 in *M. limatus*, but more than 1.65 in *M. papuanus*; the length of the movable chelal finger is more than 1.05 mm. in *M. limatus*, but only 1.00 mm. or less in *M. papuanus*. The most readily observed difference between individuals of the two species is in the shape of the chelal hand. In dorsal view, the chelal hand of *M. limatus* appears basally much more swollen and the extensor margin is distinctly more convex than in *M. papuanus*, while in lateral view the hand of *M. limatus* has a well-developed basal margin and the hand is swollen at the juncture of the dorsal and basal margins. In *M. papuanus* the basal margin of the hand in lateral view is virtually wanting, and there is no enlarge-



ment of the hand at the juncture of the basal and dorsal margins.

TYPE LOCALITY: The holotype female and the paratype female taken from a female *Rattus niobe* (A.M.N.H. No. 157837) in oak forest on Mt. Dayman, Maneau Range, Territory of Papua, New Guinea, at 1540 meters elevation, June 30, 1953, by Hobart M. Van Deusen.

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