

A REVISION OF THE GENUS *POTAMOMETRA* (HEMIPTERA GERRIDAE)

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The genus *Potamometra* Bianchi was erected to hold *berezowskii*, n. sp. from "Hui-shien, Kan-su, Western China". As revised here, the genus comprises four species, including one new species and another resurrected from synonymy. The members of the genus have all been described from China and are not as yet known to occur elsewhere.

Esaki [1927] correctly suppressed the genus *Thaumastometra* Kirkaldy (1899) as a synonym of *Potamometra*, and then erroneously suppressed *T. montandoni* Kirkaldy as a synonym of *berezowskii*. Since that time, Wu [1935], Hoffmann [1941], Hungerford and Matsuda [1960], Matsuda [1960], and others have perpetuated this synonymic error in the literature. The reasons for the restoration of *montandoni* as a valid species are given below beneath the respective specific headings.

The illustrations were made by Miss Lisa Biganzoli, Washington, D. C., and Mrs. J. Hoberlandt of Praha. Dr. I. M. Kerzhner, Zoological Institute, Leningrad. U.S.S.R., kindly made sketches of the types of *P. berezowskii* and loaned us one of the paratypes.

Genus *Potamometra* Bianchi

Potamometra Bianchi, 1896: 71, 72. — Kirkaldy, 1906: 156. — Oshanin, 1908: 499; 1912: 86. — Bergroth, 1908: 371. — Esaki, 1927: 254. — Lundblad, 1933: 415 (footnote); 1934: 26. — Wu, 1935: 543. — Hungerford and Matsuda, 1960: 7. — Matsuda, 1960: 271.

Thaumastometra Kirkaldy, 1899: 85. — Oshanin, 1908: 499.

Type species: *Potamometra berezowskii* Bianchi, by monotypy and original designation.

Apterous form. Body large, broad, black with the short, scattered, yellowish pubescence on dorsal surface tending to give a grayish tinge; with a median yellowish or orange stripe extending from front margin of vertex backward almost to base of metanotum; pleura of all three thoracic segments clothed with silvery hairs; body beneath grayish yellow. Antenna blackish with dorsal and ventral stripes on basal segment yellowish. Legs yellowish with longitudinal stripes black; apical regions of middle and hind femora pale yellow.

Antenna long, nearly as long as body; segment I longer than the other three segments conjoined. Eyes rather small, nearly globular, inner margin of each distinctly concave. Fore leg longer than body, tibia with a large outgrowth at inner apical angle. Middle leg extremely long, approximately four times as long as body. Hind legs a little longer than middle pair. All tarsi two-segmented, segments individualized in fore and middle legs, fused together in hind legs. Tarsal claws paired, subapical. Metanotum without distinct median sulcus; metacetabular structure oblique dorsally. Metanotum laterally separated from mesopleura by a longitudinal suture. Abdomen short in male, shorter and telescoped into the thoracic cavity in female. Genital segments of male as depicted in illustrations (figs. 3, 4a, b).

Macropterous form. This form is known only for *P. berezowskii*, in the Zoological Institute, Leningrad, U.S.S.S.R.

The genus *Potamometra*, originally described in the subfamily Halobatinae, was transferred by Bergroth (1908) to the subfamily Gerrinae, and later by Esaki (1927) to the subfamily Ptilometrinae, where it is still classified. Little is known about the habits of the members of the genus, except that they inhabit fresh water.

Key to apterous forms of Genus *Potamometra*

1. Male (figs. 1, 3, 4a, b) 2
 Female (figs. 2, 4c) 5
2. Parameres extremely long, projected rearward, surpassing hind margin of pygophore (ventrite IX) by most of their length; pygophore lobately produced backward at each latero-posterior angle (figs. 3c, d, 4a, b) 3
 Parameres much shorter, scarcely reaching as far as hind margin of pygophore; pygophore (ventrite IX) not produced at latero-posterior corners (figs. 3a, b, e, f) 4
3. Produced latero-posterior corners at each side of pygophore subacute, lanceolate with roundish sides reaching up to the level of the tip of anal conus or slightly shorter (figs. c, d) *P. berezowskii* Bianchi
 Produced latero-posterior corners at each side of pygophore pointed with straight sides distinctly surpassing the level of the tip of anal conus (figs. 4a, b) *P. tibetensis* Esaki
4. Pygophore with apical margin broad, truncate (fig. 3e); genital segments as depicted in illustrations (figs. 3e, f) *P. macrokosos*, n. sp.
 Pygophore arcuately narrowed apically beyond posterior third; apical margin much narrower, rounded; genital segments as in illustrations (figs. 3a, b) *P. montandoni* (Kirkaldy)
5. Hind coxa with outgrowth at inner apical angle extremely long, subcylindrical, extended backward, about twice the length of coxal segment itself (fig. 2a) 6
 Hind coxal outgrowth absent or at most with only a short blunt process at inner apical angle (fig. 2b) 7
6. Abdominal tergite I produced rearward at middle of hind margin into an extremely long projection, which extends backward almost as far as middle of hind trochanter (fig. 2a) *P. berezowskii* Bianchi
 Abdominal tergite I. without posterior projection at middle of hind margin *P. montandoni* (Kirkaldy)
7. Hind coxal outgrowth at inner apical angle short, obtuse, hairy, about half as long as coxal segment itself; hind margin of tergite I without backward projection (fig. 2b) *P. macrokosos*, n. sp.
 Hind coxal segment without outgrowth at inner apical angle; abdominal tergite I with a short, median, backward projection on hind margin (fig. 4c) *P. tibetensis* Esaki

Potamometra berezowskii Bianchi

(Figures 2a, 3c, d)

Potamometra berezowskii Bianchi, 1896: 73. — Oshanin, 1908: 499; 1912: 86. — Hoffmann, 1933: 246; 1941: 34. — Lundblad, 1933: 415 (footnote), pl. 20, fig. 1, ♀. — Wu, 1935: 543. — Hungerford and Matsuda, 1960: 28. — Matsuda, 1960: 271, figs. 119, 120, 642—655.

The type series of this species consist of three specimens, each of which bears the locality label "Hui-shien (3000 feet), Kan-su, Western China; 1—5/13—17. VII. 1892", and are deposited in the Zoological Institute, Leningrad, U.S.S.R. Lundblad (1933, p. 415, pl. 20, fig. 1) published a short note and an excellent figure of an apterous female (cotype) of the type series and designated it as the "Typusweibchen" and thus made it the lectotype of *P. berezowskii* Bianchi. We have examined this specimen and returned it to Leningrad. The other specimens in the above museum comprise an apterous male (allotype) and a macropterous female (paratype).

Distribution. In addition to the lectotype, we have examined apterous specimens of *P. berezowskii* from China as follows: 2 females, Kwanhsien, 8. VIII. 1938, H. S. Parish (USNM); 2 females, South Shense, 12. VII. 1936, E. Swenson (USNM); 14. specimens, South Shense Province, 13. VII. 1936, E. Swenson (Drake Collection); 7 males, 10 females and 3 nymphs, South Shense Province, Ho-ping-tse, 1100—1200 m., 12—13. VII. 1936, E. Swenson (National Museum, Praha).

This species has also been very well illustrated by Hungerford and Matsuda (1960). The structures employed in the key and illustrations depict the differences between *berezowskii* and *montandoni*.

Potamometra montandoni (Kirkaldy)

(Figures 1, 3a, b)

Thaumastometra montadoni Kirkaldy, 1899: 86, figs. 1—5. — Oshanin 1908: 499.

This species, described as *Thaumastometra montandoni* Kirkaldy from "Chine, Ho-Chan (Ngan Hoi)" is a typical member of the genus *Potamometra*. The original description and illustrations (Kirkaldy 1899) clearly fix its identity and depict the trivial differences that separate it from *berezowskii*.

The present illustrations of *montandoni* (figs. 3a, b) were made from an apterous male, labeled "type" by Kirkaldy and designated here as lectotype. The apterous female, labeled "syntype" is here designated as the allotype. Both specimens are in the Drake Collection (USNM). The type specimens were secured many years ago from the late Dr. A. L. Montandon. The present spelling of the type locality is Ho-Shan, Province Anhwei (old spellings of Anhwei are: Ngan-hui and Ngan-hwei).

The illustrations of genital segments of *montandoni* and *berezowskii* show that these species are very distinct and not synonyms as heretofore recorded in the literature.

Distribution. Known only from the type specimens, Ho-Shan, near center of Province of Anhwei, China.

***Potamometra macrokosos*, n. sp.**

[Figures 2b, 3e, f]

Apterous form. Large, broad, velvety black with the scattered yellowish pubescence tending to give a slight grayish tinge; median longitudinal stripes of thorax and stripes on appendages as well as other color markings similar to those in other members of the genus. Length

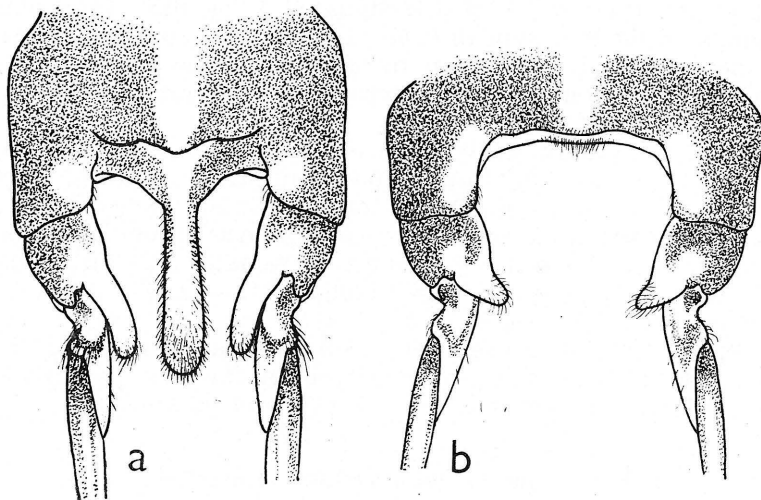


Fig. 2: Hind part of metathorax with tergite I and coxal outgrowths of females: a) *Potamometra berezowskii* Bianchi; b) *P. macrokosos*, n. sp.

(male) (to base of metanotum) 8.50 mm. (to apex of genital segments) 13.75 mm., width (across hind acetabula) 5.40 mm.; (female) (to apex of metanotum) 8.00 mm. (to apex with abdomen protruded) 12.75 mm.

Labium almost reaching to base of prosternum, segment III much longer than IV. Antenna not as long as body, measurements: (male) segment I, 4.60 mm.; II, 1.40 mm.; III, 1.70 mm.; IV, 1.25 mm.; (female) segment I, 4.60 mm.; II, 1.40 mm.; III, 1.60 mm.; IV, 1.15 mm.

Pronotum 1.60 mm. long, slightly impressed medially, with median orange stripe slightly widened behind the middle. Metanotum 3.75 mm. long, with dorsal surface moderately convex; metanotum approximately one-third as long as metanotum. Middle and hind legs extremely long, each with wide apical region pale yellowish, middle legs shorter than hind pair. Hind femur approximately 30 mm. long in male, 24 mm. long in female; tibia very long, somewhat curled in mounted specimens and thus difficult to measure. Hind coxa with a very short process at inner apical

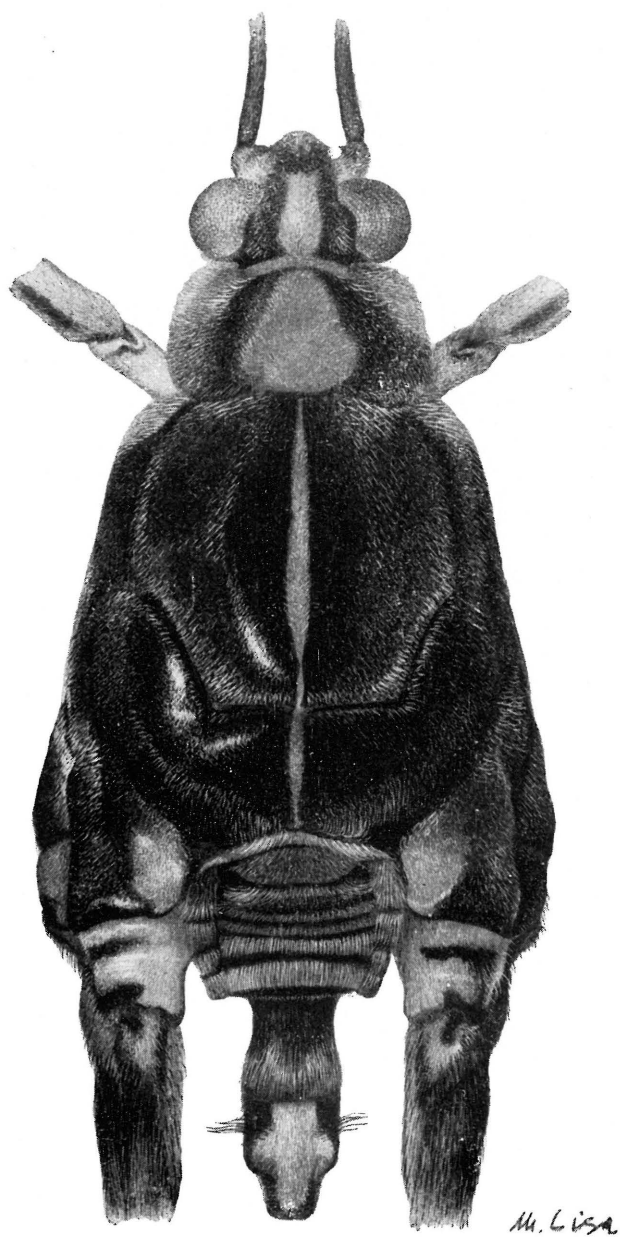


Fig. 1: *Potamometra montandoni* (Kirkaldy), apterous male, lectotype.

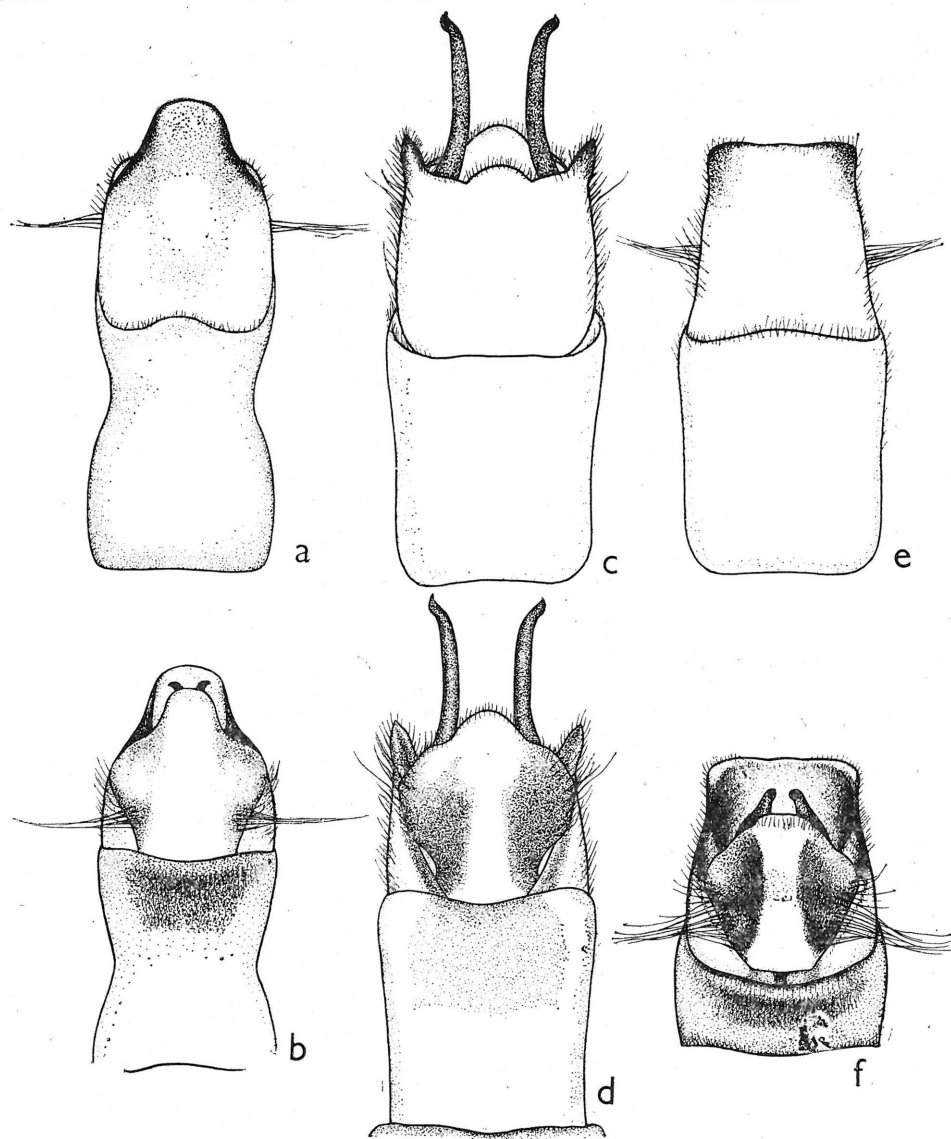


Fig. 3: Male genital segments, ventral and dorsal aspects respectively: a and b) *Potamometra montandoni* (Kirkaldy); c and d) *P. berezowskii* Bianchi; e and f) *P. macrokosos*, n. sp.

angle in male; this process larger, hairy, and nearly half as long as coxal segment in female (fig. 2 b).

Male genital segments as depicted in illustrations (figs. 3e, f). Body of female generally stouter and broader than that of the male. Legs to 20*

male distinctly longer than in female. Abdomen of female shorter than in male, usually telescoped into the thoracic cavity.

H o l o t y p e, male, and **a l l o t y p e**, female, both apterous, Suisapa, Lichuan District, western Hupan Province, China, elevation 1,000 feet, 6. VIII. 1948, collected by Gressitt and Djou, in California Academy of Sciences. **P a r a t y p e s**: 1 male and 7 females, all apterous, same locality label as holotype in California Academy of Sciences and collections of authors. Macropterous form unknown.

The female of this species can be distinguished from that of *tibetensis* by the lack of a median backward process at the middle of the first abdominal tergite. The key to species and illustrations separate *macrokotos* from the other members of the genus.

Potamometra tibetensis Esaki

(Figures 4a, b, c)

Potamometra tibetensis Esaki, 1927: 256, fig. 1. — Hoffmann, 1933: 247; 1941: 34. — Wu, 1935: 543. — Matsuda, 1960: 271.

The type of this species described from a single apterous female, "You-pin, Tibet, 1869—70 [A. David]", is in the Museum National d'Histoire Naturelle, Paris, France.

We have had the opportunity to study further material of this species, one apterous male and two apterous females labeled "Nitou, Tatsienlu, Szechuan, China (Em. Reitter)", one male and one female in the National Museum, Praha, and one female in the collection of C. J. Drake (USNM).

Since the original description by Esaki was based on a single female we are adding to the description the characters of the male.

Length (to base of metanotum) 7.40 mm., (to apex of genital segments) 13.10 mm., width (across hind acetabula) 5.70 mm. Antennae distinctly shorter than body, measurements: segment I, 5.50 mm.; II, 1.80 mm.; III, 2.00 mm.; IV, 1.40 mm.

Pronotum 1.60 mm. long, subbasally with fine transversal impression, mesonotum 3.80 mm. long, convex; metanotum 1.30 mm. long. Hind coxa with a very short tubercle-like process at apex of extero-apical angle. Pygophore (IX segment) from below as long as broad, posterior lower margin regularly moderately sinuate; pygophore produced backward at each latero-posterior angle into acute point with straight sides, distinctly surpassing the level of the tip of anal conus. Anal conus in the middle broadest, rounded, apically sinuately narrowed and then narrowly rounded. Disc of anal conus longitudinally arched. Parameres extremely long, projecting rearward, surpassing hind margin of pygophore by most of their length.

Female is characterized by a very short backward projection at middle of the hind margin of the first abdominal tergite which surpasses only slightly the level of the base of hind coxa and by the inner posterior corner of hind coxa being only slightly swollen and without a conspicuous outgrowth.

General color of both sexes is very similar to that of *P. berezowskii* Bianchi.

Potamometra tibetensis can be separated from *P. berezowskii* by the stouter form, very short backward projection at middle of the hind margin of the first abdominal tergite and the lack of a conspicuous outgrowth on the inner side of each hind coxa in the females, and by the sharply pointed latero-posterior angles of pygophore in male.

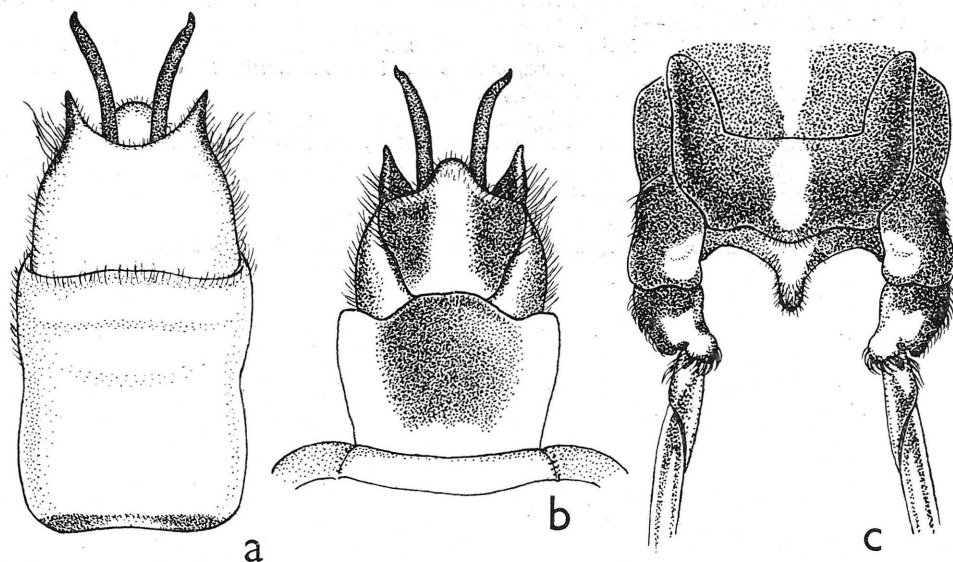


Fig. 4: *Potamometra tibetensis* Esaki a and b) male genital segments, ventral and dorsal aspects; c) hind part of metathorax with tergite I showing coxal outgrowths of female.

Hoffman [1941] states that "According to the Inland Mission Map, 1928, Moupin is in Szechwan Province in China, not in Tibet". This is in full agreement with our geographic findings.

Distribution. China, Szechwan Province, Moupin (type locality), and Szechwan, Nitou, Tatsienlu.

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