

On the *Batraxis* species of Sri Lanka and the identity of *Maya uzeli* Blattný (Coleoptera: Staphylinidae: Pselaphinae)

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Abstract. A review of the genus *Batraxis* Reitter, 1882 of Sri Lanka is given. Three species are recognized: *B. singhalensis* Raffray, 1894, *B. uzeli* (Blattný, 1925) transferred from *Maya* Blattný, 1925 (comb. nov.), and *B. taprobana* sp. nov. The lectotype is designated for *B. uzeli*. Diagnostic characters of *B. singhalensis* and *B. uzeli* are supplemented and new records for the two species are given. A key to the *Batraxis* species of Sri Lanka is provided.

INTRODUCTION

The genus *Batraxis* Reitter, 1882, established for a Greek species, *B. hampei* Reitter, 1882, appears to be widely distributed in Asia, with range extending up to northern China, Japan and Korea, and southward to New Guinea, Australia and Seychelles (Newton & Chandler 1989, Schülke & Smetana 2015). Members of the genus are quite commonly found in Asian tropics, in particular in forest floor leaf litter and other debris (personal observation). *Batraxis* was redefined by Chandler (2001), and its taxonomic history was summarized by Wang et al. 2016. In spite of these modern studies, the relationships of *Batraxis* remain obscure and the genus is still placed as Brachyglutini incertae sedis.

As far as the fauna of Sri Lanka is concerned, only one species of *Batraxis*, *B. singhalensis* Raffray, 1894, was reported from there. Its description was based on a single female found at Kandy. The species was only listed by Jeannel (1961: 443), who obviously had not seen any additional material. Since that Jeannel's paper, the species has not been mentioned in literature any more.

The genus *Maya* Blattný, 1925 was revised by Kurbatov et al. (2007). It is a member of the informal *Morana* group. *Maya* was based on two species, *Tychus dilatatus* Motschulsky, 1851 from Myanmar, subsequently designated as its type species by Newton & Chandler (1989), and a new species, *Maya uzeli* Blattný, 1925. *Maya uzeli* described from "Ceylan" (Sri Lanka) remained enigmatic and was not even mentioned in Jeannel's (1961) account on Ceylonese pselaphines. Kurbatov et al. (2007) placed *Maya uzeli* as a nomen dubium within the Goniaceritae because of unavailable type material and its description not informative enough for a more exact assignment. Surprisingly, the syntypes of *M. uzeli* reappeared recently in a private collection. They were submitted for study through the kindness of Volker Brachat who suggested to re-deposit them in the National Museum in Praha, the keeper of collections described in C. Blattný's 1925 paper. An examination of the syntypes of *M. uzeli* revealed that they are members of *Batraxis*. The present paper provides diagnostic characters of this species, and on the occasion, it deals with extensive collections of *Batraxis* from Sri Lanka, held in the Geneva Museum.

MATERIAL AND METHODS

The material dealt with is in the following collections: Muséum d'histoire naturelle Geneva (MHNG); Muséum national d'Histoire naturelle, Paris (MNHN) and Národní Museum, Praha

(NMPC). The label data under type material are given verbatim, different labels are separated by a slash.

All specimens collected by R. Mussard, C. Besuchet and I. Löbl come from sifted forest litter samples and were extracted by "Winkler-Moczarski" devices (see Löbl 1992).

The dissected body parts are mounted in Euparal on plastic slides fixed on the same pin as the remaining parts of the specimen.

TAXONOMY

Raffray (1904) recognized 14 informal species groups within the genus. These are, however, based on characters that are ambiguous and the newly studied species cannot be assigned to his groups, as already mentioned by Wang et al. (2016). The foveal system is considered important within the pselaphines (Chandler 2001). As diagnostic for *Batraxis* given in Changler (2001) are: mesoventrite with two separate median foveae, metaventrite with lateral foveae, tergite I (IV) with discal carinae originating at mediobasal foveae and basolateral foveae present, and sternite 2 (IV) with mediobasal foveae. These foveae are present in examined specimen of *B. hampei*, the type species of *Batraxis*, but absent from two of the three Sri Lanka species (specimens of *B. uzeli* were not dissected to see the thoracic and abdominal foveae).

KEY TO THE BATRAXIS OF SRI LANKA

- 1 Eyes shorter than tempora. Body length 1.70-1.95 mm. Antennomeres 4 to 8 elongate 2
- Eyes longer than tempora. Body length 1.08-1.20 mm. Antennomeres 4 to 8 about as long as wide (without invaginated stalks) *B. uzeli* (Blatný)
- 2 Dorsum of head and body with short pubescence. Punctures on frontoclypeus coarse compared to fine vertexal punctures. Pronotum with small, round antebasal fovea. Aedeagus with apically separated parameres. Outer margin of male mesotrochanter with minute angular protuberance *B. singhalensis* Raffray
- Dorsum of head and body with long pubescence. Punctures on frontoclypeus as fine as on vertex. Pronotum with antebasal fovea transverse and large. Aedeagus with parameres meeting apically. Outer margin of male mesotrochanter rounded *B. taprobana* sp. nov.

Batraxis singhalensis Raffray, 1894

(Figs. 1-5)

Batraxis singhalensis Raffray, 1894: 453.

Batraxis singhalensis Raffray, 1895: 28; primary homonym and objective synonym.

Type material. Holotype ♀: MNHN.

Type locality. Sri Lanka, Central Prov., Kandy.

Additional material examined. SRI LANKA, CENTRAL PROV., Madugoda, 28.01.1964, 1500 m, leg. R. Mussard, 2 ex.; Mandulkelle, 1000 m, 27.01.1964, leg. R. Mussard, 1 ex.; Waragamtota, 300 m, 21.01.1965, leg. R. Mussard, 21 ex.; Hasalaka near Waragamtota, about 250 m, 18.01.1970, forest litter, leg. C. Besuchet & I. Löbl, 14 ex.; Kadugannawa, 600 m, 5.12.1972, leg. C. Besuchet & I. Löbl, 5 ex.; Kandy, near "Chalet Guesthouse", about 600 m, 15.01.1970, leg. C. Besuchet & I. Löbl, 2 ex.; Kandy, Udawattekele Sanctuary, about 600 m, litter at forest edge, 22.01.1970, leg. C. Besuchet & I. Löbl, 136 ex.; above Mululla, about 750 m, 4.02.1970, leg. C. Besuchet & I. Löbl, 7 ex.; EASTERN PROV., Periyapullumalai, near Pulaveli, 11.02.1970, leg. C. Besuchet & I. Löbl, 1 ex.; NORTH CENTRAL PROV., Alut Oya, 3.02.1970, forest leaf litter, leg. C. Besuchet & I. Löbl, 61 ex.; Mihintale, 7.02.1970, forest at foot of a hill, leg. C. Besuchet & I. Löbl, 2 ex.; SABARAGAMUWA PROV., Kegalla, 18.1.1964, leg. R. Mussard, 2 ex.; Kegalla, 14.01.1970, ravine, leg. C.

Besuchet & I. Löbl, 2 ex.; between Ambepussa and Polganawela, 16.01.1970, debris at a foot of an old tree, leg. C. Besuchet & I. Löbl, 5 ex.; Kuruwita, 21.01.1970, leg. C. Besuchet & I. Löbl, 1 ex.; Uva Prov., 6 miles north Monaragala, 13.02.1970, leg. C. Besuchet & I. Löbl, 3 ex.; Diyaluma Falls, 600 m, 12.01.1965, leg. R. Mussard, 33 ex.; Diyaluma Falls, about 400 m, 23.01.1970, forest leaf litter below the falls, leg. C. Besuchet & I. Löbl, 1 ex.; 3 miles NW of Bibile, 13.II.1970, leg. C. Besuchet & I. Löbl, 6 ex.; above Wellawaya, 300 m, 25.01.1970, leg. C. Besuchet & I. Löbl, 24 ex.; SOUTHERN PROV., Tissamaharama, 22.01.1964, leg. R. Mussard, 3 ex. All in MHNG.

Diagnostic characters. Body length 1.65-1.85 mm. Frontoclypeus distinctly punctate, bearing very short pubescence. Remainder of head appearing smooth, punctures extremely fine, bearing short pubescence. Vertex somewhat convex, vertexal foveae small, situated at level of posterior eye margins. Vertexal sulcus broadly U-shaped, uninterrupted, joined to vertexal foveae. Antennal tubercles low. Eyes shorter than tempora. Antennae as in Fig. 1, with antennomeres 3 to 9 elongate, antennomere 8 slightly shorter than 9. Elytra without basal foveae. Pronotum with minute, round antebasal fovea. Mesoventrite lacking median foveae. Metaventrite with median area slightly impressed, densely punctate and pubescent, and with fovea-like impression near apical margin. Tergite 1 (IV) lacking mediobasal foveae. Sternite 2 (IV) with long, robust mesal carina. Male protibiae with minute apical denticle, usually visible only in slides (Fig. 2). Anterior margin of male mesotrochanters with a minute angular protuberance (Fig. 3). Aedeagus (Figs. 4, 5) 0.35-0.37 mm long. Parameres widely separated and broadly rounded at apices, each with three subapical setae. Internal sac weakly sclerotized, with an admesal pair of curved cylinder-like structures.

Comments. The species, based on a single female found by E. Simon at Kandy, was described by A. Raffray two times as new. It seems to be quite common in Sri Lanka and occurs in a variety of habitats ranging from lowland sclerophyllous forests to rainforests at 1500 m altitude.

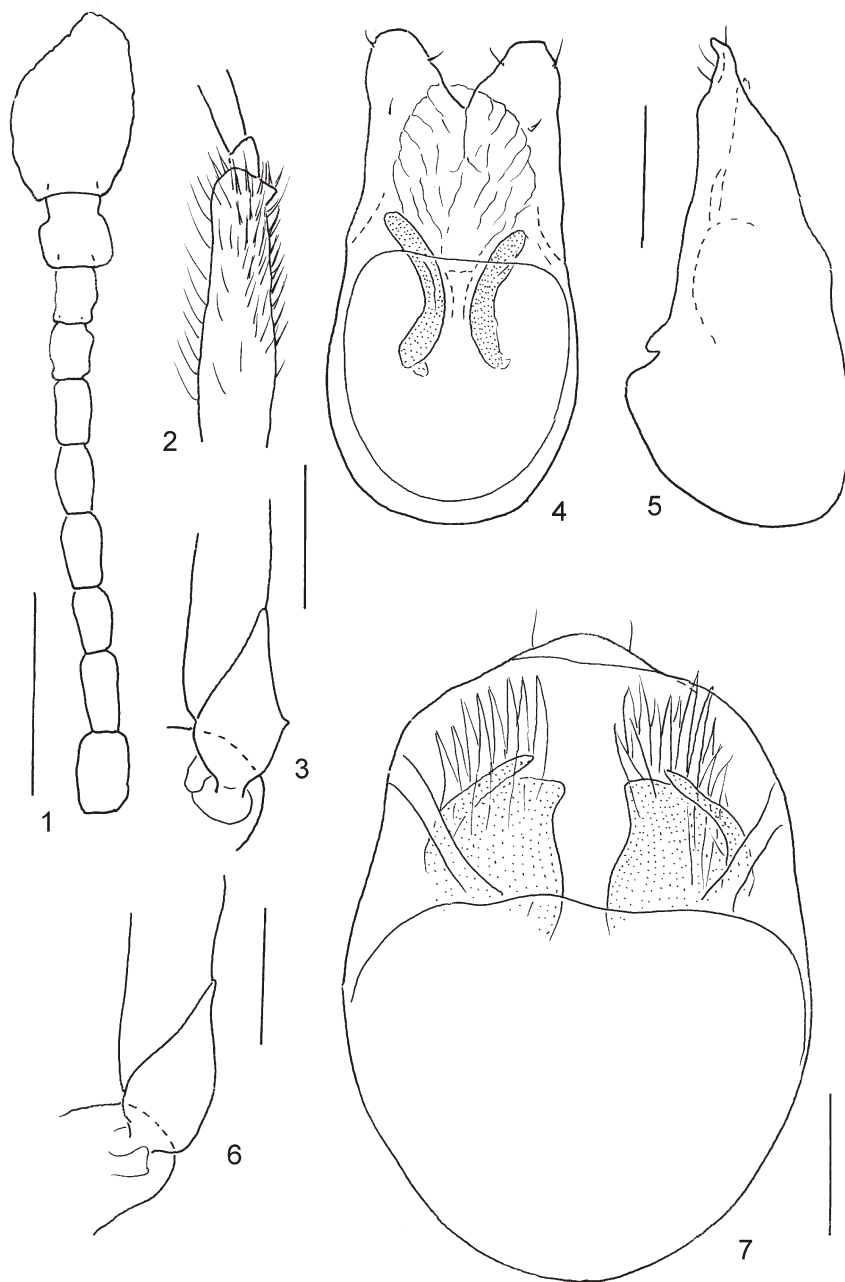
***Batraxis taprobana* sp. nov.**

(Figs. 6-10)

Type material. Holotype ♂: Ceylan Uva Haputale 1350 m. 23.1.70 MUSSARD BESUCHET LÖBL (MHNG). Paratypes 16 ♂♂, 7 ♀♀, 29 ex. sex not examined with the same data as the holotype (MHNG).

Type locality. Sri Lanka, Uva Prov., Haputale, 1350 m.

Description. Length 1.80-1.95 mm. Body reddish-brown. Dorsum of head and body with long, oblique, sparse pubescence. Head subrectangular, at posterior eye margins 0.43-0.44 mm wide. Frontoclypeus and vertex with extremely fine punctures. Vertex somewhat convex, vertexal foveae small, situated in level with hind eye margins. Vertexal sulcus broadly concave, not extended posterior antennal tubercles, not joined to vertexal foveae. Antennal tubercles large. Eyes shorter than tempora. Antennae as in Fig. 8, antennomeres 2 to 9 elongate, 3 to 5 subequal in length, 6 and 7 slightly shorter than 5, 8 distinctly shorter than 7 or 9, antennomere 10 slightly longer than wide, 11 asymmetrical, in apical half with oblique inner side, about as long as 8 to 10 combined, almost twice as wide as 10. Pronotum 0.37-0.40 mm long, 0.46-0.48 mm wide; antebasal fovea large, transverse, sharply delimited basally by carinate margin, not clearly delimited proximally. Elytra at longest point 0.58-0.62 mm, basal foveae absent, punctuation as that on pronotum. Metathoracic wings fully developed in males, reduced in females. Mesoventrite lacking median foveae. Metaventrite entirely very finely punctate, lacking densely pubescent patch, with deep median impression. Protibia almost straight and evenly narrow in basal third, posterior mid-length thickened and weakly curved. Mesotibia slightly curved and gradually



Figs. 1 to 5. *Batraxis singhalensis* Raffray, Udawatkele Sanctuary; 1- Antennomeres 2 to 11; 2- Apical part of protibia; 3- mesotrochanter; 4- aedeagus in dorsal view; 5- aedeagus in lateral view; Figs. 6-7. *Batraxis taprobana* sp. nov., paratype, Haputale; 6- mesotrochanter; 7- aedeagus in dorsal view. Fig. 1: scale = 0.2 mm; Figs. 2 to 7: scale = 0.1 mm.

thickened apically. Metatibia straight in basal two thirds, in apical third curved and thickened. Tergite 1 (IV) at base 0.71-0.75 mm wide, longer than remaining exposed tergites combined, lacking mediobasal foveae, basal carinae barely diverging, 0.10-0.11 mm long, intervals between their bases 0.08-0.09 mm wide. Sternite 2 (IV) with mesal carina reaching posterior sternal mid-length. Male protibia with minute subapical denticle (Fig. 9). Male mesotrochanter (Fig. 6) with rounded outer margin, lacking obvious sexual characters. Aedeagus (Figs. 7, 10) 0.47 mm long. Parameres contiguous apically, each with three subapical setae. Internal sac with pair of sclerotized plates and two apical tufts of fine spine-like structures.

Differential diagnosis. *Batraxis taprobana* is similar with and shares most of the characters with *B. singhalensis*. It may be distinguished by: very finely punctate frontoclypeus, long pubescence on dorsal side of body, vertexal foveae not joined to sulcus, deeply impressed mesal part of metaventrite, male protibia with denticle situated subapically, male mesotrochanter lacking angular protuberance, aedeagus large with parameres not separated apically.

Etymology. The species epithet is a noun, the historical name of Sri Lanka.

***Batraxis uzeli* (Blatný, 1925), comb. nov.**
(Figs. 11-13)

Maya uzeli Blatný, 1925: 210.

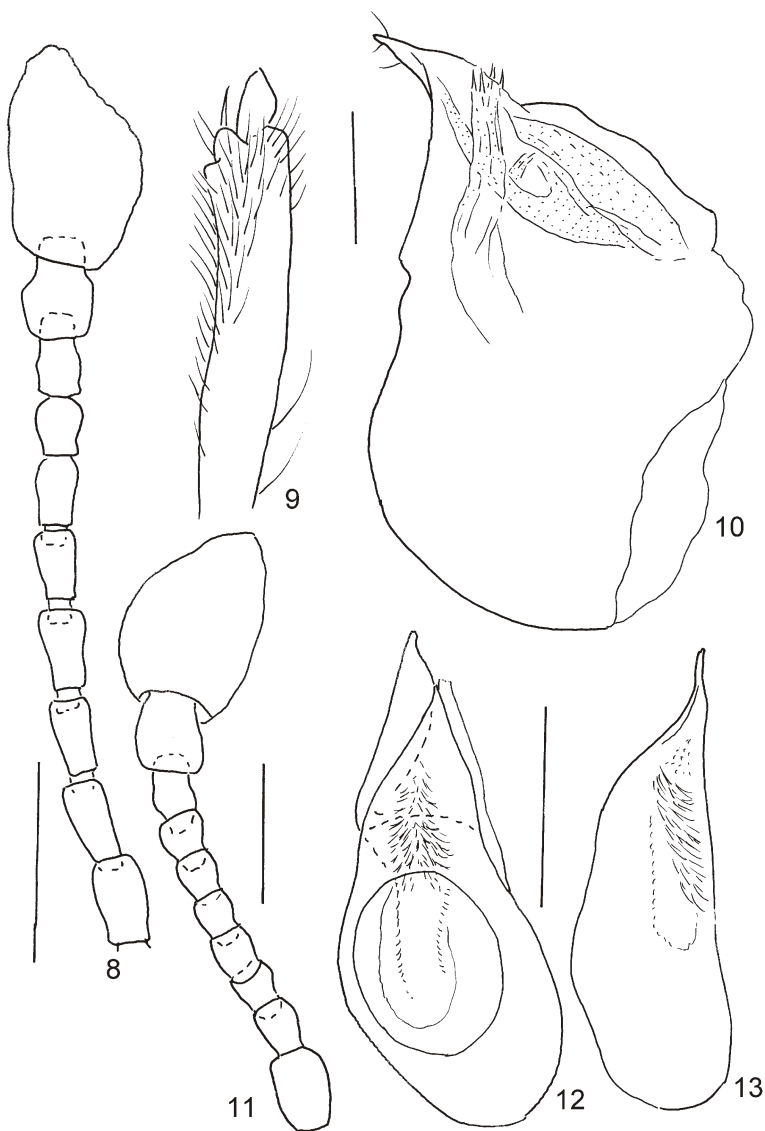
Type material. Lectotype ♂: NMPC; by present designation, labelled: Ceylon. Peradeniya 22/102 Dr. Uzel / n.g. Maya Uzelii n.sp. Blatný det. /Ex Coll. R. Rous / Holotypus [red] / Ex Sammlung V. Brachat Geretsried [green] /*Batraxis uzeli* (Blatt.) det. Brachat 1.90 / Lectotypus [red] / *Batraxis uzeli* (Blatný) det. I. Löbl (NMPC). Paralectotype ♀, labelled: Ceylon Peradeniya Collect. Uzel / n.g. Maya Uzelii n.sp. Blatný det. /Ex Coll. R. Rous / Ex Sammlung V. Brachat Geretsried [green] / Paralectotypus [yellow] / *Batraxis uzeli* (Blatný) det. I. Löbl (NMPC).

Type locality. Sri Lanka, Central Prov., Peradeniya.

Additional material examined. SRI LANKA, UVA PROV., Haputale, 1350 m, 23.01.1970, leg. C. Besuchet & I. Löbl, 1 ex. (MHNG).

Diagnostic characters. Length 1.08-1.20 mm. Dorsum of head and body very finely punctate, with distinct, rather long pubescence. Vertex convex, vertexal foveae small, situated anterior level of posterior eye margins. Vertexal sulcus broadly U-shapes, joined to vertexal foveae. Antennal tubercles indistinct. Eyes longer than tempora. Antennae as in Fig. 11, antennomere 3 elongate, 4 to 8 subquadrate, without basal stalks each about as long as wide, 9 almost twice as long as 8 and about as long as 10, 11 about 1.4 times as long as wide. Elytra without basal foveae. Pronotum with large, round antebasal fovea. Elytra lacking basal foveae. Metaventrite all over very finely punctate, with deep median sulcus. Tergite 1 (IV) lacking mediobasal foveae, mediobasal carinae 0.06 mm long, reaching tergal mid-third, parallel, interval between them 0.10 mm. Sternite 2 (IV) with short mesal carina, almost reaching sternal mid-third. Male legs without obvious sexual characters. Aedeagus (Figs. 12, 13) about 0.24 mm long. Internal sac with weakly sclerotized, dense spine tuft.

Comments. The aedeagus of the single available male is deformed, and parts of the parameres are missing.



Figs. 8-10. *Batraxis taprobana* sp. nov., paratype, Haputale; 8- Antennomeres 2 to 11; 9- apical part of protibia; 10- aedeagus in lateral view; Figs. 11-13. *Batraxis uzeli* (Blatný), holotype; 11- antennomeres 2 to 11; 12- aedeagus in dorsal view; 13- aedeagus in lateral view. Fig. 8: scale = 0.2 mm; Figs. 9 to 13: scale = 0.1 mm.

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