# New species of *Calloserica* Brenske, 1894 from Sikkim and Nepal (Coleoptera, Melolonthidae, Sericini)

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#### ABSTRACT

Four new species of the genus Calloserica Brenske, 1894 are described: Calloserica bertiae n. sp. (Sikkim), Calloserica lachungensis n. sp. (Sikkim), Calloserica cambeforti n. sp. (Sikkim) and Calloserica delectabilis n. sp. (Nepal). C. bertiae n. sp. and C. lachungensis n. sp. differ from each other by size of parameres and aedeagus, both can be distinguished from the genitalitary very similar C. brendelli Ahrens, 1999 by the shorter parameres. In contrast to all other Calloserica species, C. delectabilis n. sp. is characterized by an erect lamina on ventral portion of aedeagal phallobasis. In C. cambeforti n. sp., the lateral apophysis of aedeagal phallobasis is ventrally largely produced and curved, apically not produced, the parameres are shorter than those of C. trigrina Brenske. A checklist of the genus Calloserica, new records of C. trisuliensis Ahrens, C. brendelli Ahrens, and C. tigrina Brenske and a modified key to the species are given. Male genitalia of the new species and the distribution of all species of the genus are illustrated.

KEY WORDS
Coleoptera,
Melolonthidae,
Sericini,
Calloserica,
key,
new species,
Sikkim,

Nepal.

#### RÉSUMÉ

Espèces nouvelles du genre Calloserica Brenske, 1894 du Sikkim et du Nepal (Coleoptera, Melolonthidae, Sericini).

Quatre espèces nouvelles du genre Calloserica Brenske, 1984 sont décrites : Calloserica bertiae n. sp. (Sikkim), Calloserica cambeforti n. sp. (Sikkim), Calloserica lachungensis n. sp. (Sikkim) et Calloserica delectabilis n. sp. (Népal). C. bertiae n. sp. et C. lachungensis n. sp se différencient par la longueur des paramères et de l'édéage ; ces deux espèces présentent une conformation des genitalia très proche de C. brendelli Ahrens, 1999, mais elles s'en distinguent par leurs paramères plus courts. C. delectabilis n. sp. diffère des autres espèces du genre Calloserica par le développement d'une lame droite sur la portion ventrale de la phallobase ; C. cambeforti n. sp. par les apophyses latérales de la phallobase, fortement proéminentes et recourbées ventralement mais apicalement peu proéminente, les paramères plus courts que chez C. trigrina Brenske. Un catalogue systématique du genre Calloserica, de nouvelles données de récoltes pour les espèces C. trisuliensis Ahrens, C. brendelli Ahrens et C. tigrina Brenske, ainsi qu'une clé de détermination sont données. Les genitalia des nouvelles espèces et la distribution de toutes les espèces du genre sont illustrés.

MOTS CLÉS Coleoptera, Melolonthidae, Sericini, Calloserica, clé de détermination, espèce nouvelle, Sikkim, Népal.

# INTRODUCTION

For approximately 100 years, only a single species of the genus Calloserica Brenske, 1894 was known: Calloserica tigrina Brenske, 1894. An additional species was described by Ahrens (1995). In a recent review of the genus Calloserica (Ahrens 1999), a high rate of endemism for the genus was noted for the Himalayas, with description of nine new species. Since the conclusion of this work, additional material was examined by the author during visits at BMNH and MNHN. Four new species are described in the present work. A modified key to species of the genus Calloserica is presented and new distribution records are given.

#### **ABBREVIATIONS**

**BMNH** Natural History Museum, London; CA Coll. Dirk Ahrens, Dresden;

CP Coll. Petr Pacholátko, Brno; **HNHM** Hungarian Natural History Museum,

Budapest;

**MNHN** Museum national d'Histoire naturelle,

Paris.

# **DESCRIPTION OF NEW SPECIES**

Genus Calloserica Brenske, 1894

Calloserica bertiae n. sp. (Fig. 1)

TYPE MATERIAL. — Holotype: ♂, Sikkim de Padamtsin [Padamchen] à Lingtou Juillet 1901/ Muséum Paris ex. Coll. R. Oberthur (MNHN). Paratype: 1 ♀, Sikkim de Padamtsin [Padamchen] à Lingtou Juillet 1901/Muséum Paris ex. Coll. R. Oberthur (CA).

ETYMOLOGY. — The species is named in honour to Nicole Berti (MNHN), who was of great assistance with the search for types during my visits at MNHN.

#### DESCRIPTION

Length: 11.1-12.1 mm, width: 5.3-5.4 mm, length of elytra: 8.7-9.4 mm.

Body oblong, chestnut with opaque tomentum, elytral striae lighter, labroclypeus shiny, dorsal surface erectly hairy.

Labroclypeus shiny, transverse, sides convexly narrowed anteriorly, all borders strongly reflexed and anterior margin deeply sinuate at middle, front angles abruptly rounded; labrum broadly trapezoidal and anteriorly produced, longest extension medially; clypeal surface densely punctate, punctures slightly elevated, with thin setae. Frontoclypeal suture feebly elevated and weakly curved; smooth area in front of eye 1.5 time as wide as long, ocular canthus long and slender, with few short setae. Punctures on frons vanishing under thick opaque tomentum, only recognizable by their long erect setae. Antenna yellow, 10-segmented; club in male 4-segmented, a trifle longer than combined lengths of remaining segments, seventh segment one-third shorter than club, in female 3-segmented, a trifle shorter than combined lengths of remaining segments. Eyes small, ratio diameter/interocular width: 0.5 (3, 9).

Pronotum transverse, widest at base, lateral margin straightly convergent from base to middle, at middle strongly curved, anteriorly behind bluntly rounded, not protudent anterior angles almost straight, anterior margin straight; general shape similar to that of *C. tigrina*, but sides only posteriorly feebly sinuate before obtusely rounded hind angles; disc with shallow punctation, double erect pilosity directed forward, mixed short and two times longer setae. Proepisternum weakly grooved, posterior border produces with pronotal base shortly rounded angle. Scutellum oblong, triangular, densely punctate, basally with a deep impression.

Elytra oblong, intervals flat, mixed coarse punctures bearing long, erect, forward directed setae with groups of fine punctures bearing short white scales; apex membranous.

Ventral surface including metacoxal plates, femora, and abdominal sternites clothed with fine, recumbent, yellow setae. Abdominal sternites without any elevation. Mesosternum between mesocoxae equal in width to slender mesofemur. Ratio of length metepisternum/metacoxa: 1/1.23. Pygidium in male evenly convex, densely and shallowly punctate, with double pilosity, long setae four times longer than the short ones, in female less convex, with a longitudinal median elevation, which is apically more distinctive.

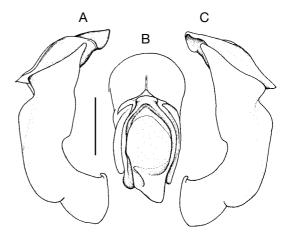


Fig. 1. — *Calloserica bertiae* n. sp. (holotype), male genitalia; **A**, **C**, aedeagus, lateral view; **B**, parameres, dorsal view. Scale bar: 1 mm

Metatibia slender, ratio width/length: 1/4.75; dorsal edge apically only moderately carinate, with two groups of spines, the proximal one situated at middle of metatibial length, basally few small setae on a longitudinal elevation; outside feebly longitudinally grooved and finely scarcely scattered punctate, ventral edge with four tubercles bearing a strong seta. Metatarsal segments laterally carinate, first metatarsomere almost as long as following two segments combined, one-fourth longer than superior metatibial spur; mesotarsal segments laterally not carinate, dorsally without longitudinal impressions. Anterior tibia short, bidentate, external border with a blunt median extension.

#### REMARKS

The species is externally very similar to *C. tigrina* Brenske, but is readily distinguished by the genital features of the male (Fig. 1) (Ahrens 1995: 138, figs 1-3).

# Calloserica lachungensis n. sp. (Fig. 2)

TYPE MATERIAL. — Holotype: &, British India Sikkim Lachen-Lachung, VIII.1933/ Muséum Paris ex. Coll. R. Oberthur (MNHN).

ETYMOLOGY. — The species is named after locality Lachung.

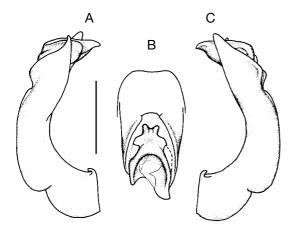


Fig. 2. — *Calloserica lachungensis* n. sp. (holotype), male genitalia; **A, C**, aedeagus, lateral view; **B**, parameres, dorsal view. Scale bar 1 mm

#### DESCRIPTION

Length: 9.3 mm, width: 5.3 mm, length of elytra: 7.4 mm.

Body oblong, chestnut, with opaque tomentum, elytral striae lighter, labroclypeus shiny, dorsal surface erectly hairy.

Labroclypeus shiny, transverse, sides convexly narrowed anteriorly, all borders strongly reflexed and anterior margin deeply sinuate at middle, front angles abruptly rounded; labrum broadly trapezoidal and anteriorly produced, longest extension medially; clypeal surface densely punctate, punctures slightly elevated, with fine setae. Frontoclypeal suture weakly curved; smooth area in front of eye 1.5 time as wide as long, ocular canthus long and slender, with few setae. Punctures on frons vanishing under thick opaque tomentum, only recognizable by their long erect setae. Antenna yellow, 10-segmented; club 4-segmented, a trifle longer than combined lengths of remaining segments, seventh segment one-third shorter than club. Eyes small, ratio diameter/interocular width: 0.56.

Pronotum transverse, widest at base, lateral margin subparallel from base to middle, anteriorly strongly curved, anterior angles bluntly rounded, not protudent, anterior margin straight; general shape similar to that of *C. tigrina*, but sides posteriorly not sinuate before obtusely rounded hind angles; disc with shallow punctation, double erect

pilosity directed forward, mixed short and two times longer setae. Proepisternum weakly grooved, posterior border produces with pronotal base a sharp, distinctive angle. Scutellum oblong, triangular, densely punctate, basally with a deep transverse impression.

Elytra oblong, intervals flat, mixed coarse punctures bearing long, erect, forward directed setae with groups of fine punctures bearing short white scales; apex membranous.

Ventral surface including metacoxal plates, femora, and abdominal sternites clothed with fine, recumbent, yellow setae. Abdominal sternites without any elevation. Mesosternum between mesocoxae equal in width to slender mesofemur. Ratio of length metepisternum/ metacoxa: 1/1.2. Pygidium convex, densely and shallowly punctate, with double pilosity, long setae four times longer than the short.

Metatibia slender, ratio width/length: 1/4.2; dorsally longitudinally carinate, with two groups of spines, the proximal one situated at middle of metatibial length, basally few small setae on a longitudinal elevation; outside longitudinally grooved, dorsally coarsly wrinkled, ventral edge with four tubercles bearing a strong seta. Metatarsal segments laterally carinate, first metatarsomere almost as long as following two segments combined, one-third longer than superior metatibial spur; mesotarsal segments laterally not carinate, dorsally without longitudinal impressions. Anterior tibia short, bidentate, external border with a blunt median extension.

#### REMARKS

The species is externally similar to *C. brendelli* Ahrens, 1999. It differs by ratio of length of first metatarsomere with the combined lengths of the second and third metatarsomeres. *C. bertiae* n. sp. (Sikkim) and *C. lachungensis* n. sp. seem closely related because of their similar features of male genitalia. They differ from each other by size of parameres and aedeagus, both can be distinguished from the genitalitary very similar *C. brendelli* Ahrens, 1999 by the shorter parameres (Fig. 2) (Ahrens 1999: 187, figs 6-8).

Female unknown.

# Calloserica delectabilis n. sp. (Fig. 3)

Type Material. — Holotype:  $\vec{o}$ , Nepal: 8800' [feet], Kathmandu Dist., Phulcoki/6.VII.84/ Lt. Col. M. G. Allen, Brit. Mus. 1983-254 (BMNH). Paratypes: 3  $\vec{o}$   $\vec{o}$ , 2  $\circ$   $\circ$ , same data as holotype (BMNH, CA).

ETYMOLOGY. — From the Latin delectabilis, "tasty".

#### DESCRIPTION

Length: 8.1-9.4 mm, width: 4.6-5.3 mm, length of elytra: 6.4-6.6 mm.

Body oblong, dark green with opaque tomentum, elytra with brownish striae, dorsal surface densely erectly hairy.

Labroclypeus shiny, transverse, sides curved anteriorly, front angles rounded, anterior margin with large median sinuation; labrum broadly trapezoidal, with only few very shallow punctures posteriorly; clypeal surface with densely scattered punctures and erect setae. Frontoclypeal suture weakly curved, smooth area in front of eye 1.5 time as wide as long, ocular canthus long, slender and very finely punctate, with few long setae. Punctures on frons vanishing under thick, opaque tomentum, only recognizable by their long setae. Antenna yellow, 10-segmented; club in male 4-segmented, distinctly longer than combined length of remaining segments, seventh segment one-fifth shorter than club; in female club 3-segmented, a trifle shorter than combined length of remaining segments, seventh segment transversely produced. Eyes rather small, ratio diameter/interocular width:  $0.62 \ (3), 0.48 \ (9).$ Mentum elevated, anteriorly indistinctly flattened.

Shape of pronotum similiar to *C. poggii* Ahrens, 1995, transverse, widest at base, sides from base to middle straightly convergent, at middle strongly curved inward, anteriorly convexly curved, front angles broadly rounded, not protuding, anterior margin straight; disc with shallow punctation, double, erect, forward directed pilosity mixed, short, straight and two times longer, at apex backwards crooked setae. Proepisternum grooved basally, posterior border produces with pronotal base a sharp, distinctive

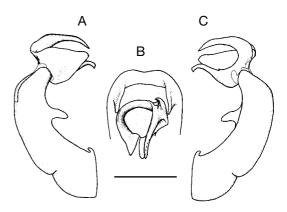


Fig. 3. — Calloserica delectabilis n. sp. (holotype), male genitalia; **A, C**, aedeagus, lateral view; **B**, parameres, dorsal view. Scale bar: 1 mm.

angle. Scutellum oblong, triangular, flat, densely punctate.

Elytra slender, intervals flat, mixed coarse punctures bearing long, erect, forward directed setae with groups of fine punctures bearing short white scales; apex membranous.

Ventral surface including metacoxal plates, femora and abdominal sternites clothed with fine, recumbent setae, on metasternum setae more erect; penultimate abdominal sternite posteriorly with two weak elevations, abdominal sternites in female simple. Mesosternum between mesocoxae equal in width to slender mesofemur. Ratio of length metepisternum/metacoxa: 1/1.23. Pygidium in male evenly convex, densely shallowly punctate, with short and long setae, punctures of long setae twice as large as those of short ones, pygidium in female moderately convex, but apically with a distinct convexity.

Metatibia slender, long, ratio width/length: 1/4.1, outside longitudinally grooved at middle and smooth, only with few, minute punctures; dorsally carinate, with two external setigerous groups of spines, basal one at middle of metatibial length, basally few small setae on a longitudinal elevation, ventral edge with four tubercles bearing a strong seta. Metatarsal segments laterally carinate, first metatarsomere one-third longer than superior metatibial spur and as long as the following two segments combined. Mesotarsi laterally not carinate, dorsally without

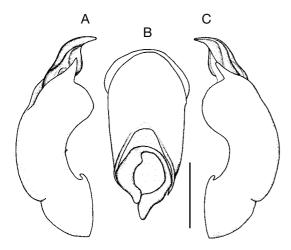


Fig. 4. — *Calloserica cambeforti* n. sp. (holotype), male genitalia; **A**, **C**, aedeagus, lateral view; **B**, parameres, dorsal view. Scale bar: 1 mm.

longitudinal impressions. Anterior tibia moderately long, bidentate, all tarsal claws simple and symmetrical.

# REMARKS

The species is externally similar to *C. brendelli* Ahrens, it differs by the shallower medial labroclypeal sinuation. In contrast to all other *Calloserica* species, *C. delectabilis* n. sp. is characterized by a erect lamina on ventral portion of aedeagal phallobasis (Fig. 3).

# Calloserica cambeforti n. sp. (Fig. 4)

TYPE MATERIAL. — Holotype: &, Sikkim de Padamtsin [Padamchen] à Lingtou Juillet 1901/Muséum Paris ex. Coll. R. Oberthur (MNHN).

ETYMOLOGY. — The species is dedicated to Prof. Y. Cambefort (MNHN), who greatly supported my work during my visits at MNHN.

#### DESCRIPTION

Length: 9.3 mm, width: 4.6 mm, length of elytra: 7.3 mm.

Body slender and oblong, chestnut with opaque toment, elytral striae lighter, labroclypeus shiny, dorsal surface erectly hairy. Labroclypeus shiny, transverse, sides convexly narrowed anteriorly, all borders strongly reflexed and anteriorly deeply sinuate at middle, front angles abruptly rounded; labrum broadly trapezoidal and anteriorly produced, longest extension medially; clypeal surface densely punctate, punctures slightly elevated, with fine setae. Frontoclypeal suture finely incised and feebly elevated, weakly curved; smooth area in front of eye 1.5 time as wide as long, ocular canthus long and slender, with few setae. Punctures on frons vanishing under thick opaque tomentum, only recognizable by their long erect setae. Antenna yellow, 10-segmented; club 4-segmented, apically feebly curved outward, almost twice as long as remaining segments together, seventh segment only a trifle shorter than club. Eyes large, ratio diameter/interocular width: 0.7.

Pronotum narrow, widest at base, lateral margin straightly convergent from base to middle, anteriorly strongly curved, front angles bluntly rounded, not protudent, posterior angles largely rounded; disc with very fine and shallow punctation, double erect pilosity directed forward, mixed short and two times longer setae. Proepisternum weakly grooved, posterior border produce a broadly rounded angle with pronotal base. Scutellum oblong, triangular, densely punctate, basally with a deep transverse impression.

Elytra oblong, intervals flat, mixed coarse punctures bearing long, erect, forward directed setae with groups of fine punctures bearing short white scales; apex membranous.

Ventral surface including metacoxal plates, femora, and abdominal sternites clothed with fine, recumbent, yellow setae. Abdominal sternites without any elevations. Mesosternum between mesocoxae equal in width to slender mesofemur. Ratio of length metepisternum/metacoxa: 1/1.23. Pygidium moderately convex, densely and shallowly punctate, with double pilosity, long setae four times longer than the short ones. Metatibia slender, ratio width/length: 1/4.4; dorsally longitudinally carinate, with two groups of spines, the proximal one situated at middle of metatibial length, basally few small setae on a longitudinal elevation; outside longitudinally

grooved, only with few very small punctures, ventral edge with four tubercles bearing a strong seta. Metatarsal segments laterally carinate, first metatarsomere almost as long as following two segments combined, almost twice as long as superior metatibial spur; mesotarsal segments laterally not carinate, dorsally without longitudinal impressions. Anterior tibia moderately long, bidentate.

#### REMARKS

This species is externally similar to *C. begnasia* Ahrens, 1999. It differs by ratio of length of the first metatarsomere with the combined lengths of the second and third metatarsomeres as well as by genitalic features of the male (Fig. 4). In *C. cambeforti* n. sp. the lateral apophysis of aedeagal phallobasis is ventrally largely produced and curved, apically not produced, the parameres are shorter than those of *C. trigrina* Brenske.

Female unknown.

#### **NEW RECORDS**

Genus Calloserica Brenske, 1894

#### Calloserica trisuliensis Ahrens, 1999

Calloserica trisuliensis Ahrens, 1999: 190.

MATERIAL EXAMINED. — 1 ex., Nepal Ganesh Himal 2 km W Gholjong 85°17'E, 28°11'N/ 2420 m, 12.X.1995 L. Pergovits & L. Ronkay (HNHM).

# Calloserica brendelli Ahrens, 1999

Calloserica brendelli Ahrens, 1999: 186.

MATERIAL EXAMINED. — 2 ex., Nepal, 6 800' [feet] Kathmandu Dist. Kakani/ Lt. Col. M. G. Allen Brit. Mus. 1983-254 (BMNH); 1 ex, Nepal, Kathmandu V. Godawari, Mahabharat, 15.V-25.VI.1995 Jiri Kolibac leg. (CP).

# Calloserica chiplingensis Ahrens, 1999

Calloserica chiplingensis Ahrens, 1999: 192.

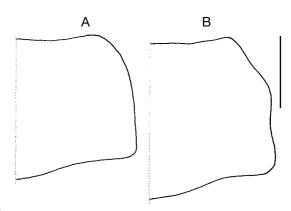


Fig. 5. — Pronotum (right half), dorsal view; **A**, *Calloserica poggii* Ahrens (holotype); **B**, *Calloserica tigrina* Brenske (lectotype). Scale bar: 1 mm.

MATERIAL EXAMINED. — 2 ex., Nepal 8800' [feet] Kathmandu Dist. Phulcoki/ Lt. Col. M. G. Allen Brit. Mus., 1983-254 (BMNH).

# Calloserica tigrina Brenske, 1894

Calloserica tigrina Brenske, 1894: 10; 56. — Ahrens 1995: 137; 1999: 185.

MATERIAL EXAMINED. — 1 ex., Darjeeling A. Desgodins./ Muséum Paris ex. coll. R. Oberthur (MNHN).

# CHECKLIST OF CALLOSERICA SPECIES

C. autumnalis Ahrens, 1999: 193.

C. barabiseana Ahrens, 1999: 194.

C. begnasia Ahrens, 1999: 186.

C. bertiae n. sp.

C. brendelli Ahrens, 1999: 186.

C. cambeforti n. sp.

C. chiplingensis Ahrens, 1999: 192.

C. delectabilis n. sp.

C. gosainkundensis Ahrens, 1999: 195.

C. hingstoni Ahrens, 1999: 192.

C. lachungensis n. sp.

C. langtangica Ahrens, 1999: 188.

C. poggii Ahrens, 1995: 137.

C. tigrina Brenske, 1894: 10, 56.

C. trisuliensis Ahrens, 1999: 190.

Modified key to male specimens of the genus <i>Calloserica</i> Brenske, 1894
1. Labroclypeus only feebly sinuate at middle of anterior margin
1'. Labroclypeus anteriorly distinctly sinuate at middle
2. Metatibia dorsally convex, not carinate
2'. Metatibia dorsally weakly carinate
3. Penultimate abdominal sternite with two transverse elevations produced by posterior margin of sternite
3'. Penultimate abdominal sternite simple, without any elevation
4. Transverse elevations on penultimate abdominal sternite blunt, last sternite simple 5
4'. Transverse elevations on penultimate abdominal sternite sharp, reflexed forward, last sternite ventrally produced, with transversely elevated ridge
5. First metatarsomere shorter than the following two segments combined, one-quarter longer than superior tibial spur
5'. First metatarsomere as long as following two segments combined, one third longer than superior tibial spur
6. Sides of pronotum behind anterior angles and behind middle less convexly curved (Fig. 5B)
6'. Sides of pronotum almost uniformly curved (Fig. 5A)
7. Sides of pronotum distinctly concavely sinuate behind middle
7'. Sides of pronotum straight behind middle
8. Body smaller than 8 mm. Punctures on labroclypeus moderately dense
8'. Body larger than 9 mm. Punctures on labroclypeus dense
9. Eyes small, ratio diameter/interocular width: 0.6 or less
9'. Eyes relatively large, ratio diameter/interocular width: 0.7
10. First metatarsal segment longer than following two segments combined

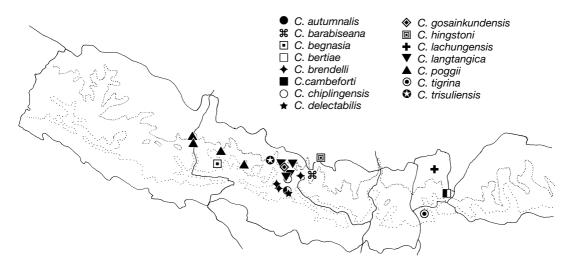


Fig. 6. — Map of Nepal and Sikkim showing the presently known distribution of the Calloserica species.

#### **DISCUSSION**

The genus *Calloserica* Brenske is presently known with 15 species from Sikkim and central Nepal and seems to be restricted to the central Himalayas (Fig. 6). However, this conclusion is determined using the meagre material available to the author. Due to the number of new species

recorded for the Himalayan range of Sikkim and West Bengal, further new species might be expected from eastern Nepal and may be also from Bhutan. All presently known species were captured during or after monsoon (June-September), a period in which many other species of Sericinae of the Himalayas are only scarcely represented in the material of studied collections.

Similar to other arthropod groups "swarms" of species ("Artenschwärme" Martens 1993) could be observed, for example, in the ranges adjacent to the Kathmandu valley. Syntopically occuring congeneric species (also more than two) are not rare (Phulcoki: *C. chiplingensis, C. autumnalis, C. delectabilis*). For further systematical and zoogeographical conclusions it will be necessary to investigate the less explored "white" areas (Fig. 6) as well as to analyse the phylogenetic relationships to other sericid groups of South East Asia.

# Acknowledgements

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