

A study on the *indiana* & *galathea* species-group of the genus *Glenea*, with descriptions of four new species (Coleoptera: Cerambycidae: Lamiinae: Saperdini)

MEIYING LIN^(1,2), GÉRARD TAVAKILIAN⁽³⁾, OLIVIER MONTREUIL⁽⁴⁾ & XINGKE YANG^{(1)*}

⁽¹⁾ Institute of Zoology, Chinese Academy of Sciences, 92 Box, Beichen West Road, Chaoyang, Beijing, 100101, China

⁽²⁾ Graduate School, Chinese Academy of Sciences, Yuquanlu, Shijingshan, Beijing, 100039, China

⁽³⁾ Antenne IRD. Entomologie, Département de Systématique et Évolution, Muséum National d'Histoire Naturelle, 45 rue Buffon, F-75005 Paris, France

⁽⁴⁾ Département de Systématique et Évolution, Muséum National d'Histoire Naturelle, 45 rue Buffon, F-75005 Paris, France

* Corresponding author

Abstract. According to our study, *Glenea indiana* and *G. galathea* commixed by Breuning (1956) includes several species and they are separated into two species group. Four new species of *Glenea* Newman are described: *G. difficilis* Lin & Tavakilian **n. sp.**, *G. pseudocaninia* Lin & Montreuil **n. sp.**, *G. pseudoindiana* Lin & Yang **n. sp.**, and *G. problematica* Lin & Yang **n. sp.** The three following species are reinstated: *G. mouhoti* Thomson 1865, *G. canidia* Thomson 1865 and *G. caninia* Heller 1926. *G. travancorana* Pic 1943 was considered as junior synonym of *G. caninia* Heller 1926. Lectotype of *G. caninia* Heller, lectotype and paralectotype of *G. cassandra* Gahan are designated. Photographs of habitus and terminalia of nine species are presented and followed by an identification key. The problem regarding subgenera is briefly discussed.

Résumé. Etude des groupes d'espèces de *Glenea indiana* & *G. galathea*, avec la description de quatre nouvelles espèces (Coleoptera : Cerambycidae : Lamiinae : Saperdini). Dans le genre *Glenea* Newman 1842, les deux groupes définis par Breuning (1956) de *Glenea indiana* (Thomson 1857) et *Glenea galathea* Thomson 1865, sont révisés. Quatre nouvelles espèces sont décrites, à savoir : *G. difficilis* Lin & Tavakilian **n. sp.**, *G. pseudocaninia* Lin & Montreuil **n. sp.**, *G. pseudoindiana* Lin & Yang **n. sp.**, *G. problematica* Lin & Yang **n. sp.** *Glenea mouhoti* Thomson 1865, *G. canidia* Thomson 1865 et *G. caninia* Heller 1926 sont toutes 3 revalidées et *G. travancorana* Pic 1943, est mise en synonymie avec *G. caninia* Heller. Le lectotype de *G. caninia* Heller ainsi que les lectotype et paralectotype de *G. cassandra* Gahan sont désignés. Les habitus et genitalia des deux sexes de toutes les espèces concernées sont illustrés, le tout accompagné d'une clef d'identification. Le problème soulevé par la création d'un sous-genre est simplement évoqué.

Keywords: *Glenea*, new species, reinstatement, lectotype designation, oriental region.

Breuning (1956) downgraded *Glenea Mouhoti* Thomson 1865, and *G. mouhoti* v. *albodiversa* Pic 1946 to the morphs of *G. (Glenea) indiana* (Thomson 1857) and added m. *cochinchinensis* Breuning 1956. He (1956) also downgraded *G. canidia* Thomson 1865, *G. canina* Heller 1926, and *G. travancorana* Pic 1943 to the morphs of *G. (Glenea) galathea* Thomson 1865.

According to our study of type specimens and / non-type material mostly from the MNHN, IRSNB and IZAS, we do not agree with Breuning's (1956) opinion on synonyms and identification of specimens in the MNHN. Gahan (1897) had already mentioned the differences between *G. galathea* and *G. canidia*, but Breuning (1956) ignored these characters and

considered these species to be synonyms. As it has been normal practice to use Breuning's redescription to identify *G. indiana* (Rondon & Breuning 1971; Hua 2002), and always mention Breuning's citation of synonyms of *G. galathea* (the only complete work on this group to date), a modern review based on reliable characters becomes necessary.

According to our study, *G. indiana* and *G. galathea* species group commixed by Breuning (1956) includes several species and they are separated into two species group though they shared a lot of similarities. The shared similarities include: 1) scape with a distinct ridge; third antennomere the longest, fifth to tenth gradually diminishing; 2) elytron with the two lateral carinae, becoming confluent before apex, disc with a short sub-carina at the base fifth; 3) middle tibiae grooved; 4) hind femora reaching at least fourth abdominal segment; 5) first hind tarsal segment longer than (male) or nearly as long as (female) the following two segments combined; 6) female with simple claws;

E-mail: yangxk@ioz.ac.cn, linmeiyong2004@yahoo.com.cn,

tava@mnhn.fr, olivier_montreuil@hotmail.com

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7) male genitalia: with ringed part elbowed in the widest portion, converging; with internal sac about 3 times as long as median lobe plus median struts, with 4 basal armature and 3 rods (two longer and one shorter); ejaculatory duct single; 8) spermathecal capsule composed of an apical orb and a stalk, stalk much longer than apical orb. The maculae are also similar: body black, sparsely clothed with black hairs, with some maculae created by dense pale pubescence; legs black, finely pubescent.

Material and methods

Most of the male and female genitalia were prepared by soaking the whole beetle in water at room temperature for 8–24 hours, then removing the genitalia with forceps without removal of the abdomen, and clearing them in 10% KOH at room temperature for 16–24 hours. In some cases, female abdomens were removed to safely extract the spermatheca. Pictures of genitalia were taken by keeping them in water. All the genitalia materials were preserved in glass or polyethylene genitalia vials filled with glycerin upon completion of the study.

Measurements

Body length: from front of head to elytral apex (including spines), in ventral view.

Body width: humeral width.

Abdomen length: from base of ventrite III to apex of ventrite VII. The measurement is not constant because abdominal segments are not fixed, but this makes no difference for comparing it with the length of the tignum.

Genitalia measurements were made with microscope from *10 to *60 times, usually from base to apex in ventral view. For median lobe plus median struts, the whole length was measured from apex of ventral plate to apex of median struts in lateral view, this is less than the true length because it is curved. The length of median struts was measured from base to apex in dorsal view, which is the true length. When comparing the median struts with the whole median lobe (plus median struts), the true length due to the curvature was considered. The length of the internal sac was measured from apex of ventral plate to sac apex, which may be slightly longer than the true length because the internal sac begins after the median orifice. But this makes no difference for the relative length between internal sac and the whole median lobe. The length of tignum was measured from base to apex, it was presented for comparing with other subgenera or genera in the future. The relative length of tignum and abdomen may be a stable character to separate groups in the Saperdini.

Materials

Materials are deposited in the following institutions or museums; abbreviations as shown in the text:

CCH: Collection of Dr. Carolus Holzschuh, Villach, Austria

IRSNB: Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgique

IZAS: Institute of Zoology, Chinese Academy of Sciences, Beijing, China

MCSNG: Museo Civico di Storia Naturale «Giacomo Doria», Genova, Italy

MHNG: Muséum d'Histoire Naturelle de Genève, Genève, Switzerland

MHNL: Muséum d'Histoire Naturelle, Lyon, France

MNHN: Muséum National d'Histoire Naturelle, Paris, France

NHML (formally BM(NH)): The Natural History Museum, London, UK

NMB: Naturhistorisches Museum, Basel, Switzerland (including ex Museum G. Frey, Tützing)

SNSD: Staatliche Naturhistorische Sammlungen (Museum für Tierkunde), Dresden, Germany

Mapping

Since the locality data were from very old and simple labels, some of which were unfamiliar or even unknown to people, we tried our best to provide the coordinates of specimens examined. Most of the coordinates data are searched through software "Collection Microsoft Encarta 2005 DVD" or "GoogleEarth". Some data are read from maps. When the detail locality is not available, county or province's coordinate is used instead.

[NCA]: No Coordinates Available.

Results

G. indiana species-group (3 species)

Head not quite as broad as prothorax. Prothorax as broad as long (male) or broader than long (female), subcarinate along median line, constricted before base. Elytron narrowing gradually towards apex, with 2 distinct lateral carinae nearly reaching the apex and one indistinct, short sub-median humeral carina, elytral apex truncate, with a short acute tooth at the suture, and a longer tooth at the outer angle. Hind femora reaching the fifth (male) or middle of the fourth (female) abdominal segment. Male claws simple. Apical visible ventrite in male with a distinct umbo prior to apical opening (figs. 2a, 2b, 6a, 6b, 11a, 11b), apex rounded. Male genitalia with tegmen very slender and long, grooved at the base in lateral view (figs. 3b, 8b, 13b).

Glenea indiana (Thomson 1857) (figs. 1–5, 87)

Stibara indiana Thomson 1857: 141 (India). [MNHN]

Glenea (Glenea) indiana: Aurivillius 1923: 499.-Breuning 1956: 173; 1966: 683.

Redescription. Male: length: 11.2–13.6 mm, humeral width: 3.3–4.0 mm. Female: length: 13.5–17.5 mm, humeral width: 4.2–6.2 mm. Head black, with a "U" shaped macula formed by dense yellowish white pubescence, additional yellowish white spot of pubescence behind genae; antennae black, moderately stout, longer than body in both male and female; antennomere ratio: male: 16:4:24:20:20:18:18:16:15:14:15; female: 15:3:24:19:19:18:18:16:15:14:15. Prothorax densely clothed with yellowish white pubescence, with a broad black area on the apical half of disc, maybe slightly narrowed medially (figs. 1–2); sides of prothorax with a moderate black spot adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black with a broad pale, sinuate, sub-median transverse band of yellowish-white pubescence extending from suture to the first lateral carina; and a second narrower preapical band of grayish

pubescence (figs. 1-2). Ventral surfaces: prosternum, part of mesosternum, central part of metasternum, first, second and last abdominal segments black with short dark pubescence, rest densely clothed with longer yellowish white pubescence.

Male terminalia (figs. 3-4): Tegmen length about 3.8 mm; lateral lobes very slender, each about 1.4 mm long and 0.1 mm wide, apex with several short setae, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, shorter than tegmen (31: 38); the median struts longer than half of the whole median lobe; dorsal plate shorter than ventral plate; apex of ventral plate pointed; median foramen moderately elongated, acute angle about 40 degrees; internal sac more than 3 times as long as median lobe plus median struts, with 4 pieces of basal armature, 2 bands of supporting armature and 3 rods; 2 longer rods each about 1.9 mm, shorter than tegmen, the other shorter one about 1.3 mm. Tergite VIII slightly broader than long, apex almost rounded, with moderately long setae at sides, shorter and sparser in the middle. Ventricle IX subequal to ringed part of tegmen in length. **Female genitalia** (fig. 5): Spermathecal capsule composed of an apical orb and a stalk, stalk twice as long as apical orb. Tignum longer than abdomen. In our observation, tignum 8.7 mm for an adult with a 6.2 mm abdomen in ventral view.

Diagnosis. Differs from other species being considered as morphs by Breuning in having the anterior male claw simple and the apical visible ventrite in the male with a distinct umbo prior to apical opening (figs. 2a, 2b), the elytral apex has longer teeth.

Remarks. As far as we know, this species occurs in India, Bhutan, Myanmar (Burma) (Carin Chebà), Nepal, Malaysia and Indonesia (?only female specimens, so we are not so sure). All the other distribution records, such as China, Vietnam, Laos, etc, are due to misidentifications. Thus, the host plants records become unreliable.

Distribution. Myanmar, India, Nepal, Bhutan, Malaysia (new record), Indonesia (?).

Type specimen examined. Type, ♀, India, Silhet [21°47'N 81°07'E] (MNHN, ex Coll. J. Thomson 1952).

Other specimens examined. **Myanmar:** 1 ♂ 3 ♀♀, Carin Chebà (east of modern Toungoo) [19°09'N 96°24'E], alt. 900-1100 m, V-XII.1888, coll. L. Fea (IRSNB); 3 ♂♂ 5 ♀♀, same data but MNHN; 1 ♂ 3 ♀♀, same data but MCSNG; 2 ♀♀, Carin Chebà [19°09'N 96°24'E], alt. 400-600 m, V-XI.1888, coll. L. Fea (MNHN); 2 ♂♂, Ruby Mines, coll. W. Doherty (MNHN).

India: 1 ♀, Surada (Canjam district) [19°45'N 84°26'E], coll. Indes Anglaises (MNHN, ex Coll. G. Babault 1930); 1 ♂ 1 ♀, Calcutta [22°34'N 88°21'E] (MNHN, ex Musaeo H. W. Bates 1892); 2 ♂♂ 2 ♀♀, Sikkim [27°43'N 88°38'E], 1893, coll. Chasseurs indigènes (MNHN); 1 ♀, Sikkim [27°43'N 88°38'E], IV-V, coll. H. Fruhstorfer (NMB, ex Coll. Frey); 1 ♀, Sikkim, Tumlong [27°25'N 88°34'E] (NMB, ex Coll. Frey); 1 ♀, India (MNHN, ex Coll. R. P. Belon, Coll. A. Argod, 1931); 1 ♂, India (NHML, Bowring 63.47); 1 ♂ 1 ♀, N. Inida (MNHN); 1 ♂ 4 ♀♀, Assam [26°16'N 96°38'E] (MNHN); 2 ♀♀, Assam (NHML); 2 ♀♀, Assam, Khasia Hills [25°26'N 91°39'E] (MNHN); 3 ♀♀, Assam, Margherita [27°17'N 95°40'E], 1895, coll. Chasseurs Bretaudeau (MNHN, ex Coll. R. Oberthür, 1952); 1 ♀, Naga Hills [25°47'N 94°14'E] (MNHN); 4

♀♀, Darjeeling [27°02'N 88°15'E] (MNHN); 1 ♂, Indes (MNHN); 9 ♂♂ 32 ♀♀, Inde Anglaise, Pedong District de Darjeeling [27°09'N 88°36'E], 1932, coll. Chasseurs indigènes (MNHN, ex Coll. R. Oberthür, 1952, with 1 ♂ and 1 ♀ deposited in IZAS, 1 ♀ in MHNG); 1 ♀, Nurbong, Darjeeling [27°09'N 88°36'E], 2050 feet, coll. Stevens (NHML); 1 ♂, Chota Nagpore, Nowatoli [23°20'N 83°44'E], 1898, coll. R. P. Cardon (MNHN, ex Coll. R. Oberthür, 1952); 1 ♂ 4 ♀♀, same data but 1897.X (MNHN); 1 ♂ 3 ♀♀, Chota Nagpore, Barway [23°20'N 83°44'E], VI-VIII.1896, coll. R. P. Cardon (MNHN, ex Coll. R. Oberthür, 1952, 1 female ex Coll. M. Pic, 1 male in NMB); 15 ♂♂ 21 ♀♀, British Bootang, Maria Basti [27°09'N 88°37'E], coll. L. Durel (MNHN, with 1 ♂ and 1 ♀ deposited in IZAS); 10 ♂♂ 7 ♀♀, same data but MNHN, ex Coll. R. Oberthür, 1952; 3 ♀♀, same data but NMB, ex Coll. Frey; 1 ♀, same data but IRSNB; 7 ♂♂ 12 ♀♀, same data but 1898/1899/1900 (MNHN, ex Coll. R. Oberthür, 1952); 1 ♂ 1 ♀, same data but IRSNB; 8 ♂♂ 8 ♀♀, British Bootang, 1898/1899, coll. L. Durel (MNHN, ex Coll. R. Oberthür, 1952); 6 ♀♀, British Bootan, Padong [NCA], 1913/1914, coll. L. Durel (MNHN, ex Coll. R. Oberthür, 1952).

Nepal: 2 ♂♂ 2 ♀♀, E. Nepal, Mechi [26°52'N 87°56'E], Tamur River, Dobhan, alt. 700 m, 7-8.VI.1985, coll. C. Holzshuh (CCH).

Bhutan: 1 ♂ 2 ♀♀, Central Bhutan, Gaylegphug Prov. [26°52'N 90°30'E], Gaylegphug, alt. 250 m, 7-10.VIII.1990, leg. C. Holzshuh (CCH); 1 male, Bhoutan, Andlais [NCA], 1900, coll. R. Oberthür (MHNG).

Malaysia: 3 ♂♂ 2 ♀♀, Penang [5°20'N 100°29'E] (NHML, Bowring 63.47); 1 ♀, Malacca [2°23'N 102°15'E], Hagenbach, 1863 (MNHN).

Indonesia(?): 2 ♀♀, Sumatra [0°33'N 102°59'E] (IRSNB, ex Coll. Nonfried).

Glenea canidia Thomson 1865, stat. rev. (figs. 6–10, 86)

Glenea canidia Thomson 1865: 566 (India). [MNHN]

Glenea (Glenea) galathea m. *canidia*: Breuning 1956: 173.-Breuning 1966: 682.

Redescription. Male: length: 11.8–12.8 mm, humeral width: 3.5–3.9 mm. Female: length: 13.0–16.8 mm, humeral width: 4.2–5.5 mm. Head black, frons with dense yellowish white pubescence, surrounding a central, rounded, black macula which extends back between antennal sockets to become confluent with occipital area, genae below eyes with an additional yellowish white patch of pubescence; antennae black, slender, longer than body (male) or subequal to body (female); antennomere ratio: male: 14:3:21:17:16:15.5:15:14:13.5:13:14; female: 15:4:22:17:18:16:15:14:13:12:13. Prothorax densely clothed with yellowish white pubescence, with a black area on the disc, extending from apical margin to basal 1/3, apical 1/3 much narrower while the remaining 2/3 distinctly wider and broadly rounded (figs. 6–7); sides of prothorax with a moderate sized black spot adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, with a yellowish white pubescent sub-median, posthumeral macula and a smaller irregular spot at middle of basal 1/3. Apical half with a broad, pale transverse band of dense, yellowish-white pubescence which is linked to the scutellum by a pale, pubescent sutural stripe which narrows at level of larger sub-median macula, preapical transverse band

not linked to broader sub-median band by sutural stripe (figs. 6–7). Ventral surfaces: prosternum, part of mesosternum, central part of metasternum, most part of first and second abdominal segments, small central part of third and fourth abdominal segments, and the whole last abdominal segment thinly pubescent and black with dark short setae, rest densely clothed with longer yellowish white pubescence.

Male terminalia (figs. 8–9): Tegmen length about 3.5 mm; lateral lobes very slender, each about 1.2 mm long and 0.1 mm wide, apex with several short setae, and one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, shorter than tegmen (6: 7); the median struts longer than half of the whole median lobe in length; dorsal plate shorter than ventral plate; apex of ventral plate pointed; median foramen moderately elongated, acute angle about 40 degrees; internal sac about 3 times as long as median lobe plus median struts, with 4 pieces of basal armature, 2 bands of supporting armature and 3 rods; 2 longer rods each about 2.0 mm, shorter than tegmen, the third which is the shorter, about 1.4 mm. Tergite VIII broader than long, apex emarginated, with moderately long setae. Ventrite IX subequal to ringed part of tegmen in length. **Female genitalia** (fig. 10): Spermathecal capsule composed of an apical orb and a stalk, stalk twice as long as apical orb, spermathecal duct more than twice of capsule in length, spermathecal gland well developed, beginning at the base of spermathecal capsule. Tignum longer than abdomen. In our observation, tignum 8.5 mm for an adult with a 7.8 mm abdomen in ventral view.

Diagnosis. Differs from *G. galathea* in having male anterior claw simple; differs from *G. indiana* in having a different pattern of white maculae on elytron.

Remarks. Breuning (1958) regarded this species as a morph of *G. galathea*, based on the maculae similarities. But it is completely different from *G. galathea*, in having simple claws in both male and female, while in *galathea* the male anterior claw of fore tarsi is furnished with a distinct unguiculus at the base. According to our study, this species belongs to *G. indiana*, since both males have all claws simple and have a distinct carina on ventrite VII. Genitalia study has confirmed that they are closer relatives.

Although we found a male labelled with “Japon” in MNHN, we consider it as an unreliable label and do not wish to include Japan in the distribution of this species. We have not found any record from Japan in the recent literature. If this species exists in Japan, it would have been recorded before as the Japanese fauna is the most studied of this region.

Distribution. India, Malaysia (new record).

Type specimen examined. Type, ♂, Ind. Or., Bombay [19°01'N 72°51'E] (MNHN, ex Coll. J. Thomson, 1952).

Other specimens examined. **India:** 1 ♂ 3 ♀♀, Bombay [19°01'N 72°51'E], 1839, coll. Jontanur (MNHN). 1 ♀, Inde (MNHN, Coll. R. P. Belon, Coll. A. Argod, 1931); 1 ♀, India (MNHN, ex Musaeo Quedenfeldt); 1 ♀, locality unknown (MNHN, ex Musaeo Ed Brown); 2 ♀♀, Madura, S. Indien [19°01'N 72°51'E] (NMB, ex Coll. Frey).

Malaysia: 2 ♀♀, Malacca [2°23'N 102°15'E] (MHNG). 1 ♂, “Japon (unreliable label)” (MNHN).

Glenea caninia Heller 1926, stat. rev. (figs. 11–15, 87)

Glenea caninia Heller 1926: 47, pl. V, fig. 18 (India). [SNSD]

Glenea travancorana Pic 1943: 6 (India). [MNHN] **syn. nov.**

Glenea (*Glenea*) *galathea* m. *travancorana*: Breuning 1956: 173.- Breuning 1966: 682.

Glenea (*Glenea*) *galathea* m. *caninia*: Breuning 1956: 173.- Breuning 1966: 682.

Redescription. Male: length: 10.8–12.1 mm, humeral width: 3.1–3.5 mm. Female: length: 13.9–15.6 mm, humeral width: 4.3–5.0 mm. Head with frons and genae densely clothed with yellowish white pubescence, frons with a black spot in the middle and most of the occiput black except two pale, pubescent stripes which extend back from the frons along inner margin of eyes; antennae black, slender, longer than body; antennomere ratio: male: 12:2:19:15:15:14:13.5:13:12:11:12; female: 14:3:20:16:17:16:15:14:13:12:13. Prothorax densely clothed with yellowish white pubescence, disc with black area extending from apical margin to basal 1/3, with apical 1/4 usually much narrower while the remaining 2/3 wider and somewhat rounded, sides of prothorax with a moderate sized black spot adjacent to coxae. Scutellum with yellowish white pubescence. Elytron with a broad post-median, transverse band of dense yellowish-white pubescence and a narrower preapical band of grayish-white pubescence, bands connected by a pale, pubescent, sutural stripe which extends to scutellum where it narrows, humeral area with a small, pale, sub-median macula and an irregular, lateral stripe which may extend from the humeri to the post-median band (figs. 11–12). Ventral surfaces: prosternum, part of mesosternum, central part of metasternum, most part of first and second abdominal segments, small central part of third and fourth abdominal segments and whole of last abdominal segments black and thinly pubescent with short dark setae, rest clothed with dense yellowish white pubescence.

Male terminalia (figs. 13–14): Tegmen length about 3.1 mm; lateral lobes very slender, each about 1.1 mm long and 0.1 mm wide, apex with several short setae, and one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, shorter than tegmen (27: 31); the median struts longer than half of the whole median lobe in length; dorsal plate shorter than ventral plate; apex of ventral plate pointed; median foramen slightly elongated, acute angle about 40 degrees; internal sac about 3 times as long as median lobe plus median struts, with 4 pieces of basal armature, 2 bands of supporting armature and 3 rods; 2 longer rods each about 1.6 mm, shorter than tegmen, the other shorter one about 1.2 mm. Tergite VIII as broad as long, apex emarginated, with denser and longer setae at sides but few short setae in the grooved middle. Ventrite IX subequal to ringed part of tegmen. **Female genitalia** (fig. 15): Spermathecal capsule composed of an apical orb and a stalk, stalk less than twice of apical orb. Tignum long, longer than abdomen. In our observation, tignum 7.8 mm for an adult with a 6.0 mm abdomen in ventral view.

Diagnosis. Differs from *G. galathea* in having male claws all simple; differs from *G. indiana* and *G. canidia* in having elytron with complete sutural stripe and sub-lateral longitudinal stripe in anterior half.

Distribution. India.

Lectotype designation: According to Heller's originally description, there were more than one syn-

types. We would like to design one male specimens in SNSD as lectotype: male, length: 12.2 mm, humeral width: 3.8 mm. “Karwar, T.R. Bell. Kanara [15°19'N 75°42'E], 20-VII-1914 (half print half handwriting)” “1925/L (light yellow)” “types/caninia (red)” “Statl. Museum für Tierkunde, Dresden (print)” “Lectotype (red), *Glenea caninia* Heller (handwriting), ♂, Designated. M. Y. LIN 2008”.

Type specimens examined. Lectotype (of *G. caninia* Heller), ♂, India, Kanara, Karwar [14°48'N 74°07'E], 20.VII.1914, coll. T. R. Bell. (SNSD). Type (of *G. travancorana* Pic), ♂, Wallardi (Travancore [8°30'N 76°56'E]) (MNHN, ex Coll. M. Pic).

Other specimens examined. India: 3 ♂♂ 3 ♀♀, Wallardi (Travancore [8°30'N 76°56'E]) (MNHN); 1 ♂ 3 ♀♀, Maïssour, Sakrabail [NCA, IX.1898 (MNHN)]; 1 ♀, Maïssour, Sakrabail (NMB, ex Coll. Frey); 1 ♂ 2 ♀♀, Indes Orient, Trichinopoly [10°48'N 78°41'E], coll. R. P. J. Castets (MNHN, ex Coll. R. Oberthür, 1952); 2 ♀♀, India, Shembaganur [10°14'N 77°29'E] (MNHN, ex Coll. H. de Touzalin); 1 ♀, Shembaganur, Madura [10°14'N 77°29'E], Inde (NMB, ex Coll. Frey); 1 ♂, Kodaikanal [10°14'N 77°29'E], Palni Hills, Madura Dist., alt. 5000-7000 feet, VI.1915, coll. L. V. Newton (NHML, ex Coll. F. R. Mason, 1921-68); 1 ♀, Kodaikanal [10°14'N 77°29'E], V-VI.1909, coll. R. P. Newton (MHNG); 1 ♀, Kanara [15°19'N 75°42'E] (NHML, Andrewes Bequest B.M. 1922-221); 1 ♀, S. India (NHML); 1 ♂ 1 ♀, Travancore [8°30'N 76°56'E], Indien (NMB, ex Coll. Frey); 1 ♀, India, Kerala, Kottayam, Dist. Peermade [9°34'N 72°59'E], V.1975, coll. T.R.S. Nathan (MHNG).

Remarks. Breuning (1956) regarded this species as a morph of *G. galathea*, based on the maculae similarities. But it differs from *G. galathea*, in having simple claws in both male and female, while in *galathea* the male anterior claw of the front tarsi is furnished with a distinct unguiculus at the base. According to our study, this species is closer to *G. indiana* and *G. canidia* as males of these species have all claws simple and have a distinct carina on ventrite VII. Genitalia study also confirms that they are closer relatives.

G. galathea species-group (7 species, including 4 new species)

Head as broad as prothorax. Antennae slender, longer than body in both male and female. Prothorax as broad as long or slightly broader than long, subcarinated along median line, constricted before base. Elytron narrowing gradually towards apex, with 2 distinct lateral carinae nearly reaching the apex and one indistinct, short sub-median humeral carina, elytral apex truncate, with a short tooth at the suture, and a similar or longer tooth at the outer angle. Hind femora reaching the fifth (male) or middle of the fourth (female) abdominal segment. Male claws: the anterior claw of the fore tarsi only is furnished with a distinct unguiculus at the base, which is so strongly developed that it gives the appearance of three claws, claws on other tarsi simple. Most of the members of *G. galathea* group have ventrite VII only slightly or not projected ventrally, with apex somewhat grooved. Male genitalia with tegmen stout and

short, except *G. pseudoindiana* n. sp., which have the *G. indiana* group kind of ventrite VII and long tegmen, but which is not grooved at the base in lateral view.

Glenea difficilis Lin & Tavakilian n. sp. (figs. 16–20, 87)

Description. Male: length: 9.3–12.0 mm, humeral width: 2.7–3.6 mm. Female: length: 10.8–15.0 mm, humeral width: 3.4–5.0 mm. Head black, with a “U” shaped area of pale pubescence on frons, tempora and genae with pale pubescence (male) or black (female); antennae black, antennomere ratio: male: 13:3:20:15:16:14:14:13:13:12:13; female: 13:3:20:15:15:14:14:13:13:11:12. Prothorax densely clothed with yellowish white pubescence, disc with a large black area, extending from anterior margin to basal 1/4, widest in apical 1/4, with a narrow bifurcation at middle of posterior margin (figs. 16, 17); sides of pronotum with a moderate sized black macula adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, except one broad post-median transverse, yellowish-white pubescent band, which extends from suture to the first lateral carina and one narrow, grayish, transverse band near elytral apex (figs. 16, 17). Ventral surfaces: prosternum, part of mesosternum, central part of metasternum, first, second and last abdominal segments black, rest densely clothed with yellowish white pubescence. Elytron slightly emarginate apically (figs. 16, 17), with a short tooth at the suture, and a shorter or subequal tooth at the outer angle.

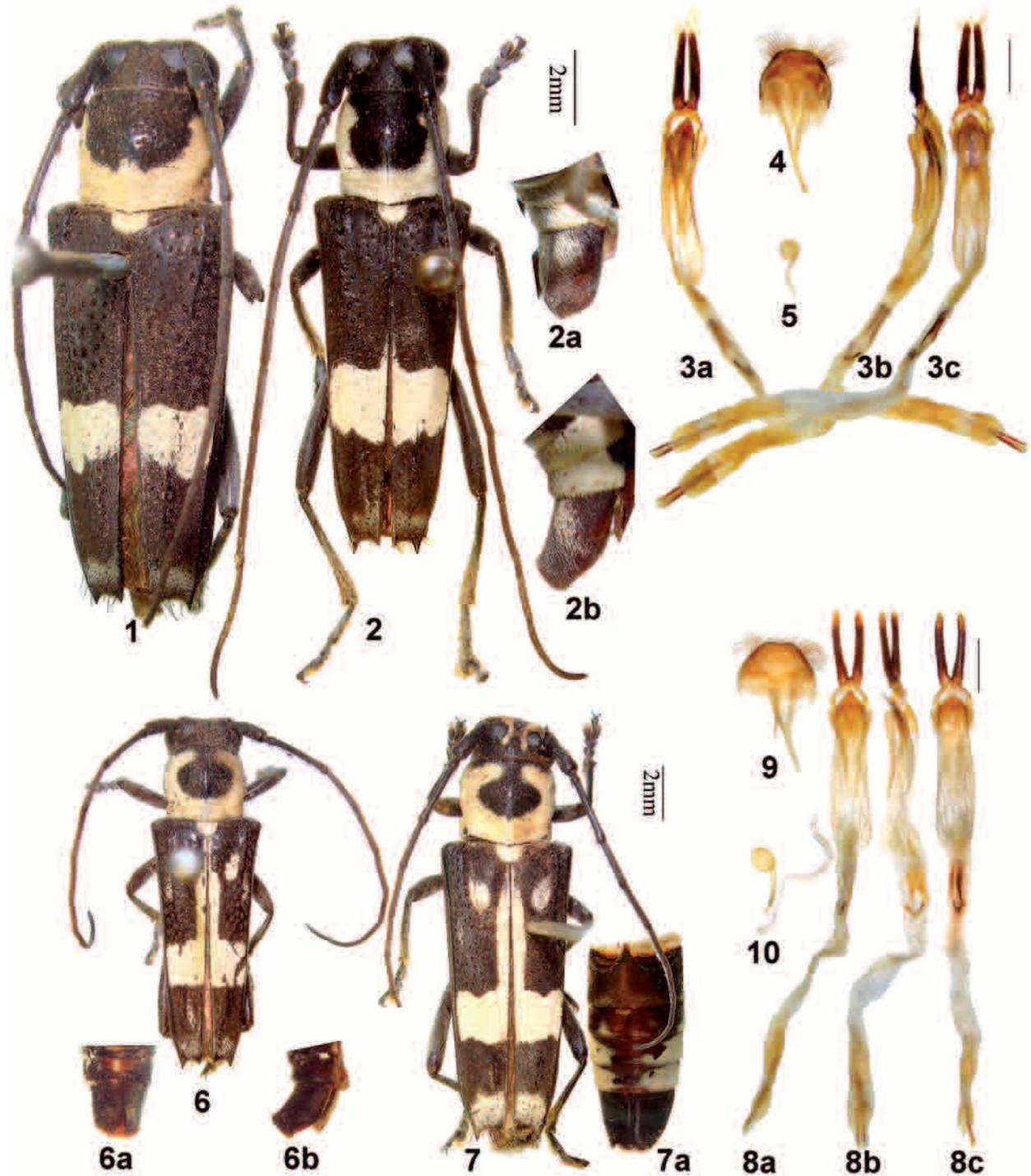
Male terminalia (figs. 18–19): Tegmen length about 2.6 mm; lateral lobes stout, each about 0.5 mm long and 0.2 mm wide, apex with setae subequal or shorter than lateral lobes, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, a little longer than tegmen (27: 25); the median struts slightly longer than half of the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate projected, strongly narrower before apex; median foramen slightly elongated, acute angle about 30 degrees; internal sac about 3 times as long as median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and bigger rods each about 1.9 mm, shorter than tegmen, the other shorter one about 1.3 mm. Tergite VIII broader than long, apex slightly emarginated, with denser and longer setae at sides but fewer and short setae in the grooved middle. Ventrite IX shorter than ringed part of tegmen. **Female genitalia** (fig. 20): Spermathecal capsule composed of an apical orb and a stalk, stalk twice as long as apical orb. Tignum longer than abdomen. In our observation, tignum 6.5 mm for an adult with a 5.3 mm abdomen in ventral view.

Diagnosis. Differs from *G. mouhoti* and *G. problematica* n. sp. in black area on pronotum being closer to base and transverse pubescence band on elytron with its front margin lying behind the mid-line of elytron.

Etymology. Because it was usually confounded or misidentified in the collections.

Distribution. Vietnam (Tonkin).

Type specimens examined. **Holotype.** ♂ [11.7 mm long, 3.4 mm wide], Tonkin occ. Env. de Hoa Binh, Vietnam [20°50'N 105°19'E], 1919, coll. R. P. A. de Cooman (MNHN, ex Coll. R. Oberthür, 1952). **Paratypes:** 7 ♂♂ 8 ♀♀, same data, including

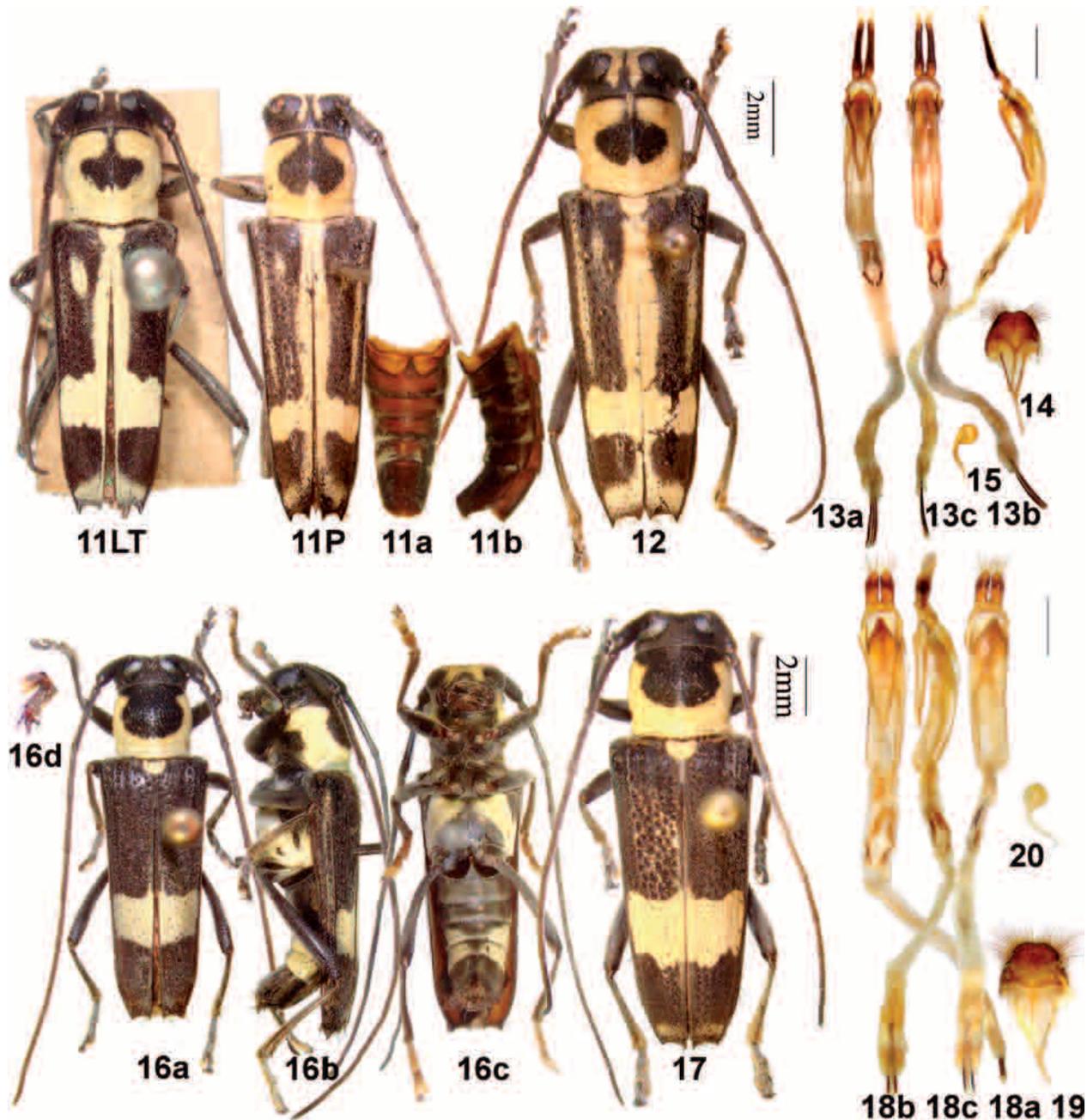


Figures 1–10

Glenea indiana (Thomson). 1, type, female, from India. 2, male, from Bhutan. 2a–2b, male, abdomen, showing ventrite VII. a. ventral view. b. lateral view. **Genitalia of *G. indiana* (Thomson).** 3, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 4, tergite VIII and ventrites VIII & IX in ventral view. 5, spermathecal capsule. Scale 1 mm. *G. canidia* Thomson. 6, type, male, from India. 7, female, from India. 6a–6b, male, abdomen, showing ventrite VII. a. ventral view. b. lateral view. 7a, female, abdomen, ventral view. **Genitalia of *G. canidia* Thomson.** 8, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 9, tergite VIII and ventrites VIII & IX in ventral view. 10, spermathecal capsule, with part of spermathecal duct and spermathecal gland. Scale 1 mm.

1 ♂ and 1 ♀ deposited in IZAS; 4 ♂♂ 7 ♀♀, same data but 1918; 4 ♂♂ 3 ♀♀, Tonkin occ. Rég. de Hoa Binh [20°50'N 105°19'E], 1919 (MNHN, ex Coll. R. Oberthür, 1952); 5 ♂♂ 1 ♀, same data but 1927, coll. A de Cooman (MNHN);

2 ♂♂ 1 ♀, same data but 1928 (MNHN); 5 ♂♂ 2 ♀♀, Tonkin, Env. de Hoa-Binh [20°50'N 105°19'E] (MNHN, ex Coll. R. Oberthür, 1952); 2 ♂♂, Tonkin, Hoa-Binh [20°50'N 105°19'E] (MNHN, ex Coll. M. Pic); 4 ♂♂ 2 ♀♀, same data

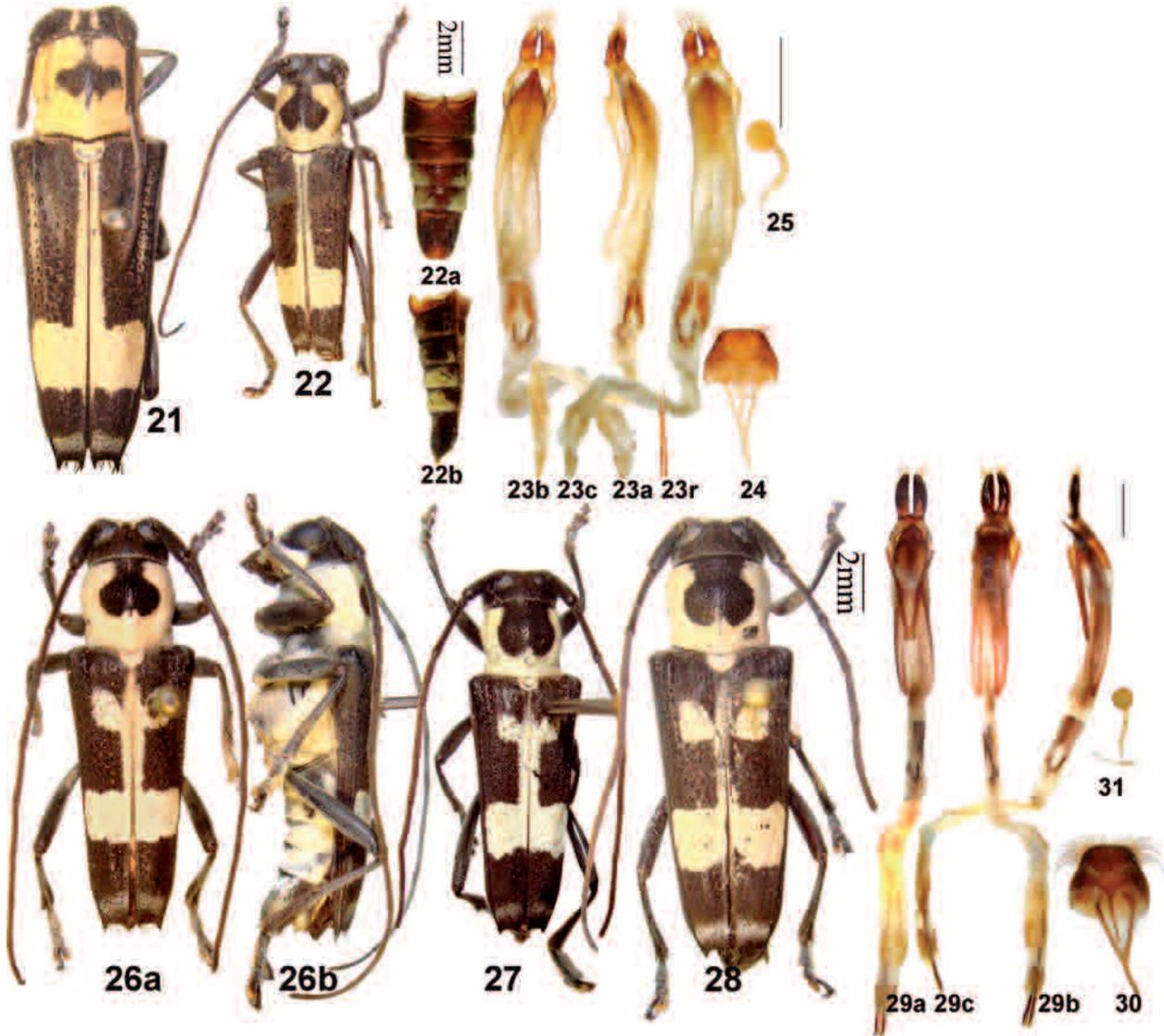


Figures 11–20

***Glenea caninia* Heller.** 11, LT, lectotype of *G. caninia* Heller; P, Type of *G. travancorana*, male, from India. 11a-11b, male, abdomen, showing ventrite VII. a. ventral view. b. lateral view. 12, female, from India. **Genitalia of *G. caninia* Heller.** 13, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 14, tergite VIII and ventrites VIII & IX in ventral view. 15, spermathecal capsule. Scale 1 mm. ***G. difficilis* Lin & Tavakilian n. sp.** 16, holotype, male, from Tonkin. a. dorsal view. b. lateral view. c. ventral view. 16d, claw of fore tarsi, showing anterior claw strongly appendiculate. 17, paratype, female, from Tonkin. **Genitalia of *G. difficilis* Lin & Tavakilian n. sp.** 18, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 19, tergite VIII and ventrites VIII & IX in ventral view. 20, spermathecal capsule. Scale 1 mm.

but (MHNL, ex Coll. P. Lepesme, 2002); 3 ♂♂ 1 ♀, Tonkin, Laktho (MHNL, ex Coll. P. Lepesme, 2002); 1 ♂, Tonkin, Lang-Son [21°51'N 106°54'E] (MNHN, ex Coll. M. Pic); 1 ♂ 2 ♀♀, Tonkin, Lao-Kay [22°30'N 103°56'E] (MNHN, ex Coll. E. Fleutiaux, 1919); 1 ♂, same data but (MHNG); 1 ♀, Tonkin [22°00'N 105°01'E] (MNHN, ex Coll. M. Pic); 1 ♀, Tonkin [22°00'N 105°01'E] (MHNL, ex Coll. P. Lepesme, 2002); 1 ♂ 1 ♀, Tonkin centr. Région de Chim-Hoa et de Tuyen-Quan, 1901, coll. A. Weiss; 1 ♀, Tonkin, Dong-Van [19°07'N 105°04'E], 1898, coll. Gadel (MNHN); 1 ♀, Tonkin, Ha-Giang [22°49'N 104°59'E], coll. Dr. Glais (MNHN).

Remarks. This new species was commonly confused with *G. mouhoti* or *G. indiana* following Breuning. It is very similar to *G. mouhoti*, but can be easily separated by the position of broad, transverse pubescent band on elytron, being always closer to the elytral apex. The apex of ventral plate is projected, strongly narrower before apex, which differs from that of *G. mouhoti* and *problematica* n. sp.



Figures 21–31

Glenea galathea Thomson. 21, type, female, locality unknown. 22, Male, from Malacca. 22a–22b, male, abdomen, showing ventrite VII. a. ventral view. b. lateral view. **Genitalia of *G. galathea* Thomson.** 23, male genitalia. a. ventral view. b. lateral view. c. dorsal view. R. rods. 24, tergite VIII and ventrites VIII & IX in ventral view. 25, spermathecal capsule. Scale 1 mm. *G. pseudocania* Lin & Montreuil sp. n. 26, paratype, male, from Myanmar (Burma). a. dorsal view. b. lateral view. 27, holotype, male, from Yunnan. 28, female, from Myanmar (Burma). **Genitalia of *G. pseudocania* Lin & Montreuil n. sp.** 29, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 30, tergite VIII and ventrites VIII & IX in ventral view. 31, spermathecal capsule. Scale 1 mm.

***Glenea galathea* Thomson**
(figs. 21–25, 88)

Glenea galathea Thomson 1865: 566 (May be Malacca, but not Japan).
[MNHN]

Glenea (Glenea) galathea: Breuning 1956: 171.- Breuning 1966: 682.

Redescription. Male: length: 11.0–11.5 mm, humeral width: 3.4–3.5 mm. Female: length: 13.6–16.9 mm, humeral width: 4.2–5.4 mm. Head black, densely clothed with yellowish white pubescence except a black band which extends from middle of frons to occipital area, area behind eyes, under the scape; and female genae black; antennae black, antennomere ratio: male: 12:2:20:15:15:14:14:13.5:13:12:12; female: 14:3:20:15:15:14:14:13:13:11:11. Prothorax densely clothed with yellowish-white pubescence, disc with a moderate-sized, sub-ovate, black area, which extends from anterior margin to basal 1/4, widest at middle, strongly narrowed prior to anterior margin, posterior margin, medially bifurcated; sides of pronotum with a moderate sized black area adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, except a broad, post-median, yellowish, transverse pubescent band linked to scutellum by a narrow sutural stripe, and a smaller preapical whitish fascia. In large females, there is a narrow longitudinal faint vitta of whitish pubescence, parallel to the sutural margin, between the humerus and the front border of the larger transverse band. Ventral surfaces: prosternum, part of mesosternum, most part of metepisternum, central part of metasternum, first, second and last abdominal segments black, rest densely clothed with yellowish white pubescence. Elytron broadly truncate apically, with a short acute tooth at the suture, and a longer and sharper tooth at the outer angle.

Male terminalia (figs. 23–24): Tegmen length about 2.6 mm; lateral lobes stout, each about 0.5 mm long and 0.16 mm wide,

apex with setae subequal to or shorter than lateral lobes, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, a little longer than tegmen (29: 26); the median struts slightly longer than half of the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate projected, narrower towards apex; median foramen elongated, acute angle about 40 degrees; internal sac about 3 times as long as median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and thicker rods each about 1.8 mm, shorter than tegmen, the other shorter one about 1.4 mm. Tergite VIII transverse, apex truncated, with few and short setae at sides and fewer and shorter setae in middle. Ventrite IX shorter than ringed part of tegmen. **Female genitalia** (fig. 25): Spermathecal capsule composed of an apical orb and a stalk, stalk curved, longer than twice of apical orb. Tignum longer than abdomen. In our observation, tignum measures 7.2 mm for an adult with a 5.6 mm abdomen in ventral view.

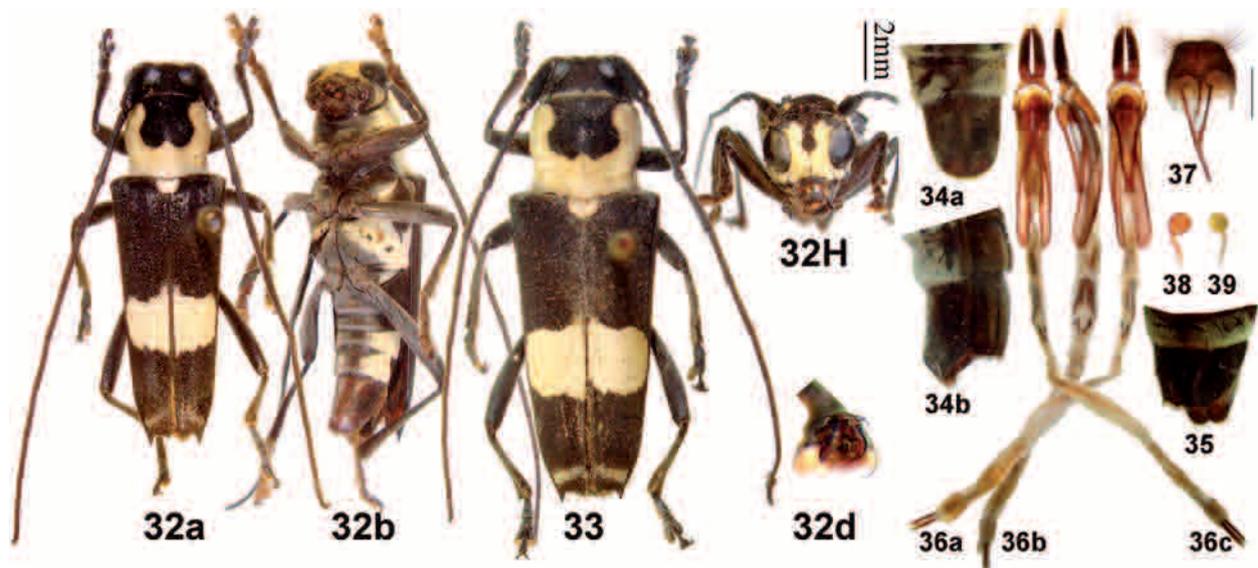
Diagnosis. Differs from *G. canidia* and *G. caninia* in having male claw and male ventrite VII totally different. The female, differs from *G. canidia* in lacking a sub-median, pale, post humeral spot and from *G. caninia* by the absence of a sutural stripe on the elytron between the sub-median and preapical transverse bands.

Distribution. India, Malaysia (Malacca), Indonesia (Sumatra).

Type specimen examined. Type, ♀, Japon (incorrect label?) (MNHN, ex Coll. J. Thomson 1952, ex Musaeo James Thomson).

Other specimens examined. India: 2 ♀♀, Kanara [15°19'N 75°42'E], Indien (NMB, ex Coll. Frey).

Malaysia: 1 ♂, Malacca [2°23'N 102°15'E], 1882, coll.



Figures 32–39

Glenea pseudoindiana Lin & Yang n. sp. 32, paratype, male, from Myanmar (Burma). H. head, front view. 32d. claw of fore tarsus, showing anterior claw strongly appendiculate. 33, paratype, female, from Myanmar (Burma). 34a–34b, male, abdomen, showing ventrite VII. a. ventral view. b. lateral view. 35, female, abdomen, showing ventrite VII, ventral view. 36, male genitalia. a. ventral view. b. lateral view. c. dorsal view. 37, tergite VIII and ventrites VIII & IX in ventral view. 38–39, spermathecal capsule. Scale 1 mm.

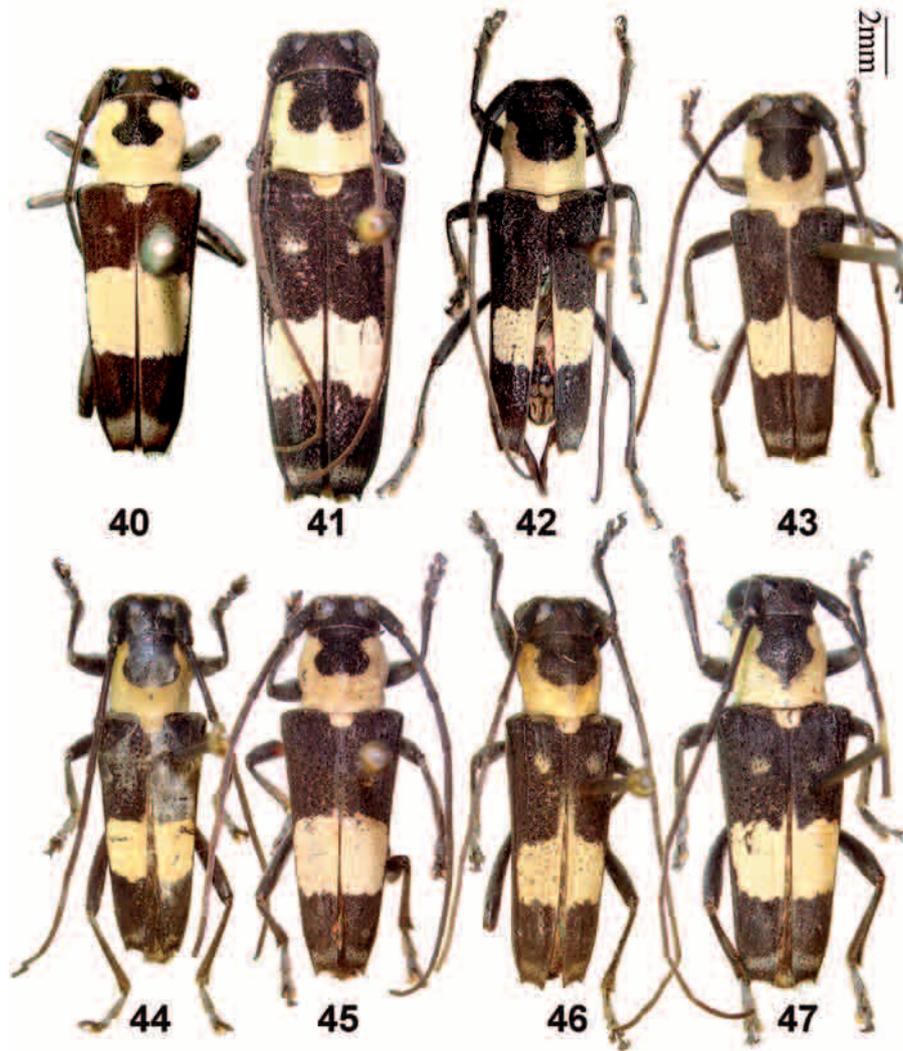
E. Deyrolle (MNHN); 2 ♀♀, Malacca [2°23'N 102°15'E] (MNHN). 1 ♂ 2 ♀♀, locality unknown (MNHN).

Indonesia: 1 ♂ 1 ♀, Sumatra [0°33'N 102°59'E] (NMB, ex Coll. Frey).

Remarks. This species does not occur in Japan. Although Thomson described it from Japan and the type specimen was labelled “Japan”, it is assumed to be wrongly labelled and thus unreliable (Breuning 1956 already pointed out “irrigé Angabe”). Mitono (1940) in his catalogue recorded *Menesia sulphurata* var. *galathea* from Japan, but in reality it was confused with *Menesia sulphurata* var. *flavotecta* Heyden 1886, considered today as a valid species.

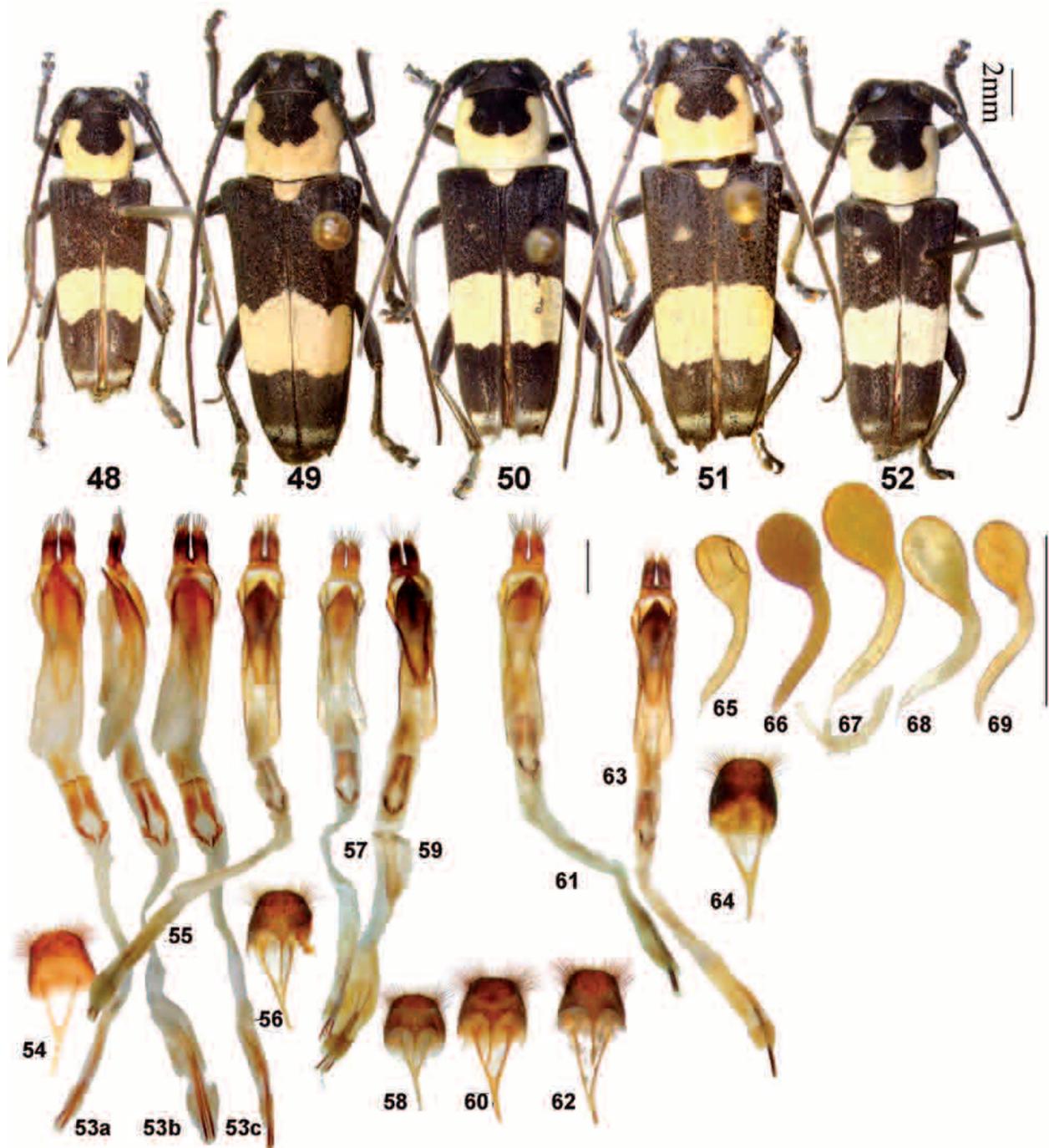
***Glenea pseudocaninia* Lin & Montreuil n. sp.**
(figs. 26–31, 88)

Description. Male: length: 12.2–14.0 mm, humeral width: 3.7–4.2 mm. Female: length: 14.7–15.5 mm, humeral width: 4.5–5.2 mm. Head black, densely clothed with yellowish white pubescence except a black spot in middle of frons, occipital, area behind eyes and under scape, and female's genae usually black; antennae black, antennomere ratio: male: 15:3:24:18:18:17:17:16:16:15:17; female: 16:3:22:16:16:15:15:13:13:12:13. Prothorax densely clothed with yellowish white pubescence, disc with a large black area, extending from apical margin to basal 1/4, with a bifurcation at the middle of basal margin, apical part widest; sides of pronotum with a moderate sized black area adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, with a broad, post-median trans-



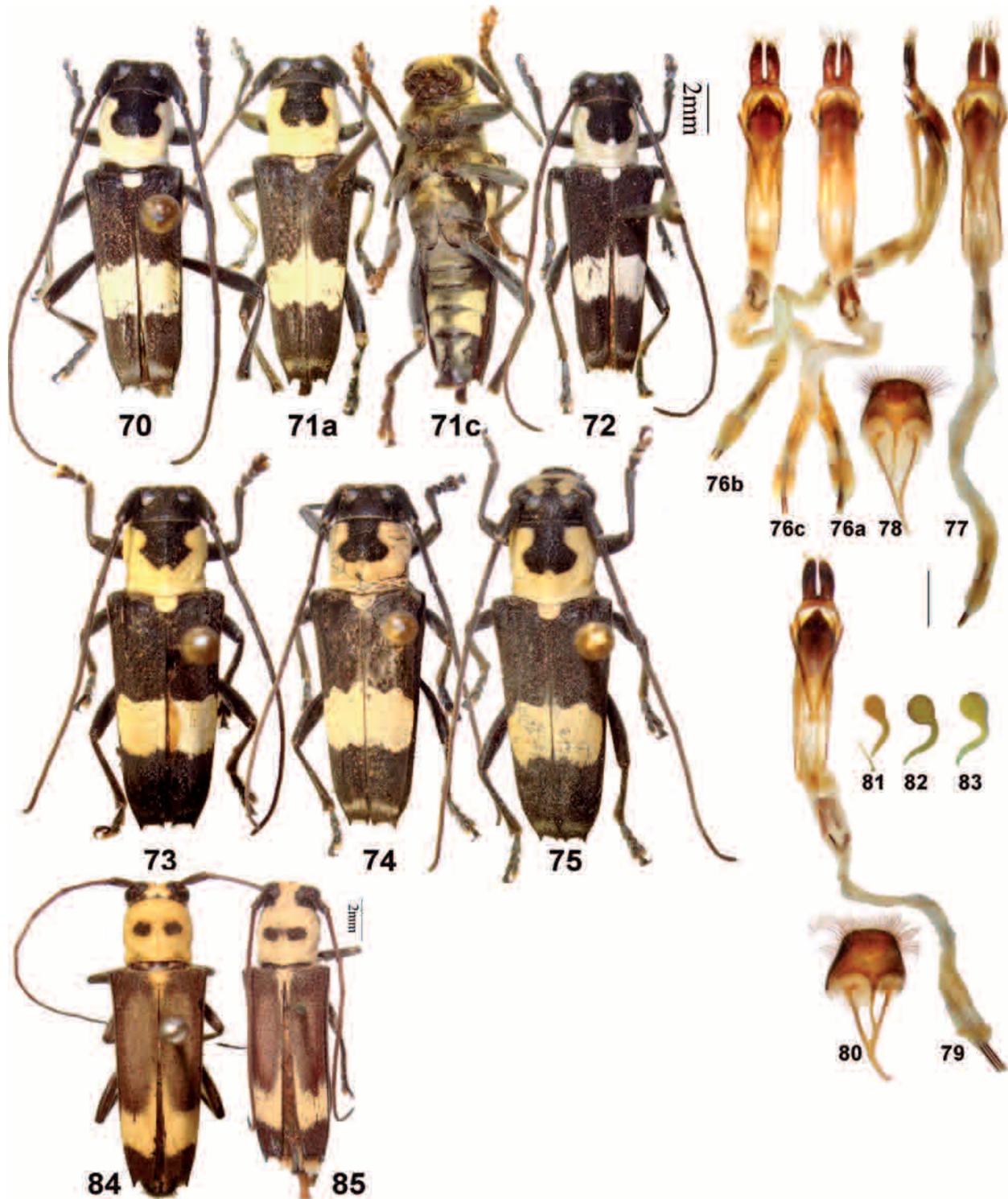
Figures 40–47

***Glenea mouhoti* Thomson.** 40, type of *G. mouhoti*, male, from Laos. 41, type of *G. mouhoti* v. *allobdiversa*, female, from Annam. 42–47, males. 42, from Yunnan. 43, from Lakhon. 44, from Sayabouri. 45, from Annam. 46, v. *allobdiversa* Pic, from Tonkin; 47, v. *allobdiversa* Pic, from Laos, Patsé.



Figures 48–69

Glenea mouhoti Thomson, females. 48, from Lakhon. 49, from Phontiou. 50, from Vientiane. 51, v. *albodiversa* Pic, from Vientiane. 52, v. *albodiversa* Pic, from Sayabouri. Male genitalia of *G. mouhoti* Thomson. 53–54, from Yunnan. a. ventral view. b. lateral view. c. dorsal view. 55–56, from Lakhon. 57–58, from Sayabouri. 59–60, from Annam. 61–62, v. *albodiversa* Pic, from Tonkin; 63–64, v. *albodiversa* Pic, from Laos, Patsé. Scale 1 mm. Spermathecal capsule of *G. mouhoti* Thomson. 65, from Lakhon. 66, from Phontiou. 67, from Vientiane. 68, v. *albodiversa* Pic, from Vientiane. 69, v. *albodiversa* Pic, from Sayabouri.



Figures 70–85

Glenea problematica Lin & Yang n. sp. 70, holotype, male, from Sayabouri. 71–72, paratypes, males. 71, from B. Na Phang. 72, from Yunnan. 73–75, paratypes, females. 73, from Phontiou. 74, from B. Na Phang. 75, from Sayabouri. **Genitalia of *G. problematica* Lin & Yang n. sp.** 76, from Sayabouri. a. ventral view. b. lateral view. c. dorsal view. 77–78, from B. Na Phang. 79–80, from Yunnan. 81–83, spermathecal capsule. 81, from Phontiou. 82, from B. Na Phang. 83, from Sayabouri. Scale 1 mm. *Glenea cassandra* Gahan. 84, lectotype, female, from Enggano. 85, paralectotype, female, from Enggano.

verse pale band and a sutural stripe which extends from anterior margin of band to scutellum, humeral 1/3 with an oblique, sub-median, macula which is confluent with the sutural stripe, apex broadly truncated, outer spine distinctly longer than inner tooth, oblique preapical pale macula present (figs. 26, 27, 28). Ventral surfaces: central part of metasternum and last abdominal segment with fine pale pubescence, similar to that on coxae and femora, anterior part of metepisternum and lateral areas of ventrites I, III and V with short dark pubescence, similar to that on elytron, rest densely clothed with longer, yellowish white pubescence.

Male terminalia (figs. 29–30): Tegmen length about 3.1 mm; lateral lobes somewhat slender, each about 0.8 mm long and 0.2 mm wide, apex with setae shorter than lateral lobes, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, a little longer than tegmen (33: 31); the median struts slightly longer than half of the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate bluntly pointed; median foramen elongated, acute angle about 40 degrees; internal sac about 3 times as long as median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and thicker rods each about 2.1 mm, shorter than tegmen, the other shorter one about 1.5 mm. Tergite VIII broader than long, apex truncated, with dense and long setae at sides but fewer and shorter setae in middle. Ventricle IX subequal to ringed part of tegmen. **Female genitalia** (fig. 31): Spermathecal capsule composed of an apical orb and a stalk, stalk longer than three times of apical orb. Tignum longer than abdomen. In our observation, tignum 8.0 mm for an adult with a 7.2 mm abdomen in ventral view.

Diagnosis. Differs from *G. mouhoti* and *problematica* n. sp. in having sutural stripe and a sub-median macula on humeral 1/3 of elytron, also in having thicker pubescence in ventral view. Differs from *G. canidia* and *G. caninia* in having male anterior claws and male ventrite VII totally different. The female, differs from *G. canidia* by the absence of the post humeral, sub-lateral longitudinal stripe and by having the sub-median anterior macula confluent with the sutural stripe; differs from *G. caninia* by sutural stripe only present above post-median transverse band.

Etymology. Because it is similar to and was often misidentified as *G. caninia* Heller.

Distribution. China: Yunnan; Myanmar.

Type specimens examined. Holotype, ♂ [12.2 mm long, 3.7 mm wide], Yunnan, Longling [24°58'N 98°07'E], alt. 1000 m, China, 23.VI.1956, coll. Benshou Zhou (IZAS). **Paratypes.** **China: Yunan:** 1 ♀, Yunnan, Longling [24°58'N 98°07'E], alt. 1060m, 24.VI.1956, coll. Benshou Zhou (MNHN, ex IZAS); 2 ♀♀, same data but alt. 1000 m, 23.VI.1956, (IZAS). **Myanmar:** 5 ♂♂ 1 ♀, H^c. Birmanie, Etatde Momeit [23°07'N 98°41'E], alt. 600 m, 1890, coll. Doherty (MNHN, with one ♀ ex Coll. M. Pic, with one ♂ deposited in IZAS); 1 ♀, same data but (MHNG); 2 ♀♀, Burma, Momeit [23°07'N 98°41'E] (NMB, ex Coll. Frey); 1 ♀, same data but coll. Doherty (NHML, ex Fry Coll. 1905.100); 1 ♂ 1 ♀, Birmah, Ruby Mines [23°07'N 98°41'E], coll. Doherty (NHML).

Other specimens examined. 1 ♀, locality unknown (MNHN, ex Coll. J. Thomson, 1952).

Remarks. This species was misidentified as *G. caninia*

and considered as a morph of *G. galathea* by Breuning (1956). But it can be easily distinguished by the "Diagnosis". It is a close relative of *G. mouhoti* and *problematica* n. sp.

To facilitate future studies, we (IZAS & MNHN) exchanged one female from Yunnan (IZAS) with one male from Myanmar (MNHN), thus, both sexes are represented in these 2 institutions.

Glenea pseudoindiana Lin & Yang n. sp. (figs. 32–39, 86)

Description. Male: length: 11.7–13.7 mm, humeral width: 3.4–4.2 mm. Female: length: 13.3–17.0 mm, humeral width: 4.0–5.4 mm. Head black, densely clothed with yellowish white pubescence except a black spot in middle frons, occipital area behind eyes and under scape, and female's genae usually black; antennae black, antennomere ratio: male: 14:3:23:18:18:17:17:15:15:14:17; female: 14:3:20:16:17:15:15:13:13:12:14. Prothorax densely clothed with yellowish white pubescence, with a large black area, extending from apical margin to basal 1/4, with a bifurcation at the middle of basal margin, apical part widest; sides of pronotum with a moderate sized black area adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, except one transversely band of dense yellowish-white pubescence, which begins before the middle of elytron and extending from suture to the first lateral carina, and one smaller band near apex of elytron which is sparsely clothed with grayish pubescence, apex truncated apically, with short tooth at the suture and a longer and sharp tooth at the outer angle. Ventral surfaces: prosternum, part of mesosternum, most part of metepisternum, central part of metasternum, first, second and last abdominal segments black with short dark pubescence, rest densely clothed with longer yellowish white pubescence. Male's ventrite VII distinctly projected ventrally, with apex rounded.

Male terminalia (figs. 36–37): Tegmen length about 3.3 mm; lateral lobes slender, each about 1.0 mm long and 0.2 mm wide, apex with setae shorter than half of the length of lateral lobes, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, subequal to tegmen (1: 1); the median struts slightly longer than half of the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate semirounded, with apex somewhat pointed; median foramen elongated, acute angle about 40 degrees; internal sac more than 3 times as long as median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and thicker rods each about 2.1 mm, shorter than tegmen, the third, the shorter one, about 1.6 mm. Tergite VIII broader than long, apex truncated, sides rounded, with a long, dense bunch of setae on each rounded side, with fewer and shorter setae in the middle. Ventricle IX subequal to ringed part of tegmen in length. **Female genitalia** (figs. 38–39): Spermathecal capsule composed of an apical orb and a stalk, stalk about twice as long as apical orb. Tignum longer than abdomen. In our observation, tignum 8.1 mm for an adult with a 6.8 mm abdomen in ventral view.

Diagnosis. The male, differs from *G. indiana* in having the anterior claw of the anterior tarsi furnished with a distinct

unguiculus at the base; differs from *G. difficilis*, *G. mouhoti* and *G. problematica* in having ventrite VII distinctly projected ventrally; The female, differs from *G. indiana* and *G. difficilis* by having the transverse band on elytron beginning before the mid-line of the elytron, it also differs from *G. difficilis* by having the apical teeth of elytron longer. Unfortunately we did not succeed in finding good characters to separate *pseudoindiana* females from females of *G. mouhoti* and *problematica* n. sp.; we were only able to match them by comparing the localities with the males.

Etymology. We gave it this name because of its similarity with *G. indiana*.

Distribution. Myanmar [Theinzeik and Papun].

Type specimens examined: Holotype: ♂ [13.0 mm long, 3.8 mm wide], Birmanie, Theinzeik, Myanmar [17°03'N 97°17'E], 1913, coll. P. Loizeau (MNHN). **Paratypes: Myanmar:** 12 ♂♂ 25 ♀♀, Birmanie, Theinzeik [17°03'N 97°17'E], 1913, coll. P. Loizeau (MNHN, including 1 ♂ and 1 ♀ deposited in IZAS, 1 ♂ 4 ♀♀ ex Coll. R. Oberthür, 1952); 1 ♂, same data but (MHNG); 1 ♂ 2 ♀♀, same data (IRSNB); 4 ♂♂ 7 ♀♀, same data but 1914 (MNHN); 1 ♀, Burma, Palon (Pegù) [17°40'N 97°30'E], VIII-IX.1887, coll. L. Fea (NHML); 1 ♀, Burmah, coll. Andrewes Bequest (NHML, 1922-221); 1 ♂, Burma, Tharrawaddy [17°38'N 95°47'E] (MHNL, ex coll. P. Lepesme); 2 ♂ 4 ♀♀, Birmanie, Papun [18°03'N 97°26'E], 1932, coll. R. P. Loizeau (MNHN, ex Coll. R. Oberthür, 1952); 1 ♀, Burmah, Momeit [23°07'N 98°41'E], alt. 2000 feet (NMB, ex Coll. Frey); 1 ♂, Tikekee (Peou) [NCA], VI.1887, coll. L. Fea (MCSNG).

Other specimens examined. 1 ♀, Downdani valley, Tenass. (Bingham) [NCA], II.1894 (MNHN, Coll. M. Pic).

Remarks. This species was misidentified as *G. indiana*, but can be easily distinguished by the characters given above. It belongs to *G. galathea* group based on the male claw character, but it differs from other members of *G. galathea* group by the male having an umbo on ventrite VII, as distinct as those in species of *G. indiana* group.

Glenea mouhoti Thomson 1865, stat. rev. (figs. 40–69, 88)

Glenea mouhoti Thomson 1865: 567 (Laos). [MNHN]

Glenea mouhoti v. *albodiversa* Pic 1946: 10 (Cambodge et Annam). [MNHN]

Glenea (Glenea) indiana m. *mouhoti*: Breuning 1956: 174. –Breuning 1966: 683.

Glenea (Glenea) indiana m. *albodiversa*: Breuning 1956: 174. –Breuning 1966: 683.

Glenea (Glenea) indiana m. *cochinchinensis* Breuning 1956: 174 (Cochinchina: Reu-hai). [NMB] –Breuning 1966: 683.

Redescription. Male: length: 12.3–14.5 mm, humeral width: 3.9–4.5 mm. Female: length: 12.3–18.0 mm, humeral width: 3.8–6.0 mm. Antennomere ratio: male: 14:3:21:16:16:15:15:13:13:12:14; female: 15:3:21:16:16:15:15:14:14:13:14. Very similar to *G. problematica* n. sp. but with more varieties: 1) apex of elytron truncated without teeth (figs. 40, 43, 47, 48, 51, 52) or with visible teeth as strong as those of *G. problematica* (figs. 41, 42, 44, 45, 46, 49, 50), but in that case the sutural teeth as long as outer teeth or even longer; 2) elytron may have

a sub-median spot of variable size [v. *albodiversa* Pic (figs. 41, 46, 47) with this spot distinct]; 3) the pale transverse median elytral band variable in size.

Male terminalia (figs. 53–64): Tegmen length about 3.0 mm; lateral lobes stout, each about 0.5 mm long and 0.2 mm wide, apex with setae subequal or shorter than lateral lobes, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, a little longer than tegmen (16:15); the median struts about half of the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate projected; median foramen elongated, acute angle about 30 degrees; internal sac about 3 times as long as median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and stouter rods each about 2.0 mm, shorter than tegmen, the third, the shorter one about 1.4 mm. Tergite VIII as broad as long, apex broadly rounded to truncated, with dense and long setae at each sides but with fewer and shorter setae in the middle. Ventrite IX shorter than the ringed part of tegmen. **Female genitalia** (figs. 65–69): Spermathecal capsule composed of an olivary apical orb and a stalk, stalk twice as long as apical orb. Tignum longer than abdomen. In our observation, tignum 8.5 mm for an adult with a 6.6 mm abdomen in ventral view.

Diagnosis. Differs from *G. problematica* n. sp. in having elytral apical tooth at the outer angle always shorter than sutural tooth. However this character is not always distinct and the best way to distinguish these species is to dissect the males and compare the lateral lobes.

Distribution. China: Hongkong (new record), Yunnan; VietNam, Laos, Cambodia, Thailand (new record).

Type specimens examined. Type, ♂, Laos [NCA] (MNHN, ex Coll. J. Thomson, 1952). Type (of *G. mouhoti* v. *albodiversa* Pic), ♀, Vietnam, Annam, Sam Neua [19°58'N 104°41'E] (MNHN). Type (of *G. (Glenea) indiana* m. *cochinchinensis* Breuning), ♂, Cochinchina. [11°00'N 107°01'E] or. Reu Hai (NMB, ex Coll. Frey).

Other specimens examined. China: Hongkong [22°34'N 114°07'E]: pictures from <http://www.insect-fans.com/bbs/viewthread.php?tid=27414> (2008-X-18). **Yunnan:** 1 ♀, Yunnan, Nam Ti [22°31'N 103°57'E], 1908, coll. Dr. Brochet (MNHN); 6 ♂♂ 3 ♀♀, Jinping, Mengla [22°40'N 103°05'E], alt. 350m, 22.V.1956, coll. Panfilov (IZAS); 2 ♂♂ 1 ♀, Env. Jinping [22°46'N 103°14'E], alt. 900 m, 27.V.1956, coll. Panfilov (IZAS); 1 ♂ 2 ♀♀, Pu'er, alt. 1100 m, 12.V.1956, coll. Benschou Zhou (IZAS); 1 ♂, Jinping, Manpeng to Mengla, 22.V.1956, coll. Chuanlong Li (IZAS); 2 ♂♂, Jingdong [24°25'N 100°49'E], Dongjiafen, alt. 1250 m, 30.V/10.VI.1956, coll. Russian (IZAS); 1 ♀, Yuanjiang [23°35'N 102°00'E], alt. 1370 m, 15.V.1957, coll. Guangji Hong & Chongle Liu (IZAS); 1 ♂, Xishuangbanna, Mengla, Menglun [21°54'N 101°12'E], alt. 650 m, 2.VI.1964, coll. Baolin Zhang (IZAS); 2 ♂♂ 3 ♀♀, Menglun [21°54'N 101°12'E], alt. 650 m, 24.VII.1959, coll. Facai Zhang (IZAS); 1 ♀, same data but 15.VI.1954, coll. Baolin Zhang; 6 ♂♂ 1 ♀, Xishuangbanna, Mengla [21°29'N 101°34'E], alt. 620-650 m, 23.V.1959, coll. Facai Zhang, Suofu Li (IZAS); 1 ♀, same data but 20.V.1959, coll. Facai Zhang; 1 ♂, same data but 30.V.1959, coll. Fuji Pu; 1 ♀, same data but 8.VI.1959, coll. Suofu Li; 1 ♀, same data but 8.VII.1959, coll. Facai Zhang; 1 ♂, same data but 8.VII.1959, coll. Fuji Pu; 1 ♂, same data but 9.VII.1959, coll. Facai Zhang; 2 ♀♀, same data but 13.XI.1958, coll. Fuji Pu; 1

♀, same data but 12.VII.1959, coll. Fuji Pu; 1 ♀, same data but alt. 700m, 19.V.1959, coll. Fuji Pu; 2 ♂♂ 1 ♀, Xishuangbanna, Damenglong [21°30'N 100°36'E], alt. 650 m, 21-25.V.1962, coll. Shimei Song (IZAS); 5 ♂♂, same data but 13.VII.1958, coll. Yiran Zhang (IZAS); 1 ♀, same data but IV.1958, coll. Xuwu Meng (IZAS); 1 ♀, Xishuangbanna, Yunjinghong [21°58'N 100°48'E], alt. 650 m, 8.VII.1958, coll. Yiran Zhang (IZAS); 1 ♀, same data but alt. 710-900 m; 1 ♀, same data but alt. 850-2040 m; 1 ♀, Xishuangbanna, Menghai county, Menghun [21°48'N 100°18'E], alt. 650 m, 11.VI.1958, coll. Xuwu Meng (IZAS); 1 ♂, same data but coll. Yiran Zhang (IZAS); 1 ♂, same data but alt. 1200-1400 m, coll. Xuwu Meng (IZAS); 1 ♂, same data but alt. 750 m, 5.VI.1958, coll. Yiran Zhang (IZAS); 1 ♂ 1 ♀, same data but alt. 1200 m, coll. Xuwu Meng (IZAS); 1 ♂, same data but alt. 950 m, 31.V.1958, coll. Shuyong Wang (IZAS); 2 ♀♀, same data but alt. 1200 m, 1/6.VI.1958 (IZAS); 1 ♀, Xishuangbanna, Menghai, Meng'a [21°06'N 99°12'E], alt. 1050-1080 m, 19.VIII.1958, coll. Fuji Pu (IZAS); 1 ♂ 1 ♀, Xishuangbanna, Jinghong, Xiaomengyang [22°01'N 100°53'E], alt. 850 m, 24/27.VI.1957, coll. Shuyong Wang (IZAS); 1 ♂ 1 ♀, same data but coll. Lingchao Zang; 1 ♀, same data but 10.IX.1957, coll. Lingchao Zang; 1 ♂, same data but 5.VII.1957; 1 ♂, same data but 6.VII.1957; 1 ♀, same data but 13.VII.1957, coll. Shuyong Wang; 1 ♀, same data but 14.VIII.1957; 1 ♂, same data but 12.VI.1958, coll. Xuwu Meng; 1 ♂ 1 ♀, same data but 15.VI.1957, coll. Shuyong Wang; 2 ♂♂, same data but 21.VI.1957; 1 ♀, same data but alt. 1000 m, 2.IX.1957, coll. Shuyong Wang; 1 ♀, Lancang [22°30'N 99°54'E], alt. 1000 m, 26.VII.1959, coll. Shuyong Wang (IZAS).

Vietnam: 2 ♂♂ 1 ♀, Tonkin, Backan [22°08'N 105°50'E], 1907, coll. Lemée (MNHN, ex Coll. R. Oberthür, 1952); 1 ♂, Tonkin [22°00'N 105°01'E], Montaonesdu Haut Song-Chai, 1895, coll. Rabier (MNHN); 1 ♀, Tonkin [22°00'N 105°01'E] (MNHN, ex Coll. P. Lapesme); 1 ♂, Annam, Sam Neua [19°58'N 104°41'E] (MNHN, ex Coll. M. Pic); 3 ♂♂ 9 ♀♀, Annam, Kon Tum [14°23'N 107°59'E], 1914, coll. R. P. C. Corompt (MNHN); 1 ♀, same data but (NMB, ex Coll. Frey); 2 ♂♂ 1 ♀, Annam, Quinhone [13°46'N 109°14'E], 1903, coll. R. P. Guerlach (MNHN); 1 ♂, Annam, Rég. de An-Ninh [14°03'N 108°55'E], 1903, coll. R. P. M. Maunier (MNHN); 3 ♂♂ 2 ♀♀, Cochinch. [11°00'N 107°01'E] Or. Go Mit, 1908, coll. R. P. Guerlach (MNHN); 2 ♂♂ 6 ♀♀, Cochinch. [11°00'N 107°01'E] Or. Reu Hai, 1903, coll. R. P. Guerlach (MNHN); 1 ♂ 2 ♀♀, Cochinchine [11°00'N 107°01'E], 1874, coll. Harmand (MNHN); 1 ♂, Langson (IRSNB); 1 ♂ 1 ♀, Indochine Blao Ht. Donnai [NCA] (IRSNB).

Laos: 2 ♂♂ 3 ♀♀, Lakhon [16°28'N 105°28'E], 1878, coll. Harmand (MNHN); 3 ♂♂ 9 ♀♀, Laos, Sayaboury [19°15'N 101°45'E], 25.VIII.1966 (MNHN, ex Coll. J. Rondon, 1967); 1 ♂ 1 ♀, Paklay [19°20'N 101°45'E] (IRSNB); 2 ♂♂ 2 ♀♀, Vientiane, Tha Ngone [18°08'N 102°37'E], 11.VII-31.X.1962 (MNHN, ex Coll. J. Rondon, 1967); 10 ♀♀, Vientiane [17°58'N 102°37'E] (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, same data but IRSNB; 1 ♂, Vientian [17°58'N 102°37'E], Tonquin, Indo-China (NHML); 7 ♀♀, Ile de Kông [14°09'N 105°49'E], 20.VII-14.VIII.1965 (MNHN, ex Coll. J. Rondon, 1967); 3 ♀♀, Luang Prabang [19°53'N 102°08'E], 2.VII.1964 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Luang Prabang [19°53'N 102°08'E] (NMB, ex Coll. Frey); 6 ♂♂ 13 ♀♀, Parkading [20°05'N 102°29'E], 14.IV.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♂ 1 ♀, Parkading [20°05'N

102°29'E] (IRSNB, ex Coll. J. A. Rondon); 9 ♂♂ 12 ♀♀, Laos [NCA] (MNHN, ex Coll. J. Rondon, 1967); 6 ♂♂ 5 ♀♀, Laos, B. Na Phang [20°21'N 104°15'E], 22.VII.1965 (MNHN, ex Coll. J. Rondon, 1967); 14 ♂♂ 9 ♀♀, Laos, Phontiou [17°08'N 104°48'E], 15.V. 1965 (MNHN, ex Coll. J. Rondon, 1967); 6 ♂♂ 11 ♀♀, Laos, Paksé [15°07'N 105°47'E], 18.VI-3.VIII.1965 (MNHN, ex Coll. J. Rondon, 1967).

Thailand: 1 ♂, Chiang Mai [18°47'N 98°59'E], VIII.1991 (IZAS, ex CPS); 1 ♀, NW Thailand, Mae hong Son [19°18'N 97°58'E], Ban Huai Po, alt. 1600-2000 m, 1991, coll. L. Dembický (NHML); 1 ♀, Thailand, Metah Valley [NCA], coll. J. D. Hedley (NHML).

Cambodia: 1 ♂ 1 ♀, Cambodia [NCA] (MNHN, ex Coll. H. W. Bates, 1952); 3 ♂♂ 3 ♀♀, Cambodge Kompong-Kedey [13°07'N 104°21'E] (IRSNB); 1 ♀, Cambodge, Kompong-Kedey [13°07'N 104°21'E] (NMB, ex Coll. Frey).

Remarks. Breuning (1956) treated *G. mouhoti* Thomson as a morph of *G. indiana* Thomson. We were able to examine the type specimens and many specimens supposed to belong to *G. indiana*. By the close examination of these specimens and dissection of male and female genitalia, we are able to find very distinct differences in the male anterior claws and genitalia and thus, we reinstated *G. mouhoti* as a valid species. *G. (Glenea) indiana m. cochinchinensis* Breuning 1956 from Cochinchina belongs to this species. *G. mouhoti v. albodiversa* Pic shows slight differences in the elytral apex (however variable), the setae of lateral lobes of male genitalia (seem to be stronger), but we are unable to consider them as distinct.

Host. *Colona* sp. [TILIACEAE]; *Exbucklandia populnea* [HAMAMELIDACEAE]; *Gmelina arborea*, *Tectona grandis* [VERBENACEAE]; *Quercus* sp. [FAGACEAE]. (Hua, 2002).

The above host plant records are from records of *G. indiana*. But we assume that they relate to *G. mouhoti*.

Glenea problematica Lin & Yang n. sp. (figs. 70–83, 86)

Description. Male: length: 11.0–14.3 mm, humeral width: 3.2–4.0 mm. Female: length: 12.6–17.0 mm, humeral width: 4.1–5.3 mm. Head black, densely clothed with yellowish white pubescence except the upper part of median frons, occiput and female's genae which have shorter dark setae; antennae black, antennomere ratio: male: 14:3:22:17:17:15:15:14:14:13; female: 16:4:22:17:18:16:15:14:13:12:13. Prothorax densely clothed with yellowish white pubescence, with a black area on the apical half of disc, variable in size and shape (figs. 70–75); sides of prothorax with a moderate sized black spot adjacent to coxae. Scutellum with yellowish white pubescence. Elytron black, except one broad, transverse, yellowish-white, pubescent band beginning a little before the middle of elytron, extending from suture to the first lateral carina and a smaller band near apex of elytron, clothed with grayish pubescence. Ventral surfaces: prosternum, part of mesosternum, most part of metepisternum, central part of metasternum, first, second

and last abdominal segments black, with short dark setae, rest densely clothed with yellowish white pubescence. Elytron slightly truncated apically, with a short spine at the suture and a longer teeth at the outer angle.

Male terminalia (figs. 76–80): Tegmen length about 3.0 mm; lateral lobes moderately slender, each about 0.8 mm long and 0.2 mm wide, apex with setae shorter than lateral lobes in length, with one small ridge furnished with short and fine hairs at the base (in ventral view); basal piece not bifurcated distally; median lobe plus median struts slightly curved, subequal in length to tegmen (1:1); the median struts longer than the whole median lobe in length; dorsal plate slightly shorter than ventral plate; apex of ventral plate pointed; median foramen elongated, acute angle less than 30 degrees; internal sac more than 3 times of median lobe plus median struts, with 2 pairs of basal armature, 2 bands of supporting armature and 3 rods; 2 longer and thicker rods each about 2.0 mm, shorter than tegmen, the other shorter one about 1.4 mm. Tergite VIII as broad as long, apex broadly rounded or truncated, with dense, long setae at sides but fewer and shorter setae at middle. Ventrite IX subequal to ringed part of tegmen in length. **Female genitalia**

(figs. 81–83): Spermathecal capsule composed of an apical orb and a stalk, stalk about twice as long as apical orb. Tignum longer than abdomen. In our observation, tignum 7.5 mm for an adult with a 7.0 mm abdomen in ventral view.

Diagnosis. Differs from *G. mouhoti* in having elytral apical teeth at outer angle longer than sutural teeth; in having lateral lobes of tegmen slender and longer; in having tegmen subequal in length to median lobe plus median struts.

Etymology. Due to the difficulty in separating this species from *G. mouhoti* with external characters, we recommend the dissection of specimens to ensure a correct identification.

Distribution. China: Gansu, Qinghai, Yunnan; Laos, Thailand.

Type specimens. **Holotype**, ♂ [13.4 mm long, 3.8 mm wide], Sayabouri, Laos [19°11'N 101°28'E], 25.VIII.1966 (MNHN, ex Coll. J. Rondon, 1967). **Paratypes.** **China: Gansu:** 1 ♂ 1 ♀, Lanzhou [36°04'N 103°45'E], alt. 1500 m, 7.IX.1957, coll. Yiran Zhang. **Qinghai:** 2 ♂♂, Qilian [38°12'N 100°13'E], alt. 2560 m, 9.VIII.1957, coll. Yiran Zhang. **Yunnan:** 1 ♂ 1 ♀, Xishuangbanna, Damenglong [21°30'N 100°36'E], alt.

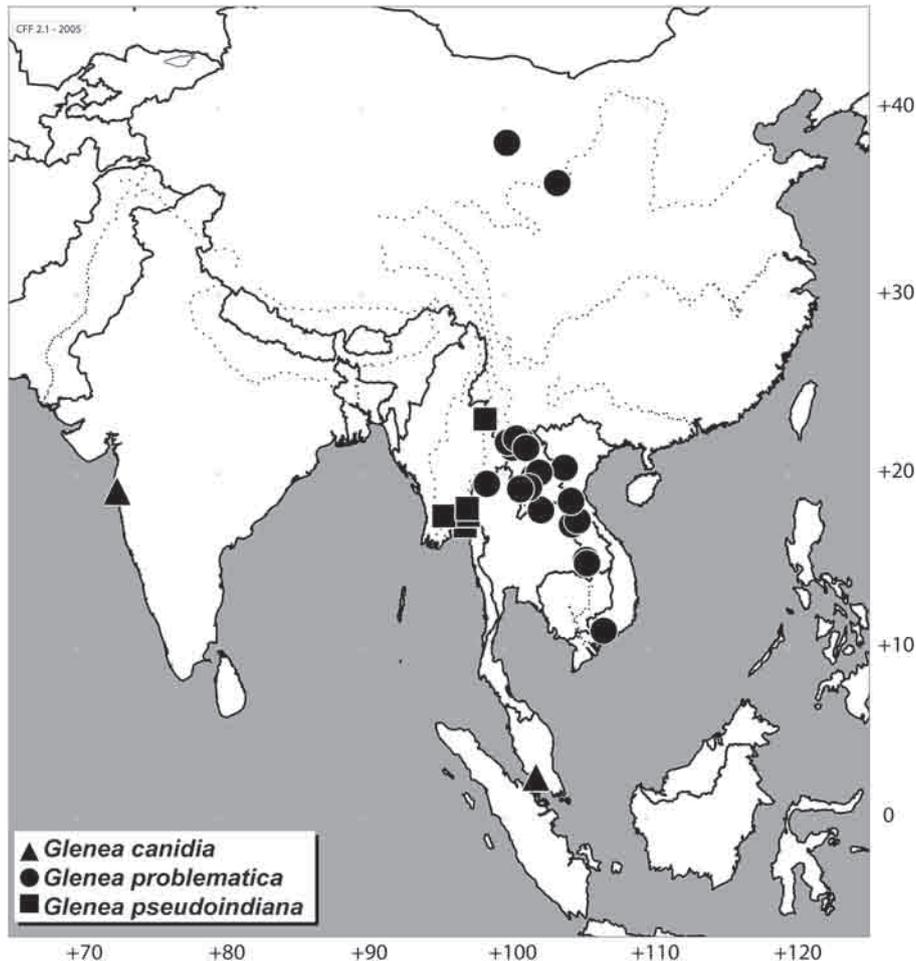


Figure 86
Distribution map of *Glenea canidia* Thomson, *G. problematica* Lin & Yang n. sp. et *G. pseudoindiana* Lin & Yang n. sp.

650 m, 10.VII.1958, coll. Chunpei Hong (IZAS); 3 ♂♂ 1 ♀, Yiwubanna, Menglun [21°54'N 101°12'E], alt. 650 m, 30.VII.1959, coll. Yiran Zhang (IZAS); 1 ♀, same data but 16.VII.1964, coll. Baolin Zhang; 1 ♀, same data but without date and collector; 1 ♂, same data but 23.VII.1959, coll. Yiran Zhang; 3 ♀♀, Xishuangbanna, Yunjinghong [21°58'N 100°48'E], alt. 650 m, 26.VI-25.VII.1958, coll. Xuwu Meng (IZAS); 1 ♂ 2 ♀♀, same data but 6.V-8.VI.1959, coll. Xuezhong Zhang; 1 ♀, same data but alt. 850 m, 29.VI.1958, coll. Leyi Zheng; 1 ♂, Jinghong [22°00'N 100°48'E], 9-14.VII.1990, coll. R. Červenka (CPS); 2 ♂♂ 1 ♀, Xishuangbanna, Menghai county, Menghun [21°48'N 100°18'E], alt. 650 m, 11.VI.1958, coll. Yiran Zhang (IZAS); 3 ♂♂ 1 ♀, same data but coll. Chunpei Hong; 1 ♀, same data but alt. 1200 m, 6.VI.1958, coll. Shuyong Wang; 1 ♂, same data but 2.VI.1958; 1 ♂, same data but 13.VI.1958; 1 ♀, same data but alt. 1200-1400 m, 9.VI.1958, coll. Yiran Zhang; 2 ♂♂ 5 ♀♀, Xishuangbanna, Jinghong, Xiaomengyang [22°01'N 100°53'E], alt. 850m, 14.VI-17.VIII.1957, coll. Shuyong Wang (IZAS); 2 ♂♂ 3 ♀♀, same data but coll. Yiran Zhang; 2 ♂♂, Xishuangbanna, Mengla [21°29'N 101°34'E], alt. 620-650 m, 30.V.1959, coll. Yiran Zhang (IZAS); 1 ♀, same data but 29.V.1959, coll. Suofu Li; 1 ♀, same data but 8.VII.1959, coll. Fuji Pu; 1 ♀, Shizi, 10.VI.1983, coll. Jin Ma (IZAS).

Laos: 5 ♂♂ 6 ♀♀, same data; 4 ♂♂ 1 ♀, Laos, Phontiou [17°08'N 104°48'E], 15.V.1965 (MNHN, ex Coll. J. Rondon, 1967); 7 ♂♂ 6 ♀♀, Laos, B. Na Phang [20°21'N 104°15'E], 22.VII.1965 (MNHN, ex Coll. J. Rondon, 1967); 2 ♂♂, Laos, Houeixai [NCA], 30.VII.1965 (MNHN, ex Coll. J. Rondon, 1967); 3 ♂♂ 1 ♀, Laos, Luang Prabang [19°53'N 102°08'E], 8.IX/ 2.XII.1964 (MNHN, ex Coll. J. Rondon, 1967); 3 ♀♀, Laos, Parkading [20°05'N 102°29'E], 14.IV.1965 (MNHN, ex Coll. J. Rondon, 1967); 5 ♀♀, Laos, Paksé [15°07'N 105°47'E], 17.VII.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos, Paksong [14°54'N 105°51'E], 19.VIII.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos, Ban Van Heua (SE of Phou Khao Khoay [18°22'N 102°46'E]), 14.VI.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos, Vientiane [17°58'N 102°37'E], 7.VIII.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos, Vientiane [17°58'N 102°37'E], Đông Dók, 3.VII.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos, Houay Khang [18°28'N 104°43'E], 14.VIII.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♀, Laos [NCA], 15.X.1965 (MNHN, ex Coll. J. Rondon, 1967); 1 ♂ 1 ♀, Laos, Sayaboury [19°15'N 101°45'E], Xaignabouri, 20.V.1966 (IRSNB, ex Coll. J. A. Rondon). 1 ♀, Cochichina [11°00'N 107°01'E] or., Go Mit, 1908, coll. R. P. Gueriach (NMB, ex Coll. Frey). **Thailand:** 1 ♀, N. Thailand, Chiangmai prov. Doi Chiangdao [19°27'N 98°48'E], NW pass 1200-1300 m, 4.VII.1984, coll. Banziger (MHNG); 1 ♂, NE. Thainan, Ban Pha Khap [19°09'N 101°09'E], 15-20.V.1992, coll. P. Pacholatko (IZAS, ex CCH).

Remarks. This species is so close to *G. mouhoti* that we have problems of identification. Since they have the same localities, it is impossible to consider *problematica* as a subspecies. We tried many external characters to separate them but all failed. Only the apex of elytron shows a somewhat stable difference, *G. problematica* always has the tooth at the outer angle longer than the tooth at the suture while *G. mouhoti* has either no teeth or the sutural tooth is the longer. But to be sure of the identification, we have to dissect them. Maybe

molecular and genetic traits can help to resolve the problem of female separation of “*G. mouhoti*” group.

Key to species of *Glenea indiana* & *G. galathea* group

1. Male with all claws simple; last visible ventrite in male, in lateral view, with a distinct carinate umbo at apex above ventral opening (figs. 2a, 2b, 6a, 6b, 11a, 11b); lateral lobes of male genitalia extremely slender (figs. 3, 8, 13) (*G. indiana* species-group) 2
- Male with the anterior claw of fore tarsi with a distinct unguiculus at base, as long as claw segment, maybe slightly broader (fig. 16d); last visible ventrite in male, usually, without a distinct carinate umbo at apex above ventral opening (figs. 16, 22, 26, 32, 71), except *G. pseudoindiana* (fig. 34); lateral lobes of male genitalia stout (figs. 18, 23, 53, 55, 57, 59, 61, 63, 76, 77, 79), at most moderately slender (figs. 29, 36) (*G. galathea* species-group) 4
2. Elytron without pale sutural stripes linking transverse bands, pale, post humeral spots and additional stripes/ macula absent (figs. 1-2), Myanmar, India, Nepal, Bhutan, Malaysia (new record), Indonesia (?) ***G. indiana***
- Elytron with distinct pale sutural stripes linking either one or both transverse bands, post humeral area above sub-median transverse band with pale stripes/ macula (figs. 6, 7, 11, 12) 3
3. Elytron with sutural stripe only present above broad, sub-median, transverse band, humeral quarter with an isolated, sub-median, pale, ovate spot, maybe indistinct, longitudinal sub-lateral pale macula present below spot (figs. 6-7), India, Malaysia (new record) ***G. canidia***
- Elytron with a narrow sutural stripe also present below transverse sub-median band, which links broad band to narrow pre-apical band/macula, humeral quarter with small, elongate sub-median macula, which may merge into irregular area of pale setae, sub-lateral pale macula distinct, forming a long, narrow stripe which may extend from humeri to anterior margin of transverse band (figs. 11, 12), India ***G. caninia***
4. Apical visible ventrite in male with a distinct umbo prior to opening (fig. 34); male genitalia with lateral lobes of tegmen slender (fig. 36), Myanmar ***G. pseudoindiana* n. sp.**
- Apical visible ventrite in male without distinct umbo or with only a very slight projection (figs. 16, 22, 26, 32, 71); genitalia with lateral lobes of tegmen less slender (figs. 18, 23, 53, 55, 57, 59, 61, 63, 76, 77, 79) 5
5. Elytron with pale sutural stripes 6
- Elytron without sutural stripes 7
6. Elytron with a sub-median post-humeral pale spot, often confluent with sutural stripe; elytral apical spines weakly developed (figs. 26-28), China, Myanmar ***G. pseudocaninia* n. sp.**
- Elytron without pale post-humeral spot, may have weak sub-lateral longitudinal macula/stripe above transverse band; apical spines strongly developed (figs. 21, 22), India, Malaysia, Indonesia ***G. galathea***
7. Elytron with anterior margin of broad transverse band situated below mid-line of elytron; posterior

margin of black pronotal macula extending beyond mid line of pronotum, usually broadly rounded (figs. 16, 17); last visible ventrite in male slightly convex prior to apex, Vietnam *G. difficilis* n. sp.

- Elytron with anterior margin of broad transverse band situated just before mid-line of elytron; posterior margin of black pronotal macula not extending beyond mid-line of pronotum, usually sinuate/emarginated (figs. 40–52, 70–75) 8
- 8. Elytron with apical spines subequal, outer spine never clearly longer than inner tooth; male genitalia with lateral lobes of tegmen short and stouter, tegmen shorter in length than median lobe plus struts (figs 53–64), China, Vietnam, Laos, Cambodia, Thailand *G. mouhoti*
- Elytron with outer spine distinctly longer than inner spine; male genitalia with lateral lobes of tegmen longer and slender, length subequal to median lobe plus struts (figs. 76–79), China, Vietnam, Laos, Thailand *G. problematica* n. sp.

Discussion

Although we divided those 9 species clearly into two species groups, we felt doubtful about settling new subgenera. Breuning's (1956) *Glenea* subgenus *Glenea* Newman 1842, is extremely complicated, including several very different groups. According to our study on the type species *Sphenura novemguttata* Guérin 1831: scape without ridge; elytral disc without subcarina; male with anterior claws of all tarsi appendiculate; male genitalia with basal piece distinctly reduced, median struts shorter than one third of median lobe plus median struts, tergite VIII with apex projected in middle; spermathecal capsule composed of an apical orb and a stalk, stalk longer than 4 times of apical orb, etc., which is absolutely different from both *G. indiana* species-group and *G. galathea* species-group. But to set up a new solid system for the subgenera of *Glenea*, much more work is needed. Therefore we do not settle new subgenera in this paper, because we need more

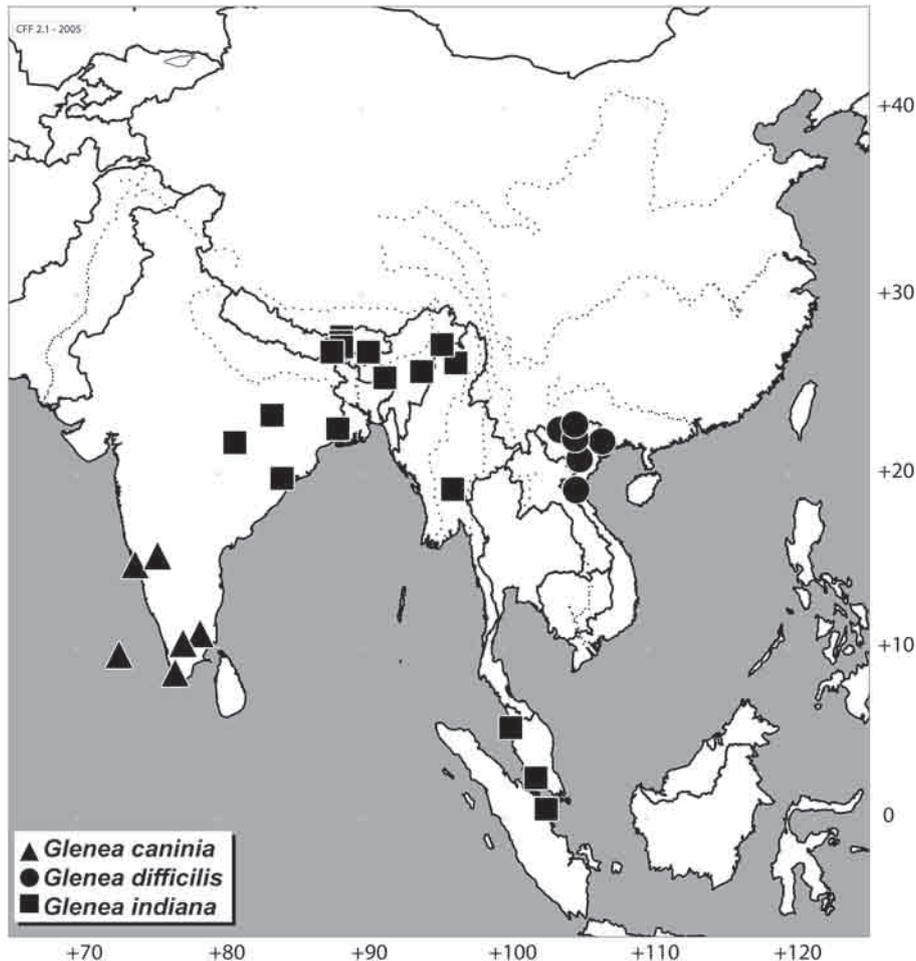


Figure 87
Distribution map of *Glenea caninia* Heller, *G. difficilis* Lin & Tavakilian n. sp. et *G. indiana* (Thomson)

information about this huge group (more than 36 subgenera for more than thousand supposed species).

In case someone likes to establish a new subgeneric group, *G. difficilis* n. sp. might be designated as the type-species of the *G. galathea* species-group, since it is the most common species in the collections sheltered in the main institutions. *G. mouhoti*, though common in those collections is more difficult to identify on females. *G. pseudoindiana* for its uncommon shape of ventrite VII cannot be considered as a representative element of the *G. galathea* species-group. Other species in *G. galathea* species-group are rare, often with less than 10 specimens available.

As far as our known, *G. niobe* Thomson 1879, from Borneo, belongs to *G. indiana* group, while, *G. posticata* Gahan 1895, from Myanmar and Laos, and *G. didymoides* Breuning 1956, from Bhutan belong to *G. galathea* group.

Concerning about *G. cassandra* Gahan 1907, from Enggano, without male specimen for study,

it is difficult to identify whether it belongs to *G. indiana* group or *G. galathea* group. But we'd like to designate here the female (Enggano / Bua-Bua. V. VI. / Modigliani 1891 / Types / *cassandra*, female, Gahan) deposited in MCSNG as lectotype of *Glenea cassandra* Gahan (fig. 84), while the female (cotype / Enggano I. (Modigliani) / 1908-16 / *Glenea cassandra* cot. Gah.) deposited in NHML as paralectotype (fig. 85).

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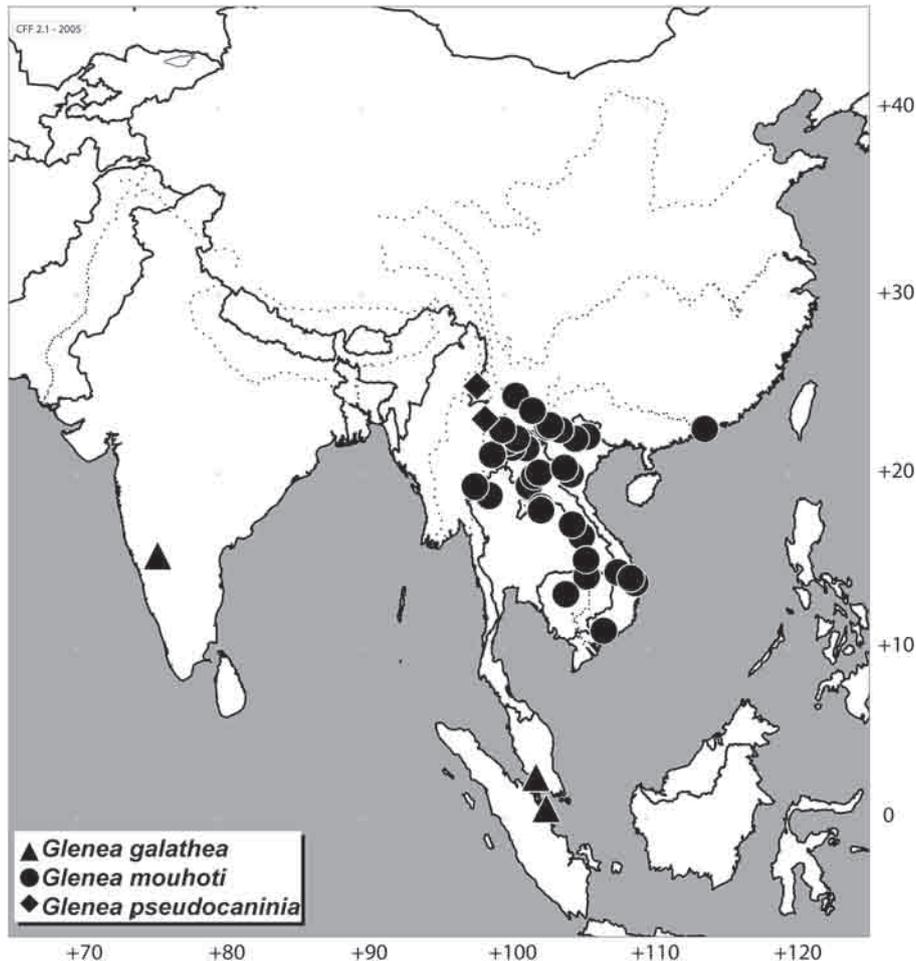


Figure 88
Distribution map of *Glenea galathea* Thomson, *G. mouhoti* Thomson et *G. pseudocaninia* Lin & Montreuil

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