

A review of the genus *Aphendala* WALKER, 1865 with notes on confusing genera

(Lepidoptera, Limacodidae)

by

ALEXEY V. SOLOVYEV

received 4.XII.2010 (finished 4.XII.2009)

Abstract: The genus *Aphendala* WALKER, 1865 is revised and all species' names associated with *Aphendala* are examined. The genus includes nowadays the following 10 species, three of them described as new: *A. unicolor* (MOORE, 1859), *A. cana* (WALKER, 1865), *A. recta* (HAMPSON, 1893), *A. ferreogrisea* (HAMPSON, 1910), *A. flavina* (HERING, 1931), *A. imitabilis* (HERING, 1931), *A. conicosma* (WEST, 1937), *A. buka spec. nov.* (from north-western India, holotype ♂ in MWM), *A. kalinini spec. nov.* (from northern Myanmar, holotype ♂ in MWM), and *A. siama spec. nov.* (from northern Thailand, holotype ♂ in BMNH). The new synonymies are established: *Aphendala unicolor* (MOORE, 1859) = *Aphendala transversata* WALKER, 1865 **syn. nov.**, = *Aphendala tripartita* MOORE, 1884 **syn. nov.**, = *Thosea phaeobasis* HERING, 1935 **syn. nov.**, = *Thosea discipunctata* HERING, 1931 **syn. nov.**, and = *Aphendala mechiensis* YOSHIMOTO, 1994 **syn. nov.**; *Aphendala cana* (WALKER, 1865) = *Thosea barikoti* DANIEL, 1965 **syn. nov.**; *Neothosea suigensis* (MATSUMURA, 1931) = *Birthosea trigrammoidea* WU & FANG, 2008 **syn. nov.** The lectotypes for *Aphendala transversata* WALKER, 1865 (lectotype ♂, in BMNH) and *Aphendala tripartita* MOORE, 1884, (lectotype ♂, in BMNH) are designated. The phylogenetic relationship of *Aphendala* is shortly discussed; it is close to *Neothosea* OKANO & PAK, 1964. The species *aperiens* WALKER, 1865 is transferred from *Aphendala* to *Avatara* SOLOVYEV & WITT, 2009 with establishing a new combination *Avatara aperiens* (WALKER, 1865) **comb. nov.** The monotypic genus *Raritheia* SOLOVYEV **gen. nov.** is erected here as new with the type species *Miresa phoece* HAMPSON, 1910 from Sri Lanka. All important diagnostic features are discussed and illustrated.

Introduction: The eastern Palaearctic and Oriental genus *Aphendala* WALKER, 1865 was erected with the type-species *Aphendala transversata* WALKER, 1865 as a monotypic one. Up to now, this generic name has been associated with extremely different limacodids which should, according to their genitalic characteristics, be placed in different genera (table 1). It was established using a weak diagnosis of the genus based on the features of the wing pattern only.

In KIRBY (1892) *Aphendala* consists of 9 species; among them are members recently attributed to the genera *Oxyplax* HAMPSON, 1893, *Praesetora* HERING, 1931, and *Griseothosea* HOLLOWAY, 1986; the species *Aphendala sericea* BUTLER, 1881 mentioned in the catalogue, is now placed in *Ceratonema* HAMPSON, 1893, and the species *Aphendala conspersa* BUTLER, 1880 is considered as a junior synonym of *Eublemma quadrinotata* (MOORE, 1888) in Noctuidae: Eustrotiinae (POOLE, 1989: 386, 391) (table 1).

A little later, the genus *Aphendala* was regarded as a junior synonym of *Thosea* WALKER, 1855 (HAMPSON, 1893: 71); the same wrong synonymy was proposed again 100 years later by INOUE (1992: 102) as new.

The independence of the genus was not recognized for a long time. It was absent from the lepidopteran catalogue of ECKE (1925) and its members were associated with genera *Thosea* WALKER, 1855, *Natada* WALKER, 1855 and *Tetraphleba* STRAND, 1920 (Table 1). The same situation is observed in HERING (1931) where the members of *Aphendala* were allocated between the genera *Thosea* WALKER, 1855 and *Macroplectra* HAMPSON, 1893.

The genus was revived from synonymy with *Thosea* by HOLLOWAY (1986), but neither the exact species composition of the genus was revealed, nor its diagnosis.

The recent review of the genus *Aphendala* in China (WU & FANG, 2008) includes contradictory and debatable information. From ten species of *Aphendala* recorded from China, nine do not belong to the genus (Table 1), as their systematic position was briefly reviewed in SOLOVYEV & WITT, 2009.

The main aim of this paper is to review the species composition of *Aphendala* and provide an accurate definition for their determination.

Miresa phoece HAMPSON, 1910, similar to members of *Aphendala*, is considered as the type-species of a newly established genus *Raritheia* **gen. nov.** The species was mistakenly regarded as a member of the genus *Miresa* WALKER, 1855 (ECKE, 1925: 46; HERING, 1931: 684) which was already clearly diagnosed in HOLLOWAY (1986: 88) and SOLOVYEV & WITT (2009: 98).

Material and methods

The materials from the following collections were examined (the following abbreviations are given to the text):

BMNH: The Natural History Museum, London, United Kingdom;

CVS: Private collection of VICTOR V. SINYAEV, Moscow, Russia;

KVM: Private collection of VALENTIN A. KALIN, Moscow, Russia;

MWM: Museum THOMAS J. WITT, München, Germany (to be transferred to ZSM);

MNHN: Museum National d'Histoire Naturelle, Paris, France;

NMW: Naturhistorisches Museum, Wien, Austria;

ZFMK: Zoologisches Forschungsinstitut und Museum "Alexander Koenig", Bonn, Germany;

ZMHB: Zoologisches Museum der Humboldt Universität zu Berlin, Germany;

ZSM: Zoologische Staatssammlung, München, Germany.

In total about 100 specimens were investigated including all primary types available. The genitalia of both sexes were examined using standard methods. The abdomen was macerated in 10% aqueous solution of alkali for 10 minutes whilst heating. The genitalia were dissected using micro-forceps; the aedeagus was separated and kept in "Evans blue" dye (1% aqueous) for 5 minutes for staining of the vesica. The ♀ genitalia were stained completely with this dye. After this, the genitalia were mounted in Euparal and labelled.

The digital images were made using a digital camera, Nikon Coolpix 5400, and binocular microscopes MBS-9 and MBS-10. The images were improved and prepared for publication using Corel Draw 13 and Corel Photo-Paint 13.

Results

Aphendala WALKER, 1865

List Spec. Lepid. Ins. Colln Brit. Mus. **32**: 494.

Type-species: *Aphendala transversata* WALKER, 1865, List Spec. Lepid. Ins. Colln British Mus. **32**: 495, by monotypy.

The moths are medium-sized, with forewing length 7–12.5 mm and wingspan 17–28 mm in ♂♂, 10.5–12.5 and 24–28 mm in ♀♀ correspondingly (col. pl. 10: 1–18). The ♂ antennae are bipectinate. The species are not sexually dimorph; the ♀♀ are just slightly larger than the ♂♂, with filiform antennae. The ground colour is tints of cream to brown. The forewings are elongated, with dark median and external fasciae; the median fascia runs from 1/3 lower margin to 1/2 costa, slightly concave; the proximal part of the forewing at this fascia is darker than the rest of the wing; the external fascia runs from 5/6 costa to tornus, also slightly concave. The forewing discal spot usually present, rarely reduced. In the forewing venation, the vein R1 is not sinuous; R5 is branched from R3+R4; the medial stem is not divided (fig. 1). The hindwings are usually paler.

The ♂ genitalia are strongly modified (figs 2–13). The uncus is large, slender, and bifurcated, with two apical finger-shaped processes. The gnathos is long, slender, curved upwards medially.

The valvae are simple, triangular, often bearing basal processes, with rounded sacculus and weak, long, finger-shaped cucullus bearing a field of bristles. The juxta is strongly modified, divided on two lateral lobes which are fused with sacculus of valva. Such fusion and modification of the juxta makes its homology complicate. The juxta lobes are with an additional paired basal process of diagnostic shape. The saccus is not developed. The aedeagus is small, tube-shaped, with diverse apical spurs; its vesica is without cornuti.

The membrane behind the 8th sternite in ♂♂ is modified into two lateral scobinate areas bearing long hairs that are easily detached during preparation of slides or boiling of the abdomen (figs 16, 17). In the rest these areas are located near to the lobes of the juxta and not always well defined.

The ♀♀ genitalia are weakly modified, with ovoid and robust ovipositor lobes (figs 18, 21). Both pairs of apophyses are long, slender, and curved. The posterior apophyses are greatly widened basally. The ductus bursae is short, not spiral. The corpus bursae is pear-like to ball-shaped, contains a large crescent-shaped signum without medial incision (figs 18, 19) or small, compact, crescent-shaped with small medial incision (figs 21, 22). The 9th abdominal segment is strongly sclerotized dorsally and weaker ventrally. The 8th abdominal tergite is sclerotized medially; the membrane situated behind this tergite is C-shaped and sclerotized (figs 20, 23).

The larva is known for *Aphendala unicolor* (MOORE, 1859); it is of the nettle-type, with long subdorsal scoli as shown on the original figures in the descriptions of *Parasa unicolor* MOORE, 1859 and *Aphendala tripartita* MOORE, 1884. The larvae are similar externally to those of *Thosea* WALKER, 1855 and *Cania* WALKER, 1855. The cocoon is ovoid, brown. The detailed descriptions of larvae are given in SEVASTOPULO (1945: 193) (as for *Thosea tripartita*) and SEVASTOPULO (1946: 65) (as for *T. cana* and *T. tripartita*).

The genus ranges from the Indian region to Myanmar and northern Thailand so far. The records from other regions are not proved and very doubtful. The genus includes the following 10 species: *A. unicolor* (MOORE, 1859), *A. cana* (WALKER, 1865), *A. recta* (HAMPSON, 1893), *A. ferreogrisea* (HAMPSON, 1910), *A. flavina* (HERING, 1931), *A. imitabilis* (HERING, 1931), *A. conicosma* (WEST, 1937), *A. buka* spec. nov., *A. kalinini* spec. nov., and *A. siama* spec. nov.

The genus *Aphendala* was often regarded as a junior synonym of *Thosea* WALKER, 1855 (HAMPSON, 1893: 71; HERING, 1931; INOUE, 1992: 102, etc.), but both genera have clear diagnoses supported by unique characters and their close phylogenetic relationships are doubtful. Both genera are easily separated externally by the forewing fasciae; it is single and more distal in *Thosea*. The male genitalia of both are extremely different. So, in *Thosea* the sacculus of the valva bears a long and flattened process, the uncus is undivided and bears an apical spur, including some other genital features accurately described in HOLLOWAY (1986: 104).

The members of the genus *Aphendala* are similar externally to some other limacodids and can be easily confused with *Neothosea* OKANO & PAK, 1964 (type-species *Thosea suigensis* MATSUMURA, 1931, = *Birthosea trigrammoidea* WU & FANG, 2008 **syn. nov.**), *Avatara* SOLOVYEV & WITT, 2009 (type-species *Avatara onyx* SOLOVYEV & WITT, 2009), and *Raritheia* gen. nov. The members of these genera are characterized externally by obscure coloration, medium size, shortly bipectinate ♂ antennae and forewings with similar external and concave medial fasciae. The genus *Aphendala* is diagnosed by the following particularities: the forewing with two fasciae, medial and external (not three fasciae as in *Neothosea* - col. pl. 10: 19) that never distinctly join together (usually joined in *Avatara* - col. pl. 4: 20), the external fascia is usually gradually curved, not sinuous as in *Raritheia* gen. nov. (colour pl. 4: 23). The ♂ genitalia of the mentioned genera are mostly diagnostic and characterized by a quite different morphology.

The ♂♂ genitalia of *Neothosea* with a sclerotized and narrowed, not bifurcate (as in *Aphendala*) apically uncus; the gnathos is distinctly widened distally with lateral lobes (it is slender and gradually narrowed to the apex in *Aphendala*); the juxta is deeply divided in two lateral lobes covered by the bristles, like in *Aphendala*, but each lobe bears just a single basal process. Perhaps, both *Aphendala* and *Neothosea* are closely related that supported by the similar forewing pattern, triangular valvae and modified, typically deeply divided on two lobes covered by the bristles and bearing additional basal processes, juxta.

Members of the genus *Avatara* SOLOVYEV & WITT have weakly modified ♂♂ genitalia, with undivided and simple uncus bearing an apical spur, with flattened juxta, undivided on lobes and not bearing any spurs, and with a long aedeagus bearing an apical acute spur of different shape (SOLOVYEV & WITT, 2009: 157). Both *Avatara* and *Aphendala* are very different except for a similar appearance, but the *Avatara* species were often mistakenly identified as *Aphendala* as noted in the species account.

Miresa aperiens WALKER, 1865 is worthy of special attention (col. pl. 10: 21, 22). The species was considered as a member of *Thosea* (ECKE, 1925: 10; HERING, 1931: 711) or *Aphendala* (KIRBY, 1892: 530; WU & FANG, 2008: 691), but truly it is not related to either of these genera, the species was incorrectly identified in WU & FANG, 2008 and it ranges only to Sri Lanka so far. The species was described after an unknown number of ♂♂ from Ceylon, kept in Mr. LAYARD's collection (which had disappeared according to the unpublished notes of HAMPSON - BMNH archive) and the types are lost. The species was recognized using original descriptions of the species and additional material in the BMNH. Corresponding to the original description, the ♂ is cinereous brown with minutely pectinate antennae in ♂♂ and shiny wings; the length of the body "6 lines", of the wings "11 lines"; the forewings bear "two whitish cinereous lines, which are almost contiguous near the tip of the costa, but diverge much towards the interior border." In

addition, a series of ♂♂ and ♀♀ from the collection of SWINHOE and identified as “*Aphendala aperiens* WALK” was found in BMNH. One ♂ specimen bears a pinned label with the inscription by SWINHOE’s hand “typ.” which means the specimen was compared with original type-material. The species is transferred here into the genus *Avatara* establishing a new combination *Avatara aperiens* (WALKER, 1865) **comb. nov.** according to its morphology, where the ♂ genitalia are simple with elongated valvae, lost saccular processes, unmodified simple juxta, slender and upcurved gnathos, slender and long aedeagus with well developed basal process and bearing an apical spur, but the uncus bears a rather subapical spur than the apical (fig. 14). Externally the species corresponds to *Avatara* in general, but the forewing pattern is without a discal spot, both fasciae are not joined near the wing apex; the medial fascia is arcuate, not concave, that can be found in *Matsumurides* HERING, 1931 (HOLLOWAY, 1986: 120 as for *Allothosea*; SOLOVYEV & WITT, 2009: 170), but in *aperiens* ♂ antennae are almost uniformly bipectinate up to the apex, the vesica is without cornuti, and unmodified juxta. The ♀ genitalia of *Avatara* have not been examined so far, but known for *A. aperiens* WALK. where the ovipositor lobes are well developed, slender and long; the ductus bursae is long, strongly spiral, flattened with waved margin distally; the corpus bursae is ovoid; the signum of the corpus bursae is large and crescent-shaped (fig. 24). In general, the morphology of the ♀ genitalia conforms to *Aphendala*, *Neothosea* and *Matsumurides*, which can be related to *Avatara*.

With similarities to *Aphendala* species, *phoea* HAMPSON, 1910 was found in *Miresa* WALKER, 1855. Indeed, the species was mistakenly regarded as a member of *Miresa* for a long time, but does not conform to the diagnosis of the last. The species *phoea* HAMPSON has strongly modified ♂ genitalia differing in the extreme from those of *Aphendala*, in spite of the external similarity of both moths. This species is placed into the separate genus *Raritheia* **gen. nov.** erected below.

An annotated list of species

Aphendala unicolor (MOORE, 1859) (colour pl. 10: 1-4)

Parasa unicolor MOORE, 1859, Cat. Lepid. Ins. Mus. Nat. Hist. East-India House **1**: 415. Type-locality: “N. India”. Holotype (by monotypy): ♂ (BMNH) [examined].

Aphendala transversata WALKER, 1865 **syn. nov.**, List Spec. Lepid. Ins. Colln Brit. Mus. **32**: 495. Type-locality: “North Hindostan”. Lectotype: ♂ (BMNH), here designated [examined].

Aphendala tripartita MOORE, 1884 **syn. nov.**, Trans. Ent. Soc. London **1884**: 376. Type-locality: [northern India] “Manpuri”. Lectotype: ♂ (BMNH), here designated [examined].

Thosea phaeobasis HERING, 1935 **syn. nov.**, Stylops **4**: 86. Type-locality: [south-western India] “S. Mangalore, 400, Madras”. Holotype (by original designation): ♂ (BMNH).

Thosea discipunctata HERING, 1931 **syn. nov.**, in SEITZ, A., Die Gross-Schmetterlinge der Erde **10**: 713. Type-locality: [south-western India] “Palli Hill, Bandora”. Holotype (by original designation): ♂ (BMNH) [examined].

Aphendala mechiensis YOSHIMOTO, 1994 **syn. nov.**, Moths of Nepal **3**, Tinea **14** (Suppl.1): 88. Type-locality: [Nepal] “Mechi, Godok”. Holotype (by original designation): ♂ (the depository of the holotype is unknown) [not examined].

Diagnosis: The species is greyish brown, slightly variable externally, usually with a distinct dark discal streak on the forewing. The ♂♂ genitalia are diagnostic and characterized by ovoid juxtal lobes which are not curved downwards and bear a pair of long (as long as the sacculus) slightly concave processes of equal width which arise together basally, and with long hair-like spurs distally (figs 2, 3). The ♂♂ genitalia are similar to those of *A. ferreogrisea* (HAMPSON, 1910) (fig. 6), but the medial fascia in the forewing is not dentate in unicolor.

Distribution: India, Nepal.

Biology: The moths were collected from mid May to mid September, develop probably two generations per season, and inhabit the altitudes of 400-1250 m. The larva is of the nettle-type, with long subdorsal scoli. The ground colour is green, with a whitish dorsal band. The food plants: *Ricinus communis* L. (Euphorbiaceae) (SEVASTOPULO, 1946: 66, as for *Th. tripartita* MOORE), *Ochna squarrosa* L. (A. GROTE MS, cited by MOORE, 1859: 415), *Ziziphus jujube* MILL. (SEVASTOPULO, 1945: 194), *Ziziphus mauritiana* LAM. (Rhamnaceae), *Azadirachta indica* A. JUSS (Meliaceae), *Butea monosperma* (LAM.) TAUB., *Tamarindus indica* L. (Leguminosae), *Shorea robusta* ROTH. (Dipterocarpaceae) (cited after ROBINSON et al., 2009).

Nomenclatorial notes: The new synonymies given above are based on the ♂ genital indistinguishability of the mentioned taxa examined after types.

Aphendala transversata WALKER, 1865 was described after a ♂ and a ♀ from “North Hindostan” and “South Hindostan” respectively. The single typical ♂ was found in BMNH; it is designated as a lectotype here. The specimen bears the following labels: 1 - yellowish wide rectangle with printed black text “*Aphendala transversata*”; 2 - greyish circle with black ink text “N. | India”; 3 - white rectangle with handwritten black ink text “1971 | 814”; 4 - blue rectangle with black printed “genitalia slide | No.” and handwritten by black ink text “*Limac* | 314 ♂”. The specimen is supplied with an additional lectotype label with corresponding text.

Aphendala tripartita MOORE, 1884 was also described after a couple of moths, and the single typical ♂ was found in BMNH only. The lectotype: ♂, here designated, with the following labels: 1 - round, with red frame and black typed text “Type”; 2 - rectangle, yellowish, with handwritten in black ink text “*Aphendala* | *tripartita* | type . MOORE”; the reverse side bears the text “Manpuri | N.W.P. | Horne”; 3 - rectangle, yellowish, with black printed text “MOORE Coll. | 94-106.”; 4 - rectangle, white, with handwritten in black ink text “1971 | 815”.

Aphendala cana (WALKER, 1865) (colour pl. 10: 5, 6)

Parasa cana WALKER, 1865, List Spec. Lepid. Ins. Colln Brit. Mus. **32**: 484. Type-locality: “South Hindostan”. Holotype (by monotypy): ♂ (BMNH) [examined].

Thosea barikoti DANIEL, 1965 **syn. nov.**, Z. Wien. Ent. Ges. **50**: 140. Type-locality: “Afghanistan, Nuristan, 25 km N v. Barikot, 1800 m”. Holotype (by original designation): ♂ (NMW) [examined].

Diagnosis: The species is from yellow to greyish brown. The forewing pattern is similar to other congeners, but the discal spot is lost. The ♂ genitalia are diagnostic (fig. 4), with valva bearing a slender, acute, sickle-shaped process as long as the valvae; juxtal lobes ovoid and each bears a single, broader than the valvar process, gradually narrowed distally, strongly curved in basal third and apically with a series of bristles. The species is similar in morphology of ♂ genitalia to *A. kalinini* **spec. nov.** (fig. 12), but the basal

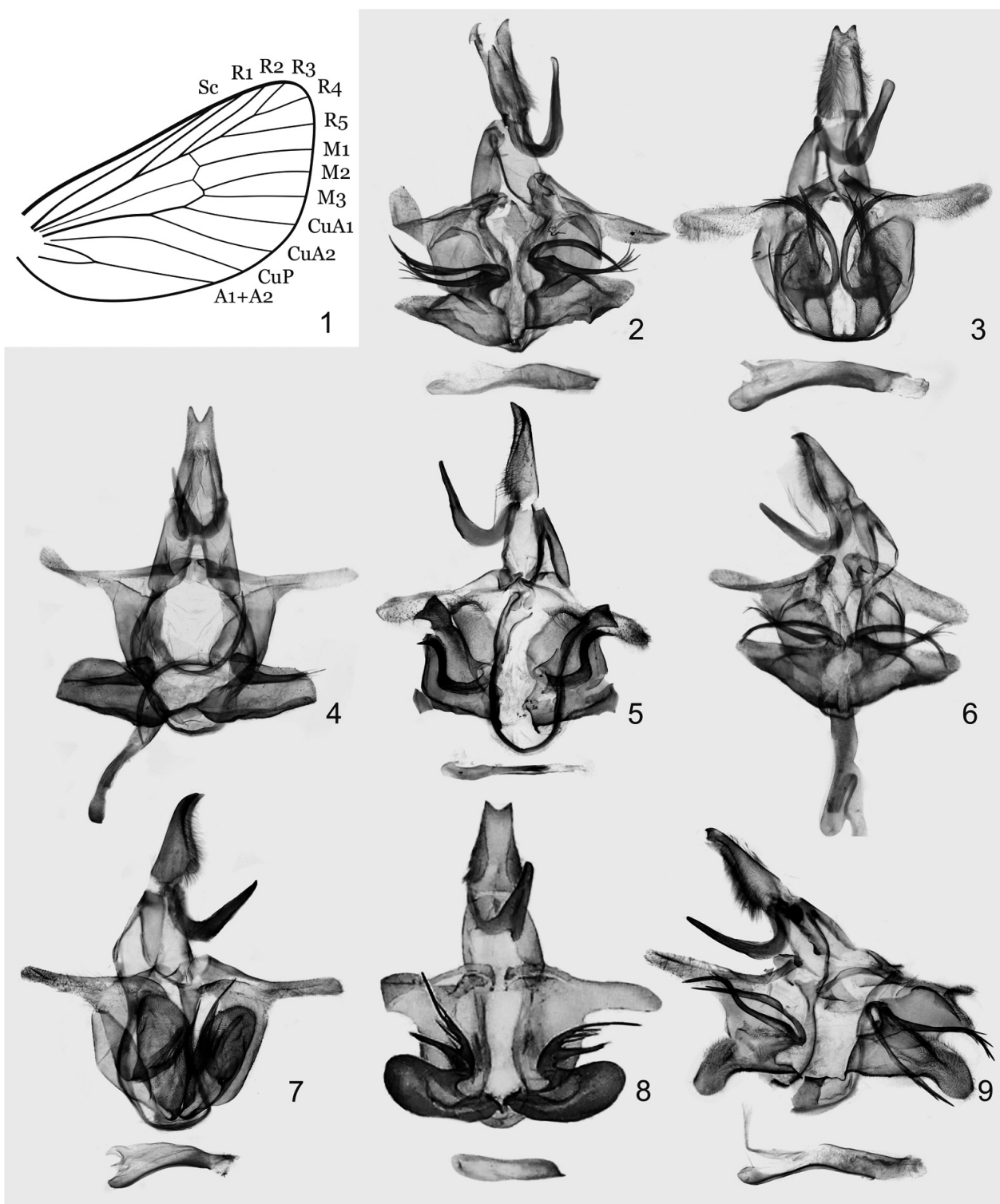
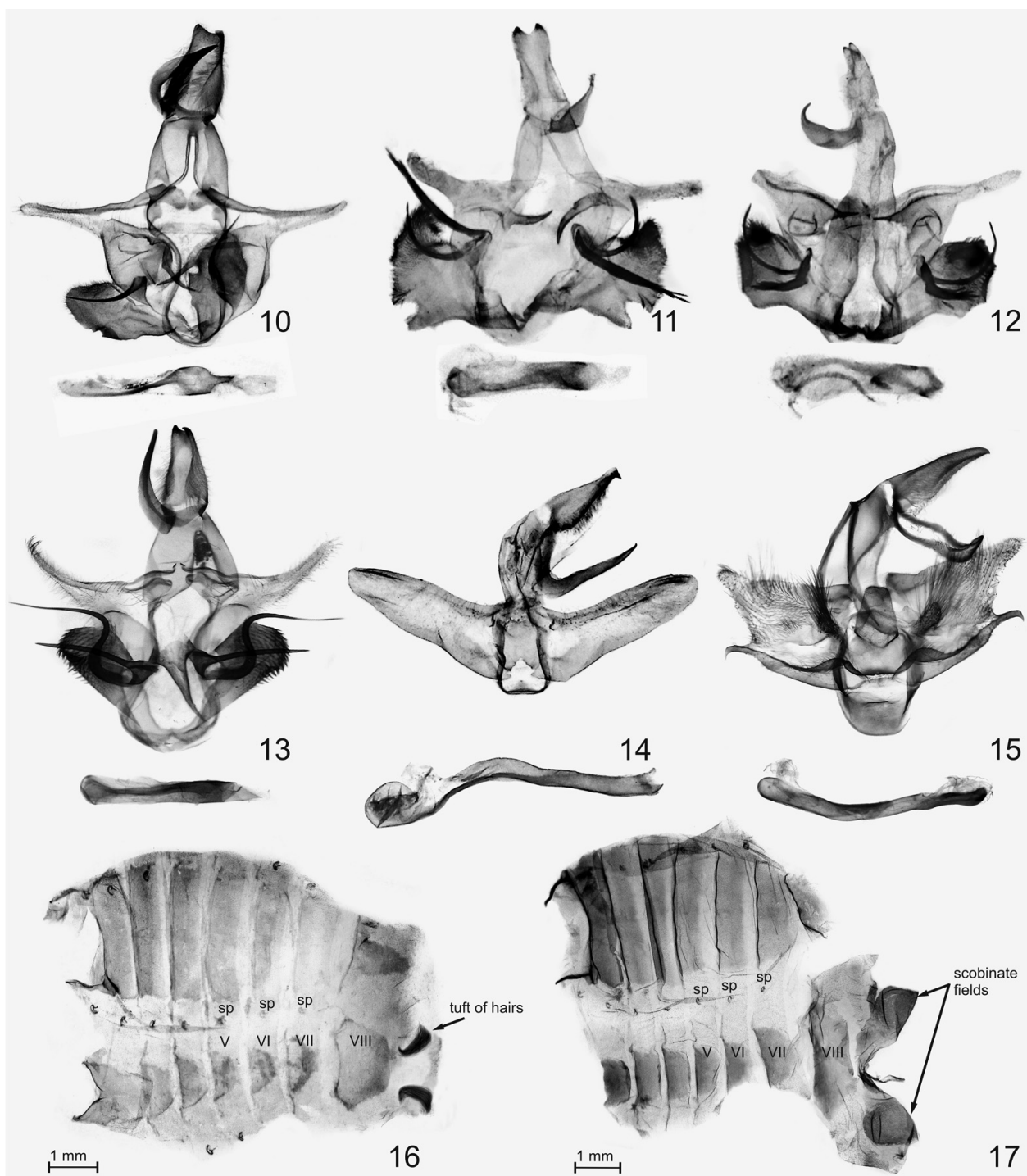
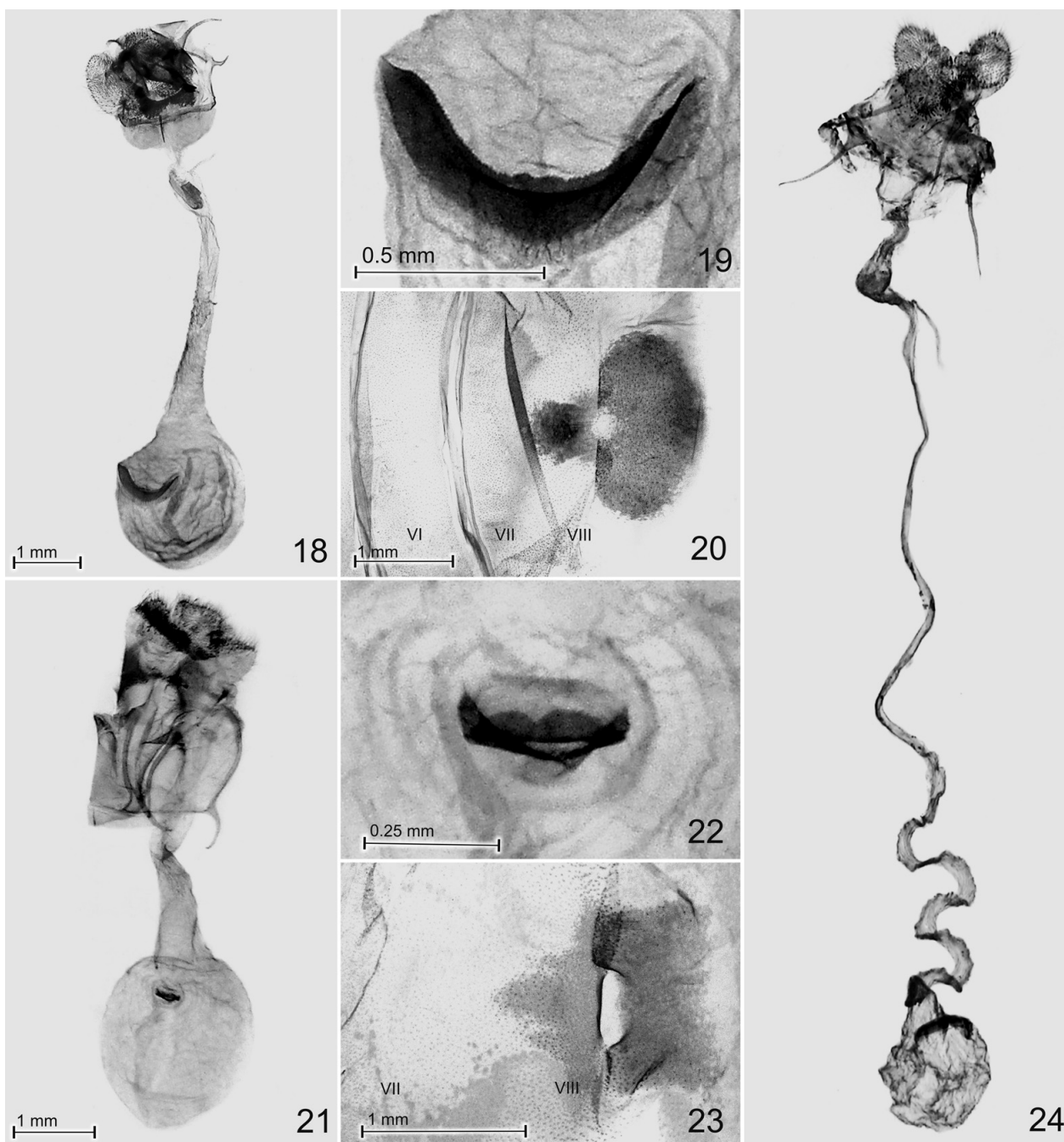


Fig. 1: Forewing venation of *Aphendala flavina* (HERING, 1931).

Figs 2-9: ♂-genitalia with aedeagus separated. (2) *A. unicolor* (MOORE, 1859), lectotype of *Aphendala transversata* WALKER, 1865; (3) *A. unicolor* (MOORE, 1859), holotype of *Thosea phaeobasis* HERING, 1931; (4) *A. cana* (WALKER, 1865), holotype; (5) *A. recta* (HAMPSON, 1893), holotype; (6) *A. ferreogrisea* (HAMPSON, 1910), holotype; (7) *A. flavina* (HERING, 1931), holotype; (8) *A. flavina* (HERING, 1931), MWM, slide 9852 (India, Kashmir); (9) *A. conicosma* (WEST, 1937), holotype.



Figs 10-15: ♂♂-genitalia with aedeagus separated. 10: *A. imitabilis* (HERING, 1931), CVS, slide limac-015 (Bhutan); (11) *A. buka* **spec. nov.**, paratype; (12) *A. kalinini* **spec. nov.**, holotype; 13: *A. siama* **spec. nov.**, holotype; (14) *Avatara aperiens* (WALKER, 1865), BMNH (Sri Lanka) (photo: V. ZOLOTUHIN); (15) *Raritheia phoceia* (HAMPSON, 1910), holotype.
 Figs 16-17: ♂ abdomen. (16) *A. cana* (WALKER, 1865), MWM, reproduced from slides 16003 & 16004 (Pakistan, Margalla Hills); (17) *A. kalinini* **spec. nov.**, paratype, KVM. Last sternites numbered by Roman numerals; tergites above. Abbreviation: “sp” means spiracle. Hair tufts on scobinate fields detached.



Figs 18-24: ♀-genitalia and related abdominal copulative complex.

Figs 18-20: ♂-genitalia and related abdominal copulative complex of *A. unicolor* (MOORE, 1859), MWM, slide 16007 (India: Nilgiri Hills). 18: general view; 19: signum enlarged; 20: last tergites, numbered by Roman numerals.

Figs 21-3: ♀-genitalia and related abdominal copulative complex of *A. imitabilis* (HERING, 1931), MWM, slide 15977 (India: Kumaon Himalaya). (21) general view; (22) signum enlarged; (23) last tergites, numbered by Roman numerals.

Fig. 24: ♀-genitalia of *Avatara aperiens* (WALKER, 1865), BMNH (Sri Lanka) (photo: V. ZOLOTUHIN).

processes of juxtal lobes of *A. cana* (WLK.) are ovoid, not hexagon-shaped, and with narrow gnathos.

Distribution: Eastern Afghanistan, Pakistan, and India. The species was recorded from Nepal by YOSHIMOTO (1994: 87), from Sri Lanka (as Ceylon) by LIGHT (1927: 16) (as for *Thosea cana* WLK.), and from Taiwan by INOUE (1992: 102) [as “*Thosea cana* (WALKER, 1865), = *transversata* WALKER, 1865, = *basifusca* KAWADA, 1930”], WANG (1995: 108) [as *Th. cana* (WALKER, 1865)] and CHANG (1989: 180) (as *Thosea cana* WALKER), but these records are very debatable. It is thought the species was misidentified in all cases. Colour images of the species in the last two papers clearly show not a species of *Aphendala*, but of *Avatara*, externally really very similar.

The species also was recorded from Vietnam (cited by ROBINSON et al., 2009), but, unsurprisingly, it was confused with *Avatara onyx* SOLOVYEV & WITT, 2009 or *A. sicilis* SOLOVYEV & WITT, 2009.

Biology: The moths were collected from early June to September at altitudes of 600–1800 m.

The recorded food plants: *Cassia fistula* L., *C. auriculata* L. (SEVASTOPULO, 1946: 65), *Azadirachta indica* A. JUSS. (Meliaceae) (KARTHIKEYAN et al., 1997: 81), *Malus* sp. [as for *Th. cana* (WLK.)] (CCHANDER, 1983: 136), *Malus pumila* MILL., *Rosa* sp., *R. indica* L. (Rosaceae), *Albizia* sp., *Dalbergia sissoo* ROXB. (Leguminosae), *Camellia sinensis* (L.) KUNTZE (Theaceae), *Ricinus communis* L. (Euphorbiaceae) [as for *Th. cana* (WALKER, 1865)], *Terminalia elliptica* WILLD. [as *Terminalia tomentosa* (ROXB.) WIGHT & ARN., a junior synonym, (Combretaceae)] (ROBINSON et al., 2009).

Nomenclatorial note: The new synonymy of *A. cana* (WLK.) and *A. barikoti* (DAN.) is based on the ♂ genital indistinguishability of the mentioned taxa.

Aphendala recta HAMPSON, 1893 (colour pl. 10: 9, 10)

Illust. Typical Specim. Lepid. Het. Coll. Brit. Mus. **9**: 71. Type-locality: [Ceylon]. Holotype (by monotypy): ♂ (BMNH) [examined].

Diagnosis: The species is greyish brown; the forewings are with indistinct external fasciae, pale ovoid shading near the outer forewing margin, without well defined discal spot and with distinct white distal border of the medial fascia. The ♂♂ genitalia are mostly diagnostic and characterized by a single, wide, acute and S-shaped basal process in each juxtal lobe; each lobe is distinctly divided into two parts; the lower part is widened; the upper one is large, curved, and bearing two apical dents (fig. 5). The aedeagus is straight, much smaller and narrower than in other congeners, as wide as the distal part of gnathos.

Distribution: Sri Lanka (Ceylon). The species was also recorded from India and Vietnam [as *Thosea recta* (HAMPSON)] (ROBINSON et al., 2009) and Sumatra [as *Thosea recta* (HAMPSON)] (BERNARD, 1917: 1), but the presence of the species outside Ceylon is debatable.

Biology: The known food plant is *Camellia* sp. [as *Thosea recta* (HAMPSON)] (HUTSON, 1923: 11; 1932: 255). A serious outbreak of the species on tea in Sri Lanka is known (HUTSON, 1925: 15).

Aphendala ferreogrisea (HAMPSON, 1910) (colour pl. 10: 7)

Tetraphleps ferreogrisea HAMPSON, 1910, J. Bombay Nat. Hist. Soc. **20**: 107. Type-locality: “Ceylon, Mankulam”. Holotype (by original designation): ♂ (BMNH) [examined].

Diagnosis: Externally, the species is similar to *A. conicosma* (WEST, 1937) from central Myanmar excepting its obscurer coloration; both have dentate medial fasciae in the forewing and a distinct discal spot; *A. ferreogrisea* (HAMPSON) is well recognized by the ♂ genitalia with gradually arcuate, not S-shaped basal processes on ovoid, not curved downwards juxtal lobes (fig. 6).

Distribution: Sri Lanka (Ceylon).

Biology: Unknown.

Comment: The species is known only by the holotype.

Aphendala flavina (HERING, 1931) (colour pl. 10: 11, 12)

Thosea flavina HERING, 1931, in SEITZ, A., Die Gross-Schmetterlinge der Erde **10**: 714. Type-locality: [northern India] “Dalhousie”. Holotype (by original designation): ♂ (BMNH) [examined].

Diagnosis: The species is usually more yellowish than its congeners, sometimes greyish brown. The ♂ genitalia is diagnostic, with ovoid juxtal lobes bearing a basal process divided in two branches proximally; the upper branch is 1.5 longer than the lower one and bears a few long, hair-like spurs on the lower margin (figs. 7, 8).

Distribution: Pakistan, northern India.

Biology: The flight period falls in June and early August. The habitat altitudes are 1900–2000 m.

Aphendala imitabilis (HERING, 1931) (colour pl. 10: 13–15)

Thosea imitabilis HERING, 1931, in SEITZ, A., Die Gross-Schmetterlinge der Erde **10**: 713. Type-locality: [Northern India] “Pedong (Sikkim)”. Holotype (by original designation): ♂ (ZMHB) [examined].

Diagnosis: The species is from yellow to greyish brown ground colour; its forewings are without a defined discal spot. The species is well recognized by the ♂ genitalia where the juxtal lobes are ovoid, with a flattened, triangular process on the lower margin and with a sickle-shaped, curved, unpaired basal process as long as the juxtal lobe. The valva bears a slender, very short, slightly curved basal process as long as 1/3 of the juxtal one, with small bristles in internal margin (fig. 10).

Distribution: Northern India, Nepal, Bhutan, and central Myanmar.

Biology: The specimens were collected in late April, early May, mid June, July, and early November at altitudes of 1500–2700 m.

Aphendala conicosma (WEST, 1937) (colour pl. 10: 8)

Thosea conicosma WEST, 1937, Ann. Mag. Nat. Hist. **10** (10): 84. Type-locality: [Myanmar] “Burma, Myingyan”. Holotype (by original designation): ♂ (BMNH) [examined].

Diagnosis: The species is similar externally to *A. ferreogrisea* (HAMPSON), with dentate medial fascia in the forewing and a distinct discal spot, but *A. conicosma* (WEST) is slightly paler, greyish brown. The ♂ genitalia of *A. conicosma* (WEST) is mostly diagnostic, with ovoid, curved downwards distally juxtal lobes; each juxtal lobe bears two long (as long as juxtal lobe) basal processes arising together,

with apical hair-like spurs; the lower process is 'S'-shaped (fig. 9). The ♀ is still unknown.

Distribution: Central Myanmar.

Biology: The single known specimen, the holotype, was collected in November.

Aphendala buka spec. nov. (colour pl. 10: 16)

Holotype ♂: Indien WB, Darjeeling Pashok, 850 m, 4.VII.1986, leg. W. THOMAS, MWM, genital slide 15976).

Paratypes: 2 ♂♂, N.W. India, Darjeeling, Mangpu Rd., 31.VII.1990, MWM (genital slide 9862).

Description: The forewing length is 9-11 mm and the wingspan is 18-23 mm in the ♂♂. The ground colour is brown. The ♂ antennae are bipectinate, gradually narrowed distally up to the tip. The forewings have concave medial and external fasciae; the discal spot is indistinct. The basal forewing part is bounded distally by the medial fascia; it is much darker than the rest of the wing especially, with a distinct pale and almost grey field distally to the medial fascia. The hindwings are similarly coloured with medial and distal forewing part.

In the ♂ genitalia the uncus has two triangular apical lobes (fig. 11). The gnathos is up-curved in the basal third, widened medially and very slender distally. The valvae are triangular-shaped, bearing a short, acute, slightly concave basal process similar to those of *A. imitabilis* (HERING, 1931) and *A. kalinini* spec. nov. The juxta is divided into two lateral lobes which are broad, irregular-shaped, slightly widened apically, bearing distal field of small bristles, with sinuous outer margin, acute and expanded corners, and with a large flattened triangular process on its lower margin. Each juxtal lobe bears a pair of processes arising together, both bear distal hair-like spurs; the lower one is long (as long as 2/3 cucullus) almost straight; the upper one is sickle-shaped, slightly shorter and narrower than the lower one. The saccus is not developed. The aedeagus is straight, tube-shaped, and small.

The membrane behind the 8th abdominal sternite bears two lateral scobinate areas with long hairs. In the rest, these areas are located near to juxtal lateral parts.

♀ and preimaginal stages are unknown.

Diagnosis: Externally, the species is similar to *A. kalinini* spec. nov. by the darker, brown coloration and almost grey field distally to the medial forewing fascia, but can be easily separated by the ♂ genitalia. The basal processes of valva and juxtal lobes are similar just to *A. kalinini* spec. nov., but in *A. buka* spec. nov. the lower margin of juxtal lobe bears a large, flattened, ovoid process, the basal process of valvae is much shorter, and the lower juxtal process is almost straight, long, and not boomerang-shaped as in *A. kalinini* spec. nov.

Distribution: North-western India.

Biology: The moths were collected on 4th and 31st July at altitudes of 850-1800 m.

Etymology: Buka - a person, real or imaginary, used as a threat, especially to children (from the Russian).

Aphendala kalinini spec. nov. (colour pl. 10: 17)

Holotype ♂: Myanmar (Burma), 21 km E Putao, Nan Sa Bon village, 550 m, 1.-5.V.1998, leg. MURZIN & SINJAEV, MWM, genital slide 9867.

Paratypes: 2 ♂♂, Myanmar, as holotype; 3 ♂♂, 16 km E Putao, Kaung Mu Lon vill., 500 m, 28.-30.IV.1998, leg. S. MURZIN & V. SINJAEV, MWM; 1 ♂, the same data, KVM, genital slide KVM-03; 2 ♂♂, 25 km E Putao, Nan Sa Bon vill., MWM, 800 m, 6.-9.V.1998 leg. MURZIN & SINJAEV, MWM, total slide 9973.

Description: The forewing length is 10.5-12.0 mm and the wingspan is 23-25 mm in ♂♂. The ground colour is dark greyish brown. The ♂ antennae are bipectinate, gradually narrowed to apex. The forewing pattern includes dark concave medial and external fasciae; the basal wing part bordered by the medial one which is much darker than the rest of the wing and distinctly pale distally. The hindwings are similarly coloured to the medial and distal forewing area.

In the ♂ genitalia, the uncus is bilobed apically, with two apical triangular lobes (fig. 12). The gnathos is up-curved in proximal third, very broad medially and narrowed distally. The valvae are divided on weak sacculus and stronger cucullus, bear a short, acute, and almost straight basal process. The cucullus is weak, finger-shaped, and setose. The juxta is divided in two irregular, almost hexagonal lateral lobes with a small apical finger-shaped process, and a small process on lower margin; basally the lobe has a pair of processes arising together distally; the upper one is long, narrow, as long as the cucullus, sickle-shaped; the lower one is wide, boomerang-shaped, slightly narrowing to the apex, with series of hair-like spurs distally. The saccus is not developed. The aedeagus is almost straight, slender.

The membrane above the 8th abdominal sternite bears two lateral scobinate areas with long hairs (fig. 17). In the rest, these areas are located near to juxtal lateral parts.

The ♀ and the preimaginal stages are unknown.

Diagnosis: The species is similar to *A. buka* spec. nov. by the darker coloration and deep pale field distally to medial forewing fascia. The species is well recognized from all congeners by the ♂ genitalia where the valva bears a basal process and irregular juxtal lobes similar to those of *A. buka* spec. nov., but in *A. kalinini* spec. nov. the lower margin of the juxtal lobe bears very short processes (its height is less than basal width); the lower basal process of the lobe is boomerang-shaped, strongly curved medially, not straight; the basal processes of valvae are much smaller, almost straight.

Distribution: Northern Myanmar.

Biology: The specimens were collected in late April and early May at altitudes of 500-800 m.

Etymology: The species is dedicated to Mr. VALENTIN A. KALININ (Moscow) for his kind permission to examine his private lepidoptera collection.

Aphendala siama spec. nov. (colour pl. 10: 18)

Holotype ♂: Thailand, Chiang Mai Province, Chiang Dao Hill Resort, 19°33.421'N, 99°04.625'E, 523 m, at MV light, 27.VII.2006, leg. G. MARTIN, BMNH(E) 2006-128, Limacodidae BMNH(E) slide № 1427.

Paratype: 1 ♂, N. Thailand, Doi Inthanon N.P., 2450 m, 22.V.1987, leg. M.G. ALLEN, B.M. 1990-171, Limacodidae BMNH(E) slide № 1428.

Description: The forewing length is 7-10 mm and the wingspan is 17-22.5 mm in the ♂. The ground colour is greyish brown. The ♂ antennae are bipectinate, gradually narrowed distally. The medial fascia of the forewing is concave; the basal area of the forewing which is bounded by this fascia is darker than the remaining wing area. The external fascia is concave, dark. The discal spot is not developed. The hindwings are similarly coloured to the basal area of forewings.

In the ♂ genitalia, the uncus is slightly bifid apically, with two apical triangular lobes (fig. 13). The gnathos is slender, up-curved proximally. The valvae are divided, with distinct sacculus and cucullus. The cucullus is finger-shaped, slender, and densely haired. The juxta is divided into two semi-heart-shaped lobes distally covered by large spurs. Each lobe bears two acute basal processes arising together basally; the upper process is only slightly concave and almost straight, 1/4 longer than the lobe; the lower one is very long, slender, gradually narrowing distally and 'S'-shaped. The anellus is slightly scobinate around the aedeagus. The saccus is not developed. The aedeagus is tube-shaped, almost straight, and acute apically. Two lateral ventral scobinate areas bearing long hairs are located behind the 8th abdominal sternite.

♀ and the preimaginal stages are unknown.

Diagnosis: Externally, the species is similar to other congeners and easily distinguished by the ♂ genitalia where the lobes of juxta are semi-heart-shaped and covered by large spurs; the basal processes are long, acute, hairless or without additional spurs; the lower process is 'S'-shaped and much longer than the valva.

Distribution: Northern Thailand.

Biology: The specimens were collected in late May and late July at altitudes of 523-2450 m.

Etymology: The species name is connected to the type locality; "Siam" is the former name for Thailand.

Raritheia gen. nov.

Type-species: *Miresa phoceae* HAMPSON, 1910, J. Bombay Nat. Hist. Soc. **20**: 108, pl. F: 5, here designated.

The genus includes middle-sized, almost uniformly coloured, brown moths with forewing length ~12 mm and wingspan ~29 mm in ♂ (colour pl. 10: 23). The ♂ antennae are short, up to 1/2 forewing costa, bipectinate with gradually shortening rami to apex. The forewings are elongated, with acute apex and slightly concave costa. The forewing pattern contains an ochreous medial fascia, running from 2/3 costa to 1/3 of the lower margin and bounding a dark basal wing part, a dark brown discal streak, and an irregularly sinuous, dark brown external fascia, running from 5/6 of costa to tornus, which borders the greyish brown distal forewing. The hindwings are patternless, brown.

In the ♂ genitalia, the uncus is slender, acute apically, not bifurcate, without any spurs and a strongly sclerotized apical zone (fig. 15). The gnathos is simple, broad, with long lateral branches which are fused near to apex. The valvae are trapezoid, with a weak, haired cucullus; valva bears a claw-shaped small saccular process near its lower external corners and basal, large, papula-shaped, ovoid, strongly haired processes. The juxta is flattened, not divided into lobes. The saccus is distinct, broad, long. The aedeagus is slender, tube-shaped, slightly curved medially, with long, broad, slightly widened distally, waved apical process.

The ♀ and the immature stages are unknown so far.

The genus is similar externally to *Aphendala* WALKER, 1865 and *Avatara* SOLOVYEV & WITT, 2009 with which the genus is perhaps related in connection with forewing pattern and similar position of the medial and external fasciae and discal streak which is usually present. This external similarity caused the consideration of the status of the species in this paper; although a new genus is well recognized externally from similar genera by the shape of external fascia which is irregularly sinuous. The male genitalia are mostly diagnostic, with modified, trapezoid valvae which bear large, papula-shaped, ovoid, hairy, basal processes and long, broad, slightly widened distally, waved apical process of aedeagus. The mentioned features are probable apomorphies of the new genus. The examination of the ♀♀ specimens of the genus will improve its diagnosis and phylogenetic relationships.

The genus is monotypic so far and restricted to Sri Lanka.

The generic name derives from Latin "raritas" - rarity because of a single ♂ known for the genus and for the species discussed. Additional material has not been found in collections examined.

Raritheia phoceae (HAMPSON, 1910) **comb. nov.** (colour pl. 10: 23)

Miresa phoceae HAMPSON, 1910, J. Bombay Nat. Hist. Soc. **20**: 108, pl. F: 5. Type-locality: [Sri Lanka] "Ceylon, Trincomali". Holotype (by original designation): ♂ (BMNH) [examined].

Diagnosis: See generic account.

Distribution: Sri Lanka.

Biology: The species was collected in November.

Thus, the genus *Aphendala* WALKER, 1865 is reviewed and its diagnosis is improved. Nowadays, the genus comprises 10 species: *A. unicolor* (MOORE, 1859) (= *Aphendala transversata* WALKER, 1865 **syn. nov.**, *Thosea phaeobasis* HERING, 1935 **syn. nov.**, *Th. discipunctata* HERING, 1931 **syn. nov.**, *A. mechiensis* YOSHIMOTO, 1994 **syn. nov.**), *A. cana* (WALKER, 1865) (= *Th. barikoti* DANIEL, 1965 **syn. nov.**), *A. recta* (HAMPSON, 1893), *A. ferreogrisea* (HAMPSON, 1910), *A. flavina* (HERING, 1931), *A. imitabilis* (HERING, 1931), *A. conicosma* (WEST, 1937), *A. buka spec. nov.*, *A. kalinini spec. nov.*, and *A. siama spec. nov.* Externally these species are similar to the members of *Neothosea* OKANO & PAK, 1964, *Avatara* SOLOVYEV & WITT, 2009, and *Raritheia* gen. nov. (with the type-species *Miresa phoceae* HAMPSON, 1910) which are medium-sized, with obscure coloration, shortly bipectinate ♂ antennae, and forewings with similar external and concave medial fasciae. This similarity caused numerous historical misidentifications of these species and genera, but their ♂ genitalia are quite different. The phylogenetic relationships are evident just of *Aphendala* and *Neothosea* supported by the similar forewing pattern and morphology of the male genitalia with triangular valvae and modified juxta, typically deeply divided in two lobes, covered by the bristles and bearing additional basal processes.

Taxon name	Original generic combination	Subsequent generic placement	Current generic combination	Status
<i>aperiens</i> WALKER, 1865	<i>Miresa</i> (?)	<i>Aphendala</i> (KIRBY, 1892: 530; WU & FANG, 2008: 691); <i>Thosea</i> (EECKE, 1925: 10; HERING, 1931: 711)	<i>Avatara</i>	valid name
<i>barikoti</i> DANIEL, 1965	<i>Thosea</i>		<i>Aphendala</i>	a junior synonym of <i>cana</i> WALKER, 1865
<i>cana</i> WALKER, 1865	<i>Parasa</i>	<i>Thosea</i> (EECKE, 1925: 10; HERING, 1931: 713; INOUE, 1992: 102; CHANG, 1989: 180; WANG, 1995: 108); <i>Aphendala</i> (YOSHIMOTO, 1993: 33; 1994: 87; HOLLOWAY et al., 1987: 43; WU & FANG, 2008: 692)	<i>Aphendala</i>	valid name
<i>castanea</i> WILEMAN, 1911	<i>Thosea</i>	<i>Thosea</i> (EECKE, 1925: 10; HERING, 1931: 713; INOUE, 1992: 102; WANG, 1995: 109); <i>Aphendala</i> (WU & FANG, 2008: 692); <i>Vanlangia</i> SOLOVYEV & WITT, 2009 (SOLOVYEV & WITT, 2009: 173)	<i>Vanlangia</i>	valid name
<i>conicosma</i> WEST, 1937	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43)	<i>Aphendala</i>	valid name
<i>consersa</i> BUTLER, 1880	<i>Aphendala</i>	<i>Aphendala</i> (KIRBY, 1892: 531; WU & FANG, 2008: 692); <i>Thosea</i> (HERING, 1931: 712; INOUE, 1992: 102)	NOCTUIDAE	unknown
<i>discipunctata</i> HERING, 1931	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43)	<i>Aphendala</i>	a junior synonym of <i>unicolor</i> MOORE, 1859
<i>divaricata</i> MOORE, 1884	<i>Aphendala</i>	<i>Aphendala</i> (KIRBY, 1892: 531); <i>Thosea</i> (EECKE, 1925: 11); <i>Praesetora</i> (SOLOVYEV & WITT, 2009: 164)	<i>Praesetora</i>	a junior synonym of <i>Praesetora divergens</i> (MOORE, 1879)
<i>erectistriga</i> HERING, 1931	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43), <i>Praesetora</i> (Solovyev & Witt, 2009: 164)	<i>Praesetora</i>	valid name
<i>fasciata</i> MOORE, 1888	<i>Aphendala</i>	<i>Aphendala</i> (Kirby, 1892: 531); <i>Thosea</i> (EECKE, 1925: 11); <i>Iragoides</i> (HERING, 1931: 709); <i>Phlossa</i> (CHANG, 1989: 167; YOSHIMOTO, 1993: 34; 1994: 87; WANG, 1995: 101); <i>Griseothosea</i> (SOLOVYEV & WITT, 2009: 156)	<i>Griseothosea</i>	valid name
<i>ferreogrisea</i> HAMPSON, 1910	<i>Tetraphlebs</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43); <i>Thosea</i> (HERING, 1931: 713)	<i>Aphendala</i>	valid name
<i>flavina</i> HERING, 1931	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43)	<i>Aphendala</i>	valid name
<i>furcillata</i> WU & FANG, 2008	<i>Aphendala</i>	<i>Pretas</i> (SOLOVYEV & WITT, 2009: 166)	<i>Pretas</i>	valid name
<i>grandis</i> HERING, 1931	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43; WU & FANG, 2008: 692), <i>Birhamula</i> (SOLOVYEV & WITT, 2009: 168)	<i>Birhamula</i>	a junior synonym of <i>rufa</i> WILEMAN, 1915
<i>imitabilis</i> HERING, 1931	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43, but <i>immitabilis</i> [sic!])	<i>Aphendala</i>	valid name
<i>mechiensis</i> YOSHIMOTO, 1994	<i>Aphendala</i>		<i>Aphendala</i>	a junior synonym of <i>unicolor</i> MOORE, 1859
<i>monogramma</i> HERING, 1933	<i>Praesetora</i>	<i>Aphendala</i> (WU & FANG, 2008: 692); <i>Praesetora</i> (SOLOVYEV & WITT, 2009: 164)	<i>Praesetora</i> (?)	valid name
<i>ochracea</i> MOORE, 1883	<i>Aphendala</i>		<i>Oxyplax</i>	valid name
<i>phaeobasis</i> HERING, 1935	<i>Thosea</i>	<i>Aphendala</i> (HOLLOWAY et al., 1987: 43)	<i>Aphendala</i>	a junior synonym of <i>unicolor</i> MOORE, 1859
<i>pseudocana</i> WU & FANG, 2008	<i>Aphendala</i>	<i>Avatara</i> (SOLOVYEV & WITT, 2009: 157)	<i>Avatara</i>	valid name
<i>recta</i> HAMPSON, 1893	<i>Aphendala</i> / <i>Thosea</i>	<i>Thosea</i> (EECKE, 1925: 11; HERING, 1931: 713); <i>Aphendala</i> (HOLLOWAY et al., 1987: 43; YOSHIMOTO, 1994: 88)	<i>Aphendala</i>	valid name

<i>rufa</i> WILEMAN, 1915	<i>Thosea</i>	<i>Thosea</i> (Eecke, 1925: 12; HERING, 1931: 714; CHANG, 1989: 179; INOUE, 1992: 102; WANG, 1995: 110); <i>Aphendala</i> (HOLLOWAY et al., 1987: 43; WU & FANG, 2008: 692), <i>Birhamula</i> (SOLOVYEV & WITT, 2009: 168)	<i>Birhamula</i>	valid name
<i>separata</i> HERING, 1931	<i>Thosea</i>	<i>Thosea</i> (HERING, 1931: 714); <i>Aphendala</i> (HOLLOWAY et al., 1987: 43)	<i>Pretas</i>	valid name
<i>sericea</i> BUTLER, 1881	<i>Aphendala</i>	<i>Aphendala</i> (KIRBY, 1892: 531); <i>Thosea</i> (Eecke, 1925: 12)	<i>Ceratonema</i>	valid name
<i>transversata</i> WALKER, 1865	<i>Aphendala</i>	<i>Aphendala</i> (KIRBY, 1892: 530; HOLLOWAY et al., 1987: 43); <i>Thosea</i> (Eecke, 1925: 10; HERING, 1931: 713; INOUE, 1992: 102)	<i>Aphendala</i>	a junior synonym of <i>unicolor</i> MOORE, 1859
<i>tripartita</i> MOORE, 1884	<i>Aphendala</i>	<i>Thosea</i> (Eecke, 1925: 11; HERING, 1931: 713); <i>Aphendala</i> (KIRBY, 1892: 531; HOLLOWAY et al., 1987: 43)	<i>Aphendala</i>	a junior synonym of <i>unicolor</i> MOORE, 1859
<i>unicolor</i> MOORE, 1859	<i>Parasa</i>	<i>Natada</i> (Eecke, 1925: 53); <i>Macroleptera</i> (HERING, 1931: 716); <i>Aphendala</i> (HOLLOWAY, 1986: 138)	<i>Aphendala</i>	valid name

Acknowledgments: I deeply appreciate Dr. VADIM V. ZOLOTUHIN for his supervision, support during my work on this paper and in the examination of some rare material. I would like to express my sincere thanks to Mr. MARTIN HONEY and Mr. GEOFF MARTIN (both from BMNH; London, United Kingdom), Dipl. Kauf. THOMAS J. WITT and Dr. WOLFGANG SPEIDEL (both from MWM; Munich, Germany), Dr. WOLFRAM MEY (ZMHB; Berlin, Germany), Prof. JOËL MINET (MNHN; Paris, France), Dr. AXEL HAUSMANN (ZSM; Munich, Germany) and Mr. VALENTIN A. KALININ (KVM; Moscow, Russia) for their kind support in study of material from their collections and hospitality during my visits. I am also very grateful to Mr. VICTOR V. SINIAEV (CVS; Moscow, Russia) for his kind permission of examination of his private collection and interesting collected specimens.

I am grateful to Mr. EDDIE JOHN (Cowbridge, U.K.) for linguistic correction of the manuscript.

This study was supported financially by the THOMAS WITT-Stiftung in 2005-2008.

The images of the typical specimens from the collection of the BMNH are figured here courtesy of The Trustees of the Museum. The work is a part of a programme of the Department of Zoology (State Pedagogical University of Ulyanovsk) on an investigation into the biodiversity of moths.

References

- BERNARD, C. (1917): Some Diseases and Pests of Tea on the East Coast of Sumatra. - Mededeelingen van het Proefstation voor Thee **54**: 1-21, Buitenzorg.
- CCHANDER, R. (1983): Green slug caterpillar, *Thosea cana* WALKER, a new record on apple. - Bulletin of Entomology **24** (2): 136-138, New Delhi.
- CHANG, B. S. (1989): Illustrated moths of Taiwan 2.- Taipei: The Taiwan Museum publ.
- ECKE, VAN R. (1925): Fam. Cochlidionidae (Limaconidae). In: STRAND, E. (ed.), Lepidopterum Catalogus Pars **32**. - W. Junk, Berlin.
- HAMPSON, G. F. (1893): Illustrations of Typical Specimens of Lepidoptera Heterocera in the Collection of the British Museum part **9**. - Order of the Trustees. London.
- HERING, M. (1931): Limaconidae. In: SEITZ, A. (ed.), Die Gross-Schmetterlinge der Erde. **10**. Spinner und Schwärmer des Indo-Australischen Gebiets: 665-728, pls 85-90. - A. Kernen Verlag, Stuttgart.
- HOLLOWAY, J. D. (1986): The Moths of Borneo: Key to families; families Cossidae, Metarbelidae, Ratardidae, Dudgeonidae, Epi-pyropidae and Limaconidae. - The Malayan Nature Journal, vol. 40: 1-166, Selangor.
- HOLLOWAY, J. D., COCK, M. J. W. & R. DESMIER DE CHENON (1987): Chapter 3. Systematic account of South-east Asian pest Limaconidae. In: COCK, M. J. W., GODFRAY, H. C. J. & J. D. HOLLOWAY (eds), Slug and Nettle Caterpillars: 15-117. - Wallingford.
- HUTSON, J. C. (1923): The Fringed Nettle-grub, *Natada nararia*, MOORE. - Yearbook of the Department of Agriculture, Ceylon, 1923, **2**: 11-15, Colombo.
- HUTSON, J. C. (1925): Report of the Entomologist. - Ceylon administration reports, Department of Agriculture **1924**: 15-16, Colombo.
- HUTSON, J. C. (1932): Some Insect Pests of Tea in Ceylon. Nettle Grubs. - Trop. Agriculturist **78** (4-5): 255-286, Peradeniya.
- INOUE, H. (1992): 80. Limaconidae. In: HEPPNER, J. B. & INOUE, H. (eds), Lepidoptera of Taiwan **1** - Part 2: Checklist: 101-102. - Scientific Publishers, Gainesville.
- KARTHIKEYAN, K., RANGARAJAN, A. V. & M. MUTHUSAWAMI (1997): New records of natural enemies on insect pests of neem tree, *Azadirachta indica* A. JUSS. - Journal of Biological Control **11** (1-2): 81-83, Coimbatore.
- KIRBY, W. F. (1892): Synonymic Catalogue of Lepidoptera Heterocera (Moths) **1**. - Gurney & Jackson, London
- LIGHT, S. S. (1927): Report of the Entomologist for 1926. - Tea Research Institute of Ceylon **1**: 16-20, Talawakele.
- POOLE, R. W. (1989): Noctuidae. Part 1. In: HEPPNER, J. B. (ed.), Lepidopterorum Catalogus (New series). Fascicle 118. - Brill, E. J., Leiden, New York.
- ROBINSON, G. S., ACKERY, PH. R., KITCHING, I. J., BECCALONI, G. W. & L. M. HERNÁNDEZ (2009): Hosts - a Database of the World's Lepidopteran Hostplants <http://www.nhm.ac.uk/research-curation/research/projects/hostplants/> [visited on 29 October 2009]

- SEVASTOPULO, D. G. (1945). The early stages of Indian Lepidoptera. - The Journal of the Bombay Natural History Society 45 (2): 188-198, Bombay.
- SEVASTOPULO, D. G. (1946). The early stages of Indian Lepidoptera. - The Journal of the Bombay Natural History Society 46 (1): 59-69, 253-269, Bombay.
- SOLOVYEV, A. V. & TH. J. WITT (2009): The Limacodidae of Vietnam. - Entomofauna, Zeitschrift für Entomologie Supplement 16: 33-205, Ansfelden.
- WANG, H. Y. (1995): Guide Book to Insects in Taiwan (9). Bombycidae, Thyatiridae, Limacodidae, Lasiocampidae, Sphingidae. - Taipei.
- WU, CH.-SH. & CH.-L. FANG (2008): A review of the genus *Aphendala* WALKER in China (Lepidoptera, Limacodidae). - Acta Zootaxonomica Sinica 33 (4): 691-695, Beijing.
- YOSHIMOTO, H. (1993): Limacodidae. In HARUTA, T. (ed.), Moths of Nepal. Part 2: 31-35, Tokyo.
- YOSHIMOTO, H. (1994): Limacodidae. In HARUTA, T. (ed.), Moths of Nepal. Part 3: 85-89, Tokyo.

Address of the author

ALEXEY V. SOLOVYEV
 Zoology department
 Ulyanovsk State Pedagogical University
 Sq. 100-letiya Lenina, 4
 RUS-432700, Ulyanovsk, Russia
 E-mail: Solovyev_Alexey@mail.ru

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Atalanta](#)

Jahr/Year: 2010

Band/Volume: [41](#)

Autor(en)/Author(s): Solovyev Alexey V.

Artikel/Article: [A review of the genus Aphenhala Walker, 1865 with notes on confusing genera 349-360](#)