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Further synonymic notes in the Lasiocampidae with the description of a new *Euthrix*-species

(Lepidoptera: Lasiocampidae)

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Abstract

In this article the following new synonymies are established:
Chondrostega LEDERER, 1858 (= *Libanopacha* ZERNY, 1933) **syn. nov.**
Malacosoma indica WALKER, 1855 (= *Malacosoma tibetana* HOU, 1982) **syn. nov.**
Malacosoma prima STAUDINGER, 1887 (= *Clisiocampa vulpes* HAMPSON, 1900) **syn. nov.**
Euthrix isocyma HAMPSON, 1892
(= *Cosmotriche consimilis* CANDÈZE, 1927) **syn. nov.**
(= *Cosmotriche diversifasciata* GAEDE, 1932) **syn. nov.**
Euthrix albomaculata directa (SWINHOE, 1892)
(= *Philudoria albomaculata japonica* DE LAJONQUIÈRE, 1978) **syn. nov.**
Anadiasa obsoleta obsoleta KLUG, 1830
(= *Gastropacha undata* KLUG, 1830) **syn. nov.**
(= *Gastropacham fortificata* KLUG, 1830, in litt.) **syn. nov.**
(= *Odontocheilopteryx griseata* WARREN & ROTHSCHILD, 1905) **syn. nov.**
(= *Trichiura definita* BETHUNE-BAKER, 1911) **syn. nov.**
(= *Nadasia incerta* KRÜGER, 1939) **syn. nov.**
Anadiasa obsoleta malacosomoides ROTHSCHILD, 1915
(= *Anadiasa sahariensis* ROTHSCHILD, 1921) **syn. nov.**
Chilena similis WALKER, 1855 (= *Lasiocampa strigula* WALKER, 1865) **syn. nov.**
Streblote dorsalis WALKER, 1866 (= *Streblote helpsi* HOLLOWAY, 1987) **syn. nov.**

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Lebeda metaspila WALKER, 1865 (= *Lebeda intermedia* HOLLOWAY, 1987) **syn. nov.**
Dendrolimus cheela MOORE, 1879 (= *Dendrolimus benderi* de LAJONQUIÈRE, 1975) **syn. nov.**
Trabala sugata ROEPKE, 1955 (= *Trabala inouei* OWADA & KISHIDA, 1987) **syn. nov.**
Gastropacha quercifolia mekongensis DE LAJONQUIÈRE, 1976
(= *Gastropacha quercifolia thibetana* DE LAJONQUIÈRE, 1976) **syn. nov.**
Gastropacha eberti penjabensis DE LAJONQUIÈRE, 1976
(= *Gastropacha eberti swatensis* DE LAJONQUIÈRE, 1976) **syn. nov.**
Phyllodesma ilicifolia LINNAEUS, 1758
(= *Phyllodesma japonica amurensis* DE LAJONQUIÈRE, 1963) **syn. nov.**
Odonestis bheroba MOORE, 1859 (= *Odonestis formosae harutai* KISHIDA, 1992) **syn. nov.**
Odonestis pruni oberthueri TAMS, 1935 (= *Odonestis pruni assamensis* TAMS, 1935) **syn. nov.**
Odonestis vita ceylonica TAMS, 1935 (= *Odonestis vita belli* TAMS, 1935) **syn. nov.**
Bhima potanini ALPHÉRAKY, 1895 (= *Bhima eximia latimarginata* GAEDE, 1932) **syn. nov.**

The following new combinations are established:
Chondrostega schwingenshussi (ZERNY, 1933) **comb. nov.**
for *Libanopacha schwingenschussi* ZERNY
Euthrix albomaculata directa (SWINHOE, 1892) **comb. nov.** for *Odonestis directa* SWINHOE
Anadiasa obsoleta malacosomoides (ROTHSCHILD, 1915) **comb. nov.**
for *Chilena malacosomoides* ROTHSCHILD
Streblote dorsalis pallida (ROTHSCHILD, 1915) **comb. nov.** for *Taragama castanea pallida* ROTHSCHILD (= *Nadiasa callipaida* TAMS, 1935, **syn. nov.**)
Dendrolimus cheela (MOORE, 1879) **comb. nov.** for *Eutricha cheela* MOORE
Odonestis bheroba formosae (WILEMAN, 1910) **comb. nov.** for *Odonestis formosae* WILEMAN
Takanea excisa miyakei (WILEMAN, 1915) **comb. nov.** for *Crinocraspeda miyakei* WILEMAN
Takanea excisa yangtsei (DE LAJONQUIÈRE, 1973) **comb. nov.**
for *T. miyakei yangtsei* DE LAJONQUIÈRE

A continental Far East population of *Phyllodesma japonica* LEECH, 1888 is correctly attributed to *Phyllodesma japonica ussuriensis* DE LAJONQUIÈRE, 1963.
Phyllodesma ilicifolium (LINNAEUS, 1758) is correctly listed from the Far East for the first time.
Euthrix orboy sp. nov. (= *Philudoria diversifasciata* GAEDE, 1932 sensu DE LAJONQUIÈRE 1978) is described from China, Fukien.

Zusammenfassung

In der vorliegenden Arbeit werden Synonymisierungen und Neukombinationen vorgenommen, die im Abstract jeweils in einer Liste zusammenfassend dargestellt sind. Die Fernost-Population von *Phyllodesma japonica* LEECH, 1888 erweist sich als zu *Phyllodesma japonica ussuriensis* DE LAJONQUIÈRE, 1963 gehörig. Für Fernost wird *Phyllodesma ilicifolium* (LINNAEUS, 1758) erstmals nachgewiesen.

Euthrix orboy sp. nov. (= *Philudoria diversifasciata* GAEDE, 1932 sensu DE LAJONQUIÈRE 1978) wird aus China, Fukien beschrieben.

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This article continues a series of papers dealing with taxonomic corrections in the Palearctic and Oriental *Lasiocampidae* and is based mainly on the materials deposited in the collections of The Natural History Museum, London and Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn.

The following abbreviations are accepted to designate the institutions where the specimens are deposited:

BMNH	The Natural History Museum (London);
HDOU	Hope Department (Oxford University);
MNHNP	Muséum National d'Histoire Naturelle (Paris);
NHMK	Naturhistorisches Museum Karlsruhe;
NHMW	Naturhistorisches Museum Wien;
MWM	Entomologisches Museum Mr. Thomas Witt (München);
ZFMK	Zoologisches Forschungsinstitut und Museum Alexander Koenig (Bonn);
ZISP	Zoological Institute of the Russian Academy of Sciences (St. Petersburg);
ZMHB	Zoologisches Museum der Humboldt Universität (Berlin);
ZSSM	Zoologische Staatssammlung München.

It is a great pleasure for the author to express his sincere thanks to Mr. DAVID GOODGER, London, Dr. AXEL HAUSMANN, Munich, Dr. MARTIN HONEY, London, Dr. MARTIN LÖDL, Vienna, Dr. WOLFRAM MEY, Berlin, Dr. CLAS NAUMANN, Dr. DIETER STÜNING, Bonn and Mr. THOMAS WITT, Munich, for their help in his work.

1. *Chondrostega* LEDERER, 1858

Wien. ent. Monatschr. **2**: 143.

Type-species: *Chondrostega pastrana* LEDERER, 1858, ibidem. **2**: 144, pl. 2, figs. 6, 7, by monotypy. Locus typicus: Syria.

Libanopacha ZERNY, 1933, **syn. nov.**, Dt. ent. Z. Iris **47**: 64.

Type-species: *Libanopacha schwingenschussi* ZERNY, 1933, ibidem. **47**: 64–65, pl. 1, figs. 24, 29, by monotypy. Locus typicus: northern Lebanon, above Becharre.

All characters of *Libanopacha*, pointed out by ZERNY as unique ones, are within the generic characters of *Chondrostega* and only one of them, namely the deep-rose colouration of the male wings is not typical for it. Hence this character is not of generic rank and can be considered only as a specific one. With the synonymy accepted the following new combination is established:

***Chondrostega schwingenschussi* (ZERNY, 1933) comb. nov.**

The description of this species was based on a large series of reared moths. Most of them are now at the deposition in NHMW (male and female paratypes were examined); male and female paratypes were also examined from MWM. The male type-specimen of *Chondrostega pastrana* LEDERER, the generotypus, was studied from the collection of ZMHB.

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2. *Malacosoma indica* (WALKER, 1855)

Clisiocampa indica WALKER, 1855, List Spec. lepid. Insects Colln Br. Mus. **6**: 1489 ♀. Locus typicus: northern India. Holotype: ♀ (HDOU) [examined].

Malacosoma tibetana HOU, 1982, **syn. nov.**, Insects Xizang **2**: 112–113, 117, fig. 2b–e, pl. I, fig. 9. Locus typicus: China, Xizang, Gyirong, 3300 m. Holotype: ♂, pointed out to be in coll. Academia Sinica, Beijing [not studied].

A large series of specimens of both sexes originating from Pakistan, India, Nepal and Afghanistan was examined. A comparison with the illustrations of the imago and the male genitalia of *Malacosoma tibetana* (HOU, 1982; 1983: pl. 149, fig. 3093) proves the conspecifity of these taxa. No real differences were found in the male genitalia despite the statement of the author of *tibetana* that the genitalia are "very different from the former as shown in fig." Contrary to the description, the genitalia of *tibetana* appear to be very similar to those of *indica*. None of the characters mentioned by HOU (1982) is sufficient to assign species status to *tibetana*, therefore the synonymy as given above is established.

Material examined: ♀-holotype of *indica,* Ind., Type Lepid. No 668 (Oxford). 1 ♂, Nepal, Mustangbhot, 29° 11' n. Br., 83° 58' ö. L. Gargompa, 4000 m, 13.vii.1955, leg. F. LOBBICHLER (ZSSM). 6 ♂♂, 2 ♀♀, C-Nepal, Syang-Khola-Tal, westl. Jomosom, 3950 m, 6.–11.vii.1973, leg. DIERL-LEHMANN (ZSSM). 1 ♀, C-Nepal, Kali-Gandaki-Tal, Kalopani-Dhumpu, 2500 m, 15.vi. 1973, leg. DIERL-LEHMANN (ZSSM). 4 ♂♂, C-Nepal, Kali-Gandaki-Tal, Tukche, 2600 m, 18.–23.vii.1973, leg. DIERL-LEHMANN (ZSSM). 4 ♂♂, Indien, Lahoul Rohtang-Paß, 3000 m, 17.–18.vii.1980 leg. W. THOMAS (MWM). 1 ♂, India, Kumaon-Himalaya, Distr. Naini Tal, Bhim Tal, 1500 m, 23.v.1976, leg. SMETACEK (MWM). 5 ♂♂, Sabathu (BMNH). 1 ♀, India, Punjab, Khyra Gully, vi.1881 (BMNH). 1 ♀, India, United Prov., Naini Tal, 6700 ft., 4.v.1934, J. A. GRAHAM (BMNH). 1 ♂, India, Naini Tal, 2.v.1934, J. A. GRAHAM (BMNH). 1 ♂, Kashmir, Sind Vy., Kangan, 16.vii. 1904, 6–7000 ft., C. H. WARD (BMNH).

3. *Malacosoma (Malacosoma) prima* (STAUDINGER, 1887)

Bombyx alpicola var. prima STAUDINGER, 1887, Stett. ent. Ztg. **48** (1–3): 97–98. Locus typicus: [Uzbekistan, Margilan] Margelan. Lectotype: ♂ (ZMHB) [examined]. Paralectotypes: 2 ♀♀ (ZMHB) [examined].

Clisiocampa vulpes HAMPSON, 1900, **syn. nov.**, J. Bombay nat. Hist. Soc. **13**: 233 ♀, pl. B. Locus typicus: [north-eastern Pakistan, Chithral] northern India, Chitral. Holotype: ♀ (BMNH – plate 1, fig. 4) [examined].

Type specimens of both species were examined. No differences were found in the females' colouration and pattern of wings; both taxa have a small foreleg epyphysys in females that is typical within the subgenus *Malacosoma* only for *M. prima*. Female genitalia of this subgenus are not informative for taxonomic analysis and no males are known for *vulpes*, but only those of *prima* are known from Afghanistan. It allows to establish here the synonymy as given above.

Material examined: ♂-Lectotype of *prima*, Margelan (ZMHB). 2 ♀♀, Paralectotypes of *prima*, Margelan (ZMHB). ♀-Holotype of *vulpes*, Shishi Kuh Valley, Chitral, vii & viii 91. 9000–14000 ft. G. H. COLOMB (BMNH). 1 ♀, Afghanistan, Val. Panishir sup., 2800–

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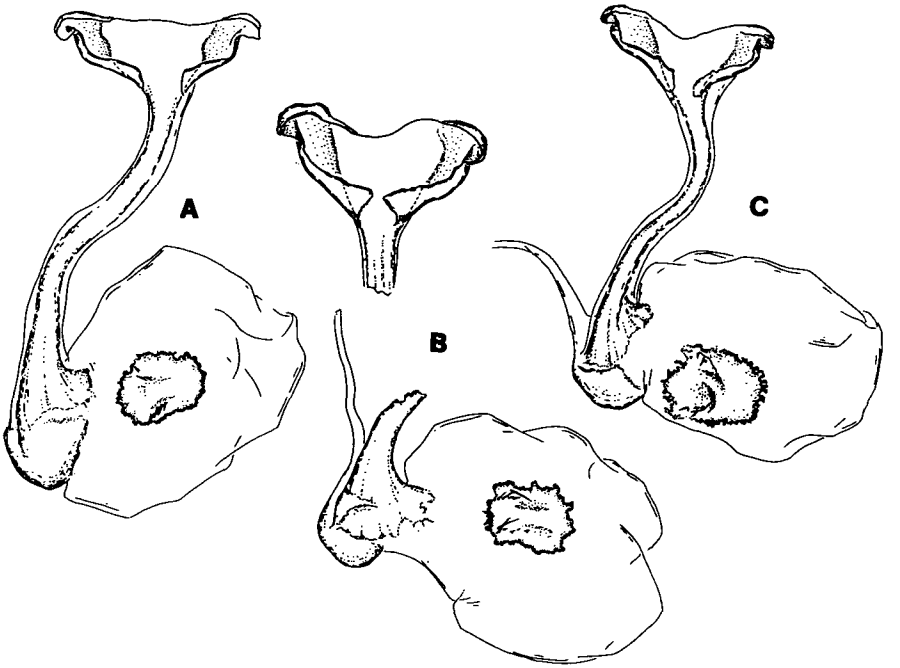

Fig. 1. Female genitalia: A – holotype of *Cosmotriche diversifasciata* GAEDE, 1932 (China, Tongcung-sau); B – *Euthrix isocyma* HMPS., 1892 (China, Kwangtung, Linping); C – holotype of *Cosmotriche consimilis* CANDÈZE, 1927 (Cambodia, Phom-Penh).

3400 m, 7.–8.vii.1963, leg. K. OMOTO (ZSSM). 1 ♂, Sarekanda, 4100 m, 1.viii.1953, Gebirge Badakschan, NO Afghanistan, J. KLAPPERICH (BMNH). 1 ♂, the same data (NHMK). 1 ♀, NW-Pakistan, Hazara, Mirajani Hill, 2500–3000 m bei Nathiagali, 18.vii.–1.viii.1979, leg. WEISS (NHMK). 3 ♀♀, Spiti (BMNH). 2 ♂♂, 2 ♀♀, Alai mont., 1905, KORB (ZSSM). 2 ♀♀, Alexander-Gebirge (ZSSM). 2 ♀♀, Uzbekistan, W Tien-Shan, 1200 m, Tshatkal Reserve, Bash-Kysyl-Say, 27.v.–3.vi.1982, ex larva, Prangosrol, leg. PEREGOVITS (MWM). 1 ♀, Kirghizia, Ala-Archa, 20.vii. 1986 (MWM). 2 ♀♀, Kirghizia, Tiak Shak 1400 m, ex l., 9.vii.1987 (MWM). 1 ♀, Kirghisia, Uzunbur, 17.vii.1985 (MWM).

Taxonomic remarks:

1. *Malacosoma robertsi* DE LAJONQUIÈRE, 1972 [Bull. Soc. ent. France 77: 305–306, fig. 8, pl. I: G. Locus typicus: Kashmir, Soonamarg. Holotype: ♀ (BMNH – plate 1, fig. 5)] is a good separate species closely related to *Malacosoma prima* but has not to be mixed up with it. It differs easily by a darker and more contrasting colouration and by genitalia constructions; it is a very local species, known only in few specimens: ♀-Holotype, Kashmir, Soonamarg (BMNH). 2 ♀♀, Kashmir, Srinagar to Bagnota (BMNH). 1 ♀, Kashmir, Goolmarg (BMNH). 2 ♀♀, [Kashmir] (BMNH). 1 ♀, Spiti (BMNH). 1 ♂, Ladakh, Pensi La (West), oberes Dsargpo-Tal, 4100–4300 m, 13.viii.1977, ex coll. C. NAUMANN (MWM).

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2. COLLIER (1936) considered *?Bombyx flavomarginata* POUJADE, 1886 [Bull. Soc. entomol. France **6**:XCII. Locus typicus: Mou-Pin (Tibet)] as a member of *Malacosoma* HBN. but up-to-date its taxonomic status is uncertain. It was described on one male and two females and in the original description the types were pointed out to be in the collection of MNHNP but are missing there now, probably they are lost. No illustration was figured in the description or later and it is impossible to say something definite about the correct generic belonging of *flavomarginata*. At the same time, if the taxon is really a lasiocampid moth and is really a member of *Malacosoma*, then it seems that one of the taxa under consideration, *prima* or *robertsi*, could be a synonym of *flavomarginata*.

4. *Euthrix isocyma* (HAMPSON, 1892)

Odonestis isocyma HAMPSON, 1892, Fauna Br. India incl. Ceylon and Burma, Moths **1**: 427. Locus typicus: Assam, Naga Hills. Holotype: ♂ (BMNH — plate 1, fig. 7) [examined].

Cosmotriche consimilis CANDÈZE, 1927, **syn. nov.**, Encycl. ent., Ser. B, III. Lepidoptera **2**:123. Locus typicus: Cambodia, Pnom-Penh. Holotype: ♀ (Cornell Univ., N. York – plate 1, fig. 8) [examined].

Cosmotriche diversifasciata GAEDE, 1932, **syn. nov.**, GAEDE in SEITZ, Schmett. Erde, II, Suppl.: 115, pl. 10b. Locus typicus: China, Tong-cung-san. Holotype: ♀ (ZMHB – plate 1, fig. 9) [examined].

Female genitalia of *Cosmotriche consimilis* CANDÈZE (gen. pr. 173 of Holotype No 5482 – fig. 1C), *Cosmotriche diversifasciata* GAEDE (gen. pr. LAJ. Ber. 1–71 – fig. 1A) and *Euthrix isocyma* HMPS. (fig. 1B) from different localities were examined. They differ well from the same of the *Euthrix*-species with the dark and strength diagonal line on the forewings (it is the only feature that can be found in external characters of the typical specimen of *consimilis*, because it is very fadded and its wings' colours have changed partially) by the very long sclerotized ductus und anthrum ("le remarquable allongement du ductus bursae donne à cette armure un charactére tout à fait particulier" – LAJONQUIÈRE 1978:388), by the shape of the vaginal plates and of the signi, but they are practically identical in taxa under consideration. As far *Euthrix isocyma* was not listed from Cambodia but occurs everywhere on the adjoining territories. The situation with *diversifasciata* sensu Y. DE LAJONQUIÈRE (1978) is not clear. He noted that "Je n'ai pas vu la ♀ de cette espèce" (e. g. *isocyma:* LAJONQUIÈRE 1978: 403) and therefore attributed the name *diversifasciata* (in spite that the taxon is, as a matter of fact, conspecific with *isocyma*) to chinese population of males of an *Euthrix*-species that has nothing in common with *diversifasciata* but has to be considered as a member of the *improvisa/imitatrix/decisa* complex (plate 1, fig. 10). It is this chinese population of *diversifasciata* sensu Y. DE LAJONQUIÈRE which is described below as a new species (see appendix).

Material examined: ♂, holotype of *isocyma*, Naga Hills, 5500–7000 ft, Aug. 1889, W. DOHERTY (BMNH). ♀, holotype of *consimilis*, Cambodia, Pnom-Penh (Cornell Univ., N. York). ♀, holotype of *diversifacsiata*, China, Tong-cung-san, viii.1912, S. MELL (ZMHB). 1 ♂, Khasis, Oct. 1895 (BMNH). 1 ♀, Assam, Naga Hills, Kahima, 4600', H. C. TYTLER, 1918 (BMNH). 1 ♀, Magatee, Pegu (BMNH). 1 ♀, Chasseurs indigenes de

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Ta-tsien-lou, Récolte de 1910 (BMNH). 1 ♀, China, Linping, Pr. Kwangtung viii.22, H. HÖNE (ZFMK). 10 ♂♂, 1 ♀, N. Vietnam, Mt. Fan-si-pan, W-Seite, Cha-pa (= Sapa), 1600–1800 m, 22° 20' N, 103° 40' E, Sek. Wald ix.– x.1994, leg. SINJAEV & einh. Sammler (MWM). 2 ♂♂, N. Vietnam, Cuc. Phuong, 60 km SW Hanoi, 20° 15' N, 105° 20' E, 18.xi.–3.xii.1992, 400 m, leg. SINAJEV & SIMONOV (MWM). 1 ♂, Nord-Vietnam, Tam Dao, 60 km NW Hanoi, 1200 m, 21° 34' N, 105° 20' E, 1.–15.xi.1992, leg. SINAJEV & SIMONOV (MWM). 1 ♂, N. Vietnam, Hoa Bihn, 400 m, 70 km NW Hanoi, 28.v.–6.vi. 1990, leg. E. PALIK (MWM). 7 ♂♂, N-Vietnam, Ben En Nat.Park, 200 m, 40 km SW Than Hoa, 18° 40' N, 105° 40' E, 22.–30.xi.1994, leg. SINJAEV & SIMONOV (MWM). 1 ♂, S. Vietnam, Bao Loc, Rung Cat Tien, 11° 32' N, 107° 48' E, 1500 m, 10.–20.xii.1992. leg. SINJAEV & SIMONOV (MWM). 2 ♂♂, N. Vietnam, Tuan-giao, 5.–10.xi.1994, 21° 35' N, 103° 25' E, 1200 m, leg. SINJAEV & SIMONOV (MWM).

5. *Euthrix albomaculata directa* (SWINHOE, 1892) comb. et stat. nov.

Odonestis directa SWINHOE, 1892, Cat. orient. Lepid. Heterocera Oxford Univ. Mus. **1**: 261, pl. 6, fig. 4. Locus typicus: Japan. Holotype: ♂ (HDOU – plate 1, fig. 6) [examined].

Philudoria albomaculata japonica LAJONQUIÈRE, 1978, **syn. nov.**, Annls Soc. ent. France **14** (3): 386–387 pl. 1E, figs 3, 26. Locus typicus: Japan, Kobe. Holotype: ♂ (ZFMK) [examined].

In spite of a good diagnosis and a qualified illustration, *Odonestis directa* was forgotten soon after the description and was missing in all catalogues. It was almost 90 years later, that the japanese population of what he thought to be *Euthrix albomaculata* (BREMER, 1861) was described by Y. DE LAJONQUIÈRE in the rank of a separate subspecies. Here the name *Philudoria albomaculata japonica* LAJONQUIÈRE, 1978 is considered a junior subjective synonym of *Euthrix albomaculata directa* SWINHOE, comb. et stat. nov. H. INOUE (1984) discussed the taxonomic problems dealing with the japanese forms of this species, synonymized *Cosmotriche potatoria mikado* BRYK, 1941 with *Euthrix albomaculata* BREMER and suggested that there are no definite subspecific characters in the Japanese *albomaculata* to consider it a separate subspecies (INOUE 1984: 50). At the same time, the japanese population, being very similar in its external characters to the nominate subspecies from the continental part of Russian Far East, Korea and north-eastern China, differs easily by the constant peculiarities of the male genitalia, first of all by the shape of the distal processes of the vinculum and VIII. abdominal sternite (fig. 2). The groundcolour of the body of continental caterpillars is whitish but citrone-yellow in Japanese ones. Therefore I consider the insular population of *albomaculata* a good separate subspecies.

Material examined: ♂, Holotype of *directa*, Jap[an]. Type Lepid. No 661 (HDOU). ♂, Holotype of *japonica*, Japan, Kobe, ix.1913, H. HÖNE (ZFMK). 2 ♂♂, 2 ♀♀, Paratypes of *japonica*, Japan, Kobe, vi.–ix.1913, H. HÖNE (ZFMK). 2 ♂♂, 1 ♀, Paratypes of *japonica*, Hakone, Japan, viii.1916, H. HÖNE (ZFMK). 1 ♂, Paratype of *japonica*, Unzen, 17.viii. 1927, H. HÖNE (ZFMK). about 350 ♂♂ and ♀♀ from different localities of russian Far East, Korea, Japan and northern-east China (ZSSM, MWM, ZISP, MNHN, BMNH, ZMHB).

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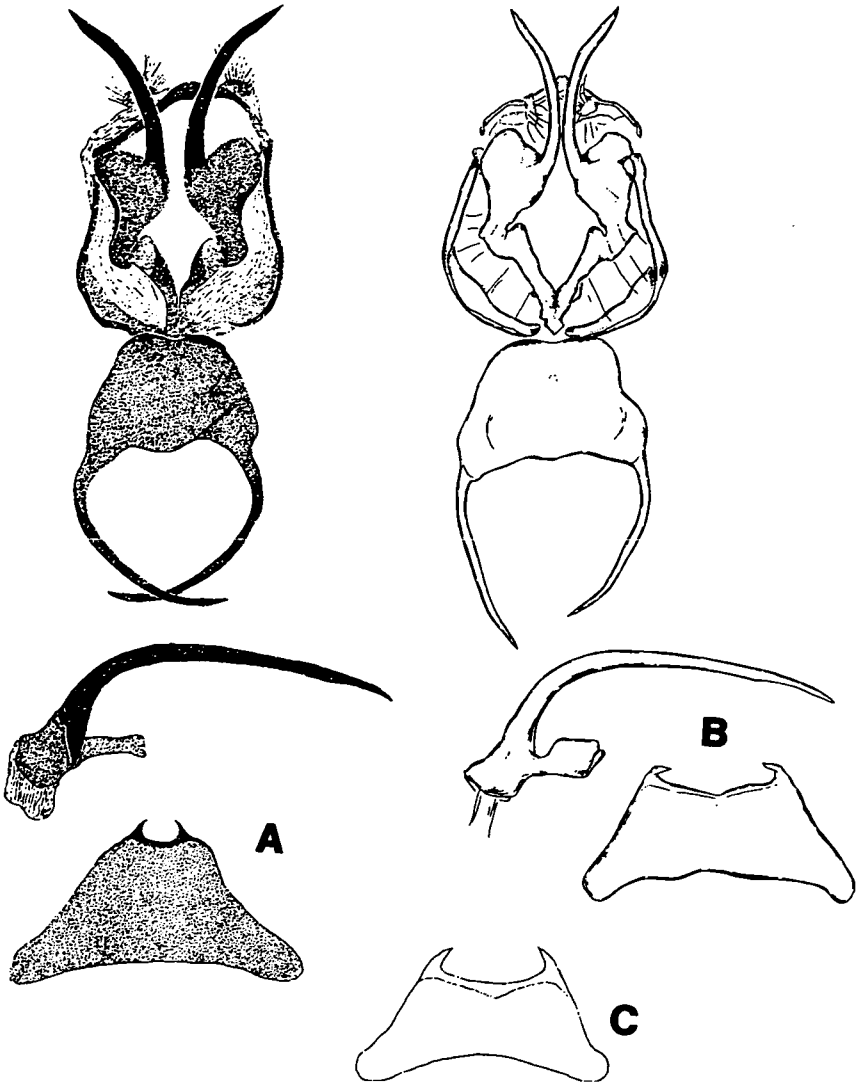

Fig. 2. Male genitalia and sternite VIII: A – *Euthrix albomaculata* BREMER, 1861 (Korea; after DE LAJONQUIÈRE, 1978); B – holotype of *Odonestis directa* SWINHOE, 1892 (Japan); C – paratype of *Philudoria albomaculata japonica* DE LAJONQUIÈRE, 1978 (Japan, Kobe; after DE LAJONQUIÈRE, 1978).

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6. *Anadiasa obsoleta obsoleta* (KLUG, 1830)

Gastropacha obsoleta KLUG, 1830, in EHRENBERG, Symbolae phys. seu Icones et Descr. Insect ... Afr. bor. et Asiam occident.: pl. 20, fig. 8. Locus typicus: [Sudan/Egypt] originally listed as Nubia and Upper Egypt. Type: ♂ (ZMHB) [examined].

Gastropacha undata KLUG, 1830, **syn. nov.**, in EHRENBERG, Symbolae phys. seu Icones et Descr. Insect ... Afr. bor. et Asiam occident.: pl. 30, fig. 3 ♀. Locus typicus: ? [Sudan/Egypt] originally listed as Nubia and Upper Egypt. LT: Ägypten, ? Sudan. Type: ♀ (ZMHB) [examined].

Gastropacha fortificata KLUG, 1830, **syn. nov.**, in litt. Locus typicus: [Nubia]. Holotype: ♂ (ZMHB) [examined].

Odontocheilopteryx griseata WARREN & ROTHSCHILD, 1905, **syn. nov.**, Nov. Zool. **12**: 22–23. Locus typicus: Nakheila, R. Atbara. Syntypes: 7 ♂♂, 1 ♀ (BMNH – plate 1, fig. 12) [examined].

Trichiura definita BETHUNE-BAKER, 1911, **syn. nov.**, Annls Mag. Nat. Hist. (8)**7**(42): 565–566 ♂. Locus typicus: White Nile, below Kosti. Holotype: ♂ (HDOU) [examined].

Nadasia incerta KRÜGER, 1939, **syn nov.**, Annali Mus. Libico **1**:326–327, pl. 13, figs. 24, 25. Locus typicus: Libya, Uadi Sofeggin, Uadi Zemzem. Types: pointed out to be "in Coll. Mus. Lib. Tr." [not studied].

All the taxa listed above are only seasonal or local forms of this very polymorphic species (as a matter of fact, *undata* and *obsoleta* are absolut identic and *fortificata* is only the opposite sex conspecific with the female-holotypes). No real differences were found also in the male genitalia of all phenotypes of *obsoleta* from various localities. Considering these taxa as subspecies also was refused after the typical specimens were studied. The following tendency in the change of wing coloration can be observed: dark grey specimens (ff. *obsoleta* = *griseata* = *definita*) are typical for more humid localities and are characteristic also for the moths of the first generation; the moths from more dry places normally have a reddish-brown coloration (f. *undata*), sometimes considerably lightened (f. *incerta*) and, lastly, the specimens from very dry and hot places are yellowish-brownish or yellowish with distinct dentated medial fasciae. They are typical for the Sahara and two names were proposed for this population, which I consider here as the desert subspecies with stable external characters. The oldest valid name for this population is:

***Anadiasa obsoleta malacosomoides* (ROTHSCHILD, 1915) comb. nov.**

Chilena malacosomoides ROTHSCHILD, 1915, Ann. Mag. nat. Hist. (8)**16**: 249 ♂. Locus typicus: Oued Tamoudat, NE of Ideles. Holotype: ♂ (BMNH – plate 2, fig. 14) [examined].

Anadiasa sahariensis ROTHSCHILD, 1921, **syn. nov.** Nov. Zool. **28**: 218–219. Locus typicus: Mts. of Baguezan, Asben. Syntypes: 17 ♂♂, 4 ♀♀ (BMNH – fig. 13) [examined].

The complex *undata-incerta-sahariensis-malacosomoides* was discussed before by SPEIDEL & HASSLER (1989: 44–45) and resulted in establishing the new combination *Anadiasa undata malacosomoides*, the proposed synonymization of the three last taxa being provisional: "Die Synonymie von *incerta* und *sahariensis* mit *malacosomoides* muß allerdings noch durch Typenvergleich endgültig bestätigt werden". Here this syno-

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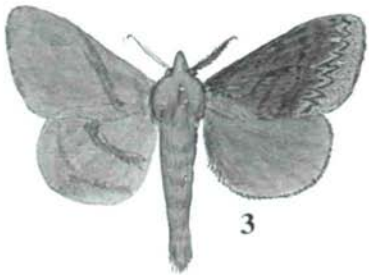
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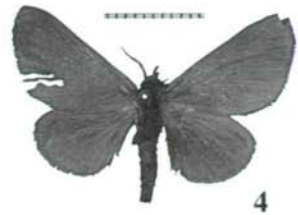
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nymization is accepted but considered that the oldest valid name is *obsoleta,* and the name *incerta* is regarded to be a synonym of the nominate subspecies.

Material examined: ♀, Holotype of *undata*, Nubia XXXIV 22. (ZMHB). ♂, Holotype of *fortificata*, Nubia EHRENB. XXXIV 23.5. (ZMHB). ♀, Holotype of *obsoleta*, Nubia. XXXIV. 26–9 (ZMHB). ♂, Holotype of *definita*, Feb. 17. 1909, White Nile, Lat. 13° 15' N, below Kosti, on steamer, G. B. LONGSTAFF. Type Lep. No 674 (HDOU). 7 ♂♂, 1 ♀, Syntypes of *griseata,* Nakheila, R. Atbara, i.–iii.1904 (BMNH). 17 ♂♂, 4 ♀♀, Syntypes of *sahariensis*, Mts. Baguezan, Ashen, 13. May and 10.vii.1920, A. BUCHANAN (BMNH). ♂, Holotype of *malacosomoides*, Oued Tamoudat, NE of Ideles, 20.iii.1914, G. VON SCHWAPPENB. (BMNH). 1 ♂, Sudan, 19.v.1890 (BMNH). 2 ♂♂, Blue Nile, Sudan, S. S. FLOWER, xi.–xii.1906 (BMNH). 1 ♂, Abyssinia, Harar, G. KRISTENSEN (BMNH). 2 ♂♂, 11.–15.ii.1962, Wadi-Haifa, Nubien-Exped., Mus. Vindob. (BMNH). 1 ♂, Cairo (BMNH). 1 ♂, Aegyptus, Kahiro, IV.1969, leg. VLAD ZAUHAR (NHMK). 2 ♂♂, Marocco, Saharien, prov. Tarfaya, 10.v.1969, MAADER ASFER (NHMK).

7. *Chilena similis* WALKER, 1855

Chilena similis WALKER, 1855, List Lepid. Insects Colln Br. Mus. **5**:1071. Locus typicus: northern India. Syntype: ♂ (BMNH) [examined].

Lasiocampa strigula WALKER, 1865, **syn. nov.**, List spec. Lepid. Insects Colln Br. Mus. **32**:563. Locus typicus: southern India. Holotype: ♂ (BMNH) [examined].

No real differences were found in both taxa when the typical specimens were examined, therefore the given synonymy is established.

Material examined: 1 ♂, syntype of *similis*, N. India., gen. slide No. 782 (BMNH). ♂, holotype of *strigula* WLK., S. Ind., genit. slide No. 591 (BMNH). 1 ♀, Bombay, 1923 (ZSSM). 6 ♂♂, 1 ♀, S. India, Madurai, 30.iii.–28.viii.1985, leg. M. ECKRICH (ZSSM). 1 ♂, Mhow, 1884 (BMNH). 1 ♂, Nepal, W. W. J. (BMNH). 1 ♂, Ceylon, 1149 (BMNH). 1 ♂, Gampbillpure, July 1885 (BMNH). 1 ♂, N. India (BMNH). 1 ♂, Myingyan, Burma, WATSON, Nov. 1893 (BMNH). 1 ♂, Anara-pura, 12.08 (BMNH). 3 ♂♂, Bhuj-Kutch, 22.ix.1892 (BMNH). 1 ♂, Central India (BMNH). 1 ♂, Karachi, T. BELL (BMNH).

Explanation of plate 1:
Fig. 3. *Dendrolimus cheela* MOORE, 1879, original picture of the male type (ex coll. BMNH). — Fig. 4. *Malacosoma prima* STGR., 1887, ♀ (holotype of *Clisiocampa vulpes* HAMPSON, 1900, Chitral [BMNH]). — Fig. 5. Holotype of *Malacosoma robertsi* DE LAJONQUIÈRE, 1972, ♀, Kashmir, Soonamarg [BMNH]. — Fig. 6. *Euthrix albomaculata directa* SWINHOE, 1892, ♂ (holotype of *Odonestis directa* SWINHOE, ♂, 1892, Japan [HDOU]). — Fig. 7. Holotype of *Odonestis isocyma* HAMPSON, 1892, ♂, Assam, Naga Hills [BMNH]. — Fig. 8. *Euthrix isocyma* HAMPS., 1892, ♀ (holotype of *Cosmotriche consimilis* CANDÈZE, 1927, Cambodia, Pnom-Penh [Cornell University, N. York]). — Fig. 9. *Euthrix isocyma* HAMPS., 1892, ♀ (holotype of *Cosmotriche diversifasciata* GAEDE, 1932, China, Tong-cung-san [ZMHB]). — Fig. 10. Holotype of *Euthrix orboy*, sp. nov., ♂, China, Fukien, Kuatung 2300 m, 27° 40 n.Br., 117° 40 ö.L. 26.v.1938 L. J. KLAPPERICH (ZFMK). — Fig. 11. *Bhima potanini* ALPHERAKY, 1895, ♂ (holotype of *Bhima eximia latimarginata* GAEDE, 1932, China, Ta-Tsien-Lou [BMNH]). — Fig. 12. *Anadiasa obsoleta obsoleta* KLUG, 1830, ♂ (lectotype of *Odontocheilopteryx griseata* WARREN & ROTHSCHILD, 1905, Nakheila, R. Atbara [BMNH]).

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8. *Streblote dorsalis* (WALKER, 1866)

Megasoma dorsalis WALKER, 1866, List Lepid. Heteroc. Colln Br. Mus. **35**:1947–1948 ♀. Locus typicus: Borneo. Type: ♀ (BMNH) [examined].

Streblote helpsi HOLLOWAY, 1987, **syn. nov.**, Moths of Borneo **3**: 25, pl. 1, fig. 16. Locus typicus: [Borneo], Brunei. Holotype: ♂ (BMNH) [examined].

The *Streblote*-complex is one of the most complicated among the oriental *Lasiocampidae* because of a strong sexual dimorphism. The situation with *dorsalis/helpsi* was complicated due to the incorrect attribution of the type-locality of *dorsalis* in the old literature to be India. A re-examination of the type specimens of both species resulted in the correction of the locus typicus of *dorsalis* to be Borneo (written in ink on the label under the holotype, the same location also being mentioned in the original description) and in the subsequent synonymization of *helpsi* with *dorsalis*. For the smaller and more light coloured populations of Java and Bali the following new combination and new synonymy are established:

***Streblote dorsalis pallida* (ROTHSCHILD, 1915) comb. nov.**

Taragama castanea pallida ROTHSCHILD, 1915, Novitat. Zool. **22**: 222. Locus typicus: Bali. Holotype: ♀ (BMNH) [examined].

Nadiasa callipaida TAMS, 1935, **syn. nov.**, Mem. Mus. Royal Hist. nat. Belgique **4**(12): 45–46, pl. 4, fig. 4. Locus typicus: Bali, Den Pasar. Holotype: ♀ (absent in BMNH) [not studied].

Material examined: ♀, Holotype of *dorsalis*, Borneo (BMNH). ♀, Holotype of *castanea pallida*, Bali 1912, E. STRESEMANN (BMNH). ♂, Holotype of *helpsi*, Brunei: Om S. Selanjak, 4464.1432 mangrove 8.–9.iii.1984, Maj. T. P. G. HELPS (BMNH). 1 ♂, 1 ♀, Paratypes of *helpsi*, 20.iii.81, Brunei, *Casuarina equisetifolia* (BMNH). 1 ♀, Paratype of *helpsi*, Brunei: 3 m, Mumong, Secondary and coastal veg., 28.xi. or ii.1979, R. FAIRCLOUGH (BMNH). 1 ♀, Paratype of *helpsi*, Brunei, Seria Secondary and coastal veg., 10.ii.1980, Bred, Lt. Col. M. G. ALLEN (BMNH). 1 ♀, Brunei, Sinauti, *Casuarina* (BMMH). 1 ♀, N. Borneo, Lebuan, 13.ii.1963, H. BARLOW (BMNH). 1 ♀, Kuching, Borneo (BMNH). 1 ♀, Sumatra, Prapat (ZSSM). 2 ♀♀, Java (BMNH).

9. *Lebeda metaspila* (WALKER, 1865)

Megasoma metaspila WALKER, 1865, List. Lep. Heterocera Colln Brit. Mus **32**:567. Locus typicus: Celebes, Mak (Wallace). Types: ♂, ♀ (HDOU) [examined].

Lebeda intermedia HOLLOWAY, 1987, **syn. nov.**, Moths of Borneo **3**: 21–22, pl. 2; Fig. 10. Locus typicus: Borneo, Kuching. Holotype: ♂ (BMNH) [examined].

Lebeda intermedia HOLLOWAY is considered here to be conspecific with *L. metaspila* WALKER on the base of identity of external characters in both taxa (genital analysis is not useful for the lasiocampids of this genus). Its relationship to *Lebeda trifascia* WALKER from India, Nepal, Thailand and Vietnam and especially to *Lebeda brauni* LAJ. from Sumatra needs special investigation based on much more material for comparison.

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Material examined: ♂, ♀, Types of *metaspila*, Mak, Celebes (Oxford). ♂, Holotype of *intermedia*, Kiching, Borneo (BMNH). 1 ♂, Siadaonta, Paloe, W. Celebes, 4500', vi.1937, E. P. KALIS (BMNH). 1 ♀, W. Sumatra (ZSSM). 3 ♂♂, North Korintji Valley, SW Sumatra, 5000 ft, ix.–x.1921, C., F., & J. KALIS (BMNH). 1 ♂, Lebong Tandai, W. Sumatra, 26.xii. 1921, C. J. BROOKS (BMNH). 1 ♂, Benkoelen, W. Sumatra, ERICSSON (BMNH).

10. *Dendrolimus cheela* (MOORE, 1879) comb. nov.

Eutricha cheela MOORE, 1879, Proc. zool. Soc. Lond. **26**:408. Locus typicus: Dharmsala, N. W. Himalaya. Type: "Male ... in coll. Lahore Museum"; absent in BMNH [not studied].

Dendrolimus benderi LAJONQUIÈRE, 1975, **syn. nov.**, Alexanor **9**:17–18, pl. IV A, fig. 1. Locus typicus: Pakistan occ., Swat, N. de Kalam, Gabral-Tal. Holotype: ♂ (NHMK) [examined].

This little-known taxon had been uncorrectly synonymized with *Kunugia latipennis* (WLK.) soon after the description and therefore has been overlooked by most authors. A re-examination of specimens originating from the adjoining territories of north-western India and Pakistan (the holotype male probably be lost, but the original picture from the type [which had not been published with the description] remained in BMNH – plate 1, fig. 3) with the holotype of *D. benderi* LAJ. has shown the conspecifity of both taxa.

Material examined: 1 ♂, W-Pakistan, Swat, N. v. Kalam, Gabral-Tal, 2100 m, 6.–9.vii. 1969, G. EBERT leg. (NHMK). 1 ♀, Simla, 7000 ft., vi.1908, G. M. C. (BMNH). 2 ♂♂, India, Simla, 7000 ft., A. E. JONES (BMNH). 3 ♀♀, Indien, J. & K., 3000 m, Baltal bei Sonamarg, 7.viii.1980, leg. W. THOMAS (MWM). 1 ♀, N. India, Kashmir, Maj. H. ROBERTS (BMNH). 1 ♀, Kashmir, Baltal, ex o., 2.i.1982., Dr. THOMAS leg. (MWM). 1 ♀, Kashmir, Baltal, e.o., 31.xii.1981, leg. THOMAS (ZSSM). 10 ♂♂, Pakistan, SW-Himalaja, Indus-Kohistan, Kaghantal Naran, 30.vi.–16.vii.1977, 2400–3000 m, leg. DE FREINA (MWM). 11 ♂♂, 1 ♀, Pakistan, Himalaja Mts., 2400 m, Kaghan valley, 20 km NE Balakot, Tathabaya, 73° 25' E, 34° 41' N, 27.vii.1994, leg. B. HERCZIG, GY. M. LASZLO & G. RONKAY (MWM). 1 ♂, Pakistan, SW-Himalaja, Indus-Kohistan, Kaghantal Naran, 3200–4500 m, 16.vii.–5.viii.1977, leg. DE FREINA (ZSSM).

11. *Trabala sugata* ROEPKE, 1955

Trabala sugata ROEPKE, 1955, Z. Lepid. **3**(2/3):150, Taf. 6, Abb. 4. Locus typicus: Philippines, Mt. Maquiling. Holotype: ♂, pointed out to be in "Coll. of Agric., Laguna, Philippines" [not studied].

Trabala inouei OWADA & KISHIDA, 1987, **syn. nov.**, Tinea **12** (suppl.):291–293, figs. 1–5. Locus typicus: northern Luzon, Ifugao Prov., Banaway. Holotype: ♂, pointed out to be in the National Science Museum (Nat. Hist.), Tokyo [not studied].

This species was described by ROEPKE in a little-known article that was a continuation of his work on the Far East *Trabala*, but also was overlooked by many scientists in spite of the fact that some new taxa have been described there. I have not worked with the types of

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the taxa mentioned above but *sugata* is the only species of *Trabala* that cannot be confused with others due to the unique combination of its external characters, namely veins stained with brown, slightly excurved brownish-yellow postmedial fascia and white discal spot ringed with black or dark-brown scales. All these features were pointed out as the characteristic ones also for *inouei*; male genitalia in both taxa are very similar. Both species have been illustrated very well in the original descriptions; both were described from the Philippines islands. All this allows to establish the synonymy as given above.

Material examined: 14 ♂♂, Philippinen, Mindanao, Bukidnon, Mt. Kitanglad Süd, Intavas, 2200 m, 15.viii.–15.ix.1993, leg. V. SINJAEV (MWM). 2 ♂♂, Phil./Mindanao, Bukidnon, 15 km NW Maramag, Mt. Bagongsilan, Mt. Kalatungan, 1450 m, 30.xii.1988. leg. K. CERNY (MWM).

12. *Gastropacha quercifolia mekongensis* LAJONQUIÈRE, 1976

Gastropacha quercifolia mekongensis LAJONQUIÈRE, 1976, Annls. Soc. entomol. France **12**(1):156–157. Locus typicus: China, N. Yunnan, A-tun-tse. Holotype: ♂ (ZFMK) [examined].

Gastropacha quercifolia thibetana LAJONQUIÈRE, 1976, **syn. nov.**, Annls Soc. ent. France **12**(1): 157–159, pl. I A. Locus typicus: Thibet, Batang, im Tal des Yangtse, 2800 m. Holotype: ♂ (ZFMK) [examined].

No real differences were found neither in the external characters nor in male genitalia of both subspecies (male holotypes from the collection of ZFMK were examined) when large series of moths from different localities were compared and therefore the synonymy as given above is established.

Material examined: ♂, holotype of *mekongensis*, A-tun-tse (Nord-Yünnan), Mittlere Höhe (ca. 4000 m), 21.vii.1936, H. HÖNE (ZFMK). ♂, holotype of *thibetana*, Batang (Tibet), im Tal des Yangtze (ca. 2800 m), 13.viii.1936, H. HÖNE (ZFMK). 22 ♂♂, paratypes of *mekongensis*, A-tun-tse (Nord-Yünnan), Mittlere Höhe (ca. 4000 m), 4.vi.–17.viii. 1936, H. HÖNE (ZFMK). 10 ♂♂, 1 ♀, paratypes of *thibetana*, Batang (Tibet), im Tal des Yangtze (ca. 2800 m), 4.vi.–4.ix. 1936, H. HÖNE (ZFMK).

Explanation of plate 2:
Fig. 13. *Anadiasa obsoleta sahariensis* ROTHSCHILD, 1921, ♂ (lectotype of *Anadiasa sahariensis* ROTH., Mts. of Baguezan, Asben [BMNH]). — Fig. 14. *Anadiasa obsoleta sahariensis* ROTHSCHILD, 1921, ♂ (holotype of *Chilena malacosomoides* ROTH., 1915, Oued Tamoudat, NE of Ideles [BMNH]). — Fig. 15. Holotype of *Odonestis bheroba* MOORE, 1858–1859, ♀, Darjeeling [BMNH]. Fig. 16. Holotype of *Odonestis formosae* WILEMAN, 1910, ♂, Formosa, Kanshirei [BMNH]). — Fig. 17. Holotype of *Odonestis pruni oberthueri* TAMS, 1935, ♂, frontière orientale du Tibet [BMNH]). — Fig. 18. Holotype of *Odonestis vita ceylonica* TAMS, 1935, ♂, Ceylon, Colombo [BMNH]). — Fig. 19. *Phyllodesma ilicifolium* LINNAEUS, 1758, ♀ (holotype of *Ph. japonica amurensis* LAJONQUIÈRE, ♀, Amurland [BMNH]). — Fig. 20. Paratype of *Ph. japonica ussuriensis* LAJONQUIÈRE, 1963, ♀, [Russian Far East] Okeanskaya [BMNH]. — Fig. 21. *Takanea excisa* WILEMAN, 1910, ♂, Taiwan, Hualien [BMNH]. — Fig. 22. *Takanea miyakei* WILEMAN, 1915, ♂, Japan, Hokkaido, Fukiagespa [BMNH].

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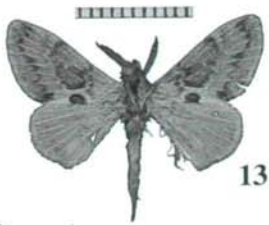
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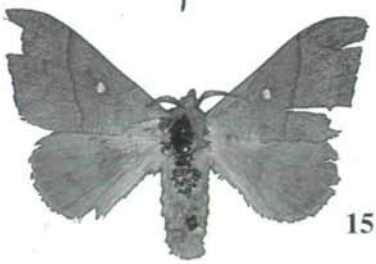
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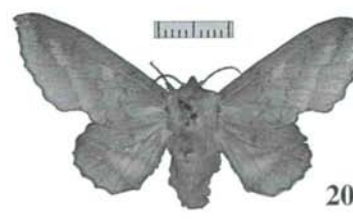
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13. *Gastropacha eberti penjabensis* LAJONQUIÈRE, 1976

Gastropacha eberti penjabensis LAJONQUIÈRE, 1976, Annls Soc. ent. France **12**(1): 169–170, pl. 1G, figs. 13, 14. Locus typicus: India H.G.G., Kumaon, Ranikhet. Holotype: ♂, pointed out to be in BMNH but missing there [a colour photo of the type specimen was examined in the collection of MNHNP].

Gastropacha eberti swatensis LAJONQUIÈRE, 1976, **syn. nov.** Annls Soc. ent. France **12** (1): 170–171. Locus typicus: Pakistan or., Prov. Swat, Madyan, 1400 m. Holotype: ♂ (NHMK) [examined].

No real differences were found neither in the external characters nor in the male genitalia as a result of working out large series of *Gastropacha eberti penjabensis* LAJ. and *G. eberti swatensis* LAJ. (both taxa are colored monotonous without any wing pattern and are more deep rose-brown than the nominate subspecies) and therefore the synonymy as given above is established.

Material examined: ♂, Holotype of *swatensis*, NW-Pakistan, Prov. Swat, 71° 90' L, 35° 70' B, Madyan, 1400 m, 19.vi.–4.vii.1971, leg. VARTIAN (NHMK). 1 ♀, Indien, U.P., Nainital, 2100 m, 14.–20.vi.1975, leg. W. THOMAS (ZSSM). 2 ♂♂, 1 ♀, India, Kumaon-Himalaya, Distr. Naini Tal, Bhim Tal, 1500 m, 16.v.–10.vi.1971, leg. DE FREINA (MWM). 2 ♀♀, Indien U.P., Bhimtal, 1500 m, 11.–20.vi.1975, leg. W. THOMAS (MWM). 1 ♀, Indien, H.P., Kandaghat, 1500 m, 9.–10.vi.1975, leg.W. THOMAS (MWM). 1 ♀, India, Himalaya mont, Bhim Tal, 1500 m, Distr. Naini Tal, 11.vi.1975, leg. SMETACEK (MNHN). 1 ♂, India, Kumaon-Himalaya, Distr. Naini Tal, Bhim Tal, 1500 m, 10.vi.1971, leg. DE FREINA (MNHN). 1 ♂, Nepal, Langtang, 1950 m, 1.5 km NE Dhunche, 85° 18' E, 28° 06' N, 24.ix. 1994, leg. CSORBA & RONKAY (MWM). 1 ♂, Pakistan, Kohistan, Swat prov., 72° 21' E, 34° 45' N, Marghazar, 1300 m, 6. July 1992. Leg. Z. WEIDENHOFFER (MWM). 12 ♂♂, 4 ♀♀, Pakistan, Margalia Hills, 600 m, 20 km N Islamabad, Pir Sohawa, 72° 55' E, 33° 50' N, 29.–31.vii.1994, leg. HERSZIG (MWM).

14. *Odonestis bheroba* MOORE, 1859

Odonestis bheroba MOORE, 1858–1859, Cat. lepid. Insects Mus. Nat. Hist. East-India House **2**: 424, pl. 12a, fig. 5. Locus typicus: Darjeeling. Holotype: ♀ (BMNH – plate 2, fig. 15) [examined].

Odonestis formosae WILEMAN, 1910, **syn. nov.**, The Entomologist **43**: 136. Locus typicus: [Taiwan] Formosa, Kanshirei. Lectotypus: ♂ (BMNH – plate 2, fig. 16) [examined].

Odonestis formosae harutai KISHIDA, 1992, **syn. nov.**, Tinea **13**(Suppl. 2): 77, figs 57, 58; pl. 20: 1, 2). Locus typicus: Nepal, Godavari. Holotype: ♂ (? National Science Museum Tokyo) [not examined].

A re-examination of the type specimens of *bheroba* MOORE and *formosae* WILEM. (both in BMNH) has shown the conspecifity of these taxa (similar pattern of wings and pattern of medias' shapes, male genitalia of the same type). But as already correctly pointed out by KISHIDA (1992: 77), the continental population really differs from the Taiwanese one by a more concave postmedia, a darker terminal area of the hindwings and little

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deviations in the shape of the VIII. abdominal sternite of the males. This allows the Taiwanese population to be considered a separate subspecies:

***Odonestis bheroba formosae* (WILEMAN, 1910) comb. et stat. nov.**

Qualified photos of the imagines and of the male genitalia of *O. formosae harutai* given by KISHIDA (1992), testified its conspecifity with the nominate subspecies of *bheroba,* not mentioned in that text, and therefore is synonymized with it here.

Thus, the area of the species occupies northern India, Nepal, southern and south-eastern China, northern Thailand (ssp. *bheroba bheroba*) and Taiwan (ssp. *bheroba formosae*).

Material examined: ♀, Holotype of *bheroba*, Darjeeling (BMNH). 2 ♂♂, Syntypes of *formosae*, Kanshirei, Formosa, 1000 ft., 2., 6.iii.1908, A. E. WILEMAN (BMNH). 1 ♂, 1 ♀, Assam, W. F. BRADLEY, 1906 (BMNH). 1 ♂, China, Kuatun (2300 m), 27° 40' N, 117° 40' E, J. KLAPPERICH, 21.iv.1938 (Fukien) (MWM). 1 ♂, China, Mokanshan, Prov. Chekiang, 15.v.1930, H. HÖNE (ZFMK). 1 ♂, Thailand, 650 m, Chiang Mai, Doi Suthep-Pui NP, road to Monthatarn w'fall, 6.–10.v.1994, I. KITCHING et al. (BMNH). 3 ♂♂, Formosa, Juli 1958, HAYASAKA vend. (ZSSM). 1 ♂, Formosa c., Puli-Wushe, IX.1958 (MWM). 1 ♀, Taiwan, Hueisun Forest, Nantou Co, Alt. 570/800 m, 28./29.ix.1992, F. AULOMABARD et J. PLANTE (ZFMK). 2 ♂♂, Formosa ins., Puli, iv.1958, coll. Dr. R. BENDER (ZSSM).

Was also noted by KISHIDA (1992) from Nepal as *Odonestis formosae harutai* and by HOU (1983: pl. 147, fig. 3066) from southern China as *Odenestis* (sic!) *brevivenis* (BUTLER, 1885).

15. *Odonestis pruni oberthueri* TAMS, 1935

Odonestis pruni oberthueri TAMS, 1935, Mem. Mus. Royal Hist. nat. Belgique **4**(12): 57, pl. 6, figs. 8, 9; pl. 8, fig. 5. Locus typicus: frontière orientale du Tibet. Holotype: ♂ (BMNH – plate 2, fig. 17) [examined].

Odonestis pruni assamensis TAMS, 1935, **syn. nov.**, Mem. Mus. Royal Hist. nat. Belgique **4**(12): 57, pl. 6, figs. 10, 11; pl. 8, fig. 6. Locus typicus: northern India, Assam, Khasia Hills. Holotype: ♂ (BMNH) [examined].

No real differences were found neither in the external characters nor in the male genitalia of both subspecies (male holotypes from the collection of BMNH were examined) when large series of moths from different localities were compared and therefore the synonymy as given above is established.

Material examined: ♂, Holotype of *oberthueri* TAMS, Frontiere orientale du Thibet, Chasseurs indigènes du P. DÉJEAN, 1906 (BMNH). ♂, Holotype of *assamensis* TAMS, Khasia Hills, Assam (BMNH). 2 ♂♂, Khasia Hills, Assam (BMNH). 1 ♂, Pu-tsu-fong, 9820 ft., June & July 1890 (BMNH). 1 ♂, Yunnan, Tsekou, Bords du Mékong, R. P. VALENTIN, Chasse de 1920 (BMNH). 1 ♀, Tsekou, 1900, R. P. DUBERNARD (BMNH). 1 ♂, Khasis, Sept.–1896 (BMNH). 1 ♂, Thibet oriental, Charsseurs thibetains, du P. DEJEAN, 1903 (ZFMK). 2 ♀♀, Nepal, Prov. Nr. 3 East, Junbesi 2750 m, 25.–31.vii.1964. leg. W. DIERL (ZSSM). 1 ♂, Nepal, Prov. Nr. 2 East, Jiri 2000 m, 13.viii.1964, leg. W. DIERL (ZSSM). 1 ♂, Nepal, Ganesh Himat, 3 km NE of Sunpati, 2330 m, 13.vii.1993, leg. HREBLAY & CSORBA (MWM).

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16. *Odonestis vita ceylonica* TAMS, 1935

Odonestis vita ceylonica TAMS, 1935, Mem. Mus. Royal Hist. nat. Belgique **4** (12): 59, pl. 6, figs. 15, 16; pl. 9, fig. 3. Locus typicus: Ceylon, Colombo. Holotype: ♂ (BMNH – plate 2, fig. 18) [examined]

Odonestis vita belli TAMS, 1935, **syn. nov.**, Mem. Mus. Royal Hist. nat. Belgique **4**(12): 59, pl. 6, figs. 17, 18; pl. 9, fig. 4. Locus typicus: southern India, Canara, Karwar. Holotype: ♂ (BMNH) [examined].

As in the previous species, no real differences were found neither in the external characters nor in the male genitalia of both subspecies (male holotypes from the collection of BMNH were examined) when large series of moths were compared. This allows to establish the synonymy as given above.

Material examined: ♂, Holotype of *belli* TAMS, Karwar, 29.ix.1900, T. R. BELL (BMNH). ♂, Holotype of *ceylonica*, Ceylon, Colombo, v.1905, MACKWOOD (BMNH). 30 ♂♂, 23 ♀♀, S. India, Canara, T. R. BELL (BMNH). 1 ♀, Ceylon (BMNH). 1 ♀, Gampola, x.1894 (BMNH). 1 ♀, the same, xii.1898 (BMNH). 1 ♀, the same , V.1909 (BMNH). 2 ♂♂, Rangoon, xi.–xii.1922 (BMNH).

17. *Phyllodesma ilicifolium* (LINNAEUS, 1758)

Phalaena Bombyx ilicifolia LINNAEUS, 1758, Syst. Nat. (Edn. 10):497. Locus typicus: not stated [Europe]. Holotype: ♂ (Mus. Linnean Soc. London; was illustrated by DE LAJONQIERE 1963) [not examined].

Phyllodesma japonica amurensis LAJONQUIÈRE, 1963, **syn. nov.**, Bull. Soc. ent. France **132**: 54–55. Locus typicus: Amurland. Holotype: ♀ (BMNH – plate 2, fig. 19) [examined].

The examination of the female holotype of *Phyllodesma japonica amurensis* LAJ. from the collection of BMNH has shown the incorrectness of the synonymization of *Ph. japonica amurensis* LAJONQUIÈRE, 1963 with *Ph. japonica ussuriensis* LAJONQUIÈRE, 1963, that was established after moths of *Ph. japonica* LEECH, 1888 from different localities of Amur- and Ussuri-regions were studied (DUBATOLOV & ZOLOTUHIN 1992). As a matter of fact, the holotype of *Ph. japonica amurensis* LAJ. is *Ph. ilicifolium* L. This allows to establish here the synonymy as given above, correctly listing *Ph. ilicifolium* from the Far East for the first time (in all previous notes it was misidentified with *Ph. japonica*) and correctly attribute the name *Ph. japonica ussuriensis* LAJONQUIÈRE, 1963 (ibidem 132: 53–54, pl. 1, fig. 10; pl. 4, fig. 65; pl. 5, fig. 74; pl. 10, fig. 150. Locus typicus: [south-eastern Russia] Ussuri; holotype ♀ (ZSSM), paratype ♀ (BMNH) – plate 2, fig. 20), for the Far East population (Russian Siberia, Primorye Territory, Korea and north-eastern China) of *Ph. japonica* LEECH.

Material examined: ♀, Holotype of *japonica amurensis*, Amurland, xi.1922 ex l. (BMNH).

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18. *Bhima potanini* (ALPHERAKY, 1895)

Pyrosis potanini ALPHERAKY, 1895, Dt. ent. Zt. IRIS **8**: 186–187. Locus typicus: China, Kham montes, Si-o-la. Holotype: ♂ (ZISP) [examined].

Bhima eximia latimarginata GAEDE, 1932, **syn. nov.**, in SEITZ, Groß-Schmett. Erde. **2**, Suppl.: 124, pl. 10b ♂. Locus typicus: China, Ta-Tsien-Lou. Holotype: ♂ (BMNH – plate 1, fig. 11) [examined].

A re-examination of the holotype of *Bhima eximia latimarginata* GAEDE, 1932 (coll. BMNH) has demonstrated the lack of significant phenotypic or male genitalic differences with respect to *Pyrosis potanini* ALPHERAKY, 1895 and therefore the conspecifity of both taxa. This allows to establish here the synonymy as given above.

Female of this species were described and illustrated by DE LAJONQUIÈRE (1975: 151, pl. 2 M) as *Bhima eximia latimarginata*.

Material examined: ♂, Holotype of *potanini*, Kham Country, Si-o-la, POTANIN (ZISP). ♂, Holotype of *latimarginata*, Ta-tsien-loù, 1900, with det. label of TAMS "*Bhima* (= *Pyrosis*) sp. nov." (BMNH). 1 ♂, Chasseurs Thibétains, 1897, ex R. P. DÉJEAN (BMNH). 2 ♂♂, Ta-tsien-Loù, 1900, Chasseurs indigénes (BMNH). 1 ♀, Batang, Tibet, im Tal des Yangtze, ca. 2800 m, 15.v. 1936, H. HÖNE (BMNH). 1 ♀, Batang, Tibet, im Tal des Yangtze, ca. 2800 m, 24.v.1936, H. HÖNE (ZFMK). 1 ♀, Batang, Tibet, im Tal des Yangtze, ca. 2800 m, 15.v.1936, H. HÖNE (ZSSM).

19. *Takanea excisa* (WILEMAN, 1910)

Crinocraspeda (?) excisa WILEMAN, 1910, Entomologist **43**: 192. Locus typicus: [Taiwan] Formosa, Arizan. Holotype: ♂ (BMNH – plate 2, fig. 21) [examined].

Crinocraspeda miyakei WILEMAN, 1915, **syn. nov.**, Entomologist **48**: 140. Locus typicus: Japan, Tokyo. Holotype: ♂ (BMNH – plate 2, fig. 22) [examined].

Takanea miyakei yangtsei LAJONQUIÈRE, 1973, **syn. nov.**, Bull. Soc. ent. France **78**: 266–267, pl. 1F, figs. 5, 6. Locus typicus: China, N. Yunnan, Li-kiang. Holotype: ♂ [examined].

There are no differences in the male genitalia construction of both taxa listed as well as regards *yangtsei* DE LAJONQUIÈRE. These taxa differ one from another only in little deviations of wing coloration, pattern (figs. 21, 22) or size. At the same time, another member of this genus, *Takanea diehli* DE LAJONQUIÈRE, 1978 from Sundaland, both in external and genitalia characters differs strongly from all taxa listed above. It allows to reconsider the point of view on the role of these characters in diagnostics of *Takanea* and on the weight of separate features in establishing taxa of specific rank in this genus. Besides that it is also possible that the taxon *yangtsei*, described from southern China, can be synonymized with Japanese subspecies in spite of a strange rupture in its distribution scheme because of the absence of any significant morphological differences between *miyakei* and *yangtsei*.

Material examined: ♂, Holotype of *excisa*, Arizan, Formosa, 7500, 23.vii.1908, A. E. WILEMAN (BMNH). ♂, Holotype of *miyakei*, Mt. Shiromma, 3.vii.1908 (BMNH). ♂, Holotype of *yangtsei*, Li-kiang (China), prov. Nord-Yuennan, 1.vii.1934, H. HÖNE (ZFMK).

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133 ♂♂, 1 ♀, Paratypes of *yangtsei*, Li-kiang (China), prov. Nord-Yuennan, 2.vi.–14.viii. 1934, H. HÖNE (ZFMK). 2 ♂♂, Paratypes of *yangtsei*, A-tun-tse (N. Yünnan), Talsohle ca. 3000 m, 15.vii.1936, 27.vi.1936, H. HÖNE (ZFMK). 2 ♂♂, Paratypes of *diehli*, NO-Sumatra, Sindar Raja; Dolok Merangir (MNHNP). 1 ♀, Allotype of *diehli*, NO-Sumatra, Dolok Merangir, Magaradja, 250 m, 20.v.1976, leg. Dr. E. DIERL (ZSSM). 2 ♂♂, Formosa, Hualien, Tayuling, 1.–3.vii.1973, M. OWADA (BMNH). 2 ♂♂, Kuatun (2300 m) 27° 40' n. Br., 117° 40' ö. L., J. KLAPPERICH, 17.v., 28.v.1938 (Fukien) (ZFMK). 1 ♂, Wolong m.2300, Qionglai Shan, W-Sichuan, China, 10.vii. 1994, G. C. BOZANO (ZFMK). 1 ♂, Kuatun, Fukien, KLAPPERICH (ZFMK). 1 ♂, Usubotsu-onsen, near Sapporo, 3.viii.1954, H. INOUE (BMNH). 1 ♂, Fukiage Spa, 1100 m, C. Hokkaido, 25.vii.1958, K. ISHIZUKA (BMNH). 1 ♂, Mt. Yatsu, 1500 m, 1.–5.viii.1959, S. NOMURA (BMNH). 1 ♂, Honzawa Spa, Mt. Yatsu, 29.vii.1940 (BMNH). 1 ♂, Hirayu Gifu, 6.viii.1953, T. HARUTA lt. (BMNH). 3 ♂♂, Ogizawa, Omachi City, Nagano Pref., 24.viii.1976, W. MIYATA (BMNH). 2 ♂♂, Rishiri Is., 19.viii.1981, T. ITO (BMNH). 1 ♂, Shirakawadani Izumimura 6.viii. 1980, ISAO OHTSUKA (BMNH). 2 ♂♂, Mikoshi-jinja, Mt. Tsurngi, Tokushima Pref., 24.vii.1977, T. MASUI (BMNH). 1 ♂, Ishizuchi, Ehime Pref., 20.vii.1960, T. KIKUCHI (BMNH). 2 ♂♂, Central Japan, Kôtsuke, Mid Aug. 1923, L. SUGITANI (BMNH). 2 ♂♂, Mt. Yatsogadake, Aug. 1916. (BMNH). 1 ♂, Japan, Nikko, 22.vi.1921, S. MATSUMURA (BMNH). 1 ♂, Japan, Hokkaido, 10.vii.1924, S. MATSUMURA (BMNH). 1 ♂, Mt. Yatsoga (BMNH). 1 ♂, Tatsien-Loû, Chasseur indigenes, 1893 (BMNH).

Appendix

Euthrix orboy sp. nov.

Philudoria diversifasciata GAEDE sensu DE LAJONQUIÈRE, 1978 (see above).

Holotype (plate 1, fig. 10): ♂, China, Fukien, Kuatung 2300 m, 27° 40' n. Br., 117° 40' ö. L. 26.v.1938, L. J. KLAPPERICH (ZFMK).

Paratypes: 27 ♂♂, China, Fukien, Kuatung 2300 m, 27° 40' n. Br., 117° 40' ö. L. 6.v.–1.vi. 1938, L. J. KLAPPERICH (ZFMK). 2 ♂♂, the same data, 29.v. & 5.vi.1938 (MWM).

Male: A large and dark coloured *Euthrix* with a lilac-chestnut background. The wing pattern as in *imitatrix* or *improvisa*, the discal spot yellowish and sometimes divided; both medias limited by blue; externa dentated blackish; tornal angle lightened by silver-yellow. Expanse 46–51 mm, forewing length 22–26 mm.

Male genitalia: as illustrated; characterised by the shape of the distal processes of the vinculum, adhered together in the basal part. The form of the VIII. sternite—covered caudal by small thorns—is also typical.

Female, biology and preimaginal instars are still unknown.

Here only the diagnosis is given, for a more detailed description see DE LAJONQUIÈRE (1978:387–388) as given for *Philudoria diversifasciata* GAEDE, 1932.

Distribution: as far known only from the type locality.

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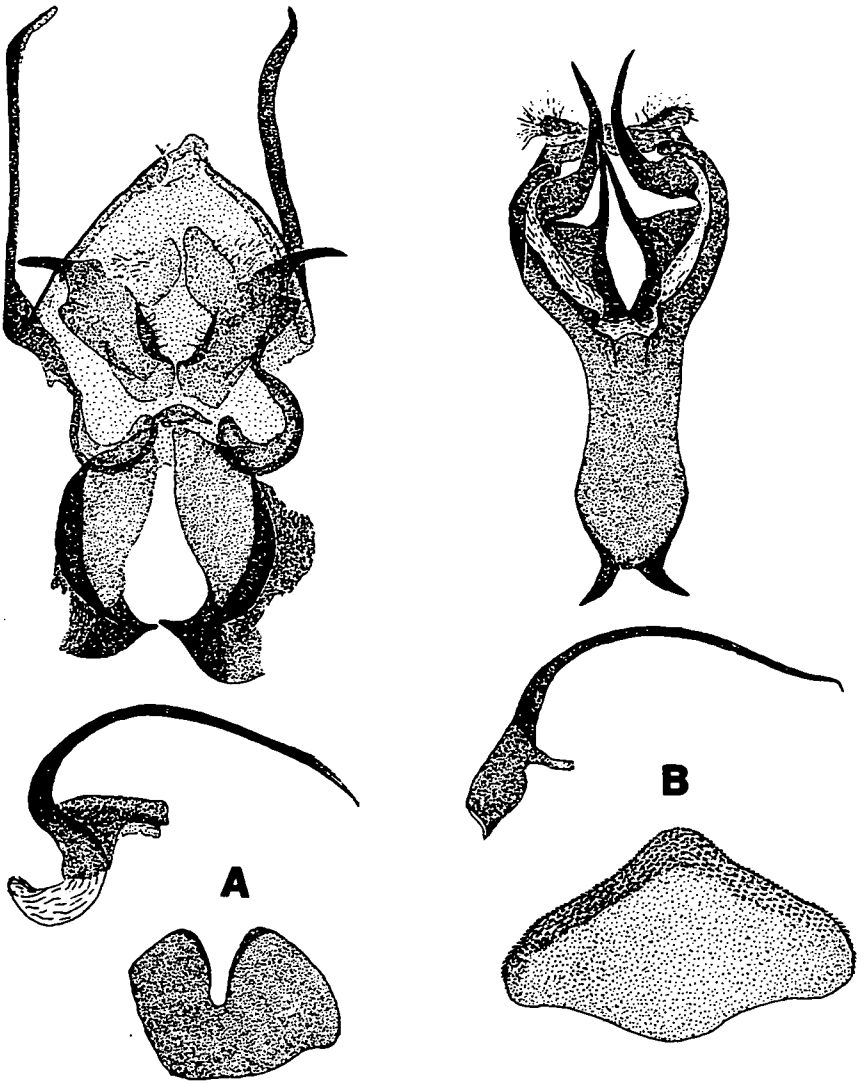

Fig. 23. Male genitalia: A – *Euthrix isocyma* HMPS., 1892 (holotype ♂, Assam [BMNH]); B – *Euthrix orboy*, sp. nov. (paratype ♂, China, Fukien; = *Philudoria diversifasciata* GAEDE sensu Y. DE LAJONQUIÈRE 1978) – both after DE LAJONQUIÈRE (1978).

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Literaturbesprechung

MARAMOROSCH, K., MITSUHASHI, J. (eds) 1997: Invertebrate Cell Culture. Novel Directions and Biotechnology Applications. - Science Publishers, Enfield, USA. 296 S.

Sowohl in den Grundlagen, als auch in den angewandten Aspekten ist die Entwicklung bei wirbellosen Zellkulturen rasend vorangeschritten. Pioniere und Spezialisten aus der ganzen Welt schrieben die Artikel zu diesem zusammenfassenden Werk, dessen Inhalt in die neun Kapitel aufgeteilt ist: „Novel developments in insect cell culture", „Physiology of cultured insect cells", „Action of physiologically active substances on cultured insect cells", „Advances in culture technologies", „Replication of insect viruses in insect cell cultures", „Development of biopesticides and assessment of their safety", „Protein production by means of Baculovirus expression vectors", „Marine invertebrate tissue culture" und „Culture of endoparasites in vitro".

Eine kompakte und moderne Darstellung zu dieser Thematik. Roland GERSTMEIER

FRÄNZLE, O., MÜLLER, F., SCHRÖDER, W. (Hrsg.) 1997: Handbuch der Umweltwissenschaften. Grundlagen und Anwendungen der Ökosystemforschung. - ecomed, Landsberg. Loseblattwerk in Leinenordner, ca. 400 S.

Das „Handbuch der Umweltwissenschaften" ist ein interdisziplinäres Forum für Fragestellungen, Methoden, Ergebnisse und Probleme der Ökosystemforschung, das die systemorientierte ökologische Denk- und Vorgehensweise mit ihrer Beziehung zu den Nachbarwissenschaften einer öffentlichen Diskussion zuführt. Die „Theoretischen Grundlagen" sind sehr stark von mathematischen, kybernetischen und thermodynamischen Ansätzen geprägt. Zahlreiche Kapitel sind erst für die kommenden Ergänzungslieferungen vorgesehen. Für den Ökologen dürften vor allem die Teile „Beziehungsgefüge" und „Konzepte der Ökosystemanalyse" interessant sein.

Ein anerkennenswerter Integrationsversuch, Bio- und Geowissenschaften und ihre Anwendung in Management, Planung, Politik und Umweltrecht umzusetzen und zu verbessern. Roland GERSTMEIER

DAUNDERER, M. 1997: Pestizidvergiftungen - Diagnostik und Therapie. - Ecomed Verlagsgesellschaft, 1014 S.

Der Bodensee, seit Beginn der limnologischen Forschung Experimentierfeld der Biologen, „dürfte heute insgesamt zwei bis drei Tonnen Triazin-Herbizide enthalten". So Max DAUNDERER, der renommierte Münchner Umweltmediziner in seinem aktuellen Werk zur Vergiftungslage Mitteleuropas. Ob diese Erkenntnis schon Eingang in die Fragestellung der limno-ökologischen Forschung gefunden hat? Nicht viel besser sieht es mit Luft und Boden aus, sodaß konstatiert werden muß, daß es keine ökologische Nische gibt, in der die Pestizide als Umweltfaktor fehlen. Auswirkungen dieser Nerven- und Stoffwechselgifte auf Individuen und Arten sind teilweise bekannt. Die Auswirkungen auf die Lebensgemeinschaften dürften fatal und weitgehend unbekannt sein. Zu mehr als dreihundert häufigen Verbindungen bietet das Werk umfassende Informationen zu Beschaffenheit, Vorkommen, Verwendung, Wirkung, Toxizität, Symptomen, Nachweis und Therapie. Dieses primär humanmedizinisch ausgerichtete Nachschlagewerk eignet sich auch für den Ökologen ganz ausgezeichnet als Informationsquelle zu einem der biologisch brisantesten Probleme: Der schleichenden Vergiftung der Ökosysteme durch den Menschen. Michael CARL

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VAN VONDEL, B., DETTNER, K. 1997: Süßwasserfauna von Mitteleuropa 20/2, 3, 4. Insecta: Coleoptera: Haliplidae, Noteridae, Hygrobiidae. - G. Fischer Verlag, 147 S., zahlr. s/w-Zeichnungen.

Ein weiterer Baustein der Süßwasserfauna Mitteleuropas ist erschienen und bietet dem Interessierten weit über die mitteleuropäischen Grenzen hinaus eine vollständige Übersicht der aquatischen Käferfamilien Haliplidae, Noteridae und Hygrobiidae. Nicht nur die zu Beginn dieses Jahrhunderts erschienenen Vorgängerbände dieser Reihe, sondern auch der FREUDE/HARDE/LOHSE darf nun mit Recht als veraltet bezeichnet werden. Insbesondere die Fülle an Informationen zu den Präimaginalstadien, der Lebensweise und Verbreitung der Arten wird den Leser erfreuen. Das englischsprachige Buch überzeugt außerdem durch brauchbare Bestimmungsschlüssel, ausgezeichnete Abbildungen und die ausführlichen "Steckbriefe" zu jeder Art. Bei den Haliplidae negativ auf, daß man zwischen den Habitusabbildungen auf den Seiten 10/11 und der Abkürzungsliste auf Seite 91 hin und her blättern muß. Aktuelle und ausführliche Literaturverzeichnisse zu den drei Familien runden diese Monographie ab. M. CARL

Geir E. E. SÖLI 1997: On the morphology and phylogeny of Mycetophilidae, with a revision of *Coelosia* WINNERTZ (Diptera, Sciaroidea). - Entomologica scandinavica, Supplement Nr. 50, 139 S., 42 + 51 S/W-Abb. Zu beziehen: Scandinavian Entomology Ltd., Västervång 28, S-24734 S. Sandby, Sweden, Fax 46/(0)46-57969.

Hier wird das Wesentliche der Dissertationsarbeit von Geir E. E. SOLI veröffentlicht. Es besteht aus zwei Teilen: "The adult morphology of Mycetophilidae, with a tentative phylogeny of the family" und "The systematics and phylogeny of *Coelosia* WINNERTZ, 1863".

Der erste Teil behandelt zunächst die einzelnen Körperteile der Imagines von vielen verschiedenen Gattungen, vor allem die männlichen Genitalstrukturen, begleitet von zahlreichen Abbildungen. Abschließend wird versucht, alle Gattungen tabellarisch und grafisch in ihren verwandtschaftlichen Beziehungen zueinander darzustellen.

Im zweiten Teil werden alle 24 Arten der Gattung *Coelosia* revidiert, beschrieben und ihre männlichen und meist auch die weiblichen Genitalien abgebildet. Ausführliche Bestimmungsschlüssel für beide Geschlechter sind ausgearbeitet. Alle im Text verwendeten Körperteile sind bildlich dargestellt und benannt. Die Beschreibungen aller Arten schließen sich an. Die Verwandtschaftsbeziehungen der Arten untereinander sind grafisch anschaulich gemacht.

Für die Mycetophilidenforschung ein unentbehrliches Werk. Wolfgang SCHACHT

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