

# *Entomofauna*

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## **Moths of Vietnam with special reference to Mt. Fan-si-pan Microlepidoptera 1: Micropterigidae/Urmotten (Lepidoptera, Zeugloptera)**

**WOLFRAM MEY**

### **Abstract**

The family Micropterigidae is recorded from Vietnam for the first time. Two individuals were collected in the Fan-si-pan Mountains. They represent an unknown species, which is described as *Paramartyria expeditionis* sp. nov. The taxonomic position and relationship to other species is discussed briefly. A key for separating the Asian genera is provided, and includes *Micropterix*, *Neomicropteryx*, *Palaeomicroides* and *Paramartyria*.

### **Zusammenfassung**

Aus Vietnam wird zum ersten Mal eine Art aus der Familie Micropterigidae gemeldet. Im Fan-si-pan Bergmassiv wurden 2 Exemplare gesammelt, die zu einer unbekannten Art gehörten. Sie werden hier als *Paramartyria expeditionis* sp. nov. beschrieben. Es wird kurz auf ihre taxonomische Stellung und auf die verwandtschaftlichen Beziehungen zu anderen Arten eingegangen. Eine erstmals vorgelegte Bestimmungstabelle gestattet die Unterscheidung der asiatischen Gattungen der Familie (*Micropterix*, *Neomicropteryx*, *Palaeomicroides* und *Paramartyria*).

### **Introduction**

During the expedition to the Fan-si-Pan Mountain in March/April 1995 I collected 2 specimens of a micropterigid moth. After comparing the specimens with the original descriptions of the hitherto known species I identified the two individuals belonging to *Paramartyria* ISSIKI, 1931. Eight species are currently assigned to that genus. In the descriptions of the species the features of the male genitalia are included and some figures

are given. Though the illustrations are rather simple, they show clear differences in the structure and shape of the valvae, the 10th segment and the phallic apparatus. This allows the identification of the species to be made. The male from the Fan-si-pan Mt. has a distinct shape of the valvae and a unique form of abdominal segment 10. It is undoubtedly a new species of *Paramartyria*.

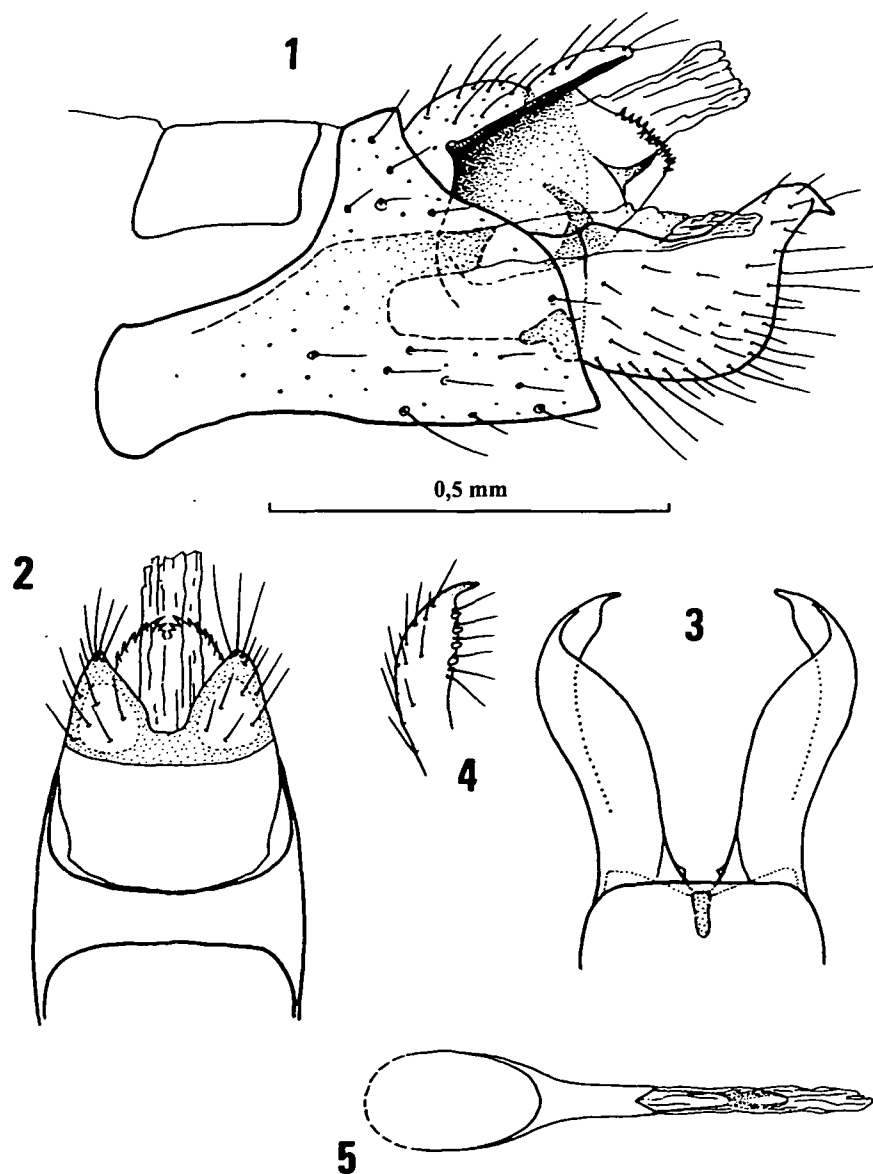
*Paramartyria expeditionis* sp. nov.

Material: 1 ♂ Holotype, 1 ♀ Allotype, Nord-Vietnam, Fan-si-pan Mt., 1600 m, 29.iii. 1995, leg. W. MEY; types deposited in coll. MEY, Zoological Museum Berlin.

Description. External features (pl. 1, 1–2): body length 2 mm; wing span 8–9 mm; head black on frons, grey-whitish on frontoclypeus (microtrichia?); frons and vertex densely covered with orange hairs, also at scapus and pronotum; area between eyes, ocelli and antennal socket naked and shining; ocelli large; antennae reaching nearly to the tip of the forewings; scapus and pedicellus grey and smaller than flagellomeres, without scales; flagellum black; flagellomeres moniliform, each joint with a pronounced basal stalk and a whorl of parallel bristles; compound eyes small, a little wider than antennal joints; maxillary palpi long, 5-segmented, with yellow hairs, last joint brown; labial palpi with 3 segments; thorax and abdomen black; forelegs with annulated tarsus, femur longer than tibia; femora and coxae with appressed yellowish scales; epiphysis lacking; spurs 0. 0. 4; femora without dorsal spines; base of forewing greenish-golden, extending along dorsum beyond middle of wing, remaining area purple with scattered, silvery shining scales around bifurcation of Rs and at the apex; fringe yellow around the tip and fuscous at dorsum and costa; hindwings brown, roughly scaled; venation as usual in the genus, without forked R1 in forewing.

Male genitalia (figs. 1–5): segment 8 without sternal sclerotizations; 9th segment a synsclerotous ring, the lower portion of which is markedly extended anteriorly; valvae tapering from a broad base towards an elongate and upwardly curved apex, pointed and directed medially, with a row of small teeth at the dorsal edge; upper part of 10th segment plate-like and bilobed; lateral walls of lower part extending ventrally towards the valvae, not strongly sclerotized, but with a long, lateral spine and with numerous small, apical thorns; phallobase as long as aedeagus, cylindrical and characteristically bent basally; aedeagus weakly sclerotized with some folds, no distinct spines or additional processes present.

Derivatio nominis: the specific name is derived from the latin *expeditio* (= expedition) in memory of the successful German-Russian expedition to North Vietnam in 1995.



Figs. 1–5: *Paramartyria expeditionis* sp. nov., male genitalic apparatus, 1 – lateral, 2 – dorsal, 3 – ventral, 4 – tip of valva, dorsal side, 5 – phallobase and aedeagus, ventral.

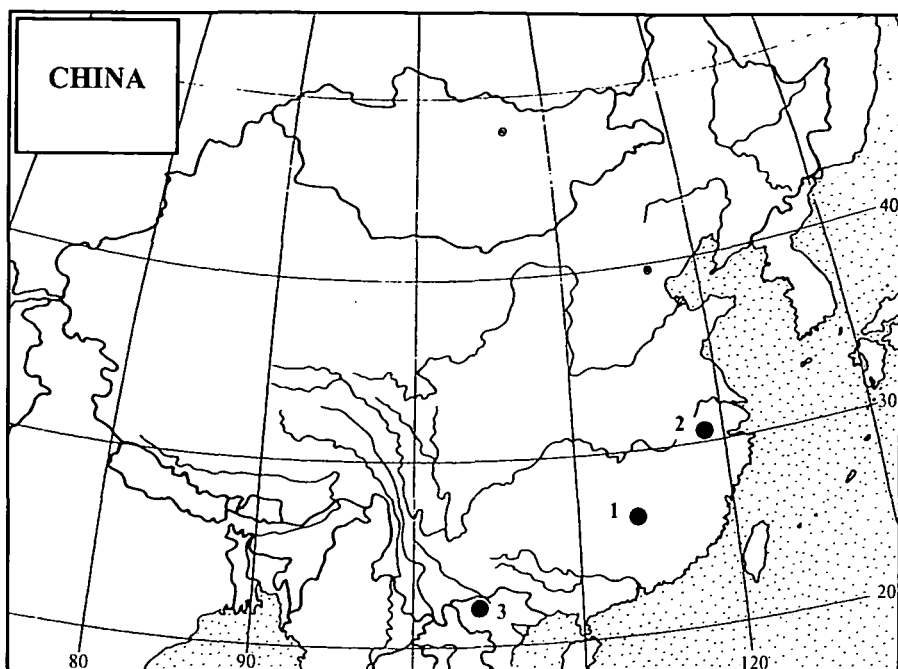


Fig. 6: Distribution of species of *Paramartyria* in continental Asia

1 – *P. jinggangana* and *P. cipingana* (Mt. Jinggangshan), 2 – *P. chekiangella* (Tianmu Shan), 3 – *P. expeditionis* sp. nov. (Fan-si-pan).

## Discussion

Together with *P. expeditionis* sp. nov. the genus now includes 9 species:

### List of species of *Paramartyria* ISSIKI

1. *P. semifasciella* ISSIKI, 1931 — Japan
2. *P. immaculatella* ISSIKI, 1931 — Japan
3. *P. bimaculella* ISSIKI, 1931 — Taiwan
4. *P. ovalella* ISSIKI, 1931 — Taiwan
5. *P. maculatella* ISSIKI, 1931 — Taiwan
6. *P. chekiangella* KALTENBACH & SPEIDEL, 1982 — China
7. *P. jinggangana* YANG, 1980 — China
8. *P. cipingana* YANG, 1980 — China
9. *P. expeditionis* sp. nov. — Vietnam

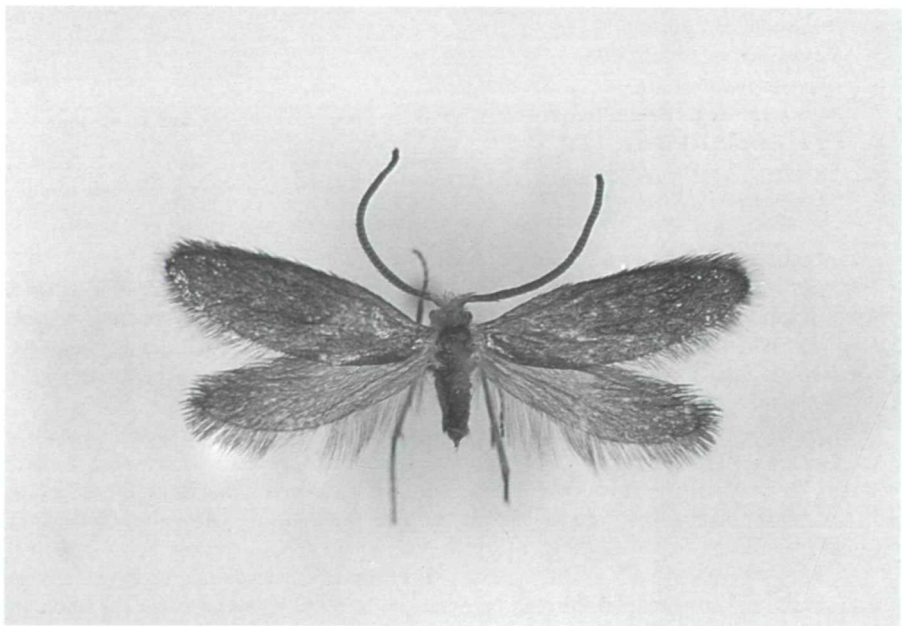
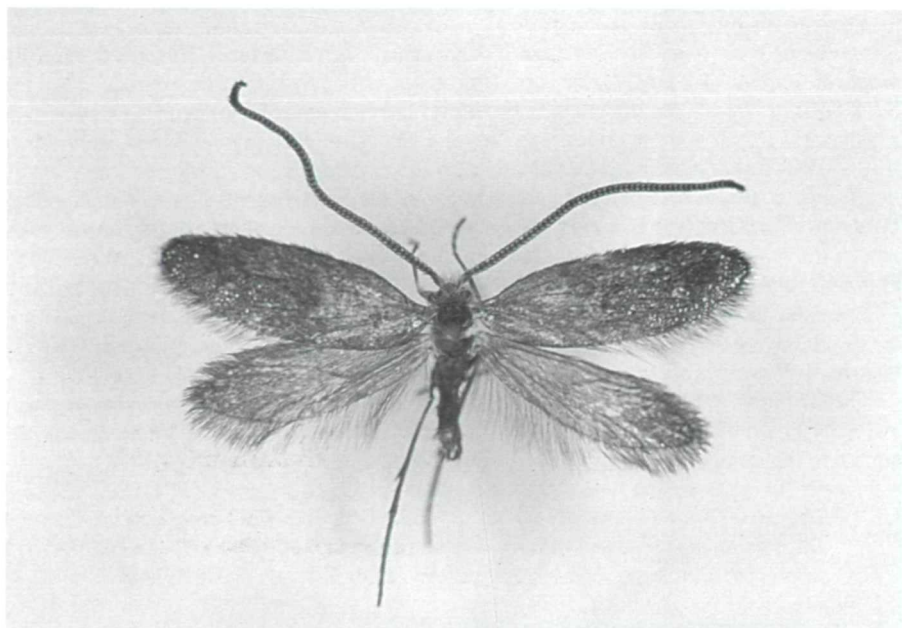


Plate 1: above, *Paramartyria expeditionis* sp. nov., Holotype ♂; below, *Paramartyria expeditionis* sp. nov., Allotype ♀.

In comparing the many drawings of the male genitalia of *Paramartyria* the new species is clearly different from all congeners. The most striking character is the form of the 10th segment with its very large lower part. This structure which is much more reduced in the other species, was called the gnathos by ISSIKI (1931), YANG (1980) and KALTENBACH & SPEIDEL (1982). A similar spine on its lateral side occurs in *P. immaculatella*, in however a slightly different position. The valva is also diagnostic. Though very peculiar in *P. expeditionis* sp. nov. it resembles the valva of *P. jinggangana*. In both species the valva has a subapical excision and is curved medially. Unfortunately, the figures of *P. jinggangana* and of the other species are poor and do not allow one to decide which is most related to *P. expeditionis* sp. nov.

The external characters of all members of *Paramartyria* are rather similar. They are not very suitable for distinguishing the species. A notable exception is the epiphysis, which is lacking in *P. expeditionis* sp. nov. but present in all remaining species of the genus.

The primitive micro moth family Micropterigidae is currently regarded as the most ancestral taxon of the Lepidoptera (KRISTENSEN 1984, SCOBLE 1992). 10 genera are assigned to the family including 1 fossil genus (KRISTENSEN 1984, KOZLOV 1988):

1. *Micropterix* HÜBNER, [1825]  
*Electrocrania* KUSNEZOV, 1941, synonymized by KOZLOV (1988:9).  
*Microptericina* ZAGULAEV, 1983, synonymized by KOZLOV (1988:12).
2. *Epimartyria* WALSINGHAM, 1898
3. *Paramartyria* ISSIKI, 1931
4. *Palaeomicroides* ISSIKI, 1931
5. *Neomicropteryx* ISSIKI, 1931
6. *Hypomartyria* KRISTENSEN & NIELSEN, 1982
7. *Squamicornia* KRISTENSEN & NIELSEN, 1982
8. *Agrionympha* MEYRICK, 1921
9. *Sabatinca* WALKER, 1863
10. † *Parasabatinca* WHALLEY, 1978

The genus *Micropterix* is represented by two species in East Asia:

*M. calthella* (LINNAEUS, 1761) and *M. aureatella* (SCOPOLI, 1763). For the latter a distinct subspecies *M. a. shikotanica* KOZLOV, 1988 was proposed. Both species form the eastern extension of the otherwise west palearctic distribution of the genus. They are obviously expansive species and capable of dispersing via the south Siberian corridor. They are not recorded from the adjacent provinces of Middle and Central Asia.

The genera *Paramartyria*, *Palaeomicroides* and *Neomicropteryx* are confined to East Asia. However, only species of *Paramartyria* have been found on the continent to date, whereas *Palaeomicroides* and *Neomicropteryx* have a restricted distribution on Taiwan and Japan respectively. The 3 species from the Asian mainland are known only from their original localities in East China (fig. 6).

ISSIKI (1931) erected his 3 genera mainly on the basis of external features, e. g. the wing venation, the mouth parts and the legs. In addition, he studied the genitalic apparatus of the males and found some further characters for defining the genera. Unfortunately he did not give a key for separating the genera. Since vaste areas of east and south-east Asia are largely unexplored, the occurrence of additional micropterigid species is likely. Probably,

a special search in the provinces of Sichuan and Yunnan would be rewarding. A generic key is presented below to help associate species collected in future with one of the established genera. The key is derived from the original descriptions of ISSIKI (1931), and from closer examination of type material of *Neomicropteryx* and *Palaeomicroides* deposited in the Zoological Museum Berlin.

### Key to the genera of Micropterigidae of Asia

1. Flagellum of antennae with stalked flagellomeres, they are nearly as wide as the compound eyes; radius of hindwings extremely reduced, appearing as a basal cross-vein sc-rs . . . . . 2
  - Flagellomeres compact, without a stalk, not half the width of the compound eyes; radius of normal shape in hindwings . . . . . *Micropteryx* HÜBNER
2. Forelegs without epiphysis; labial palpi 2-segmented; valvae of males short and broad triangular; head with fuscous to black hairs . . . . . *Neomicropteryx* ISSIKI
  - Epiphysis usually present, rarely lacking; labial palpi 3-segmented; valvae of males longer than broad; head in most species with orange hairs . . . . . 3
3. Forewings with scattered silvery or golden scales at dark ground; R3 of forewing normally developed; male valvae without basal process . . . . . *Paramartyria* ISSIKI
  - Forewings with golden and purple patterns, without additional silvery scales; R3 of forewing seemingly arising from the stem of R4+5; male valva with a basal process on the inner side . . . . . *Palaeomicroides* ISSIKI

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I wish to thank Niels P. KRISTENSEN of the Zoological Museum, Copenhagen and Dr. W. SPEIDEL, Museum A. Koenig, Bonn for their comments regarding the new species and the genus *Paramartyria*. I am grateful to M. J. SCOBLE, Natural History Museum, London for correcting the English text. I am indebted to Matthias NUSS of the museum's Lepidoptera section for photographic assistance.

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Author's address:

Dr. Wolfram MEY  
Museum für Naturkunde  
Institut für Systematische Zoologie  
Humboldt-Universität Berlin  
Invalidenstr. 43  
D-10115 Berlin

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Wolfgang SCHACHT, Scherrerstr. 8, D-82296 Schöngeising  
Erika SCHARNHOP, Himbeerschlag 2, D-80935 München  
Johannes SCHUBERTH, Mannertstr. 15, D-80997 München  
Emma SCHWARZ, Eibenweg 6, A-4052 Ansfelden  
Thomas WITT, Tengstraße 33, D-80796 München  
Postadresse: Entomofauna (ZSM), Münchhausenstraße 21, D-81247 München;  
Tel. 089/8107-0, Fax 8107-300



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