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## Notes on Himalayan Stoneflies from the Collection of Zoologische Staatssammlung München

(Plecoptera)

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### Abstract

*Amphinemura minor* n. sp. is described from Nepal Himalaya. Faunistical data based on study of a small collection of stoneflies from Zoologische Staatssammlung München are presented.

Among the first stoneflies from the Himalaya were those collected during several Everest Expeditions in the beginning of this century (KIMMINS 1947). After that time this region was closed to visitors for a long time. For the last thirty years Nepal Himalaya has again been open and several intensive biological studies have been done (HELLMICH 1971, MARTENS 1979).

Recent studies of HARPER (1974, 1975, 1976, 1977), SIVEC (1981), ZWICK (1977) and ZWICK & SIVEC (1980), revealed a number of new species of Plecoptera from the Himalaya, however stoneflies of this region are still not well known.

I had an opportunity to study a small collection of pinned specimens from Zoologische Staatssammlung München. I would like to thank Dr. E. G. Burmeister for loan of the specimens, and Mr. P. Ward for the comparative material of stoneflies from the British Museum.

### List of species:

Fam. Taeniopterygidae

*Mesyatsia* sp. Fig. 1

Material: NEPAL: 2♀♀, Prov. Sagarmata, Dingpoche, 4400 m, 3.6.1964 (W. Dierl leg.); 9♀♀, East Chukhung, 4800–5000 m, 10.6.1964 (W. Dierl leg.).

Medium size dark brown species. Length of fore wings 11–12 mm. Ventral side of body and ventral parts of femora densely covered with long hairs. Wings brownish with dark venation. At the radio-medial crossvein a slightly expressed pale band. Head and pronotum dark brown. Antennae and palpi brown. First two segments of the antennae darker than rest. Pronotum trapezoidal with an indistinct pale reticular pattern and pale

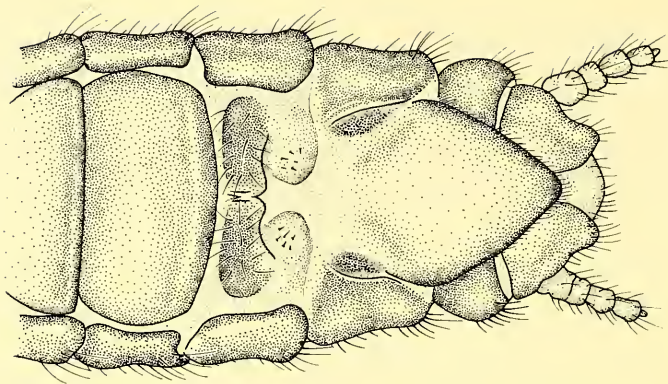


Fig. 1: *Mesyatsia* sp. : tip of ♀ abdomen.

posterior angles. Femora dark brown, tibiae with a dark band proximally. Abdomen dark brown.

Available specimens are unfortunately all females and we are not able to determine and associate this species to the others known in this genus.

Genital segments resemble *M. nigra* Zwick, however our specimens are smaller and much more hairy. Side lobes below genital opening are less expressed, lips of the genital opening only slightly emarginate. On the contrary, *M. nigra* Zwick has a well expressed cleft which seems to be the main difference to *M. thianshanica* (Zhiltzova) and *M. brodskii* Zhiltzova from the Tien Shan Mountains.

Despite large variations in *M. karakorum* Šamal (Zwick & Sivec 1980), our specimens probably belong to a different species. Discovery of ♂♂ will have to be waited for to decide on the status of the present specimens.

Fam. Capniidae

#### *Capnia longicauda* Zhiltzova

*Capnia longicauda* ZHILTZOVA, 1969, Rev. Ent. URSS, 48: 596, Figs. 1-4.

Material: NEPAL: 2♀♀, unter Jonsong Ha, 5300 m, 7.6.1930 (Himalaya expedition Dyhrenfurth).

Species with a rather late flying period compared to other *Capnia* species known from Himalaya.

#### *Capnia montivaga* Kimmins

*Capnia montivaga* KIMMINS, 1947, Ann. Mag. nat. Hist., (11) 13 (1946): 733, Fig. 9.

Material: NEPAL: 1♀, Khumbu Periche, 4350 m, 29.6.1963 (G. Ebert leg.).

Our specimen is identical with the type of Kimmins. The situation among Himalayan Capniidae is still not completely clear. *C. montivaga* Kimmins is described only from the female and could in future prove to belong to some other already known species.

Fam. Nemouridae

*Amphinemura minor* n. sp. Fig. 2a–d.

Material: NEPAL: ♂ Holotype (pinned specimen, genitalia cleared in microvial), Province Sargamata, Bujan, Dudh Kosi Tal, 2900 m, 18.–19. 7. 1964 (W. Dierl leg.).

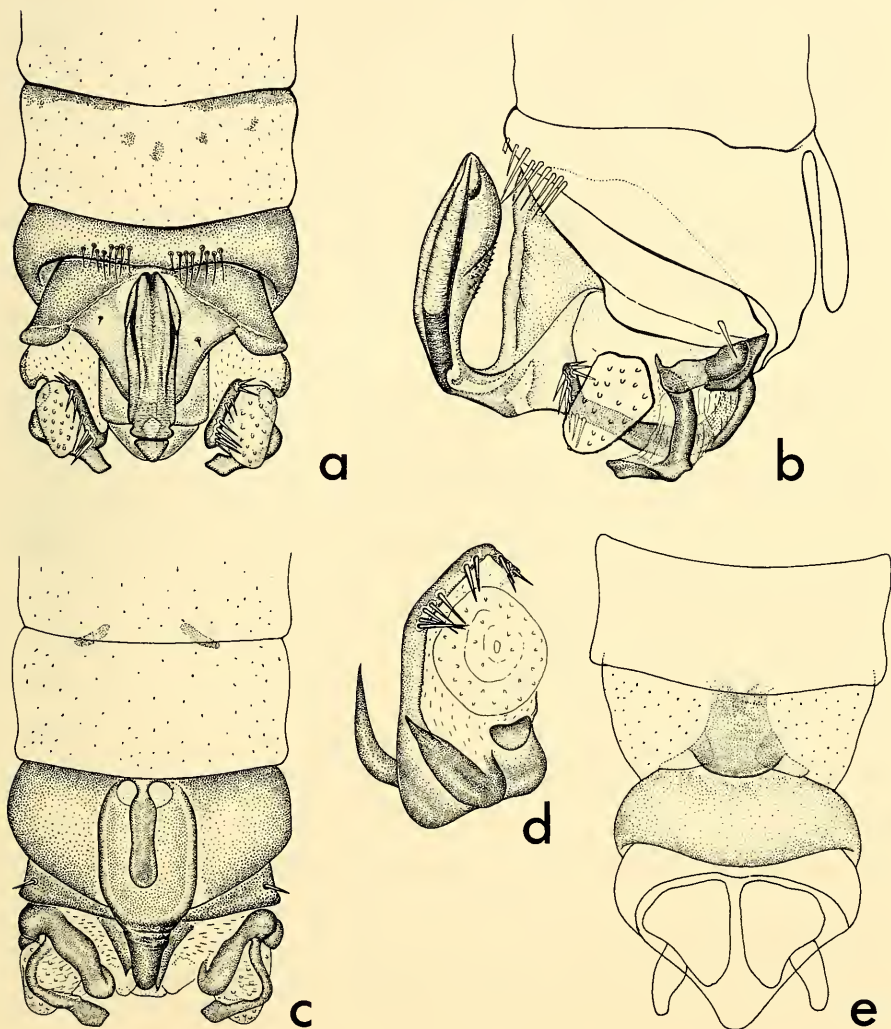


Fig. 2: *Amphinemura minor* sp. n. : tip of ♂ abdomen (a, dorsal; b, lateral; c, ventral), apical view of right paraproct (d); *Indonemoura* sp. 2 : tip of ♀ abdomen (e, ventral).

Small uniformly dark brown species, length of the fore wings 7 mm. Pronotum slightly wider than long, rugosity moderately expressed, angles rounded. Abdomen membranous except genital segments.

Male genitalia: Subgenital plate narrow and long, ventral vesicle long. Tergite 9 medially with a row of stronger setae on its posterior margin. Median and outer lobe of paraprocts narrowly sclerotized. Median lobe bearing apically a row of a strong large spines. Lateral lobe ending in a flat pointed tip. Epiproct simple, rather long and oval with a patch of short spinules on its ventral side.

*A. minor* has no close relatives among the already known Asian *Amphinemura* species. By the shape of its epiproct *A. minor* is similar to *A. talungdzongi* Aubert from Assam but clearly differs in the shape of paraprocts and the presence of strong spines on the median lobe of paraprocts.

Female not known.

### *Indonemoura adunca* (Harper)

*Protonemura adunca* HARPER, 1974, *Psyche*, 81: 327, Figs. 12–14

Material: NEPAL: 1♂, Ting Sang La, 3800 m, 5.5.1962 (G. Ebert, H. Falkner leg.).

Species known from Nepal and India.

### *Indonemoura* sp. 1

Material: INDIA: Umgebung Darjiling (coll. v. Rosen) no other data.

Our female corresponds to *Protonemura* sp. D of HARPER (1974) which is the same as *Indonemoura* sp. 1 of ZWICK & SIVEC (1980). This species is similar to *Indonemoura indica* (Kimmins) by the shape of subgenital plate. The only difference is the presence of a pigmented plate on the posterior end of sternite 7 in *Protonemura* sp. D of HARPER which is not present in females of *I. indica* (Kimmins) (AUBERT 1967) and is only slightly expressed in our specimen.

### *Indonemoura* sp. 2 Fig. 2e.

Material: NEPAL: 2♀♀, Prov. Sagarmata, Bujan, Dudh Kosi Tal, 2900 m, 18.–19.7.1964 (W. Dierl leg.).

Middle size dark brown species. Resembles *Protonemura* sp. B of HARPER (1974), but differs by lack of pigmentation on sternite 7 in HARPER's species which is present.

### *Nemoura* sp. 1

Material: NEPAL: 1♀, Prov. Sagarmata, Dingpoche, 4400 m, 3.6.1964 (W. Dierl leg.).

### *Nemoura* sp. 2

Material: NEPAL: 1♀, Prov. Sagarmata, Umg. Tsola Tso, 4700–5000 m, 7.7.1964 (W. Dierl leg.).

Fam. Perlidae

*Neoperla schmidi* Aubert

*Neoperla schmidi* AUBERT, 1959, Mém. Soc. Vaudoise Sci. Nat., **12**: 88, Figs. 87–91.

*Neoperla complicata* SIVEC, 1980, Entomologica Basiliensia, **5**: 118, Fig. 24a–e; syn. according to ZWICK (1982).

Material: AFGHANISTAN: 1♀, Sarobi, 1100 m, 13. 8. 1961 (G. Ebert leg.).

Species described from Pakistan, known also from Nepal. New for Afghanistan!

*Neoperla tortipenis* Zwick

*Neoperla tortipenis* ZWICK, 1980, Entomologica Basiliensia, **5**: 125, Figs. 27c, 28a–d.

Material: NEPAL: 1♀, Rapti Tal, Megouli, 300 m, 29. 3. 1962 (G. Ebert, H. Falkner leg.).

*Kamimuria cf. crocea* Harper

*Kamimuria crocea* HARPER, 1976, Mushi, **49**: 29, Figs. 11–14.

Material: NEPAL: 1♂, Jiri, 1900 m, 15. 5. 1962 (G. Ebert, H. Falkner leg.); 2♂♂, Bhimpedi, 400 m, 4.–7. 4. 1962 (G. Ebert, H. Falkner leg.).

*Kamimuria cf. lutulenta* Zwick

*Kamimuria lutulenta* ZWICK, 1977, Entomologica Basiliensia, **2**: 116, Figs. 66–72.

Material: NEPAL: 3♂♂, Jubing, 4.–5. 5. 1964.

Our determinations are based on general colouration, head pattern and the shape of male hemitergites 10. Available descriptions of the penes do not allow for detailed comparisons.

In the present material there are apparently several additional species of *Kamimuria*, however this genus is without doubt one of the most problematical genera among Asian Perlidae. Structure of the penial cowl seems to be fairly similar in some species in which head pattern, size and body colouration are very different. The complete revision of the genus is necessary.

*Acroneuria* (s. l.) *personata* Harper

*Acroneuria* (s. l.) *personata* HARPER, 1976, Mushi, **49**: 25, Figs. 1–6.

Material: NEPAL: 1♀, Junbesi, 27. 7. 1964.

*Acroneuria* (s. l.) *distinguenda* Zwick

*Acroneuria* (s. l.) *distinguenda* ZWICK, 1977, Entomologica Basiliensia, **2**: 128, Figs. 102, 103.

Material: NEPAL: 4♂♂, 3♀♀, Jubing, 4.–6. 5. 1964.

Both closely related species occur also in Bhutan.

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