

## A New Genus and Species of Gomphomastacine Grasshopper (Orthoptera, Gomphomastacidae) from the Nepal Himalayas<sup>1)</sup>

By

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In the autumn of 1981, the second Nepal Himalaya entomological expedition was made under the leadership of Dr. S.-I. UÉNO of the National Science Museum, Tokyo. The orthopterous material collected at that time was entrusted to me for study by Dr. UÉNO. In this material I found one new genus and species belonging to the Gomphomastacinae, Gomphomastacidae (DIRSH, 1975), which was collected in the western part of Nepal.

The distributional area of gomphomastacine grasshoppers hitherto known includes Kazakhstan, Uzbekistan, Tadzhikistan (Pamir), N. Afghanistan, Punjab, Karakorum, Kashmir, and W. China (the southwestern end of Tibet, Tien Shan, and Chinghai) (BEY-BIENKO and MISTSHENKO, 1951; DESCAMPS, 1973; ZHENG and HANG, 1974; YIN, 1979; CHENG, 1981). However, this extends further south according to the occurrence of the Gomphomastacinae in western Nepal.

In the following lines, a description of this new species is presented, together with that of the new genus and a key to the genera of the Gomphomastacinae. This is the first report dealing with the Nepalese Orthoptera brought forth by the National Science Museum party.

Before going further, I wish to express my hearty thanks to Dr. Shun-Ichi UÉNO for giving me the privilege of studying the material of the Nepalese Orthoptera. Thanks are also due to Messrs. Masaaki TOMOKUNI and Mamoru OWADA who attentively collected grasshoppers for me as members of the Museum party.

### Genus *Nepalomastax* YAMASAKI, nov.

Closely related to the genus *Afghanomastax* DESCAMPS, 1974 of North Afghanistan, but differing in the number of antennal segment, the position of antennal organ, and the shape of the posterior margin of pronotum and cercus.

*Male.* Fastigium of vertex (Fig. 2) not salient, situated between the anterior margins of eyes. Facial ridge canalculated because of elevated carinulae and, in profile, most deeply excurved between antennae; carinulae running to facial carina; superior part of frontal ridge visible from above. Interocular distance equal to the combined

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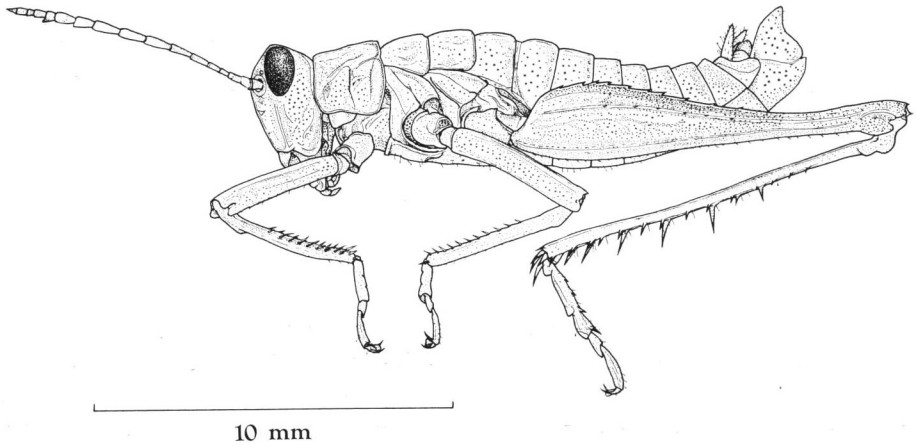
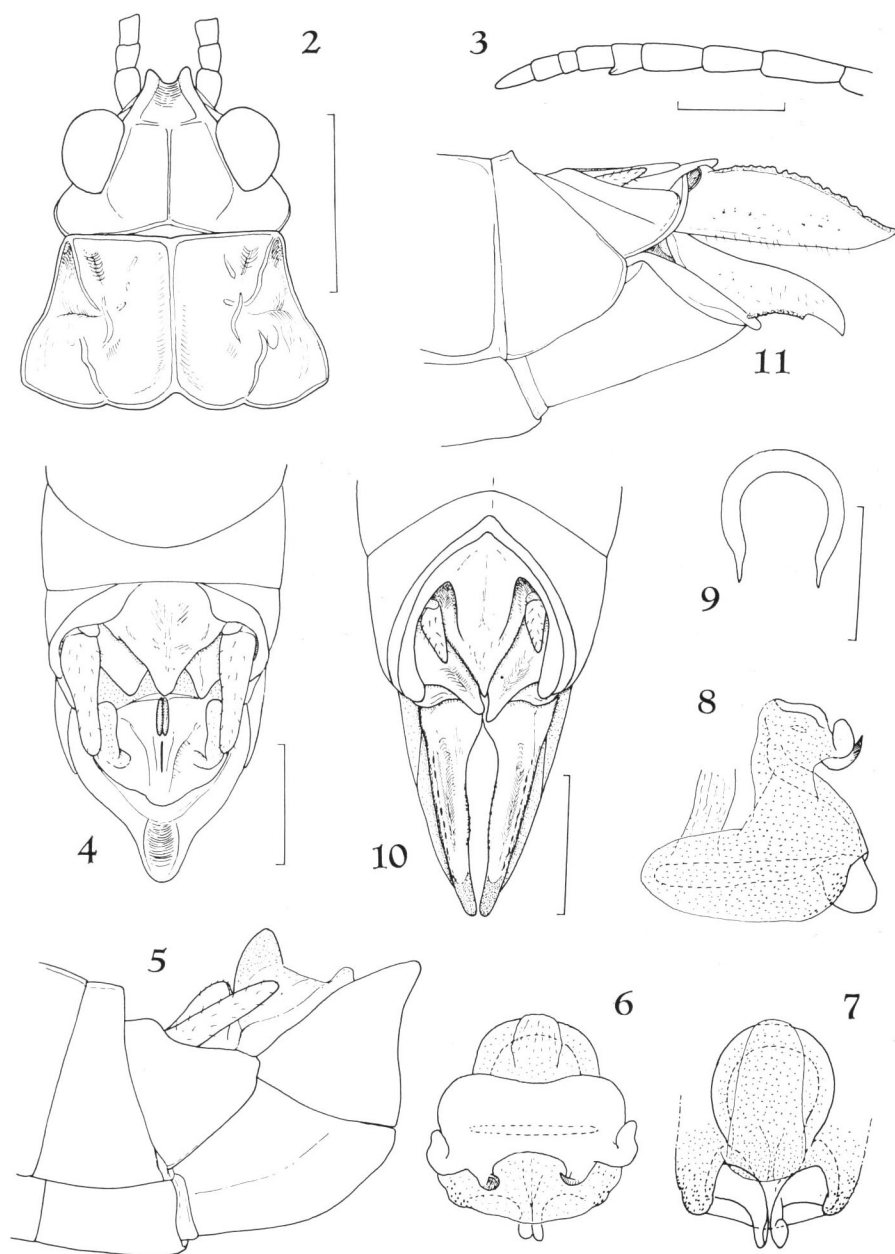


Fig. 1. *Nepalomastax himalayana* YAMASAKI, gen. et sp. nov., ♂, of Damphe Lekh, Jumla Dist., West Nepal.

length of scape, pedicel and the first flagellum. Antennae filiform, about 3.5 times as long as pronotum; apical part not widened; 17-segmented; antennal organ (Fig. 3) situated ventrally at the anterior margin of the fifth segment from the apex. Pronotum (Fig. 2) transverse, becoming wider posteriorly, with a distinct median carina and irregular lateral carinae; prozonal and metazonal lateral carinae separated from each other but enchained inside by small incurved carinae; the anterior margin straight but insensibly incurved at the centre, and the posterior margin with mesal incision and roundly excurved on each side; prozona wide in the anterior margin, becoming narrower posteriorly, and metazona expanding in the centre; lateral lobes triangular as the lateral carinae start obliquely upwards from subangular points, and with a deep transverse sulcus at about middle; the anterior parts of lateral lobes concave. Meso- and metanotum slightly incised postero-mesally, each with median carina. Abdominal tergites also with median carina which is distinctly recognizable at least in the first four segments.

Fore and middle tibiae with ten to eleven small spines on both external and internal inferior margins. Hind femora with about ten spines on dorso-median carina whose apex also bears a spine; both external and internal dorsal carinae with some denticles; dorsal genicular lobes each with a small spine at apex but external one is very weak. Hind tibiae with about seven long spines on internal dorsal carina and about 14 small to middle-sized spines on external dorsal carina, and with apical spines consisting of four spines, two on the external side and two on the internal one, of which the internal superior spine is the longest. Tarsal claws curved, longer than arolium.

Cerci straight as shown in Figs. 4 and 5, feebly tapering, about 3.5 times as long as basal width, round at tip. Supra-anal plate (Fig. 4) triangular. Subgenital plate (Figs. 4 and 5) roundly grooved postero-dorsad, the posterior margin round and, in



Figs. 2-11. *Nepalomastax himalayana* YAMASAKI, gen. et sp. nov.—2. Male head and pronotum, dorsal view. Scale, 2 mm.—3. Apical part of male antenna, lateral view. Scale, 1 mm.—4, 5. Male abdominal end, dorsal (4) and lateral (5) views. Scale, 1 mm.—6-9. Phallic complex, dorsal (6), ventral (7) and lateral (8) views, and penis (9), dorsal view. Scale, 1 mm.—10, 11. Female abdominal end, dorsal (10) and lateral (11) views. Scale, 2 mm.

profile, incurved ventrally.

Phallic complex (Figs. 6–8) typical for the Gomphomastacidae. Ectophallic valves deep and round at apex. Penis horseshoe-shaped as shown in Fig. 9. Epiphallus as shown in Fig. 6.

*Female.* Supra-anal plate sagittate, in basal half widely fused with the tenth tergite, the sides of which are fully elongated and extend to the base of dorsal valves of ovipositor, as shown in Fig. 10. Ovipositor (Figs. 10 and 11) with slender dorsal valves whose inner sides are incurved and separated from each other.

*Type-species.* *Nepalomastax himalayana* YAMASAKI, sp. nov.

***Nepalomastax himalayana* YAMASAKI, sp. nov.**

(Figs. 1–11)

*Male.* Body length, 13.7–17.3 mm (15.0 mm in the holotype); head width (extraocular distance), 2.3–2.6 mm (2.5 mm); pronotal length (submedian sagittal, not mesial, length), 1.9–2.2 mm (2.0 mm); hind femoral length, 10.2–11.2 mm (11.2 mm).

Colour bright light green in live individuals. Antennae brown. Hind femora red on the ventral side. Tips of tibial spines blackish.

Apterous body, especially pronotum to the first abdominal segment, looks like wearing a piece of armor because of mesal incisions on their posterior margins.

*Female.* Body length, 27.0–30.0 mm (27.4 mm in the allotype); head width (extraocular distance), 2.9–3.3 mm (3.1 mm); pronotal length (submedian sagittal, not mesial, length), 2.6–3.0 mm (2.9 mm); hind femoral length, 12.5–14.7 mm (13.2 mm).

Colour same as in the male, but the intersegmental membranes of live individuals are purplish.

*Type-series.* Holotype: ♂, Damphe Lekh, 3,600 m in altitude, Jumla Dist., Karnali Zone, West Nepal, 1–X–1981, M. TOMOKUNI leg. Paratypes: 1♀ (allotype), Jaljale Lekh, 3,640 m, Jumla Dist., Karnali Zone, West Nepal, 1–X–1981, M. TOMOKUNI leg.; 2♀, same data as the allotype; 1♀, Rara Daha, 3,010 m, Mugu Dist., Karnali Zone, West Nepal, 25–IX–1981, S. UÉNO leg.; 1♀, Topla Gada, 2,700 m, Mugu Dist., Karnali Zone, West Nepal, 27–IX–1981, M. TOMOKUNI leg.; 2♂, same data as the holotype; 5♂, Jaljale Lekh, 3,640 m, Jumla Dist., Karnali Zone, West Nepal, 1–IX–1981, M. TOMOKUNI leg.; 1♂, same data as the preceding one, M. OWADA leg.

The type material is deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo, and some paratypes are preserved in my collection for study.

*Type-locality.* Damphe Lekh, 3,600 m in altitude, Jumla Dist., Karnali Zone, West Nepal.

*Range.* Known so far only from West Nepal.

*Notes.* Isolated populations of the present new gomphomastacine grasshopper are found in humid alpine meadows, especially near mountain tops between 2,700 m and 3,640 m in altitude. They belong to the conifer zone in the Himalayas.

### Key to the Genera of the Gomphomastacinae

A good key to the genera of the Gomphomastacinae was given by DESCAMPS in 1973. The following is its revision including the above-described new genus, but not including *Pentaspinula* YIN, 1979 because of insufficient informations.

1. Antennal organ situated at the centre of the third segment from apex.....2
- Antennal organ situated in the fourth or the fifth segment from apex.....3
2. Antennae 11- or 12-segmented; lateral carinae of pronotum distinct and parallel; lateral lobes of pronotum each with an oblique prominent carina; face excurved between antennae in profile.....*Clinomastax* BEY-BIENKO, 1949
- Antennae 12 to 14-segmented; lateral carinae of pronotum indistinct; lateral lobes of pronotum each with an oblique weak wrinkle; face insensibly excurved between antennae in profile .....*Oreomastax* BEY-BIENKO, 1949
3. Antennae 13- or 14-segmented ..... 4
- Antennae 15 to 25-segmented ..... 5
4. Occiput, pro- and metanotum rugose; fastigium of vertex bifid on the anterior margin; antennae 14-segmented .....*Brachymastax* RAMME, 1939
- Occiput, pro- and metanotum not rugose; fastigium of vertex in dorsal view, almost straight on the anterior margin; antennae 13- or 14-segmented .....  
.....*Ptygomastax* BEY-BIENKO, 1959
5. Tarsal claws equal or subequal; aroliums distinctly shorter than claws.....6
- Tarsal claws unequal; aroliums elevated, subequal to claws which are rather short .....  
.....*Gomphomastax* BRUNNER, 1898
6. Apex of dorso-median carina and dorsal genicular lobes of hind femora without spine .....  
.....*Paedomastax* C. BOLIVAR, 1930
- Apex of dorso-median carina and dorsal genicular lobes of hind femora each with a small spine .....7
7. Antennae 16- or 17-segmented.....8
- Antennae 22 to 25-segmented.....9
8. Antennae 16-segmented; antennal organ situated at the posterior margin of the fourth segment from apex; pronotum not incised on the posterior margin.....  
.....*Afghanomastax* DESCAMPS, 1974
- Antennae 17-segmented; antennal organ situated at the anterior margin of the fifth segment from apex; pronotum incised mesally on the posterior margin.....  
.....*Nepalomastax* gen. nov.
9. Body fusiform, widest at thorax; pronotum strongly dilated posteriorly; carinulae of facial ridge converging just above the median ocellus .....  
.....*Pachymastax* BEY-BIENKO, 1949
- Body not fusiform; pronotum subcylindrical; carinulae of facial ridge converging downwards .....  
.....*Phytomastax* BEY-BIENKO, 1949

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