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A NEW SPECIES OF OEDIPODINE GRASSHOPPER, *SPHINGONOTUS ORISSAENSIS*, FROM EASTERN INDIA (ORTHOPTERA : ACRIDIDAE)

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INTRODUCTION

Material for this study was collected by one of us (Dr. H.K. Bhowmik). Little recent revisionary work has been done on the genus *Sphingonotus* Fieber. We depend largely on the monograph by Mistshenko (1936) and an examination of the collections in the British Museum (Natural History), London to determine this group. Fortunately there is no other *Sphingonotus* with such bright blue basal areas of the hind-wings, so diagnosis was comparatively easy. The nearest relative of the present material seems to be *Sph. kashmirensis* Uvarov and it is with this insect that the differential diagnosis given below compares this insect.

The key to species and subspecies in Mistshenko (1936) indicates a close affinity for this species with the *coerulans* group of species, but until a proper study is made using the sound produced and male phallic morphology throughout the genus, this cannot be certain.

Sphingonotus orissaensis sp. n

Differential diagnosis. Male. Vertex more declivate than in *kashmirensis* (Figs. 3 and 10) with median carinula more pronounced. Frontal ridge narrowed upwards above antennal bases (in *kashmirensis* almost parallel-sided).

Pronotal shield smooth on dorsal mid-line between transverse sulci 2 and 4, transverse sulci 3 bent backwards to touch sulcus 4 (in *kashmirensis* interzone between sulci 2 and 4 with deep median transverse crease dorally (Fig. 3), bordered anteriorly by raised callosity). Pronotal metazone more acutely pointed in *orissaensis* than in *kashmirensis*.

Tagmina with dark brown maculation and ill-defined transverse dark band on level with distal third of medial area (Fig 8), almost confluent with dark basal maculation of tegmen (in *kashmirensis* tegmen broader and maculation lighter, with transverse band (Fig 2) on level with tip of medial area narrow and clearly removed from basal dark

brown area). Hindwings in both species (Figs. 1 and 7) blue proximal to arcuate brown band, but blue in *orissaensis* bright and intense, in *kashmirensis* very light. Arcuate band in *orissaensis* angulate at vannal vein 3A, more smoothly curved in ***kashmirensis***, in both species not touching hind margin of wing.

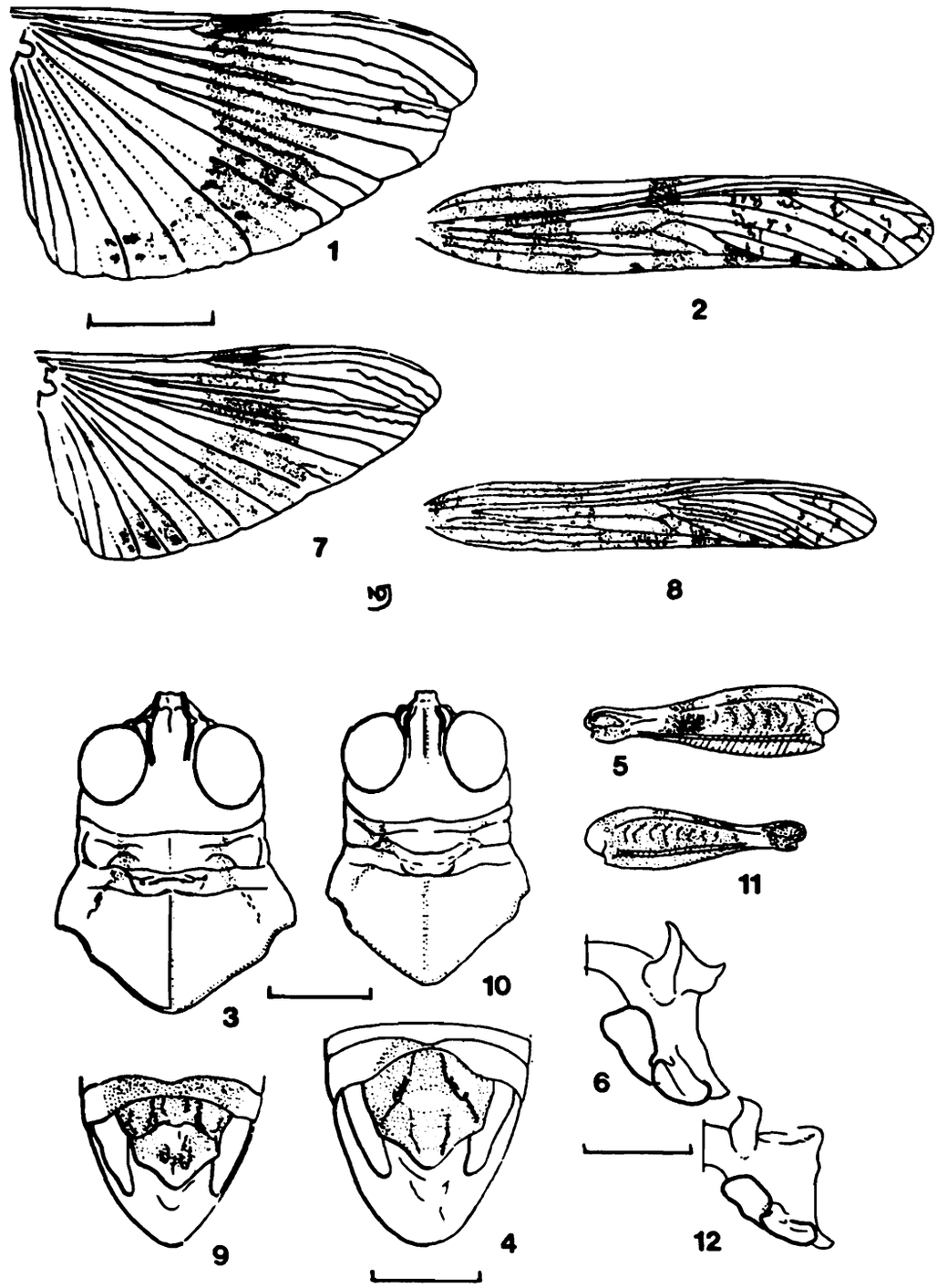
Hind femora in *orissaensis* (Fig 11) mainly black on inner side with traces of blue proximally and distally as shown. In *kashmirensis* inner area of hind femur black distally shading to brown basally with shaded area (Fig 5) slatey dull blue. Knee completely black in *orissensis*, dark brown to black laterally, mottled above in *kashmirensis*. Hind tibia black proximally with a narrow cream band, distal four-fifths blue in both species but lighter in *kashmirensis*. In latter, additionally, extreme distal tip cream in colour. Outer side of hind femur almost entirely cream in *kashmirensis* with median and distal light vertical markings on dorso-outer area extending ventrally, but not reaching lower outer carina (in *orissaensis* outer area nearly grey and distal marking reaching lower outer carina broadly. Hairs at base of femur ventrally in orissaensis, absent in *kashmirensis*).

Thorax and abdomen in *orissaensis* bright blue below and on tergites dorsally, tergites 2-7 having conspicuous paired yellow spots dorsally (in *kashmirensis* abdomen cream throughout). Supra-anal plate in *orissaensis* heavily sculptured (Fig. 9) with pair of pre-apical teeth and coloured bright blue in shaded area shown in *kashmirensis* (Fig 4) supra-anal plate without pre-apical teeth; latero-basal ridges more oblique with weaker more documbent marginal teeth than in *orissaensis*. Areas shown shaded, bright blue in *orissaensis* (Fig.9) and dull slate-blue in *kashmirensis* (Fig 4).

Epiphallus of *orissaensis* with ancorae (Fig 12) closer on mid-line and bridge stouter in *kashmirensis* (Fig. 6) ancorae widely separated, bridge slender and lophi (double lobes) bigger, but not overlapping).

Female. Generally similar to males, but in *kashmirensis* with weak arcuate wing band only strongly developed in vien 5A and broken between 1A and 2A (band similar to male and complete in *orissaensis*).

Measurements	♂ n = 7 unless otherwise stated	♀ n = 2
Head width	2.94 – 3.20, 3.07;	3.7, 3.29
Pronotal length	2.67 – 3.29, 2.96;	3.86, 3.47
Tegminal length	15.01 – 17.67, 16.24;	20.79, 18.72
Femur length (n = 6)	7.87 – 8.82, 8.34;	10.36, 9.65
Femur depth (n = 6)	2.21 – 2.44, 2.31,	2.69, 2.65
Length frons to tips folded tegmina	19.59 – 22.66, 20.72;	26.48, 24.48



Figs. 1-12. *S. kashmirensis* 1. Right hindwing; 2. Right tegmen; 3. Head and pronotum from above; 4. Abdominal apex from above; 5. Left hind fmur; inner aspect-stipple represents grey-brown to black pigment, diagonal shading slate blue; 6. Right half of epiphallic plate. *S. orissaensis* 7. Right hindwing; 8. Right Tegmen; 9. Abdominal apex from above; 10. Head and pronotum from above; 11. Right hid femur, inner aspect - stipple represents black pigment, diagonal shading light blue; 12. Right half of epiphallic plate.

Scale under Fig. 1 represents 5 mm and applies also to Figs. 2, 5, 7, 8 and 11; that under Fig. 3 represents 2mm and applies also to 10; that under Fig. 4. represents 1mm and applies also to 9; that under Fig. 6 represents 0.5mm and applies also to 12.

Material examined : 1♂ (holotype) INDIA, Orissa State, Dhenkekote, Keonjhargarh, W of Balasore, 28. ix. 1985 (Bhowmik); 6 ♂♂, 2 ♀♀ (paratypes), same locality, (27-28) ix. 85 (Bhowmik). A series of specimens, of both sexes, were also collected by one of us (Dr. Bhowmik) from Chunabati in Bihar in an identicle habitat (in direct sunlight on the exposed portion of a hillock).

Discussion : The material was compared with a female paratype of *Sphingonotus kashmirensis* Uvarov, 19 from Kashmir, 8000 ft, 10.ix.1913 (Hingston) and a matching male from Kashmir, Gumari, Darel R, 2000 m, 22.vii.1985 (Piffl) both in the British Museum. Both these specimens are labelled as examined for this study and larger individuals than any specimens of *orissaensis*. 1 ♂ and 1 ♀, paratypes are deposited at the British Museum Natural History, London; the holotype and other paratypes will be deposited in the Zoological Survey of India, Calcutta.

SUMMARY

A new species *Sphingonotus orissaensis* sp.n. is described and compared diagnostically with *Sphingonotus kashmirensis* Uvarov.

REFERENCE

Mistshenko, L., 1936 Revision of the Palaearctic species of the genus *Sphingonotus* Fieber. *Eos, Madrid,* **12** : 65-282, 87 figs.