

## New species of the genus *Omophron* Latreille, 1802 (Coleoptera: Carabidae) from Nepal

Uldis Valainis

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A new species of *Omophron* Latreille, 1802 from Nepal *Omophron (Omophron) nepalense* sp.n, is described. Type locality: Nepal, Gaidakot, Nawalparasi Dist., 27°42'5'' N, 84°25' E. Comparisons are made to the species from the Himalayas and the adjacent territories. A key for determination is presented. The habitus and aedeagal illustrations for the new species are provided.

Key words: Coleoptera, Carabidae, *Omophron*, new species, Nepal.

Uldis Valainis. Institute of Systematic Biology, Daugavpils University, Vienibas 13, Daugavpils, LV-5400, Latvia. E-mail: uldis.valainis@biology.lv

### INTRODUCTION

*Omophron* Latreille, 1802 is the sole genus of the tribe Omophronini Bonelli, 1810 belonging to the subfamily of Omophroninae Bonelli, 1810. The group is cosmopolitan except for South America and Australia, where it remains unreported. The southern border of the distribution area of the genus *Omophron* Latr. goes through South Africa, Madagascar, Malaya, the Philippines, Guatemala and Saint Domingo; the northern border reaches the Arctic Circle in some places.

Members of *Omophron* are easily distinguished from other ground beetles by their circular body shape, hidden mesosternum, concealed scutellum and multi-striate elytra. All species of the genus are markedly hygrophilous and restricted to the immediate vicinity of water on sandy or clayish soil with no or sparse vegetation. During daytime, they hide under stones or

in burrows in the soil. They are active at night and feed on small epigeic invertebrates.

Though generally in the Himalayas and the adjacent territories 15 species of the genus *Omophron* are encountered (Andrewes, 1929; Kryzhanovskij, 1982; Tian & Deuve, 2000), in Nepal so far only two of them have been identified – *O. bretteinghamae* Pascoe, 1860 and *O. interruptum* Chaudoir, 1868 (Valainis, 2010). This article presents the description of a new species, thus increasing the number of Nepalese *Omophron* species to three.

### MATERIAL AND METHODS

The holotype of the new species is deposited in the Coleoptera collection of the Institute of Systematic Biology, Daugavpils University, Latvia (DUBC). It has been compared to the species from the Himalayas and the adjacent

territories - *O. interruptus* Chaudoir, 1868; *O. guttatus* Chaudoir, 1868; *O. lunatus* Bänninger, 1918; *O. testudo* Andrewes, 1919; *O. affinis* Bänninger, 1918; *O. maculosus* Chaudoir, 1850; *O. smaragdus* Andrewes, 1921; *O. virens* Andrewes, 1929; *O. vittatus* Wiedemann, 1823; *O. oberthueri* Gestro, 1892; *O. chelys* Andrewes, 1921; *O. gemmeus* Andrewes, 1921; *O. bretteinghamae* Pascoe, 1860; *O. bicolor* Andrewes, 1919; *O. rotundatum* Chaudoir, 1852; *O. axillaris* Chaudoir, 1868. The material from the following collections has been examined:

**BMNH** – The Natural History Museum, London, United Kingdom;

**ETHZ** – Erdgenössische Technische Hochschule-Zentrum, Zurich, Switzerland;

**MNHN** – Muséum National d’Histoire Naturelle, Paris, France;

**ZIN** – Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia;

**ZMHB** – Museum für Naturkunde der Humboldt-Universität, Berlin, Germany.

The photographs were taken using *Nikon SMZ 745T* stereomicroscope and *Nikon Digital Sight DS-Fi1* digital camera. They were processed and the morphometrical measurements were made using the software *NIS Elements F.3.2*.

The total body length of the beetles was measured from the tip of the labrum to the apex of the right elytron; the width of the head (HW) was the maximum linear distance across the head, including the eyes; the length of the pronotum (PL) was measured from the anterior to the posterior margin along the midline, the length of the elytra (EL) – from the basal margin to the apex of the elytron, and the width of the pronotum (PW) and elytra (EW) – at their broadest point.

High-resolution habitus images of *Omophron* species, including the type specimens and additional material, are available at <http://www.carabidae.pro>.

### **1. *Omophron (Omophron) nepalense* sp. n.**

**Description.** Body length: 4,7 mm; width: 3,1 mm. The habitus is shown in Fig. 1, the aedeagus is shown in Fig. 2 and Fig. 3.

Colour: pronotum, elytra and head yellow. Pattern on elytra and pronotum dark green, almost black, pattern on head with dark bluish lustre. Legs, antennae and palpi brownish yellow. Ventral side and mandibles dark testaceous.

Head relatively flat, wrinkled, densely and coarsely punctate, sparsely punctate around clypeus. Front margin of clypeus formed by two straight lines meeting at an obtuse angle, bisetose. Subocular ridge weakly developed, curved upwards and slightly rounded. Labrum slightly emarginate, with moderately rounded sides and six setae. Scape unisetose at apex, antennal segments three and four smooth, with only a few longer setae around the apex. Segments 5 – 11 pubescent. Penultimate segment of maxillary palpi about two thirds as long as last segment, with some short setae medially and some long setae apically on inner margin. Last segment club-shaped. Penultimate segment of labial palpi about as long as last segment, with setae along inner margin. Mandibles distinctly curved and narrowed near apex, outer margin of mandibles wedge-shaped, unisetose. Gula smooth, gena coarsely and densely punctate. HW 1.5 mm.

Pronotum transverse, moderately convex, sides almost stright. Base bisinuate on each side. Sides of pronotum with smooth border. Median line weakly developed. Pronotum evenly punctured, punctures broad and deep. Inflexed margin of pronotum sparsely punctate. Prosternum and proepisternum coarsely and densely punctate, less frequently but deeper punctured on prosternal lobe. Dark green pattern of pronotum wide, well developed, covering almost all pronotum excepting front angles. PL: 1.2 mm, PW: 2.5mm.

Elytra strongly convex, ovate, sides moderately rounded, with narrow border. Elytra with 15 deep striae, stria becoming evanescent towards apex. Intervals smooth, weakly convex on the disc, moderately convex at the sides of elytra. Elytral pattern well developed, with clear boundaries, consisting of three bands. Apical band joined with median band and median band joined with basal band at the tenth interval, forming two specific yellow spots within the 7th-9th intervals. Metasternum and metepisternum moderately punctate, epipleura of elytra with some diffuse and coarse punctures. Sternites bisetose, sparsely punctate and weakly wrinkled at sides, smooth in the middle. Metacoxa unisetose. EL: 2.9 mm, EW: 3.1 mm.

Aedeagus is damaged, but diagnostic features of the species are well distinguishable. Aedeagus

is extended and heavily bent apically, in the view from above, its apex is truncated (Fig 2. and Fig. 3).

**Comments.** The species is easily distinguished from the other species by the body size, the characteristic pattern of the elytra and the shape of the aedeagus.

**Etymology.** The name *nepalense* refers to the type locality.

**Distribution.** Known only from type locality (Fig 4.).

**Material examined. Nepal:** Gairdakot, Nawalparasi Dist., 27°42'5"N, 84°25'E, 14.11.2005 (1 Male, D. Ahrens leg.) (Holotype).

**Key to the *Omophron* species of the Himalayas and the adjacent territories**

- 1 (11) Scape bisetose at apex, antennomeres 3 and 4 with setae along outer margin.
- 2 (17) Clypeus bisetose.
- 3 (4) Elytral intervals smooth, without row of punctures. ....*O. interruptus* Chaudoir, 1868
- 4 (3) Elytral intervals each with row of punctures.
- 5 (8) Punctuation of elytral intervals rather fine, but clearly visible under an ordinary lens.
- 6 (7) Surface of pronotum coarsely coriaceous, elytra strongly dilated behind shoulder, punctuation of intervals not very fine.....*O. guttatus* Chaudoir, 1868
- 7 (6) Surface of pronotum nearly smooth, but coarsely punctate along front and hind margins, elytra only moderately dilated behind shoulders, punctuation of intervals fine.....  
.....*O. lunatus* Bänninger, 1918
- 8 (5) Punctuation of elytral intervals very minute, visible only under strong lens.
- 9 (10) Clypeal suture forming a wide angle in middle, punctuation of head and base of pronotum coarse, the green colour of elytra fairly bright.....*O. testudo* Andrewes, 1919
- 10 (9) Clypeal suture semicircular, punctuation of head and base of pronotum moderate, the green colour of elytra dark.....*O. affinis* Bänninger, 1918
- 11 (1) Scape unisetose at apex, antennomeres 3 and 4 without setae along outer margin

- 12 (24) Front margin of clypeus unbordered, subocular ridges rudimentary. Elytra with 15 entire striae.
- 13 (14) Dark elytral pattern well developed, covered more than  $\frac{3}{4}$  of elytra and consisting of three bands. Sides of pronotum almost straight .....*O. nepalense* sp. n.
- 14 (13) Dark elytral pattern less developed, covered less than  $\frac{3}{4}$  of elytra. Sides of pronotum more or less rounded.
- 15 (16) Markings of upper surface bright green, that on prothorax extending nearly to side-margins, surface of elytra smooth, the microsculpture very faint.....*O. axillaris* Chaudoir, 1868
- 16 (15) Markings of upper surface greenish brown, that on prothorax not extending beyond level of stria 8, surface of elytra finely shagreened, the microsculpture conspicuous.....*O. rotundatum* Chaudoir, 1852
- 17 (2) Clypeus quadrisetose.
- 18 (23) Prothoracic green marking reaching base, elytral markings not vittate, intervals with minute puncturation, metacoxae bisetose.
- 19 (22) Prothorax roughly sculptured, the green patch on it nearly reaching sides, ventral segment 5 bisetose.
- 20 (21) Prothorax coarsely coriaceous, punctures on elytral intervals just visible under an ordinary lens, front and intermediate testaceous patches interrupted along interval 13.....*O. maculosus* Chaudoir, 1850
- 21 (20) Prothorax coarsely punctate, punctures on elytral intervals visible only under a strong lens, front and intermediate testaceous patches united along interval 13.....*O. smaragdus* Andrewes, 1921
- 22 (19) Prothorax punctate only along front and hind margins, the green patch on it not nearly reaching sides, ventral segment 5 glabrous.....*O. virens* Andrewes, 1929
- 23 (18) Prothoracic green marking not reaching base, elytral markings entirely vittate, intervals smooth, metacoxae unisetose.....*O. vittatus* Wiedemann, 1823
- 24 (12) Front margin of clypeus narrowly but strongly bordered, subocular ridges well developed. Elytral striae more or less evanescent at sides or behind.
- 25 (28) Elytra with 15 striae, 14 very short and disappearing not far from base.
- 26 (27) Head nearly uniformly punctate, margin of prothorax and elytra moderately reflexed. ....*O. oberthueri* Gestro, 1892
- 27 (26) Head nearly smooth in middle, margin of prothorax and elytra widely reflexed.z .....*O. chelys* Andrewes, 1921
- 28 (25) Elytra with 13 striae, 13 and 14 obsolete.

29 (30) Markings on upper surface bright green, puncturation rather coarse, dark pattern on elytra occupying quite three-fourths of the area.....*O. gemmeus* Andrewes, 1921

30 (29) Markings on upper surface dark green, puncturation moderate to fine, dark pattern on elytra occupying less than three-fourths of the area.

31 (32) Form convex. Metacoxae unisetose. Markings on upper surface blackish green, dark pattern on elytra occupying about two-thirds of area.....*O. bretteinghamae* Pascoe, 1860

32 (31) Form relatively flat. Metacoxae bisetose. Markings on upper surface bluish green, dark pattern on elytra occupying less than half of area.....*O. bicolor* Andrewes, 1919



Fig. 1. *Omophron nepalense* sp. n., habitus (holotype)



Fig. 2. *Omophron nepalense* sp. n. aedeagus in right lateral view



Fig. 3. *Omophron nepalense* sp. n. apex of aedeagus in dorsal view

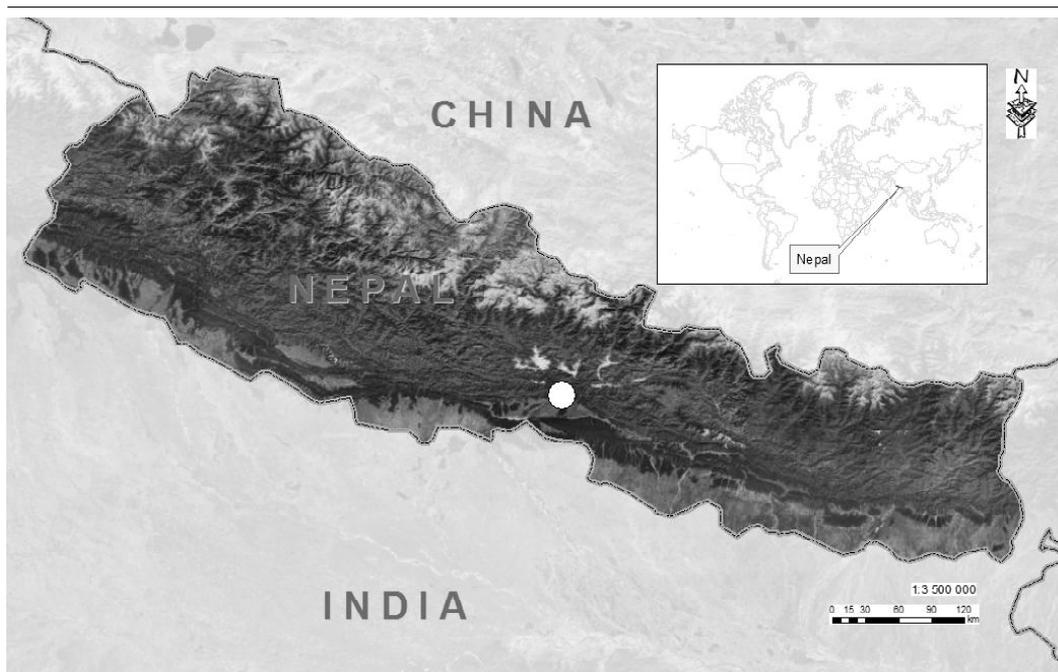


Fig. 4. Distribution map of *Omophron nepalense* sp. n.

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