

Genus	Vol. 21(1): 43-52	Wrocław, 30 III 2010
-------	-------------------	----------------------

Two new species of Dicropodiini from Maharashtra, India with note
on structure of hind wing and genitalia of some previously
described species
(Coleoptera: Elateridae)

AMOL PATWARDHAN¹ & R.P. ATHALYE

Department of Zoology, B.N. Bandodkar college of Science, Thane 400601, Maharashtra, India;
¹amolppatwardhan@yahoo.com

ABSTRACT. Four species of Dicropodiini (Coleoptera: Elateridae) were collected from the North Western Ghats, a biodiversity hotspot in Maharashtra state, India. Among these, there were two species which are described here as new, *Propsephus thanensis* sp.n. and *Elius phansadicus* sp.n. from Thane and Raigad District respectively. This is the first record of *Propsephus* CANDÈZE, 1859, from the Western Ghats. The hind wing of *Adiaphorus gracillicornis* CANDÈZE, 1859, is described as a generalized type for the subfamily. Male genitalia of *Adiaphorus gracillicornis* CANDÈZE 1859 and *A. ponticerianus* CANDÈZE 1859 are also described.

Key words: entomology, taxonomy, Elateridae, Dicropodiini, new species, North Western Ghats, Maharashtra.

INTRODUCTION

Maharashtra lies on the west coast of India, approximately midway along the Indian peninsula. The elaterid diversity of this region is poorly studied and the fauna is not represented well in collections. Four species representing the tribe Dicropodiini were collected from the Thane and Supegaon (= Phansad) and are discussed below. Previously, four species of dicropodiine elaterid were reported from India by CANDÈZE (1859 and 1893) viz. *Elius prionocerus* from Madras (now Chennai), *E. sericeus* from Belgaum (now Belgaon), *Adiaphorus ponticerianus* (Fig. 1) from Pondicherry, Tamil Nadu and Pune District, Maharashtra (SCHIMMEL 2007) and *A. gracillicornis* (Fig. 2) from Pune District, Maharashtra (SCHIMMEL 2007). Here, two new species are described and assigned to *Propsephus* HYSLOP, 1921 and *Elius* CANDÈZE, 1859.

Abbreviations

CAT: Coll. Amol PATWARDHAN, Thane.

Elius phansadicus sp. n.

(Fig. 3-5)

DIAGNOSIS

The two species *Elius prionocerus* CANDÈZE 1859 and *E. sericeus* CANDÈZE 1893, were recorded from Belgaum and Pune respectively. *Elius phansadicus* differs from *E. prionocerus* as follows: the former species has distinctly brown-red integument while the latter one having tawny brown integument with greenish reflection. The former has yellowish pubescence while *E. prionocerus* has grayish. The former has convex elytral intervals while the latter has flat intervals. In *E. phansadicus* the color of the legs is same that of the body while the *E. prionocerus* has legs lighter than the body.

Elius phansadicus differs from *E. sericeus* CANDÈZE 1893 in that the integument of *E. sericeus* is dark deep brown, the elytral intervals are finely granulate in *E. seri-*



1, 2. Habitus: 1 – *Adiaphorus ponticerianus*, 2 – *A. gracillicornis*

ceus while they are rugose in the former, and that *E. sericeus* is 18 mm long while *E. phansadicus* is 13.5 mm long.

DESCRIPTION

Male. Body length 13.5 mm, width 4.0 mm. Reddish brown. Pronotum slightly darker than the elytra. Pubescence light yellow-orange, denser on the frons.

Head darker than the pronotum; frons broader than long, convex, with a distinct longitudinal ridge on the vertex; frontal carina complete across frons, projecting anteriorly. Frons slightly depressed at the base of the carina. Eye black, rounded, moderately large with facets distinct. Labrum brown, convex, broader than the long, anterior margin convex. Mandible moderately large, black, with a median tooth on the incisor margin. Antenna pectinate from antennomeres 3 to 10, very long and reaching midlength of the body, deep brown, densely pubescent.; vestiture starts on the third antennomere; first antennomere dark, broad and cylindrical; second small; third smaller than the



3. *Elius phansadicus* sp. n., habitus

fourth; fourth equal in length to the fifth. Antennomere 11 longer than 10 with a blunt projection laterally at the distal fifth.

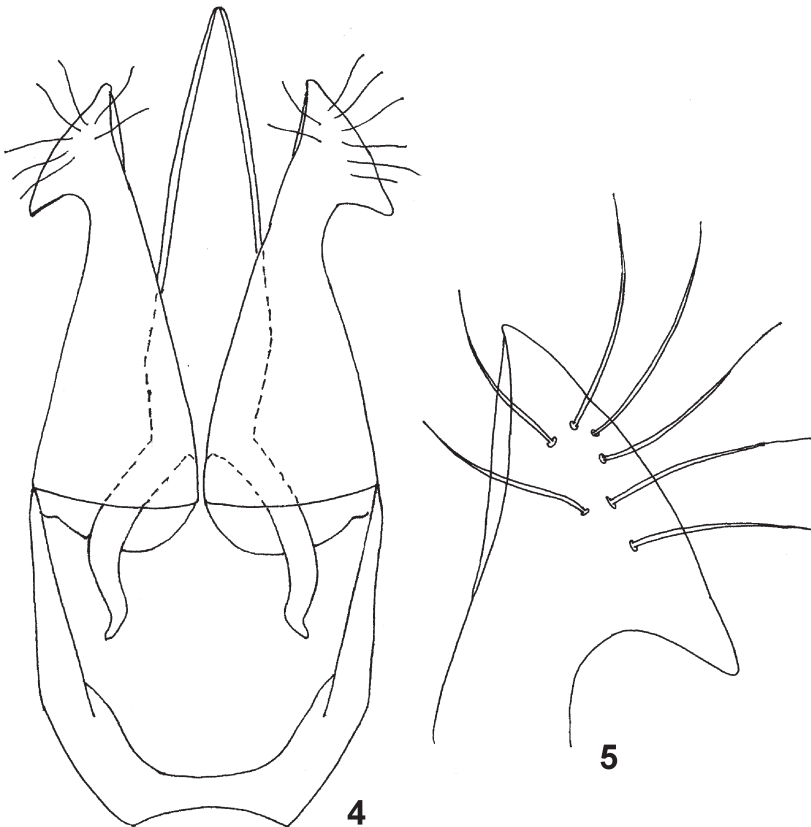
Pronotum semi-trapezoidal, depressed medially in the posterior quarter, sides gradually tapering anteriorly. Anterior margin without projecting anterior angles. Hind angles long, divergent, with single dorsal carina; carina not reaching middle of the pronotum.

Scutellum deep brown, declivous anteriorly. Anterior margin black, raised and convex. Sides subparallel tapering to broadly rounded posterior apex.

Elytra striate punctate; with anterior margin dark, rounded. Interstriae convex, rugose. Apex slightly emarginate.

Prosternum convex, anteriorly with indistinct chin piece. Pronotosternal sutures concave, broad, open for the entire length. Intercoxal projection inclined dorsad, portion posterior of procoxae longer than the procoxal diameter, apex narrowly rounded.

Sides of the mesosternal cavity tapering posteriorly to acute apex. Mesoventrite produced behind the cavity, projected between mesocoxae. Mesocoxal cavity open to



4, 5. *Elius phansadicus* sp. n., male genitalia: 4 – median lobe and parameres, 5 - apex of paramere

mesepimeron and mesepisternum. Metaventrite convex, narrowly truncate between mesocoxae, with metaventral discrimen distinct in the posterior third. Metacoxal plates straight in the middle, posterior margin concave with broad, indistinct posterior angle.

Leg brown, moderately long. Tibia with two deep brown, subequal tibial spurs. Metatarsus longer than the metatibia. Tarsomeres 1, 2 and 3 with lamellae below. Lamella of the first is small, that of second and third distinct.

Male genitalia (Fig.4 and 5) elongate. Median lobe slender, longer than the parameres. Sides of the lobe tapering to narrow apex. Parameres with acute apex and strong lateral subapical projection. Paramere head with three very long hairs. Paramere's anterior margin projecting. Basal struts very long extending beyond anterior margin of the parameres. Basal piece 0.4 X of the total length of the genitalia; sides slender; anterior margin rounded with anterior angles.

Female unknown.

MATERIAL EXAMINED

Holotype (Male) India: Maharashtra: Raigad District: Supegaon (=Phansad), on light, 24.VI.2006, (CAT), leg. A. Patwardhan. Paratypes (4 males), details same as of the holotype.

Etymology

The species name is based on the type locality, Phansad.

***Propsephus thanensis* sp.n.**

(Fig. 6-8)

DIAGNOSIS

This is the first species of *Propsephus* Candèze 1859 reported from North Western Ghats and does not appear to close to any species described. Schwarz (1906) reported *P. assamensis* from Kohima (Now capital of Nagaland state). *P. thanensis* is black while *P. assamensis* ferruginous in color. *P. thanensis* is 11.5 mm while the later is 17.5 mm. The legs of former species are black while that of *P. assamensis* are reddish.

DESCRIPTION

Male: Body length 11.5 mm breadth 3.3 mm. Elongate, sides of the body sub parallel. Integument black. Pubescence brown, dense.

Head: Frons broad, slightly depressed between eyes, anteriorly produced complete frontal carina; carina vertical. Eyes black bulging. Labrum deep brown, punctate and with brown, long and dense pubescence; anterior margin straight. Mandibles brown, bifid. Maxillary palpi brown, long, terminal segment hatchet-shaped.

Antenna dark brown, with eleven antennomeres, serrate, reaching almost middle of the body. Antennal insertions distinct, embedded in round socket. Vestiture begins

on the third antennomere. First antennomere with anterior margin carinate. Second antennomere rounded and the smallest. Third smaller than the fourth. Fourth longer and broader than the fifth. Eleventh longer than the tenth, constricted slightly away from the rounded apex.

Pronotum longer than the broad, with random round, shallow to deep punctuation. Slightly depressed in the posterior. Anterior pronotal margin rounded without anterior angles. Pronotal sides tapering anteriorly, with complete lateral carina. Hind angles long, divergent with apex inwardly curved, dorsally single carina not reaching middle of the pronotum.

Scutellum strongly declivous anteriorly; anterior margin rounded; sides tapering posteriorly to the broadly rounded apex.

Elytra flat. Sides tapering posteriorly to rounded apex. Anterior margin rounded. Striate-punctate; striae sutures with punctures separated by one diameter. Interstriae flat with minute tubercles.

Prosternum convex, anteriorly with distinct chin piece. Pronotosternal sutures double, concave, slightly deep and open in the anterior. Prosternum marginate around



6. *Prosephus thanensis* sp. n., habitus

procoxae. Prosternal process posterior to procoxae slightly longer than the procoxal diameter, inclined dorsally with rounded apex.

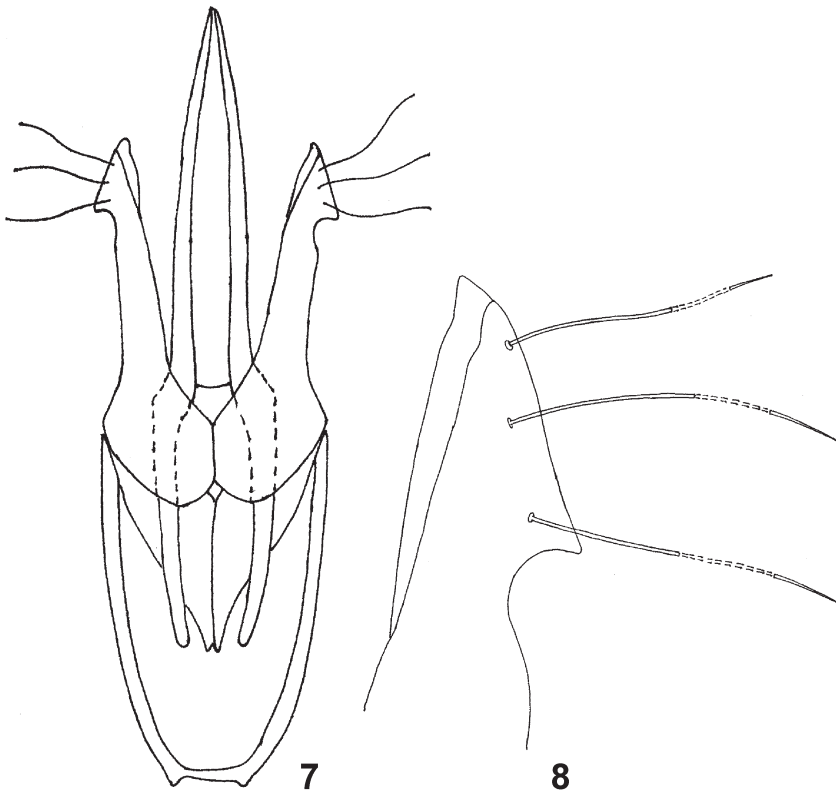
Mesoventrite gently declivous anteriorly. Sides of mesosternal cavity parallel, tapering to blunt apex. Mesosternum produced behind cavity. Mesocoxal cavity margins formed by mesosternum, mesepisternum, mesepimeron and metasternum.

Metatventrite with distinct metaventral discrimen.

Metacoxal plates rounded in the middle. Anterior margin oblique anteriorly. Posterior margin narrowing distally. Posterior angle distinct, broad.

Legs deep brown. Profemur anterior margin convex distally. Margins of meso and metafemur parallel. Tibiae slender; outer margin with orange brown spines; apically with spiniform setae and two brown, acute tibial spurs. Tarsomeres one and two with spiniform setae apically. Tarsomeres two and three with rounded lamella below, lamella of the third strongly expanded.

Male genitalia (Fig. 7 and 8) with median lobe distinctly longer than the parameres. Sides of the median lobe tapering to acute apex; apex without any modification or setae. Parameres with acute, inwardly directed apex, apex setose and with strong lateral



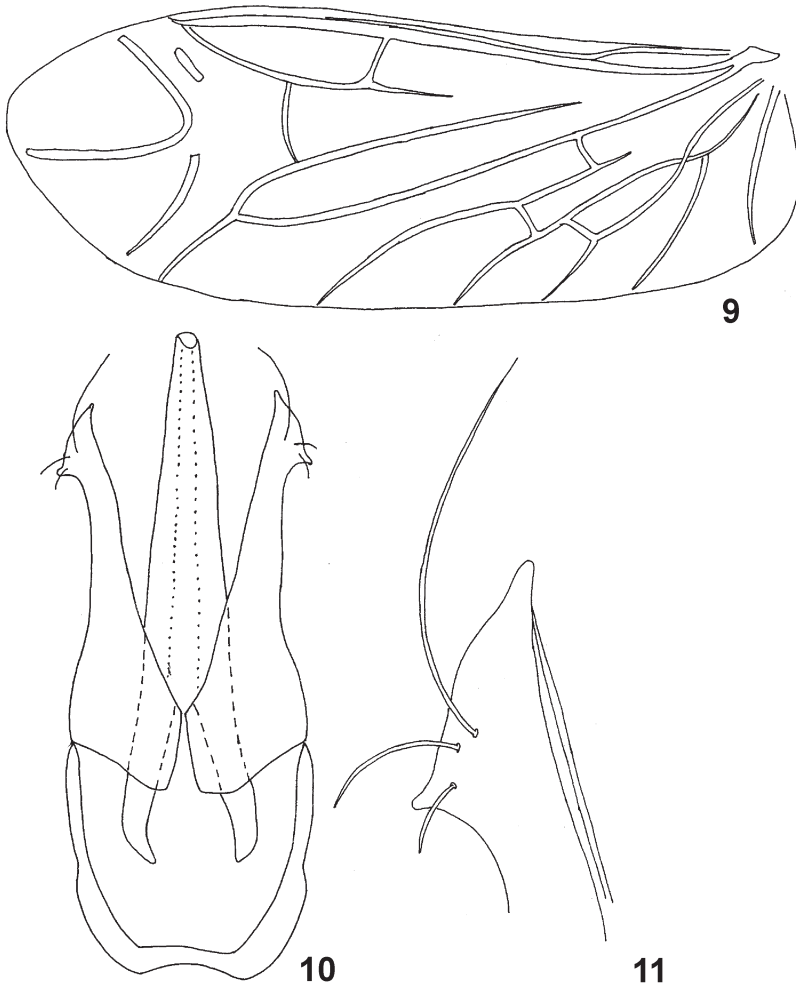
7, 8. *Prosephus thanensis* sp. n., male genitalia: 7 – median lobe and parameres, 8 – apex of paramere

subapical projection. Basal struts inwardly curved; with blunt apex; struts reaching beyond anterior margin of the parameres. Basal piece 0.43 X of the total genitalia length. Anterior margin of the basal piece concave.

Female unknown.

MATERIAL EXAMINED

Holotype (Male), India: Maharashtra: Thane, on grass blade, 26.VI. 2005, (CAT) leg. A. Patwardhan. Paratypes (2 males) India: Maharashtra: Thane, on grass blade, 10. VI. 2006 and 11. VI. 2006, (CAT) leg. A. Patwardhan.



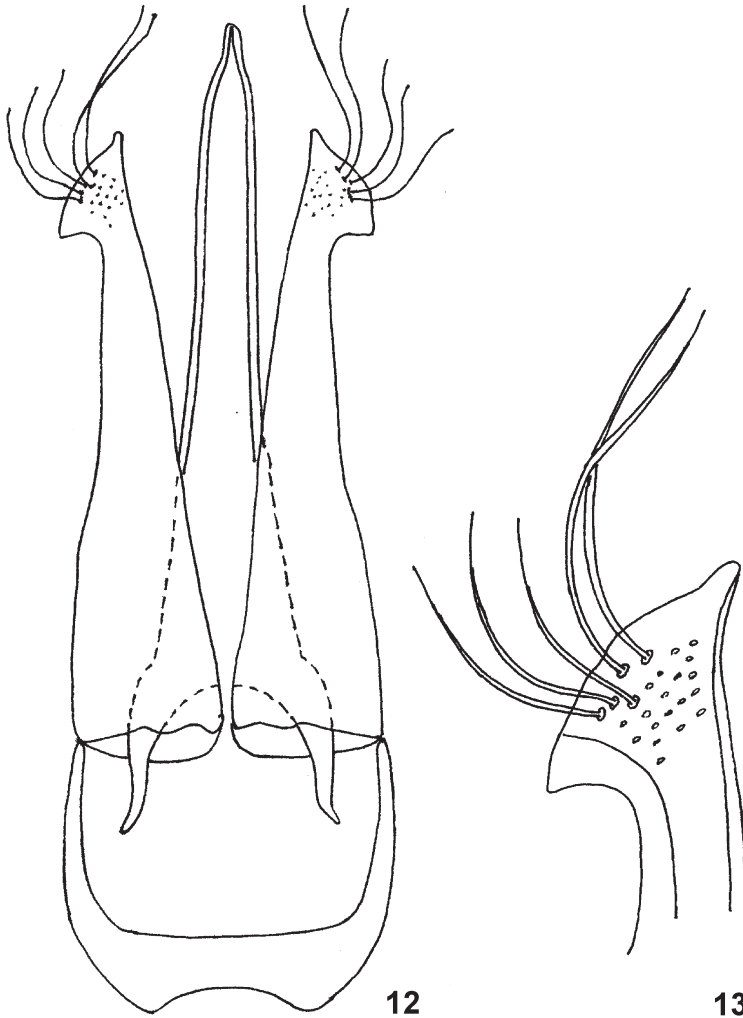
9-11. *Adiphorus gracilicornis* CAND.: 9 – hind wing, 4, 5 – male genitalia: 4 – median lobe and parameres, 5 – apex of paramere

ETYMOLOGY

The species name is based on the type locality.

REMARKS

VATS and CHAUHAN (1992) reported *Adiaphorus levisus* from Bastia and Mohan in Uttarakhand state. The holotype was not available for comparison but the description and the photographs indicate that it could be a species of *Propsephus* because of the habitus and the serrate antennae unlike that of *Adiaphorus*.



12, 13. *Adiaphorus ponticerianus* CAND., male genitalia: 12 – median lobe and parameres, 13 - apex of paramere

SOME MORE MORPHOLOGICAL CHARACTERS FOR DICREPIDINI

Hind wing of *Adiaphorus gracilicornis* CANDÈZE, 1859 (Fig.9)

Total length 2.8 X of total breadth. R cell present with length more than 3X of breadth. r4 apparent cross vein distinct, almost half long of the R cell length. Wedge cell present. Apical lobe indistinct with 3 sclerotized bands. Anterior band short, middle one long U shaped. Posterior band elongate, tapering posteriorly.

Male genitalia of *Adiaphorus* CANDÈZE, 1859 (Fig. 10 and 11)

Adiaphorus gracilicornis CANDÈZE, 1859 (Fig. 10 and 11): Median lobe longer than parameres with sides gradually tapering to the truncate opening. Parameres with apex acutely pointed, triangular with sub apical projection laterally and three long hairs. Basal struts reaching well beyond anterior margin of parameres. Basal piece 0.467 X of total genitalia length. Anterior margin of basal piece concave, sides narrow in posterior half, jut out to broad in anterior half.

Adiaphorus ponticerianus CANDÈZE, 1859 (Fig. 12 and 13)

Elongate. Median lobe longer than parameres with sides gradually tapering to the nipple shaped apex. Parameres with outer margin sinuate while inner margin straight. Apex of the paramere pointed with sub apical projection laterally, with very long hairs and puncturations. Basal struts reaching beyond anterior margin of the parameres, apex divergent. Basal piece 0.37 X of the total genitalia length, sides slightly convex, anterior margin concave.

ACKNOWLEDGEMENTS

We are thankful to Mr. TANDEL and Mr. NAIK who assisted during field trips to Phansad, to the Principal and Head of the Zoology department, B.N. BANDODKAR for providing laboratory facilities. Dr. Mrs. MULGAONKAR, HOD, Botany for providing camera lucida.

REFERENCES

- CANDÈZE, E., 1859. Monographie des Elatérides 2. Mém. Soc. Roy. Sci. Liege, **14**: 1-543.
 —, 1893. Additions aux Elatérides des Indes Orientales. Ann. Soc. Entomol. Belg., **37**: 168-179.
 HYSLOP, J.A., 1921. Genotypes of the Elaterid beetles of the world. Proc. U.S. Nat. Mus., **58**: 621-673.
 SCHIMMEL, R., 2007. New records on Elateridae, and description of a new species from Westghats in India. (Insecta: Coleoptera). Genus, Wrocław, **18**(2): 221-238.
 VATS, L.K., CHAUHAN, R.L., 1992. Two new species of *Adiaphorus* CANDÈZE from North India (Coleoptera: Elateridae). Journ. Entomol. Res., **16**(3):177-180.