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Short communication

First record of a fungus weevil (Coleoptera; Anthribidae) from the Upper Cretaceous Arzamazovskaya Formation, Primorsky Krai, Russian Far East

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ABSTRACT

A new fungus weevil, *Arzamazorhinus neli* gen. et sp. nov. belonging to the subfamily Anthribinae is described from Primorsky Krai, Upper Cretaceous, Turonian – Coniacian. The new genus differs from other genera of the tribe Ecelonerini in the ventral antennal scrobes and rather long rostrum. It is distinguished from the genus *Cretanthribus* Legalov, 2009 (tribe Cretanthribini) fungus weevil described from Cretaceous deposits of Khetana in the Russian Far East, by the pronotum possessing transverse carina, a rather long subparallel rostrum not sagittate at apex, and lacking transverse eyes. This is the first record of Anthribidae from the late Cretaceous and the first coleopteran described from the Arzamazovskaya Formation in the Russian Far East.

1. Introduction

Fungus weevils (family Anthribidae Billberg, 1820) are a very diverse group of primitive weevils adapted for development in rotting wood or seeds (Mermudes and Leschen, 2014). The oldest Anthribidae from the extinct subfamilies Juranthribinae Legalov, 2011 and Protoscelinae Medvedev, 1968 were recorded from the border of the Middle and Upper Jurassic (Legalov, 2011, 2013b). The earliest record of the Choraginae Kirby, 1819 is from the Lower Cretaceous of Spain (Soriano et al., 2006). Most species and supraspecific taxa of Anthribidae belong to the subfamily Anthribinae, which is recorded from the Middle Cretaceous of the Russian Far East (Zherikhin, 1993; Legalov, 2015; Nadein and Perkovsky, 2018). Many species have been described from Eocene and Miocene amber (Gratshev and Zherikhin, 1995; Gratshev and Perkovsky, 2008; Legalov, 2012a, 2013a, 2015; Poinar and Legalov, 2016), while impression prints are rare (Legalov, 2015, 2018b).

In this paper a new genus and species of the family Anthribidae are described. It is a first record of fungus weevils from the Upper Cretaceous and the first Coleoptera described from the Turonian – Coniacian of the Arzamazovskaya Formation (Russian Far East).

2. Material and methods

The impressions were obtained from deposits (Fig. 1) in the Arzamazov creek (tributary of Rudnaya river, near settlement Tayga (44°36′41″ N; 135°26′09″ E), Rudnitsky District, Primorsky Krai, Russian Far East). The material is from coarse-grained bluish-gray tuffs of the Arzamazovskaya Formation, which also contains plant remains (Zherikhin, 1978). The middle Turonian - early Coniacian age is determined by the composition of the fossil flora (Nevolina, 1984). Bersenev et al. (1969) suggested the age of the formation as 79–89 Ma.

The holotype is deposited in the Borissiak Paleontological Institute, Russian Academy of Sciences (Russia: Moscow) - PIN. Observations and photographs were made with a Zeiss Stemi-2000 stereoscopic microscope.

3. Systematic paleontology

Family Anthribidae Billberg, 1820
Subfamily Anthribinae Billberg, 1820

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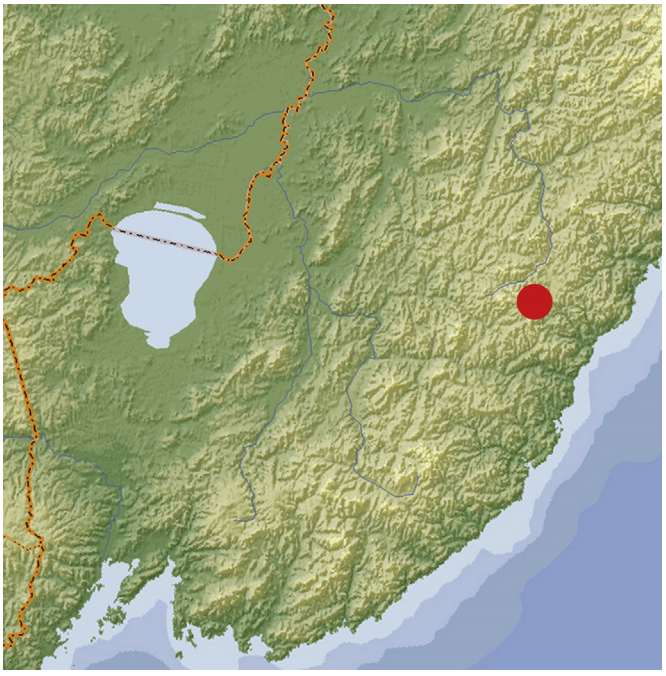

Fig. 1. Location of deposits in the Arzamazov creek (Primorsky Krai, Russia).

Tribe ? Ecelonerini Lacordaire, 1866

Genus ***Arzamazorhinus*** Legalov, gen. nov.
urn:lsid:zoobank.org:act:13306039-6EBB-4C3B-BC70-83E4C7855903.
Type species: *Arzamazorhinus neli* sp. nov.

Etymology. The generic name is from the discovery location - "Arzamazov creek" and "rhinus", a term used in Curculionoidea morphology.
Diagnosis. Rostrum subparallel, slightly longer than pronotum, with middle carina and free labrum; antennal scrobes sulciform ventrally; antennae non-geniculate, inserted in middle of rostrum; pronotum transverse, with antebasal transverse carina; elytra suboval, with rounded humeri and large points in elytral striae; scutellar striole absent; abdominal ventrites almost coalesced; femora thickened; tibiae without mucro and spurs; tarsomere 2 bilobed, embracing tarsomere 3 laterally.
Comparison. The new genus differs from other genera of the tribe Ecelonerini in the ventral antennal scrobes and rather long rostrum. It is distinguished from the genus *Cretanthribus* Legalov, 2009 (tribe Cretanthribini) - another fungus weevil described from Cretaceous deposits of Khetana in the Russian Far East, by the pronotum possessing transverse carina, a rather long sub-parallel rostrum not sagittate at apex, and lacking transverse eyes.
Composition. Only type species.
Notes. Tarsomere 2 embracing tarsomere 3 laterally, free labrum and tibiae lacking spurs suggest placement of *Arzamazorhinus* gen. nov. in Anthribidae. The ventrally inserted antennae suggest placement in the subfamily Anthribinae. The position of the new genus among extant Anthribinae remains unclear. It is characterized by the sulciform antennal scrobes which are found in the tribes Sintorini Lacordaire, 1866, Ptychoderini Jekel, 1855, Tophoderini Lacordaire, 1866 and Ecelonerini Lacordaire, 1866. The antebasal transverse pronotal carina and medium-sized rostrum of *Arzamazorhinus* gen. nov. do not fit the diagnoses of the tribes Basitropidini Lacordaire, 1866 and Eugonini Lacordaire, 1866. Unconvergent antennal scrobes distinguish the new genus from representatives of the tribe Sintorini. The rostrum not widened at the apex and with one carina, and the antennae inserted in the middle of the rostrum restrict placement of the new genus in the tribe Ptychoderini. *Arzamazorhinus* gen. nov. differs from the genera of the tribe Tophoderini in the antennal scrobes being invisible from above and not positioned dorso-lateral and the antennae not inserted at the apical third of the rostrum. The new genus is tentatively assigned to the tribe Ecelonerini because *Arzamazorhinus* gen. nov. has scrobes not visible from above and the antennae are inserted near the middle of the rostrum, but the new genus differs from other genera of the tribe by the ventral antennal scrobes and rather long rostrum.

Arzamazorhinus neli Legalov, sp. nov.
urn:lsid:zoobank.org:act:FDF64101-913A-4FB1-93BF-FE67227B0212.
Fig. 2.

Type species: Holotype, PIN, no. 3133/3, part and counterpart of beetle.

Locality and strata. Arzamazov creek, tributary of Rudnaya river, near Tayga settlement, Rudnitsky District, Primorsky Krai, Russian Far East, Arzamazovskaya Formation, Turonian—Coniacian, Upper Cretaceous.
Etymology. In honor of the paleoentomologist André Nel (Muséum National d'Histoire Naturelle, Paris, France) who has made a great contribution to the study of fossil insects.
Description of holotype. Body length (without rostrum) 6.2 mm, length of rostrum 1.2 mm.
Body black, distinctly sclerotized.
Head capsule not constricted behind eyes. Labrum free, almost rectangular. Mandibles large, with tooth on inner edge. Rostrum quite short and wide, almost straight, punctate, subparallel, slightly longer than pronotum, 2.3 times as long as wide at apex, 1.9 times as long as wide in middle, 1.6 times as long as wide at base; with medial carina dorsally; mesorostrum not dilated. Antennal scrobes sulciform, ventrally. Eyes elliptical, distinctly protruding from head outline. Forehead wider than width of rostrum base. Antennae non-geniculate, inserted in middle of rostrum. Antennomere 1, 3.3 times as long as wide.
Pronotum bell-shaped, with weakly arcuate sides, about 1.1 times as long as wide at apex, 0.7 times as long as wide in middle, 0.8 times as long as wide at base. Transverse carina antebasal, distinct. Scutellum large, sub rectangular, transverse.
Elytra suboval, 1.9 times as long as wide at base, 1.7 times as long as wide in middle, 2.3 times as long as wide at apical fourth, 4.7 times as long as pronotum; humeri rounded; width of interstriae about as long as width of striae; punctate striae with large and dense punctures; scutellar striole absent.
Mesocoxal cavities rounded, separated. Metacoxal cavities transverse. Metaventrite long. Abdomen with almost homogeneous ventrites.
Legs long. Femora greatly thickened, without teeth. Tibiae quite wide, without mucro and spurs. Tarsi pseudoquadrisegmented; tarsomere 1 conical, about 1.8 times as long as wide; tarsomere 2 bilobed, embracing tarsomere 3 laterally, about equal in length and wide; tarsomere 3 bilobed, narrower than tarsomere 3.

4. Discussion

Curculionid beetles of the Late Cretaceous are much less studied than those of the Early Cretaceous (Kirejtshuk et al., 2010; Legalov, 2012b; etc.). The Cretaceous weevil fauna of Burmese amber is rich, but Anthribidae is not represented (Legalov, 2018a; Clarke et al.,

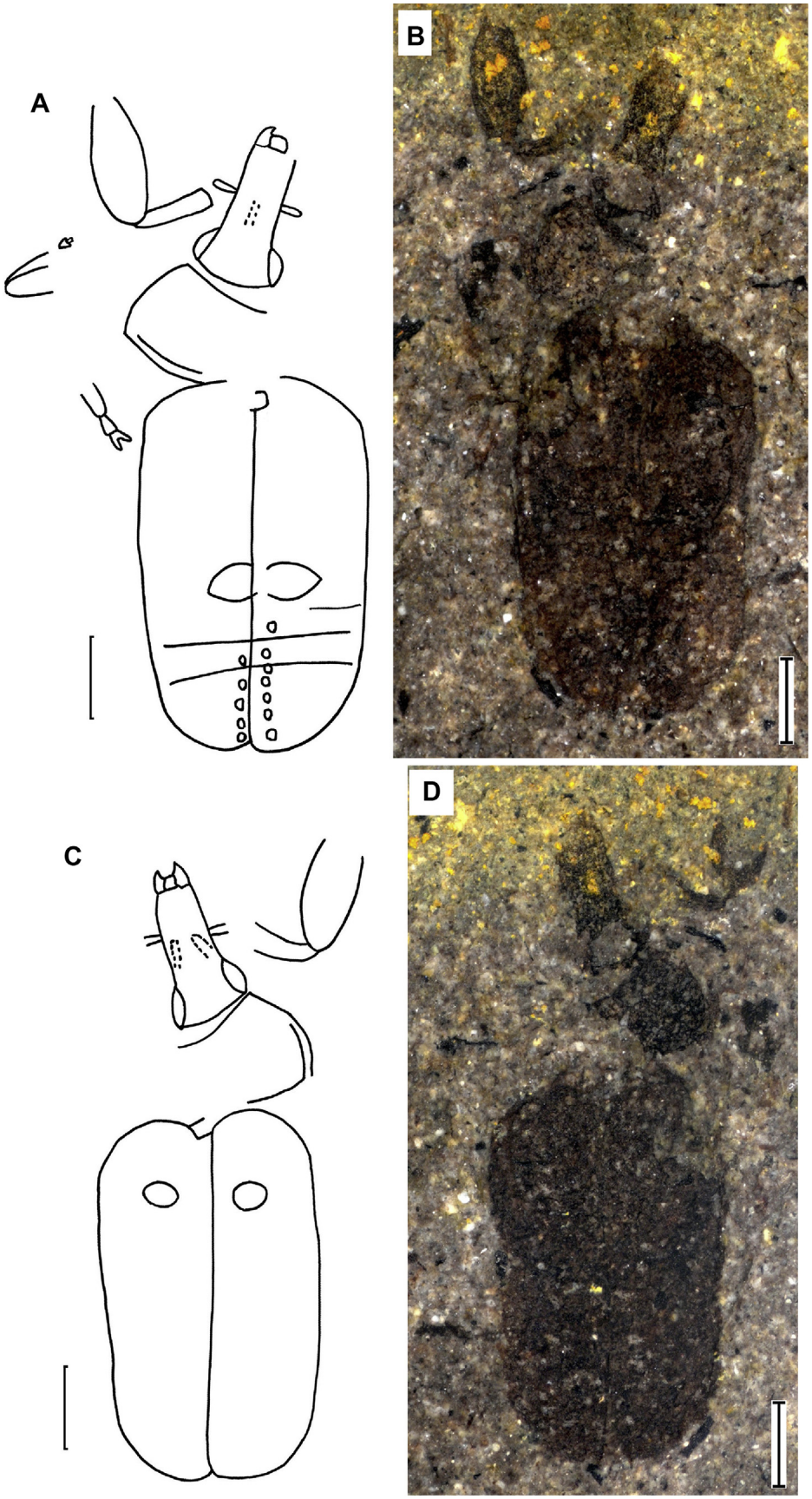

Fig. 2. *Arzamazorhinus neli* gen. et sp. nov., holotype, PIN, no. 3133/3: A. Body outline of part of beetle; B. Body of part of beetle; C. Counterpart outline of part of beetle. D. Body of counterpart of beetle. Scale bar = 1.0 mm.

2019). Most Curculionoidea are known from Cenomanian and Turonian deposits (Kuschel et al., 1994; Gratshev and Zherikhin, 2000; Gratshev, 2008; Legalov, 2014, 2015). Several elytra of weevils are described from Maastrichtian (Legalov, 2015). Curculionoidea from Coniacian to Campanian is not known.

The material from the location "Arzamazov creek" is not abundant. About 30 specimens of Insecta were collected (Zherikhin, 1978). Most of them are caddisfly cases of *Folindusia fusca* Vialov et Sukatsheva (1976) known only from this location (Sukatsheva, 1982). An undescribed cupedid is also recorded (Zherikhin, 1978). *Arzamazorhinus neli* gen. et sp. nov is the first described beetle from the Arzamazovskaya Formation and the first weevil from the interval of the Coniacian to Campanian.

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