New genera and new species of leaf beetles (Coleoptera: Polyphaga: Chrysomelidae) from Lowermost Eocene French amber

ALEXEY G. MOSEYKO (1), ALEXANDER G. KIREJTSHKU (1) & ANDRE NEL (2)

(1) Zoological Institute of the Russian Academy of Sciences, Universitetskaya emb. 1, St. Petersburg, 199034, Russia
(2) CNRS UMR 5202, Muséum National d’Histoire Naturelle, CP 50, Entomologie, 45, rue Buffon, F–75005 Paris, France

Abstract. Three new monotypical genera of leaf beetles are described: Aoriopsis eocenicus n. gen., n. sp. and Acolaspoides longipes n. gen., n. sp. from the subfamily Eumolpinae, and also Crepidocnema yantarica n. gen., n. sp. from the subfamily Alticinae. Short reviews of known fossil records of the mentioned subfamilies are given and position of the new genera discussed.


Keywords: Eumolpinae, Alticinae, new genera, new species, Lowermost Eocene amber, Oise.

This paper presents a sixth contribution to the knowledge on fauna of Coleoptera from Lowermost Eocene French amber collected in Oise falls (Batelka et al. 2006; Bílý & Kirejtshuk 2007; Kirejtshuk & Nel, 2008; Kirejtshuk & Nel 2009; Kirejtshuk et al. in press a), and is devoted to families remaining unknown from this resource and poorly known as fossils at all. The subfamilies considered in the paper are provided with a necessary short review of data on systematics and historical development. More detailed information on representation of these coleopterous families in the fossil record can be obtained from the catalogue by Ponomarenko & Kirejtshuk (2009). All new genera described here are represented by a unique species and, therefore, descriptions of them would considerably overlap with the description of species (‘descriptio generica specifica’).

Material and methods

Many specimens recovered among inclusions from Lowermost Eocene French amber are deposited in the Laboratoire de Paléontologie, Muséum National d’Histoire Naturelle, Paris. For study of them usual optic equipment was used, in particular the stereomicroscope Olympus SCX9 and inverted microscope Olympus CK 40 in the Paris museum, and also the stereomicroscope microscope Leica MZ 16.0 in the St. Petersburg institute.

Type strata. Lowermost Eocene, in amber, circa - 53 Myr, Sparnacian, level MP7 of the mammal fauna of Dormaal.

Type locality. Farm Le Quesnoy, Chevrière, region of Creil, Oise department (north of France).

Order Coleoptera

Infraorder Chrysomeloidea Latreille 1802

Family Chrysomelidae Latreille 1802

Subfamily Eumolpinae Hope 1840

This subfamily is known from fossils below the Pleistocene from Middle Eocene Geiseltal (Haupt 1950), Upper Eocene Baltic amber (Helm 1896; Klebs 1910; Hieke & Pietrzeniuk 1984; Zhang 1989), Lower Oligocene Florissant (Scudder 1892; Wickham 1911, 1912, 1914), Lower Oligocene-Dominican amber (Santiago-Blay 1994), Upper Oligocene-Miocene Bitterfeld amber (Barthel & Hetzel 1982), Oligocene-Miocene Chiapa amber (Gressitt 1963), and also from Upper Jurassic Karatau (Martynov 1926) and Lower Cretaceous Santana (Schwenninger & Schawaller 2007). However in most cases these mentions and descriptions do not include characters which can be used for diagnostics of Eumolpine genera or even clarify the subfamily and frequently family attribution. Among inclusions of the Lowermost Eocene French amber two specimens of this subfamily were recently found and each belongs to separate genera.

This subfamily can be diagnosed due to the hypognatous head not constricted on the base, antennae not closely inserted and separated by frons, tarsomere
2 deeply bilobed and abdomen without grooves for receipt of posterior legs.

**Tribe Adoxini Baly 1865**

The specimen examined has clear diagnostic peculiarities of this tribe, namely: pubescent body, pronotum narrower than elytral base and pygidium without longitudinal groove.

**Genus Aoriopsis n. gen.**

*Type species. Aoriopsis eocenicus n. gen., n.sp.*

**Etymology.** The name of this new genus is formed from the generic name “Aoria” and Greek root “opsis” (appearance, countenance, face); gender feminine.

**Diagnosis.** Body pubescent (but without scales). Head without paraocular grooves; antennae subfiliform and subapical antenomeres slightly dilated. Pronotum narrower than elytral base, its lateral carina very weakly expressed and becoming obsolete anteriorly and almost invisible at setiferous fossa. Pygidium without longitudinal groove. Sides of anterior edge of prosternum concave and without antennal grooves; mesoventral intercoxal process with apical excision. Femora without ventral process; tibiae without preapical excision; tarsal claws cleft. This genus should be placed into the section Leprorites Chapuis 1874 due to the lack of paraocular grooves on the head, subfiliform antennae, concave sides of anterior edge of prosternum, lack of antennal grooves and also due to the lack of preapical excision on tibiae and cleft tarsal claws.

---

*Aoriopsis eocenicus n. sp.*

(Figs. 1–2, 7–9)

**Material.** Holotype PA 2437, female, almost complete beetle included in small piece of amber has been put in the glass cube with Canada balsam on microscope slide.

**Etymology.** Epiteth formed from the name of geological epoch “Eocene”.

**Description.** Body 3.3 mm long, 1.7 mm wide, 1.3 mm high; elongate oval; black with reddish basal antenomeres; dorsum with suberect fine and sparse hairs, on elytra arranged in longitudinal but not regular rows; underside with shorter, less conspicuous and subrecumbent hairs, however, one row of thick hairs disposed along each epipleuron.

Frons densely punctured. “Clypeus” very finely punctured. Pronotum and prohypomera densely and coarsely punctured, with interspaces between punctures much lesser than a puncture diameter. Prosternum with puncturation similar to that on pronotum and hypomera, but somewhat finer and sparser. Mesoventrite somewhat smoothed and only with a few punctures. Mesepimera and metepisterna densely punctured. Metepisterna smooth and shining. Metaventrite and abdominal ventrites with fine and sparse punctuation. Elytra with 22 longitudinal rows slightly confusing near scutellum and also with slightly expressed and very short adscutellar one, suberect hairs arranged in 11 rows alternating rows of punctures, interspaces between lateral rows looking like swollen at apices and associated with thicker hairs. Adsutural rows including 45–50 punctures. Pygidium finely punctured and at base two velvet spots with dense and short setae. Abdominal ventrite 5 with stout setae along apical edge. Head with entire contour of eyes (without sinuation), antennal insertions disposed at the level of lower edge of eyes and with a weak frontal tubercle at inner side, equilateral frons about twice as wide as eye; “clypeus” isolated only by curved line (without clear suture); without paraocular grooves and longitudinal suture. Labrum transverse. Antennae slightly longer than half of body length and reaching metacoxae, subfiliform, scape capitate, antenomere 2 short and thick, antenomere 3 narrow and about twice as long as antenomere 2, antenomeres 3–5 about four times and antenomere 6 about three times as long as wide, antenomeres 7–11 slightly apically dilated. Pronotum about 3/4 times as wide as elytra combined, somewhat transverse (ration width to length is about 7:5) posterior edge slightly convex, with steeply sloping sides. Pygidium without longitudinal groove. Elytra with strong shoulders, making elytral sides invisible from above, somewhat narrowing apically and forming a slight sutural angle.

Prosternum with anterior edge slightly emarginate at sides, nostersternal sutures distinct and without antennal grooves; intercoxal process as wide as procoxae; lateral parts of prosternum more swollen than prohypomera. Distance between coxae in all pairs subequal to width of coxae. Mesoscutal process between mesocoxae somewhat narrower than mesocoxae and with an apical excision. Mesepisterna convex. metaventrite about 1.5 times as long as mesoscutae. Metepisterna rather small.

Femora without clear projection; anterior and intermediate femora equally widened and posterior ones somewhat narrower. Tibiae without excision at apex somewhat thickening apically and without spur. Tarsi comparatively narrow, narrower tibial apices; tarsomere 5 about as long as tarsomeres 2 and 3 combined; tarsal claws cleft.

---

Figures 1–2

*Aoriopsis eocenicus n. gen., n.sp.* (Eumolpinae). 1, body, laterally; 2, head, anterally. Scale bar representing for fig. 1. 1.2 mm and for fig. 2. 0.5 mm.
Ovipositor long (about as long as half of body) and with comparatively well sclerotised sclerites; paraprocti well developed; baculi of proctiger and valvifers rather wide and not stylo-shaped. Styli absent.

**Discussion.** The taxonomy of the subfamily Eumolpinae needs further elaboration. Reid (1993) and Gomez-Zurita et al. (2005) supposed that the tribe Adoxini and section Leprotites are not monophyletic. This tribe is traditionally divided into eight sections (Seeno & Wilcox 1982), although Reid (1993) excluded the section *Tomyrites* Chapuis 1874 and placed it into a separate tribe Ebooini Reid 1993. Other tribes proposed during 19th century without usage the elongate groove on pygidium. The latter character was introduced for diagnostics by Chen (1935) for Chinese genera and later it was used as a diagnostic character of a considerable weight inside the tribe Eumolpinae as whole (Gomez-Zurita et al. 2005). According to the catalogue by Seeno & Wilcox (1982), the section *Leprotites* includes 40 genera with mainly Indo-Malayan distribution, although a part of them could be exclud-

---

**Figures 3–6**

*Acolaspoides longipes* n. gen., n. sp. (Eumolpinae): 3, body, laterally; 4, idem, dorsally; 5, lateral carina of prothorax, laterally. *Neocrepidodera* (*Crepidocnema*) *yantarica* n. gen., n. sp. (Alticinae): 6, body, dorsally. Scale bar representing for fig. 3. 1.3 mm, for fig. 4. 1.0 mm, for fig. 5. 0.2 mm and for fig. 6. 0.7 mm.
Chrysomelidae from the Lowermost Eocene

ed from it because of the presence of this groove on pygidium. Many of these genera are characterized by scales on integument and/or narrow process of mesoventrite without apical excision.

The set of the characters listed in the above diagnosis, particularly the wide prosternal process and entire outline of eyes as well as similarity in appearance, make possible to suppose a closer relation of this new genus to *Osnaparis* Fairmaire 1889, *Aoria* Baly 1863, *Pseudaoria* Jacoby 1908, *Aloria* Bryant 1939, and also to the genus *Bromius* Chevrolat 1837 in Dejean 1936, traditionally regarded as a separate section (*Bromiites* Chapuis 1874), but distinguishing from *Aoria* only in the convex anterior edge of prosternum. All these genera, except *Osnaparis*, have no clear lateral carina of prothorax. The main differences between the new genus and the genus *Osnaparis* are the smaller body size, shape of the head with wide “clypeus”, comparatively short antennae with dilated subapical antennomeres, weakening of lateral carina of the prothorax and less convex posterior edge of pronotum, some regularity of row with punctures on elytra and shorter hairs on them. It should be noted that *Osnaparis nucea* Fairmaire 1889 has punctures on elytra partly arranged into irregular rows and with a row with punctures wearing hairs intermixing with a row of punctures without hairs, while some Indo-Malayan species of this genus have regular rows of punctures on elytra and short antennae scarcely reaching half of its body length. The genus *Osnaparis* is regarded by some researchers (Seeno & Wilcox 1982; etc.) as a subgenus of the genus *Aoria*, as the latter differs from the first only in the lateral carina of prothorax, and some peculiarities in structure of the head and elytral puncturation. Besides, *Aoriopsis* n. gen. is externally somewhat similar to the genus *Xanthonia*, but distinct from the latter in the wider pronotum, wider process of mesoventrite and raised lateral carina of the prothorax.

The Oligo-Miocene genus *Profidia* Gressitt 1963 from Mexican amber is the only fossil taxon which could be recognized as a member of the subfamily Eumolpinae and tribe Adoxini. It differs from *Aoriopsis* n. gen. in the narrow process of mesoventrite, projections on femora, sinuation in eye contour, crenulate sides of pronotum, antennal structure and some other characters. *Eoeumolpinus* Haupt 1950 is the unique genus described as Eumolpinae from the Eocene, however its attribution to the leaf beetles at all is rather doubtful, because the tarsi of that specimen are badly preserved and make impossible to trace the pseudotetramerousness, besides, its femora are not narrowed at apex (as in Eumolpinae) [finally in contrast to the genus here described, *Eoeumolpinus* has

Figures 7–9

*Aoriopsis eocenicus* n. gen., n. sp. (Eumolpinae). 7, body, lateroventrally; 8, idem, laterodorsally; 9, idem, lateroventrally.
Figures 10–14
Acolaspoides longipes n. gen., n. sp. (Eumolpinae): 10, body, dorsally; 11, puncturation of elytron. Crepidocnema yantarica n. gen., n. sp. (Alticinae): 12, body, dorsally; 13, idem, ventrally; 14, idem, laterally.
not raised shoulders and its pronotum is more strongly narrowing anteriorly]. Even in case if *Eoemolpinus* would belong to Eumolpinae, it can be scarcely linked with Adoxini due to the presence of strictly regular row of punctures in furrows of elytra (as only in members of the tribe Nodinini Chen 1940). The Mesozoic genus *Eumolpites* Martynov 1926, non Heer 1865 was proposed as a member of Eumolpinae, however because of bad condition of this specimen it only reminds of some representatives of Eumolpinae by its general body outline and the specimen for the latter genus is much larger than one here described and pronotum of *Eumolpites* Martynov is much narrower than elytra. The same pertains to the homonymous *Eumolpites* Heer 1865. Haupt (1950) pointed out that it is scarcely possible to define a systematic position of the species described by him and, at the same time, he admitted that some species described by Heer (1865) as members of *Chrysomelites* Heer 1865 could indeed belong to Eumolpinae. Nevertheless, this admission scarcely can be taken into consideration.

**Tribe Endocephalini Chapuis 1874**

The specimen examined has the following diagnostic characters of this tribe: the lack of pubescence on body sclerites, absence of clear parocular grooves, convex lateroventral parts of anterior edge of prosternum, presence of elongate groove on pygidium, tibiae without subapical excision, tarsal claws toothed at base.

**Genus Acolaspoides n. gen.**

*Type species.* *Acolaspoides longipes* n. sp.

**Etymology.** The name of the new genus is formed of the negative prefix "a" of the generic name "Colaspoides"; gender masculine.

**Diagnosis.** Body short; antennae subfiliform, long and almost as long as body; prothorax with clear lateral carina, becoming obsolete at apex; pronotum coarsely sculptured; a stripe of prosternum extended onto dorsal side; elytra with well raised shoulders; femora with a small and weak tubercle along ventral side.

The genus here described should be regarded in the composition of the tribe Endocephalini, together with some genera, considered before as Eumolpini. The new genus differs from *Colaspoides* Laporte 1833 in the body shape and disposition of suturetts and setiferous fossae at anterior angles of pronotum, and it differs from *Massies Lefèvre* 1893 in the body shape, particularly shape of pronotum and structure of head. Besides, the new genus has the unique coarse sculpture of pronotum, unknown in the mentioned genera. The sculpture of pronotum in the new genus is somewhat similar to that in *Scelodonta* Westwood 1837 from Adoxini, however the other characters of the new genus show its attribution to the tribe Endocephalini. The peculiarities of this new genus (particularly, narrow pronotum, irregularity of longitudinal rows of punctures, convexity of lateroventral edge of prosternum, etc.) do not allow to compare this genus with any extinct genus of the subfamily Eumolpinae.

**Acolaspoides longipes** n. sp. (Figs. 3–5, 10–11)

**Material.** Holotype PA 2364, sex unknown, almost complete beetle included in small piece of amber is put in the cylindrical glass frame with Canada balsam on microscope slide and covered be the round cover glass.

**Etymology.** Epitet formed from the Latin “longus” (long) and “pes” (foot).

**Description.** Body 3.6 mm long, 1.8 mm wide, 1.7 mm high; elongate oval; body and elytra greenish and with metallic shine, antennae and legs reddish; integument without visible pubescence. Frons and "clypeus" finely punctured. Pronotum coarsely sculptured, with irregular punctures and transrugosity. Elytra with irregular longitudinal rows of punctures. Prosternum and prohypomera smoothed. Mes- and metepimera smoothed and with sparse punctures. Metaventrite punctured. Pygidium apparently with longitudinal groove. Head without parocular grooves, but with excavaitions along the eye contour; frons wide, about twice as wide as transverse diameter of eye; "clypeus" not separated from frons. Antennae filiform, almost as long as body. Pronotum about 0.7 times as wide as elytra, posterior edge slightly curved. Elytra with strongly raised shoulders, at base about 1.4 times as wide as in distal fourth. Pronotum with raised lateral carinae. Anterior edge convex lateroventrally, its stripe extending on dorsal side along anterior edge of pronotum; pronotosternal sutures distinct. Metaventrite about 1.5 times as long as mesocoxae. Femora with weak tubercle on ventral side. Tibiae without preapical excision. Tarsal claws toothed at base.

**Subfamily Alticinae Spinola 1844**

This subfamily is known in fossils below the Pleistocene from Paleocene Menat (Piton 1940), Upper Eocene Baltic amber (Klebs 1910; Heie & Pietrzeniuk 1984; Kubisz 2000), Lower Oligocene Kleinkembs (Théobald 1937), Lower Oligocene Florissant (Scudder 1892; Wickham 1911, 1912, 1914), Middle Eocene Geiseltal (Haupt 1956), Oligocene Brunstatt (Förster 1891), Upper Oligocene or Lower Miocene Siebengebirge (Schlechtendal 1894), Oligocene-Miocene Chiapa amber (Gressitt 1971), Lower Miocene Radoboj (Heer 1858), Lower Miocene Dominican amber (Saniago-Blay *et al.* 1996), Upper Miocene Oeningen (Heer 1845), Upper Miocene Cantal (Théobald 1937; Piton 1939).

This subfamily can be diagnosed due to the hypognatous head not constricted on the base; antennae closely inserted and almost not separated by frons,
abdomen without grooves for receipt of posterior legs and widened posterior femora, adopted for jumping. The tribal partition of this subfamily represents a great complexity and most recent authors (Seeno & Wilcox 1982; Konstantinov & Vandenberg 1996 etc.) prefer not to divide it into them.

**Genus Crepidocnema n. gen.**

*Type species.* *Crepidocnema yantarica n. sp.*

**Etymology.** The name of this new genus is formed from the Latin roots of other Crysomelid genera (”crepido” and “cnema”); gender feminine.

**Diagnosis.** Body small and oval, subunicolorous reddish, without pubescence. Frontal tubercles small, transverse and isolated from frons by a narrow groove. Antennae 11-segmented. Pronotum narrower than elytra, its base widely bordered and with transverse basal groove restricted by paralateral short indistinct depressions, at bottom of the groove a row of dense punctures and short prescutellar row, but without secondary toothed at base. Tarsi usual, tarsomeres 1–3 subequal in width; claws toothed at base.

**Note.** The specimen examined seems to be a female because protarsomeres comparable in width with meso- and metatarsomeres.

**Acknowledgements.** The authors thank the company Lafarge-Granulat for the help with the sampling of the fossil and the family Langlois-Meurinne for the authorization of working in their property. The authors also appreciate to G. De Ploëg (MNHN) and D. Azar (Lebanon University) for the careful preparation of the material. A.G. Kirejtshuk has a pleasant duty to express his recognition to the Museum national d’Histoire naturelle provided him a possibility to work in this museum in 2006–2009 as visiting professor. This study was also supported by the grants of Russian Foundation of Basic Research N 070400540 and also Programme of the Presidium of the Russian Academy of Sciences “Origin and Evolution of Biosphere”.

**References**


