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# On the systematics of the weevil genus *Araxia* Khnzorian with descriptions of new taxa from Transcaucasia, Turkey, and Turkmenistan (Coleoptera: Curculionidae: Entiminae)

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The purpose of this paper is a comparative morphological study of the little known monotypic weevil genus *Araxia* Khnzorian, 1957 and its close allies; redescriptions and figures are provided. A new systematic position for *Araxia* is proposed and discussed, its affinity with *Chiloneus* Schoenherr, 1842 and a new genus *Holcolydoprus* gen. n. is demonstrated. A new genus *Holcolydoprus* gen. n. is described with two new species *H. bimaculatus* sp. n. (type species) from Turkmenistan and *H. griseus* sp. n. from Transcaucasia and Eastern Turkey. The genus *Aomus* Schoenherr, 1834 is transferred from the tribe Laparocerini to Sciaphilini, its affinity with *Eusomomorphus* K. Daniel, 1905 is demonstrated. A new combination *Eusomomorphus ilerii* (Fremuth & Lodos, 1987), comb. n. is established for *Aomus ilerii*. A key to genera centering around *Araxia* is given.

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## Introduction

The genus *Araxia* Khnzorian, 1957 was established for a single wingless species *A. mucronata* Khnzorian, 1957 from Armenian mountain steppes. Owing to similarity of *Araxia* with *Pholicodes* Schoenherr, 1826 in the shape of body and head, structure of ovipositor, and type of scaling, this genus was placed initially in the tribe Brachyderini (sensu Reitter, 1912). However, less conspicuous important characters of the epistomal plate in *Araxia* preclude relating it with *Pholicodes* or other genera of Brachyderini as treated in original description (Khnzorian, 1957). *Araxia mucronata*, similarly to species of *Pholicodes*, is a wingless form occurring in the forest-free mountain grassland and adapted to living in close contact with soil. In this connection representatives of these genera have cryptic scaly vestiture of grey colour with slight metallic shine, effectively masking the beetles among dry grass. Apparently, due to similarity in the manner of oviposition, these genera independently have acquired a similar structure of ovipositor and terminal abdominal segments in female (Fig. 9 J). The original description of the genus *Araxia* was made in context of its belonging to the tribe Brachyderini and lacks many significant morphological characters of *Araxia.* Therefore, we redescribe it below. The bifurcate apex of elytra figured by Khnzorian (1957) is due to deformation of the weakly sclerotized integument of the type specimen.

## Methods

For the examination and preparation of the specimens, a binocular stereomicroscope BSM-9 and microscope XSZ 2008A were used. The measurements were made with an eyepiece micrometer. The length of body was measured from anterior margin of eye to the apex of the elytra, and the length of rostrum, from apex of the rostrum to the anterior margin of the eye. Genital and abdominal structures were macerated in hot 10 % KOH, washed in distilled water, and put in microvials with glycerine. Membranous structures: abdomi-

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nal terga, gut, sperm duct, and spermathecal gland were dyed with dye Chlorazol-Black-E. All illustrations of genital structures were handmade from glycerine preparations with the use of grid-ocular, tablet Wacom Graphire 4 Classic XL A5 and were edited with an illustration software programme Corel Draw 11. All scale bars equal 1 mm, unless stated otherwise in figures.

The following acronyms are used in the text: L/W – length to width ratio, RL – length of ros-

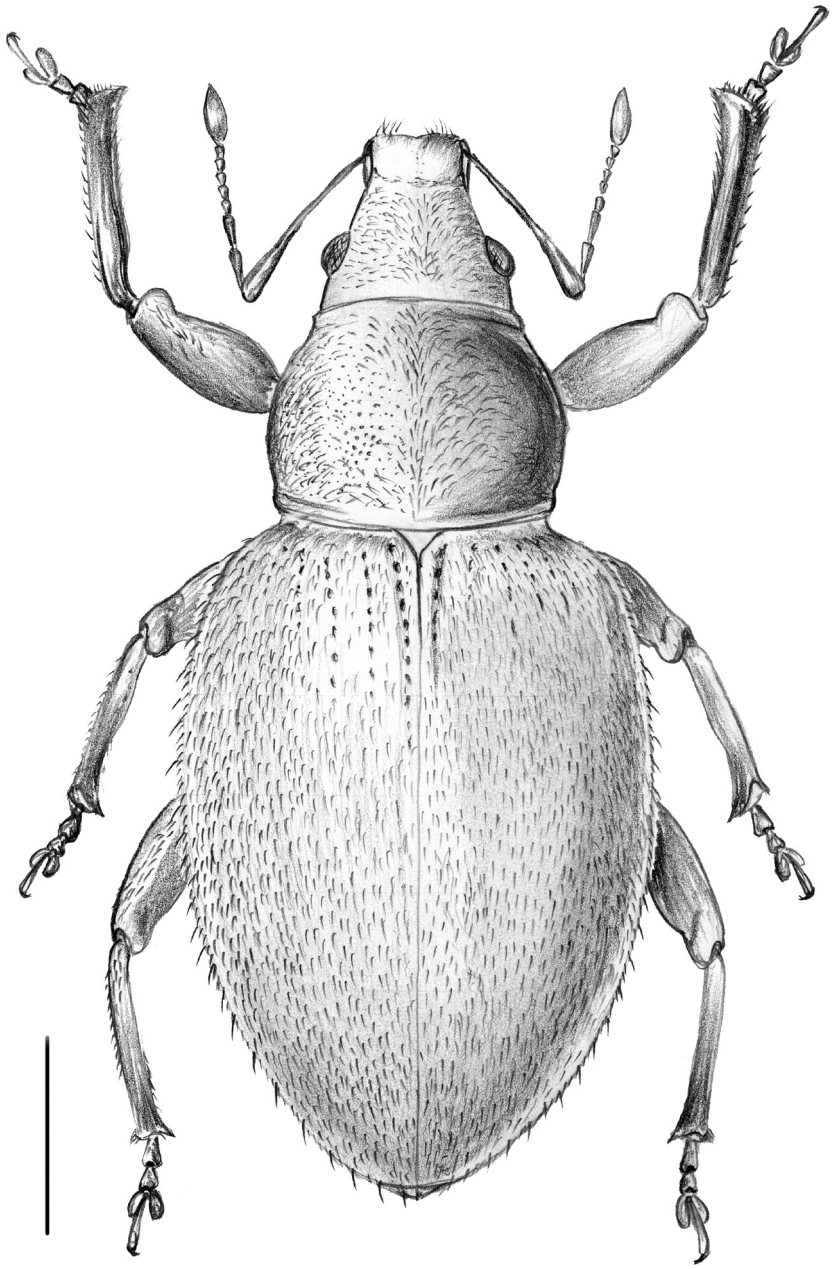

Fig. 1. *Araxia mucronata*, female habitus, dorsal view.

trum, RW – width of rostrum, FW – width of frons, ELD – longitudinal diameter of eye, ETD – transverse diameter of eye, PL – length of pronotum, PW – width of pronotum, EL – length of elytra, EW – width of elytra. *Depositories*: ECAU – Entomological Collection, Department of Plant Protection, Faculty of Agriculture, Atatürk University, Erzurum, Turkey; MTMB – Magyar Természettudományi Muzeum, Budapest; ZIN – Zoological Institute, Russian Academy of Sciences, St. Petersburg.

## Results

*Taxonomy*

### Genus *Araxia* Khnzorian, 1957

(Figs 1; 2; 9 F, J).

Khnzorian, 1957 : 179; Alonso-Zarazaga & Lyal, 1999 : 146.

Type species *Araxia mucronata* Khnzorian, 1957, by original designation.

*Diagnosis.* – This genus is similar to *Pholicodes* Schoenherr, 1826, but closely related to *Holcolydoprus* gen. n. and *Chiloneus* Schoenherr, 1843. From *Chiloneus* it differs in the flat epistome, robust body, slightly constricted pronotum, weakly setose interstriae of elytra, presence of lobes on inner apical angle of the fore tibia, and structure of genitalia: the spermatheca is slender and strongly curved (Figs 6 A, B, E; 9 G). From *Holcolydoprus* it differs in the robust body, slender antennae, tibiae and tarsi, and shape of ventrites and female terminalia: the spiculum ventrale with plough-shaped lamella, the spermatheca with reduced collum (Figs 4 G; 9 D, E, F, J).

In the structure of epistome (it is sparsely punctate, strongly shining and has single setae) and type of scaling, *Araxia* is similar to *Aomus* Schoenherr, 1834 but clearly differs from it in the small pterygia, absence of transverse depression at the base of rostral dorsum, reduced ramus, and in the shape of spermatheca (Figs 9 B, C, F).

*Redescription.* – Body small (length: 4.7–4.9 mm, width: 2.3–2.5 mm), robust, dark brown, densely covered with hair-like brownish, coppery shining scales dorsally and ventrally. Sides, apical surface, and disc of elytra as well as scutellum with moderately dense grey scales with slight green shine, producing vague spotted pattern. Interstriae of elytra with one or two rows of semierect, apically acute setae. Legs and antennae lighter than body, sparsely covered with hairs and hair-like scales. Fore tibia with semierect broad-lanceolate setae on outer margin.

**Head.** Rostrum as long as wide, evenly conical; pterygia small, weakly projecting from lateral contour of rostrum. Rostral dorsum broad, almost parallel-sided, scarcely narrower than frons, flat longitudinally and weakly convex transversely, no transverse depression separating rostrum from frons. Epistomal plate shining, bare, finely sparsely punctate, hardly convex. Epistome not separated posteriorly by keel. Antennal scrobes short, directed to ventral surface of rostrum, dorsal margin of antennal scrobes very short. Frons transversely convex. Eyes small (FW/ELD = 2.33), round, strongly convex, widely separated, situated in 2/3 ETD from level of frons. Temples very short (1/2 ELD). Mandibles large, with sharply projecting external angle, with four setae on the outer surface. Antennae thin and long, scape almost straight, sharply widened in apical 1/4. 1st and 2nd segments of funiculus flagellum equal in length, strongly elongate, 3rd–7th round, as long as wide; club broad spindle-shaped.

**Thorax.** Pronotum transverse (PL/PW = 0.74–0.83), deeply constricted near apical margin and slightly constricted at base, moderately, evenly convex at sides, widest at middle. Disc of pronotum weakly convex. Scutellum triangular, covered with lanceolate scales.

Elytra ovate (EL/EW = 1.40–1.55). Humeral prominences not developed. Striae fine, punctures sharply separated. Interstriae wide, flat, shining, slightly shagreened, 2.5 times as wide as striae, flat at base, weakly convex on disc and at sides.

**Legs.** Femora without tooth, strongly clavate medially, at inner apical angle with strong lobes. Fore tibia with straight outer margin and weakly sinuate inner margin, inner apical angle with large mucro. Middle and hind tibiae strongly mucronate, with bifurcate mucro. Corbel of hind tibia open. Apical margin of tibiae with comb of thick spines. Tarsi wide, with well-developed adhesive sole; 2nd segment triangular, wider than long, 3rd segment with large lobes. Claw-segment by 0.60 extending beyond lobes of 3rd segment.

**Abdomen.** Laterosternites very broad, ventrites strongly convex laterally, anal ventrite plough-shaped. 8th tergite sharply roof-shaped convex, heavily sclerotized.

**Genitalia.** Spermatheca sickle-shaped, with ramus reduced, and collum gradually converting into cor-

nu. Female sternite VIII with plough-shaped lamella and thick, heavily sclerotized manubrium. Ovipositor compressed, with well-developed styli bearing bunches of setae.

Males unknown.

*Type material.* – Female paratype: "Bash-Gyarni Goht 2-IV-1941 M. Ter-Minassian" (handwritten), "*Araxia mucronata* Khnz. Khnzorian det." (handwritten), "Cotypus" (red, handwritten) (ZIN).

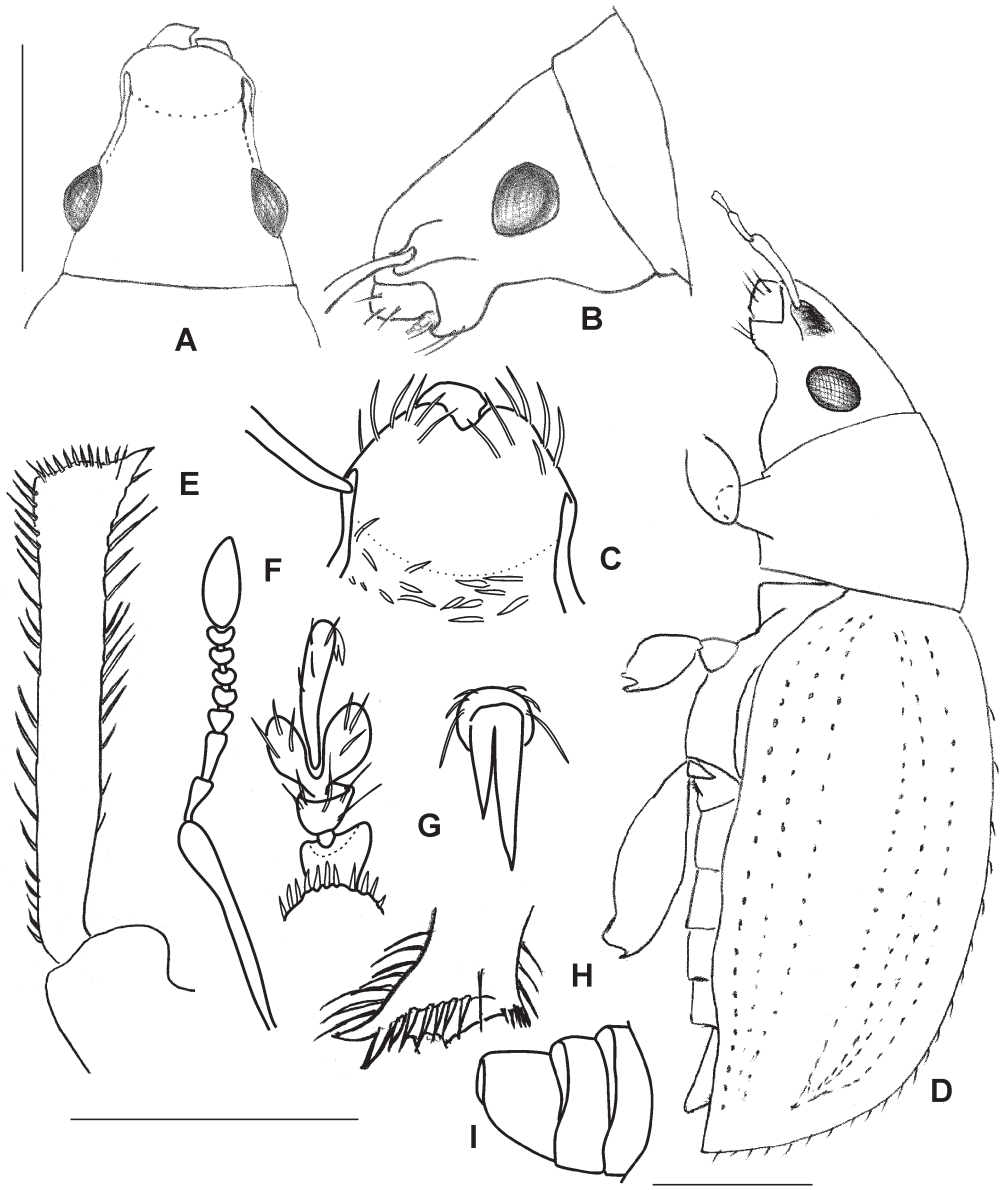


Fig. 2. *Araxia mucronata*, female details. (A) head, dorsal view; (B) head, lateral view; (C) epistome; (D) body, lateral view; (E) left fore tibia; (F) left antenna; (G) right fore tarsus and claws; (H) right hind tibia apex with bifurcate mucro; (I) 3rd–5th abdominal ventrites, lateral view.

*Additional material.* – Females: "ARMENIA: E of Dzhermuk Mt., subalpine zone, 6-VI-1988, G.E. Davidian" (ZIN, 1); "ARMENIA: Dzhervezh, E of Erivan, 7-IV-1936" (ZIN, 1); "AZERBAIJAN: Divichi, Ata-Chai River, 19-IV-1984, G.E. Davidian" (ZIN, 2); "AZERBAIJAN: Besh-Barmag Mt., 19-IV-1984, G.E. Davidian" (ZIN, 2), "AZERBAIJAN: Naxçivan, 5–8 km N of Şahbuz, 19, 20-V-1988, B.A. Korotyaev" (ZIN, 2). "TURKEY: Bingöl Prov., 35–40 km NE of Bingöl, Çobantaşi Vill., 1350 m, 3-V-2003, L. Gültekin" (ZIN, 1); "TURKEY: Bingöl Prov., 12 km W of Bingöl, Bila Vill., 1330 m, 6-V-2003, L. Gültekin" (ECAU, 2).

*Distribution.* – Armenia, Azerbaijan, and Eastern Turkey.

**Habitat**. Two specimens of *Araxia mucronata* and one specimen of *Holcolydoprus griseus* sp. n. were collected by B.A.K. at an elevation about 2000 m in the mountain steppe zone of the Nakhichevan Republic by sweeping young grass in a shallow depression among pasture with scattered trees of *Crataegus* and *Pyrus* spp (Rosaceae). Turkish specimens were collected at a lower altitude in the dry-steppe environment with Mediterranean floristic element

*Remarks.* – The newly described genus *Aomidius* Białooki, 2005 is probably a synonym of *Araxia*. Its type species *Aomidius digoriensis* is probably a synonym of *Araxia mucronata*. Until the type material of *A. digoriensis* is compared with that of *A. mucronata* this is an open question .

### ***Holcolydoprus*** gen. n.

Type species *Holcolydoprus bimaculatus* sp. n.

*Diagnosis.* – Species of *Holcolydoprus* gen. n. are similar to *Polydrusus* Germar, 1824 but the new genus is closely related to *Chiloneus* and *Araxia*, differing from them in long antennal scape, fine punctures on the head and pronotum, and structure of the epistome. In the type of scaling the new genus is very similar to several unrelated genera of Entiminae inhabiting similar biotopes in the same

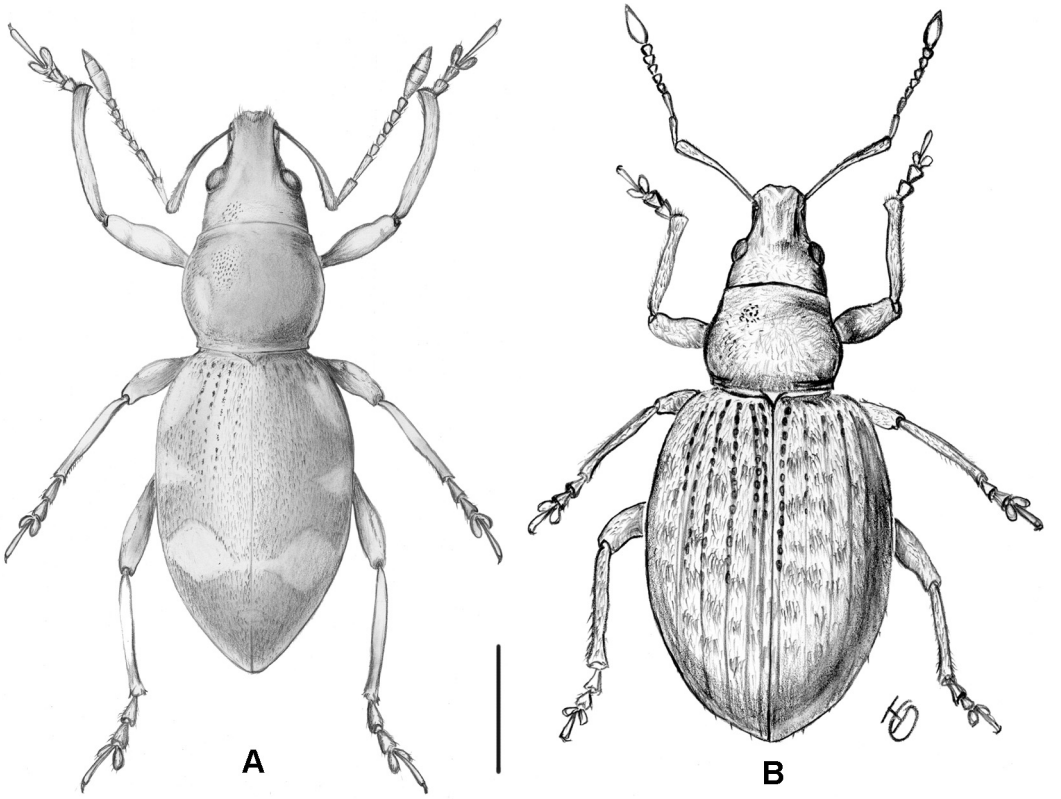


Fig. 3. (A) *Holcolydoprus bimaculatus*, male habitus, dorsal view; (B) *H. griseus*, female habitus, dorsal view.

area (Asia Minor and Transcaucasia), for example, *Aomus* Schoenherr and *Euplatinus* Desbrochers, 1907, that recently has been transferred from the Holcorhinini to Omiini (Borovec, 2006), but clearly differs in the structure of genitalia of both sexes and in the shape of body and rostrum. A comparison of both species of the new genus with *Aomus pubescens* Boheman shows their clear similarity in the structure of epistomal plate: the epistome is not separated posteriorly by keel, hardly convex, with a few setae, its anterior edge weakly sinuate.

From *Araxia*, the new genus differs in the matte epistomal plate covered with scales, more elongate body, slender and elongate legs, well developed ramus of the spermatheca, absence of lobes at the inner apical angle of the fore femur, and unmodified female terminalia.

From *Chiloneus*, it differs in the weakly convex epistome, weakly developed pterygia, fine punctation of the body, narrow scales, and structure of the male genitalia and female terminalia.

The new genus resembles *Euplatinus* in the type of scaling, which consists of narrow-lanceolate yellowish brown, metallic shining scales, but differs from it in the elongate body; oblong-ovate, flattened in basal 1/4 elytra (in *Euplatinus* the base of elytra is sharply convex, therefore forms a right angle with mesonotum); weakly developed pterygia; flat rostral dorsum with sharply allocated lateral margins; long temples; long antennae with curved scape and spindle-shaped club; slender tarsi, and simple median lobe, which has no lateral blades at the apex; dorsal wall of the pygidium is not invaginated internally.

*Description. – Measurements*. Body length: 3.75–4.60 mm; width: 1.50–2.10 mm. Scaling of body distinct, scales light brown, hair-like and lanceolate. Elytra with spots of white lanceolate scales behind middle or almost uniform grey.

**Head.** Rostrum slightly conically narrowed apically, weakly flattened dorsally, square in cross-section, as long as wide. Pterygia slightly developed, weakly projecting from lateral contour of rostrum, in half covered by lateral margin of rostral dorsum. Latter parallel-sided, with weak median swelling, occasionally with longitudinal depression in apical part, sharply separated by convex lateral margins, not separated from frons by transverse depression, forming wide angle with frons. Epistomal plate triangular, weakly convex; epistome with weak V-shaped edging, one pair of short and three pairs of long setae. Antennal scrobes very short, almost invisible behind pterygia. Mandibles large, strongly projecting from mandibular socket, with distinct scar. Prementum narrow, partly covering maxillae. Frons moderately convex. Eyes round, large, strongly convex, somewhat asymmetrical; temples as long as ELD. Rostral dorsum and frons finely rugosely punctate.

Antennae slender and long. Scape reaching middle of temple, strongly curved, from middle gradually widened apically. 1st (L/W = 1.71) and 2nd (L/W = 2.00) funicular segments strongly elongate, 1st somewhat wider than 2nd; 3rd (L/W = 1.40), 4th (1.50), 5th (1.20), 6th (1.16), 7th (1.00). Club spindle-shaped, sutures between segments clearly visible.

**Thorax.** Pronotum weakly transverse, evenly convex on disc and at sides, weakly constricted near basal and apical margins, finely distinctly punctate. Punctures round, shallow.

Scutellum triangular, clearly visible in dorsal view, densely covered with lanceolate scales, scutellar sutures clearly visible. Mesepisternum and mesepimeron sharply separated, mesepisternum densely covered with scales along suture, but its epipleural area nude. Metepimeron very small, separated by fine suture.

Elytra elongate, ovate, not fused along suture, in male slightly convex at sides and on disc, in female strongly convex. Striae fine, punctures well separated; interstriae flat, shiny. Humeral prominences in male with distinct scaly spots.

**Legs.** Slender. Femora without tooth, weakly club-shaped swollen in middle part. Fore tibia not widened, in male weakly incurved in apical third and slightly sinuate, in female straight. Middle and hind tibiae in male not widened, with slightly sinuate inner margin, weakly mucronate. Apical margin of tibia with thin light tooth. Hind tibia with open corbel. Tarsi short or strongly elongate, sole hair brushes weakly developed. 1st (L/W = 1.92) and 2nd (L/W = 1.22) segments elongate; claw-segment by 0.60 extending beyond lobes of 3rd segment. Claws parallel, connate in basal half.

**Abdomen.** Laterosternites narrow. Anal ventrite in male flat, with straight apical margin; in female triangular, weakly convex. 9th tergite of female triangular with round membranous spot at middle.

*Female genitalia*. Ovipositor strongly compressed. Styli elongate, stick-shaped, with bunch of setae. Coxites with heavily sclerotized apical and basal parts, with bunches of setae at dorsal angles.

Spiculum ventrale: lamella triangular, with distinctly sclerotized incrassatio, apical margin with dense cirri; manubrium slender, heavily sclerotized, with distinct lateral ridges at middle; caput not developed.

*Male genitalia*. – Aedeagus heavily sclerotized. Median lobe sharply curved dorso-ventrally, its apex distinctly beak-shaped narrowed and curved ventrally. Apophyses hardly longer than median lobe. Internal sac with pair of C-shaped sclerites,

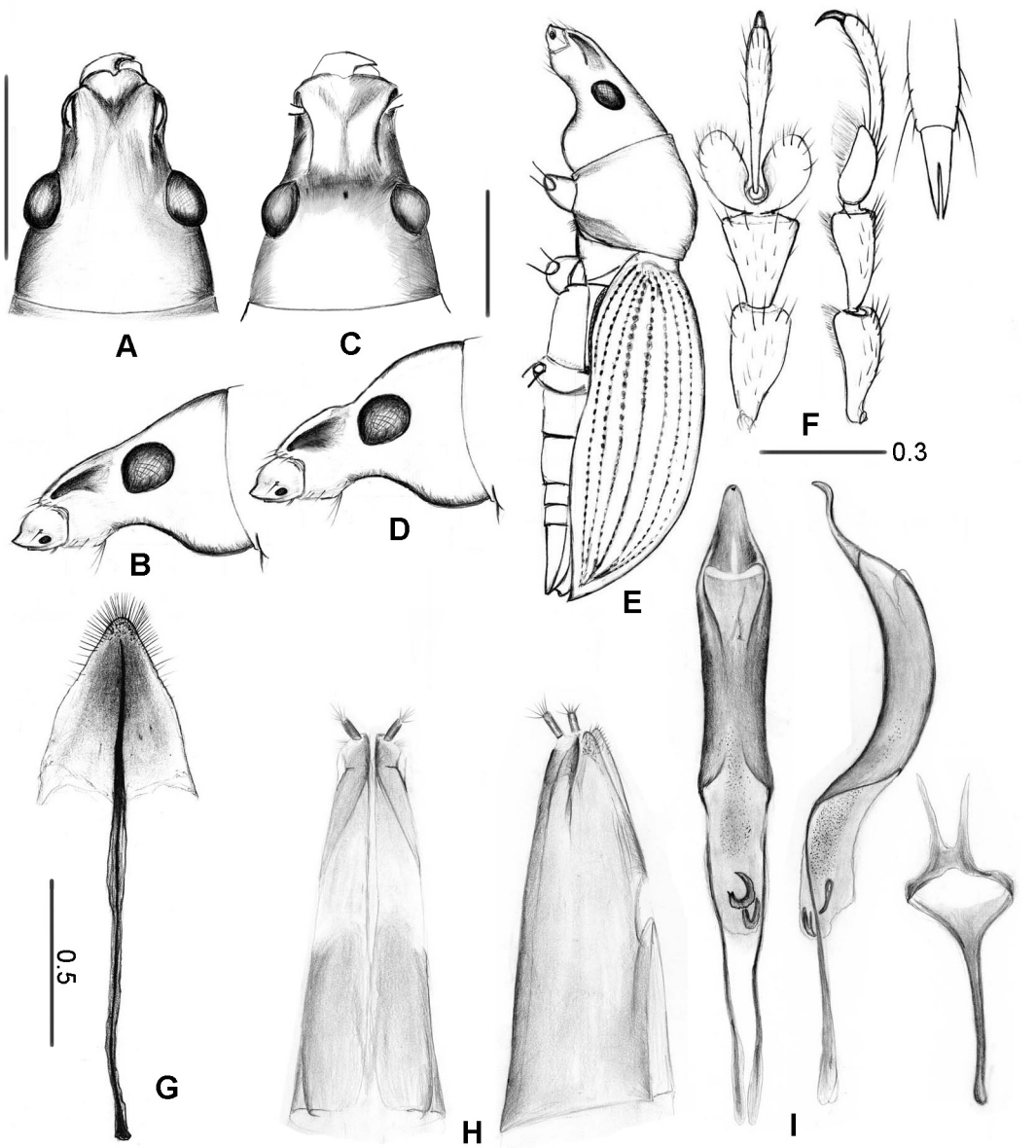


Fig. 4. *Holcolydoprus* spp., details. (A) *H. bimaculatus*, male head, dorsal view; (B) *H. bimaculatus*, male head, lateral view; (C) *H. griseus*, male head, dorsal view; (D) *H. griseus*, male head, lateral view; (E) *H. bimaculatus*, male body, lateral view; (F) *H. bimaculatus*, tarsus and claws; (G) *H. bimaculatus*, 8th sternite of female; (H) *H. bimaculatus*, ovipositor; (I) *H. bimaculatus*, male genitalia.

walls of internal sac densely covered with microscopic sclerites. Tegmen heavily sclerotized, parameres connate at base.

*Etymology.* – The name of new genus is formed from the generic name "*Holcorhinus*" and anagram of the generic name "*Polydrusus*". Gender masculine.

### ***Holcolydoprus bimaculatus*** sp. n.

(Figs 3 A; 4 A, B, E–I; 5 A, C; 9 D)

*Diagnosis.* – Differs from the second representative of the new genus, *H. griseus* sp. n., in the gracious body shape, slender tarsi, not widened external apex of the fore tibia, presence of a pair of light transverse spots at the middle of elytra, lack of transverse depression separating rostral dorsum from the frons, slender antennal funicle (6th and 7th segments not transverse), and in details of spermatheca: strongly convex corpus, longer ramus and shorter cornu (Figs 9 D, E).

*Description. – Male.* Measurements. Body length 3.85–4.60 mm; width – 1.50–2.05 mm, in holotype 4.3 mm and 1.6 mm, respectively.

**Head.** Rostrum weakly narrowed apically, slightly flattened dorsoventrally, in cross section almost square, as long as wide. Pterygia weakly developed, with distinct lateral edges, not projecting from lateral contour of rostrum, in half hidded by lateral margins of rostral dorsum. Rostral dorsum parallel-sided, with weak median longitudinal depression, not separated from frons by transverse depression. Epistomal plate triangular, weakly convex; epistome separated by weak V-shaped keel, with pair of short and three pairs of long epistomal setae. Antennal scrobes very short, almost not visible outside pterygia. Mandibles large, noticeably projecting from contour of rostrum. Frons convex. Eyes round, large, strongly, but not hemispherically convex, weakly asymmetrical in dorsal view; temples as long as ELD. Rostral dorsum and frons with oblong punctures. Antennae slender and long. Antennal scape reaching middle of temple, moderately curved in middle, in basal half slender, from middle evenly widened apically. 1st (L/W = 1.71) and 2nd (L/W = 2.00) funicular segments noticeably elongate, of subequal length, 1st somewhat wider than 2nd; other segments somewhat transverse or as long as wide; L/W: 3rd – 1.40, 4th – 1.50, 5th – 1.20, 6th – 1.16, 7th – 1.00. Club spindle-shaped, with segments not closely joining; boundaries between segments well visible.

**Thorax.** Pronotum weakly transverse (PL/PW = 0.89), evenly convex on disc and at sides, densely punctate, punctures round and shallow. Elytra oblong-ovate, without humeral prominences.

**Female** differs from male in broad-ovate, more convex elytra, longer and more slender tarsi, and triangular anal ventrite. 3rd tarsal segment with small, narrow lobes; claw-segment strongly elongate. Cornu of spermatheca not extending beyond level of corpus, ramus twice as long as collum (Fig. 9 D).

*Type material.* – Male holotype (ZIN), TURKMENISTAN, Kopet Dagh Range: "Turkmenia, Syunt Mount, 1600 m, 3-V-1974 G.S. Medvedev" [in Russian]. Paratypes: 1 male, 1 female (ZIN), with label as in holotype; 3 males, 1 female (ZIN), "Turkmenia, Syunt Mount, 1600 m, 2-V-1974 G.S. Medvedev" [in Russian]; 3 males (MTMB), "Turkmenistan, Kopet-Dagh Mts., 6 km S of Ipai-Kala, 1600 m, 8–12 IV 1993, 57° 07' E, 38° 17' N, № L86, leg. M. Hreblay, Gy. László, A. Podlussány".

*Distribution.* – Kopet Dagh Range in Turkmenistan.

*Etymology.* – The new species name is a Latin adjective owing to the presence of a pair of white scaly spots at the middle of the elytra.

### ***Holcolydoprus griseus*** sp. n.

(Figs 3 B; 4 C, D; 5 B, D, E; 9 E).

*Diagnosis.* – Differs from the type species in robust body shape, broader tarsi, widened externally apex of the fore tibia, unclear light greyish spotted marble-like scaly pattern on the elytra, presence of the transverse depression separating rostral dorsum from the frons, and transverse 6th and 7th segments of the antennal funicle.

*Description. – Female.* Measurements. Body length 3.75–4.60 mm, width – 1.85–2.10 mm; in holotype 4.20 and 1.95 mm, respectively. Body black or dark brown, densely evenly covered with hair-like or narrow-lanceolate grey and greyish brown scales, without erect setae; lighter scales forming unclear spotty marble-like pattern against dark background consisting of greyish scales; legs and antennae with hairs and hair-like scales.

**Head.** Rostrum conical, almost as long as wide (L/W = 0.9); pterygia very small, with slight lateral edges, not projecting from lateral contour of rostrum, in half covered from above by lateral edge of rostral dorsum. Epistome hardly convex, not separated by keel, bare, with three pairs of

light setae. Rostral dorsum moderately widened apically, weakly convex longitudinally, separated from frons by distinct transverse depression, with moderately developed shallow median sulcus and very thin linear carina. Frons broad, strongly convex, finely densely punctate. Eyes small, round, strongly convex. Area near ventral margin of eye glabrous, devoid of scales. Antennae slender and long; scape almost straight, evenly widened apically. Funicle evenly widened apically; 1st and 2nd segments longest, almost equal in length, 1st hardly wider than 2nd; 3rd–5th segments as long as wide, 6th and 7th triangular, transverse. Club broad spindle-shaped, with loosely jointed segments.

**Thorax.** Pronotum shining, distinctly transverse (PL/PW = 0.77), hardly constricted at base and at apex, evenly slightly convex on disc and at sides, densely punctate; punctures very small, round and shallow. Scutellum very small, almost invisible, covered with light hair-like scales.Elytra broad-ovate, without humeral prominences, strongly convex on disc near base. Striae narrow, punctures weakly but distinctly separated; crosspieces narrow, half as wide as punctures; interstriae weakly convex, shining, twice as wide as striae.

**Legs.** Femora unarmed, weakly club-shaped swollen in middle, with inner apical angle forming no lobe. Tibiae straight, fore tibia at apex weakly widened externally. Tarsi robust, 3rd segment with large, broad lobes; claw-segment extending beyond lobes of 3rd segment for length of latter.

*Abdomen*. Ventrites shining, finely punctate; 3rd

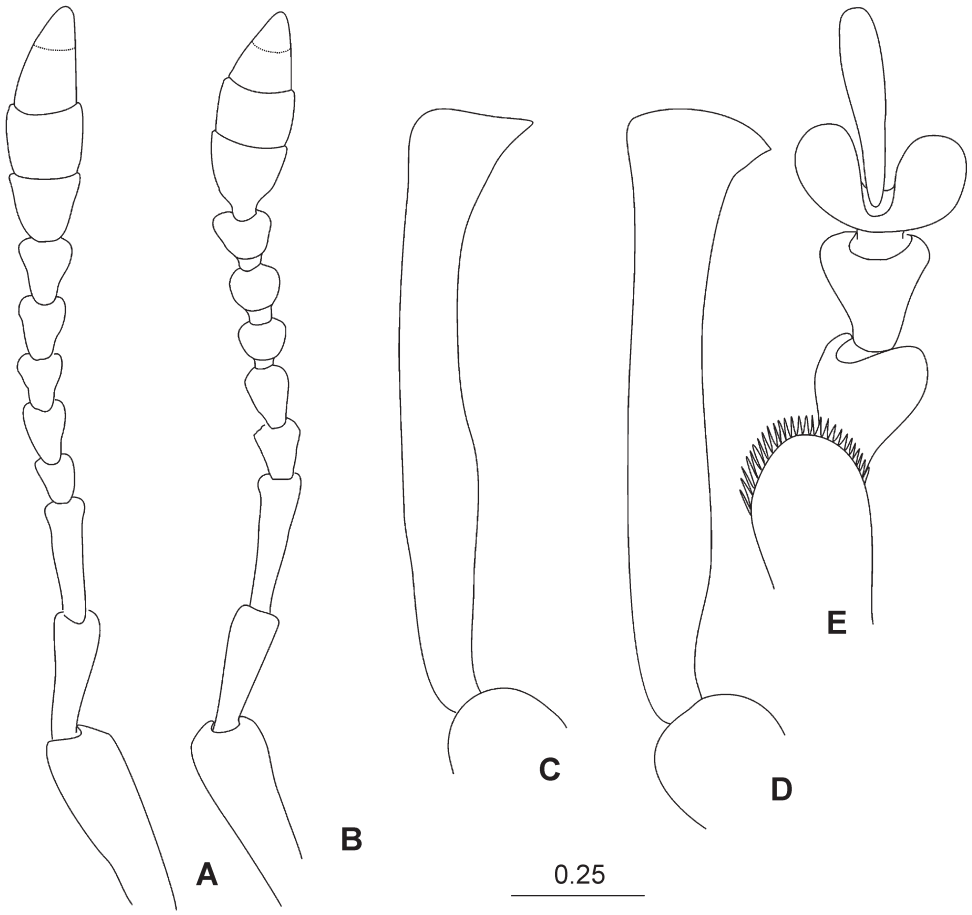


Fig. 5. *Holcolydoprus* spp., female details. (A) *H. bimaculatus*, left antenna; (B) *H. griseus*, left antenna; (C) *H. bimaculatus*, left tibia; (D) *H. griseus*, left tibia; (E) *H. griseus*, right fore tarsus.

and 4th at sides matte owing to dense microsculpture. Anal ventrite triangular, weakly convex in cross-section.

*Type material.* – Holotype, female "ARMENIA: Khosrovsky Forest, sweeping, 13.05.1955, M. M. Loginova" (ZIN). Paratypes, females: "ARMENIA: Khosrovsky Reserve, 25.05.1984, P. Kazaryan" (ZIN, 1); AZERBAIJAN: "Naxçivan, 5–8 km N of Şahbuz, 19-V-1988, B.A. Korotyaev" (ZIN, 1); "Nachitshevan [Naxçivan], Boiachlagh, 28.06.1959, *Chilodrosus phyllobiiformis* Rtt., det. Khnzorian" (MTMB, 1); TURKEY: "Elazığ Prov., 2 km E of Kovançilar, 950 m, 18-V-2001, L. Gültekin" (ECAU, 1).

*Distribution.* – Armenia, Azerbaijan (Naxçivan = Nakhichevan), and Eastern Turkey.

**Habitat**. See the respective chapter on *Araxia mucronata*.

*Etymology.* – Named for the greyish coloration of the body scaling – "*griseus*" meaning "grey".

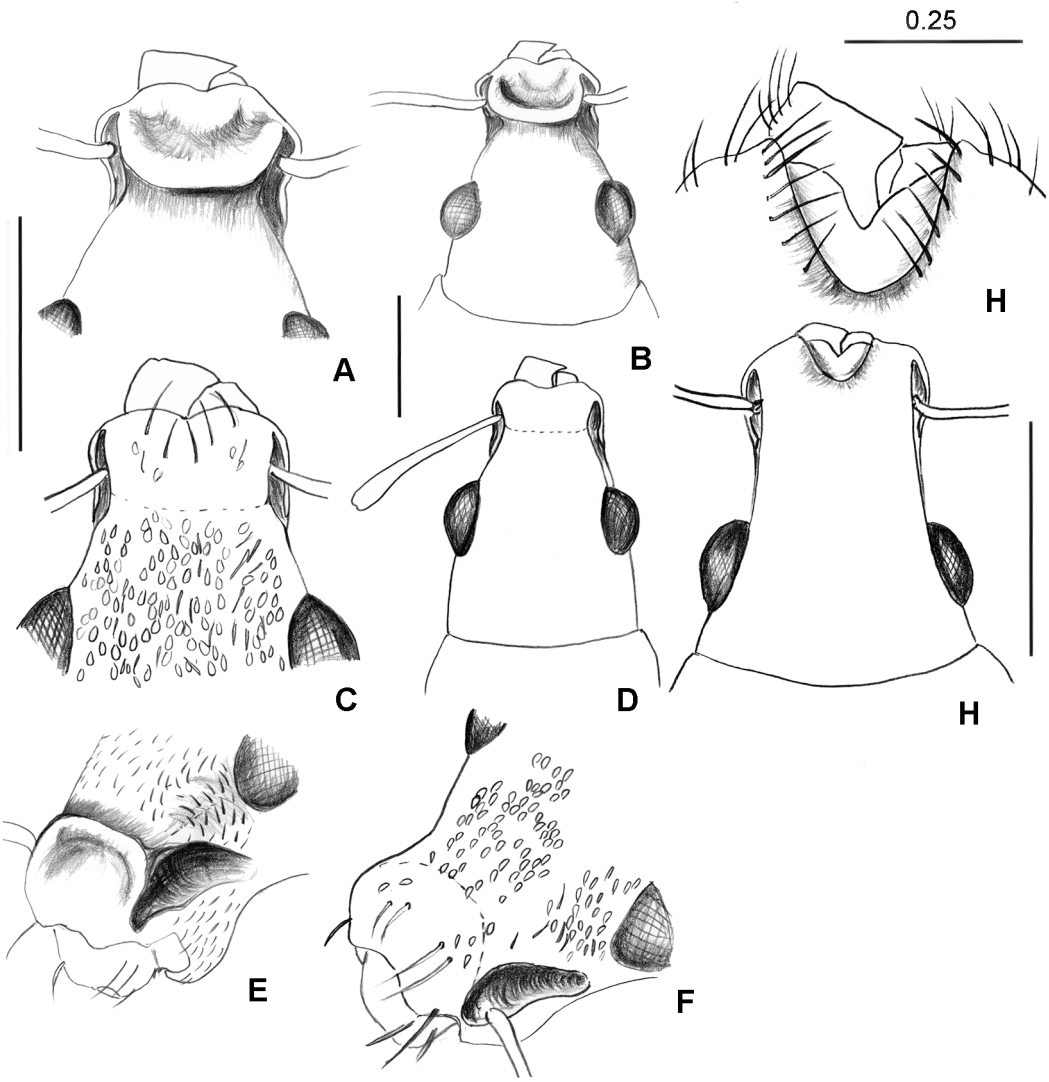


Fig. 6. (A) *Chiloneus siculus*, rostrum, dorsal view; (B) *C. siculus*, head, dorsal view; (C) *Polydrusus* (*Eurodrusus*) *chrysomela*, rostrum, dorsal view; (D) *P. chrysomela*, head, dorsal view; (E) *C. siculus*, rostrum, dorso-lateral view; (F) *P. chrysomela*, rostrum, dorso-lateral view; (G) *Pholicodes lepidopterus*, epistome; (H) *P. lepidopterus*, head.

## Key for identification of *Araxia Khnzorian* and similar genera

1. Tarsal segments very broad, claw-segment extending beyond lobes of 3rd segment by half or less than half own length. Apex of median lobe with lateral blades. Pterygia large, strongly projecting from lateral contour of rostrum ..... 2
– Tarsal segments slender, claw-segment extending beyond lobes of 3rd segment by 2/3 own length. Apex of median lobe simple. Pterygia small, weakly or not projecting from lateral contour of rostrum, their length constituting 1/3–1/2 of rostral length ..... 4
2. Rostrum not separated from frons by transverse depression. Apex of median lobe with membranous lateral blades. Pterygia half as long as rostrum. Dorsal wall of male pygidium not invaginated internally. Body length: 3.0–3.8 mm..... *Euplatinus* Desbrochers (tribe Omiini)
– Rostrum distinctly separated from frons by transverse depression. Apex of median lobe with heavily sclerotized lateral blades. Pterygia 1/3 as long as rostrum. Dorsal wall of male pygidium invaginated internally (Figs 7 A, B)..... 3
3 Body sparsely covered with light hair-like scales and with lanceolate scales, concentrated in small vague spots. Antennal scape straight, thin, slightly and evenly widened apically. Apical third of male fore tibia distinctly incurved. Body length: 5.8–6.3 mm ..... ..... *Aomus Schoenherr (tribe Sciaphilini)*
– Body with dense elliptical metallic-shining scales, evenly covering integument or concentrated in broad longitudinal stripe on sutural and marginal interstriae of elytra. Antennal scape weakly curved, thick, evenly widened apically. Apical third of male fore tibia not incurved. Body length: 4.9–5.7 mm ..... ..... *Eusomomorphus* Daniel (tribe Sciaphilini)
4. Epistome glabrous, separated from rostral dorsum by sharp V-shaped or U-shaped keel, with dense row of coarse setae ..... ..... *Pholicodes* Schoenherr (tribe Brachyderini)
– Epistome moderately coarsely punctate or glabrous, its apical margin without row of small setae and not separated from rest of rostral dorsum by sharp keel ..... 5
5. Epistomal plate strongly convex, U-shaped, moderately coarsely punctate, bare or covered with scales. Body covered with hair-like, lanceolate or oval scales, oblong-ovate, similar to *Sciaphilus*..... 6
– Epistomal plate not convex ..... 7
6. Body covered with lanceolate or oval scales.... ..... *Chiloneus* Schoenherr (tribe Sciaphilini)
– Body covered with hair-like scales ..... ..... *Chilonorrhinus* Reitter (tribe Sciaphilini)
7. Body oblong-ovate, similar to *Polydrusus*. Epistomal plate matte, not separated from rostral dorsum, covered with thin short hairs. Elytra in female strongly convex on disc, in male flattened, with distinct transverse spots of light scales. Femora long and weakly swollen, without lobes at inner apical angle. Hind tibia weakly mucronate. Body of female sternite VIII triangular, with bunch of sensilla; manubrium thin. Anal ventrite of female flat and triangular, female pygidium without membranous spot ..... *Holcolydoprus* gen. n.
– Body robust, oval, similar to *Pholicodes*. Epistomal plate glabrous, bare, shining. Elytra on disc weakly convex, at sides and near apex with vague spotty pattern formed by light scales. Femora short and distinctly swollen, with lobes at inner apical angle. Hind tibia with large mucro. Body of female sternite VIII triangular, manubrium thick. Anal ventrite and pygidium of female roof-shaped, pygidium with membranous spot..... *Araxia* Khnzorian

## Discussion

According to Khnzorian (1957), *Araxia* is related to the tribe Brachyderini, but clearly differs from all its genera in the structure of tarsal claws and in some other features. This opinion was reflected by Alonso-Zarazaga & Lyal (1999) in their World catalogue of weevils. We suppose that *Araxia* has only superficial resemblance with Brachyderini. The similarity of *Araxia* with *Pholicodes* in the structure of VIII sternite is probably a result of a similar manner of the oviposition. There are also differences in the chaetotaxy of lamella of VIII sternite between *Araxia* and *Pholicodes*. In *Araxia mucronata*, lamella of VIII sternite bears very short and thick cirri, forming a short row at the ventro-lateral surface near the apex, and a row along each of the lateral edges (Fig. 1 J). Lamella of VIII sternite in *Pholicodes* has only rows of long and fine cirri at the lateral edges. Structure of the spermatheca in examined specimens of *Araxia mucronata* on the one hand and in *Pholicodes inauratus* Boheman, 1833 and *Brachyderes suturalis* Graells, 1851 on the other hand has significant differences. Firstly, spermatheca in *A. mucronata* has very small spermathecal gland; secondly, it is more slender in shape, and its ramus is absent, but the collum evenly interflows in the cornu. In the above mentioned species of Brachyderini the spermatheca is variable in shape, unlike that of *Araxia mucronata*, having a large spermathecal gland. In *Brachyderes suturalis* the latter is extremely long, more than twice as long as the spermatheca; the ramus is invisible at small magnification, and is clearly visible due to insertion of spermathecal gland only (Fig. 9 I); walls of the bursa copulatrix are densely covered with needle-shaped sclerites. In *Pholicodes inauratus*, the ramus and collum are situated rather closely but dis-

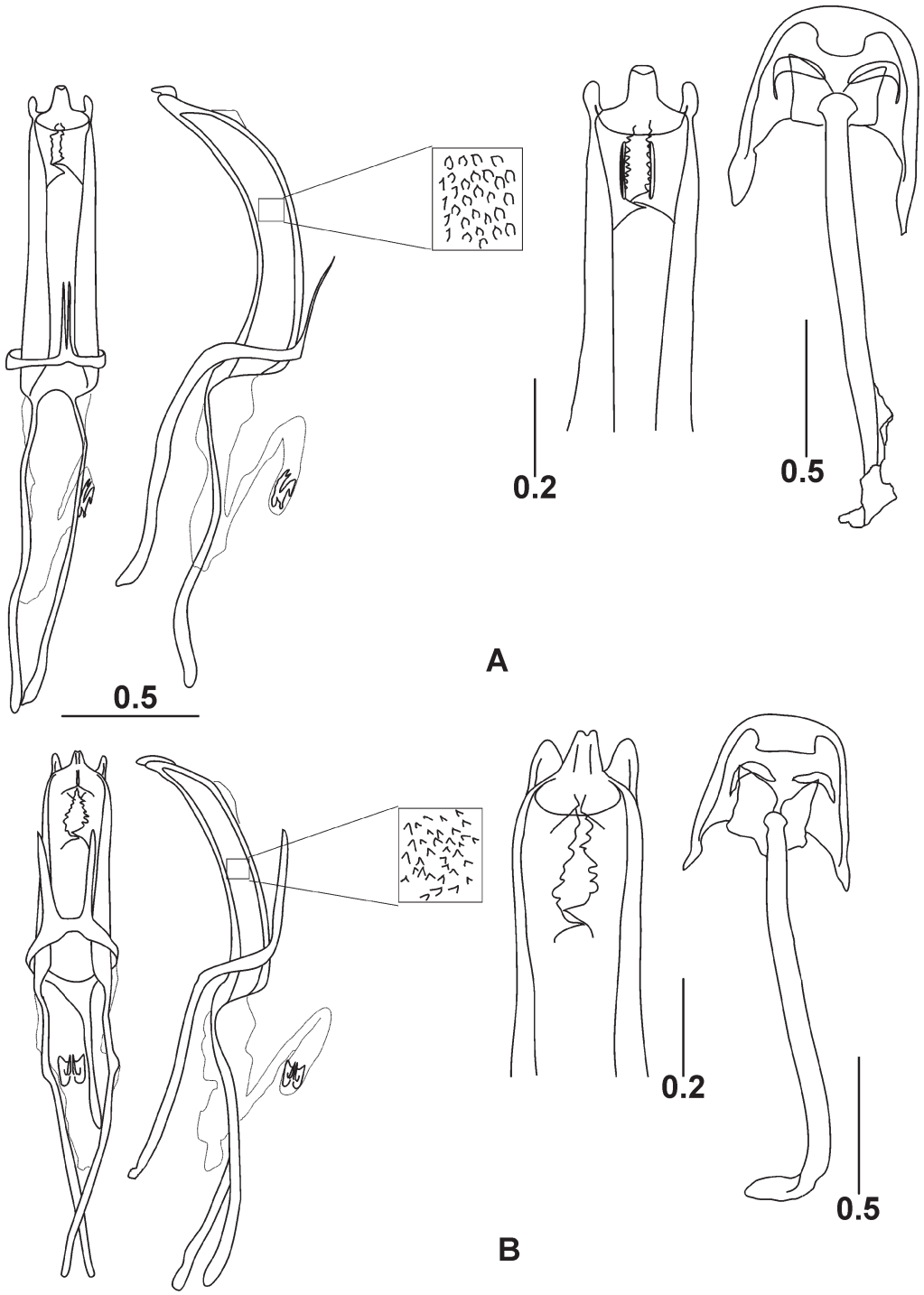


Fig. 7. (A) *Aomus pubescens*, male genitalia; (B) *Eusomomorphus oligops*, male genitalia.

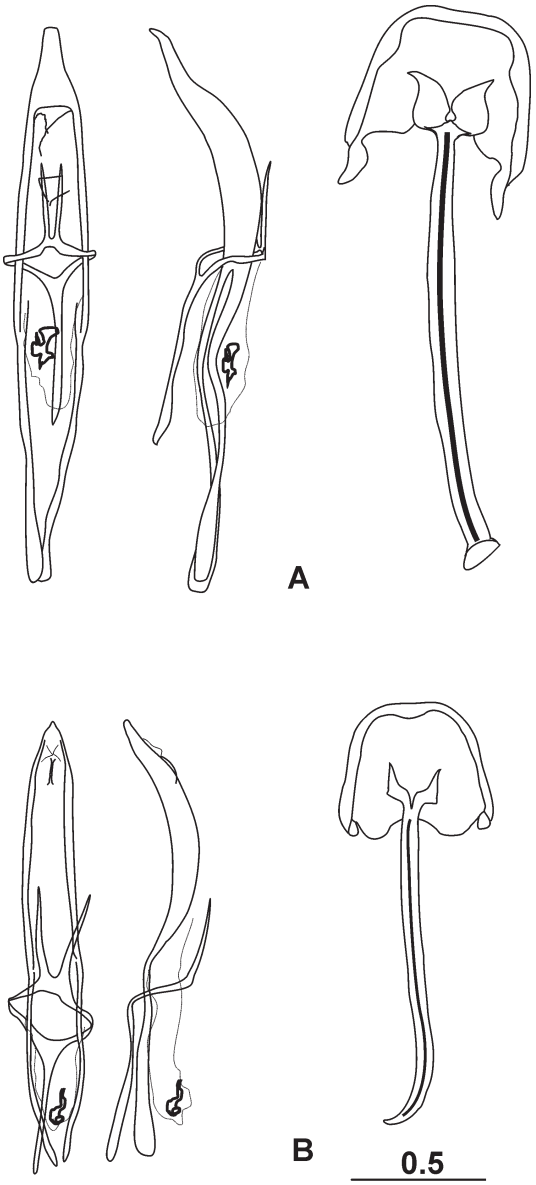


Fig. 8. (A) *Chiloneus siculus*, male genitalia; (B) *Polydrusus* (*Eurodrusus*) *chrysomela*, male genitalia.

tinctly separated; the spermathecal gland is as long as the spermatheca.

It is difficult to compare genera of the tribe Brachyderini with the genus *Araxia* on account of heterogenous composition of Brachyderini. At present, no synapomorphy for all genera of the tribe Brachyderini is known. Ignoring a seeming external sameness of Brachyderini, it is possible to discriminate two morphological groups, differing in the following features.

1. Epistomal plate moderately sharply separated. Epistome flat or distinctly convex, triangular, separated from rest of rostral dorsum by shine line or deep scrobe. Rostrum flat, with distinct longitudinal and transverse sulci. Gonocoxites of ovipositor armed with heavily sclerotized baculi. Styli well developed. Eyes large, weakly convex, or small and strongly convex, sometimes asymmetrical. Head behind eyes occasionally with distinct constriction. Ramus of spermatheca reduced..... Group 1.
*Brachyderes* Schoenherr*, Strophosoma* Billberg*, Caulostrophus* Fairmaire, etc.

– Epistomal plate not separated from rostral dorsum. Epistome separated by sharp, shining, V-shaped, strongly convex keel, reaches the level of antennal insertion. Rostrum flat, often without longitudinal sulci and keels, strongly convex longitudinally. Gonocoxites of ovipositor with slightly sclerotized baculi. Styli reduced. Eyes elliptical, large, weakly convex. Head without constriction behind eyes. Ramus of spermatheca well developed ..... Group 2.
*Pholicodes* Schoenherr*, Strophomorphus* Seidliz*, Epiphanops* Reitter, etc.

*Araxia* differs from genera of Group 1 of Brachyderini in the following features: epistome glabrous, shining, not separated from rostral dorsum by U- or V-shaped furrow, covered with single setae not arranged in U- or V-shaped row; rostral dorsum glabrous, weakly convex in cross-section, without median sulcus and lateral carinae.

From the Group 2, *Araxia* differs mainly in the epistome being separated from rostral dorsum by sharpened V-shaped keel; lateral edges of rostral dorsum not convex and not protruding above antennal scrobes; tarsal claws differing in length; base of pronotum and elytra not tightly fitting to form the lock.

Female genitalia in species of the genera *Pholicodes*, *Strophomorphus* and other members of the Brachyderini group 2 can be characterized by the following features. Gonocoxites of ovipositor without heavily sclerotized longitudinal lines or other armature, styli short, not projecting from lateral contour of ovipositor. Apex of ovipositor banded by dense row of short and very fine setae.

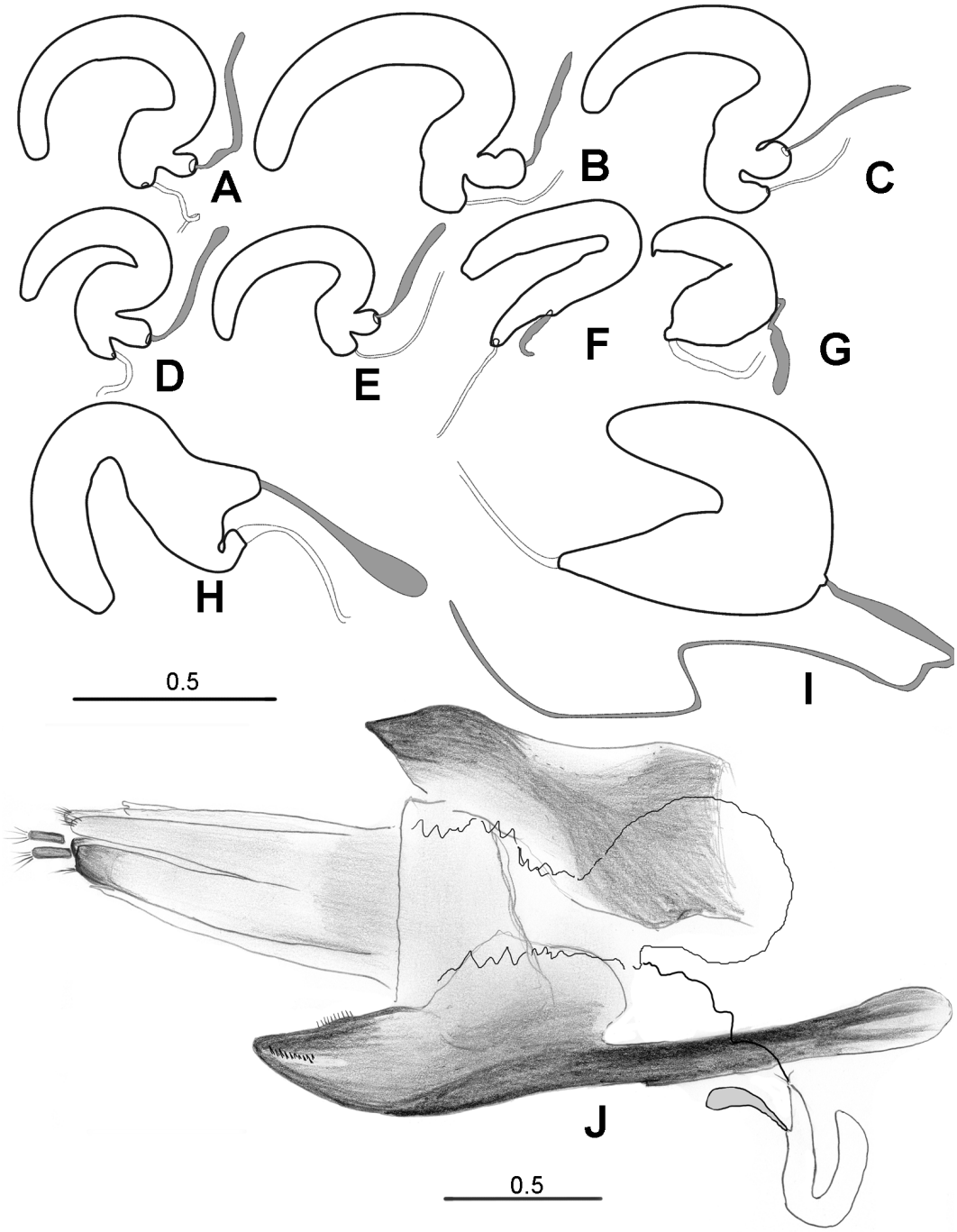


Fig. 9. (A) *Eusomomorphus oligops*, spermatheca; (B) *Aomus pubescens*, spermatheca; (C) *A. reitteri*, spermatheca; (D) *Holcolydoprus bimaculatus*, spermatheca; (E) *H. griseus*, spermatheca; (F) *Araxia mucronata*, spermatheca; (G) *Chiloneus siculus*, spermatheca; (H) *Pholicodes inauratus*, spermatheca; (I) *Brachyderes suturalis*, spermatheca; (J) *A. mucronata*, female genitalia.

VIII tergite and lamella of VIII sternite triangular, forming a spear-shaped "ovipositional organ". Such kind of abdominal segments is usual for numerous groups of Entiminae associated with soil and ovipositing in hard soil. An extent of sclerotization of terminal segments of abdomen, namely VIII tergite and lamella of VIII sternite, and an extent of modification of VIII sternite as an additional "ovipositor" depend on the aridization of the habitat and the soil consistence. This kind of modification is less developed in forest and meadow-forest species. The transformational line of the ovipositor, VIII abdominal tergite, and VIII abdominal sternite in the Entiminae is demonstrated below (Figs 10 A–C):

1. Tergite VIII weakly convex and slightly sclerotized, at apex evenly round; lamella of sternite VIII sharply rounded or obtuse; trans-section of ovipositor almost round or broad-oval..... *Trachyphloeus, Polydrusus, Holcolydoprus*, *Brachyderes**, *Strophosoma**, *Caulostrophus**, *Neliocarus**, *Strophomorphus**, *Pholicodes* (*Pseudopholicodes*)*, *Liophloeus,* and genera of Entimini. (Fig. 10 A).
2. VIII tergite sharply triangularly convex, heavily sclerotized, and sharply rounded at apex; lamella of VIII sternite edged, at apex plough-shaped and with dense setae; ovipositor weakly impressed at sides, elliptical in cross-section ... *Strophomorphus**. (Fig. 10 B).
3. VIII tergite sharply triangulate-convex, heavily sclerotized, edged apically; lamella of VIII sternite plough-shaped, setae at apical margin reduced; ovipositor strongly impressed at sides, narrow-elliptical in cross-section ..... *Chlorophanus* Sahlberg, *Tanymecus* Germar, *Piazomias* Schoenherr, *Pholicodes* (*Pholicodes*) Schoenherr*, *Araxia*, genera of Leptopini etc. (Fig. 10 C).

* Genera of the tribe Brachyderini.

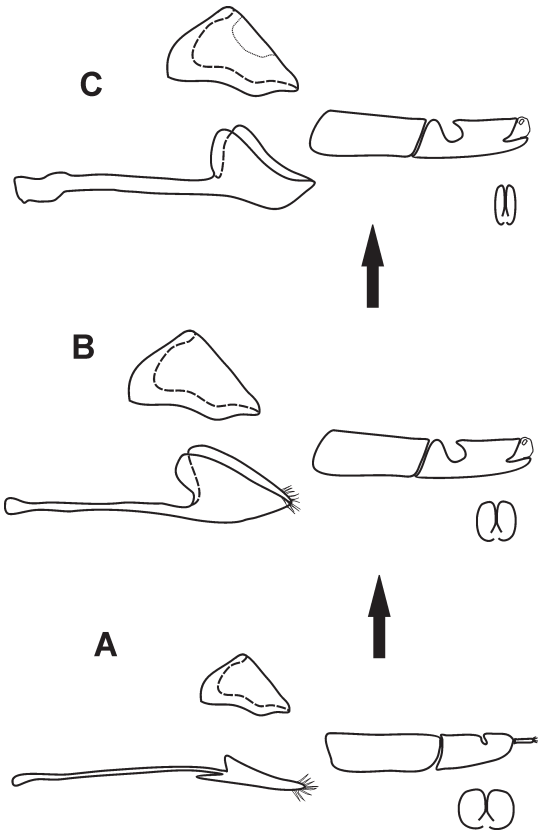


Fig. 10. Evolution of VIII abdominal tergite, spiculum ventrale (VIII sternite) and ovipositor in the Entiminae.

This transformational line shows that any type of modification of the terminal abdominal segments may originate independently in different evolutional lineages of Entiminae. Consequently, such feature may not be used as main criterion for taxonomy. Among the genera of Group 2 of the tribe Brachyderini, all listed morphological types of VIII abdominal tergite and VIII abdominal sternite in female are present. In the genera of Group 1, only the first morphological type of ovipositional complex of abdominal segments is usual.

Detailed comparative-morphological study must be undertaken to discover the natural taxonomic placement of *Araxia* and to put it in the *Chiloneus* generic complex, including *Chiloneus*, *Aomus*, *Eusomomorphus*, and *Holcolydoprus* gen. n. All species of these genera are wingless and have no or rudimentary humeral prominences of the elytra. A significant synapomorphy of *Araxia* + *Chiloneus* + *Aomus* + *Eusomomorphus* + *Holcolydoprus* complex is the epistome hawing single setae.

The genus *Chiloneus* is well defined by two apomorphies: strongly convex, U-shaped epistome and membranous spiculum relictum.

The main synapomorphy of *Araxia* + *Aomus* + *Eusomomorphus* + *Holcolydoprus* is the reduction of the antennal scrobes. The genus *Araxia* is distinctly defined, as it has most significant apomorphies: well developed lobes at the inner apical angle of femora, as a result of consolidation of the

articulation; hind tibiae with bidentate mucro; tarsal claws differing in length. *Araxia* clearly differs from other examined genera in the modified terminal segments of the abdomen (VIII tergite and VIII sternite) as additional ovipositional organ, but has the same structure of ovipositor.

The genera *Holcolydoprus* and *Aomus* + *Eusomomorphus* are characterized by a single apomorphy only. *Holcolydoprus* has slender tarsal segments with moderately reduced sole hair brushes.

The genera *Aomus* + *Eusomomorphus* in the present scheme are united by a single, but very important synapomorphy: the apex of median lobe is divided into three blades.

It is necessary to note that closely related genera *Aomus* and *Eusomomorphus* are similar in the structure of spermatheca (Figs 9 A–C), and also have a peculiar structure of aedeagal apex which is not known in other species of the generic complex. However, the taxonomic weight of this feature must be specified (Figs 7 A, B). The taxonomic position of *Aomus* has been discussed by Fremuth and Lodos (1987). These authors, based on morphological analysis, supposed that placement of *Aomus* in Omiini proposed by Reitter was erroneous. Recently, *Aomus* has been transferred to Laparocerini (Alonso-Zarazaga & Lyal, 1999), but this genus has numerous differences from *Laparocerus* Schoenherr, 1834 and other Laparocerini genera in internal and external morphological features, while manifesting numerous affinities with *Eusomomorphus* and other genera of Sciaphilini. *Aomus* comprises nine species from the Middle East, Turkey and Transcaucasia; most of these have not been studied by us. Examination of a paratype (male) of *Aomus ilerii* Fremuth et Lodos, 1987 has allowed us to find considerable differences of this species from the type species of *Aomus*, *A. pubescens* Boheman, 1834, and its obvious affinity with *Eusomomorphus oligops* Daniel, 1905. Consequently, we transfer *Aomus ilerii* to *Eusomomorphus* Daniel, 1905, and establish a new combination *Eusomomorphus ilerii* (Fremuth et Lodos, 1987), comb. n.

Based on the above-listed characters of the structure of rostrum and genitalia, we suppose that the *Chiloneus* generic complex has originated from a hypothetical winged ancestor which probably was similar to the plesiotypic species of the subgenus *Eurodrusus* Korotyaev & Meleshko, 1997, of *Polydrusus* Germar, especially to *Polydrusus chrysomela* (Ol.). Unlike others species of the subgenus *Eurodrusus*, this has almost straight anterior margin of rostral dorsum, and glabrous, shining and hardly convex epistome (Figs 6 C, D, F).

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