

Two new species of *Microrhagus* from the Russian Far East with notes on some Palaearctic Dirhagini (Coleoptera: Eucnemidae)

Два новых вида *Microrhagus* с Дальнего Востока России с замечаниями по некоторым палеарктическим Dirhagini (Coleoptera: Eucnemidae)

A.V. KOVALEV

А.В. КОВАЛЕВ

A.V. Kovalev, All-Russian Institute of Plant Protection, 3 Podbelsky highway, St Petersburg, Pushkin 196608, Russia.

Zoological Institute of the Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia.

E-Mail: melasis313@gmail.com

Microrhagus nikititskyi sp. nov. and *M. vicarius* sp. nov. are described from the Russian Far East. Based on the holotype, *Balistica elongata* Fleutiaux, 1923 is re-described. The following new combinations are proposed: *Clypeorhagus elongatus* (Fleutiaux, 1923), **comb. nov.** (= *Balistica elongata* Fleutiaux, 1923) and *Dirrhagofarsus ferrugineus* (Reitter, 1889), **comb. nov.** (= *Dirrhagus ferrugineus* Reitter, 1889). A new synonym is established: *Dirrhagofarsus* Fleutiaux, 1935 = *Pseudorhacopus* Olexa, 1975, **syn. nov.** Lectotypes of *Microrhagus pyrenaeus* Bonvouloir, 1872 and *Dirrhagus ferrugineus* Reitter, 1889 are designated; status and distribution of these species are discussed.

С Дальнего Востока России описаны *Microrhagus nikititskyi* sp. nov. и *M. vicarius* sp. nov. Переописан *Balistica elongata* Fleutiaux, 1923 на основании голотипа. Предложены новые комбинации: *Clypeorhagus elongatus* (Fleutiaux, 1923), **comb. nov.** (= *Balistica elongata* Fleutiaux, 1923) и *Dirrhagofarsus ferrugineus* (Reitter, 1889), **comb. nov.** (= *Dirrhagus ferrugineus* Reitter, 1889). Установлена новая синонимия: *Dirrhagofarsus* Fleutiaux, 1935 = *Pseudorhacopus* Olexa, 1975, **syn. nov.** Для *Microrhagus pyrenaeus* Bonvouloir, 1872 и *Dirrhagus ferrugineus* Reitter, 1889 обозначены лектотипы, и обсуждается таксономический статус и распространение этих видов.

Key words: false click beetles, new species, re-description, new combinations, new synonym, lectotypes designation

Ключевые слова: жуки-древоеды, новые виды, переописание, новые комбинации, новый синоним, обозначение лектотипов

INTRODUCTION

Tribe Dirhagini Reitter, 1911 is a large and worldwide distributed group of Eucnemidae, which is currently represented in the Palaearctic Region by 35 described species from 12 genera (Muona, 2007; Kovalev, 2013; Otto, 2016). Recent studies revealed two new species of the genus *Microrhagus* Dejean, 1829 in the Primorskiy Territory, Russia. The concept of this genus is used here in accordance with Muona (1993).

Nevertheless this diverse and heterogeneous genus needs a further revision, and the generic assignment of some *Microrhagus* could need reassessment. The specimens of these new species were formerly identified as *Rhacopus elongatus* (Fleutiaux, 1923) from the Russian Far East by Gratshev (1992), as a result of a previous misidentification of *Balistica elongata* Fleutiaux, 1923 from Japan by Hisamatsu (1960, 1985), who considered this species first (1960) within the genus *Dirrhagus* Latreille, 1834

and later (1985) within the genus *Rhacopus* Hampe, 1855. The Japanese specimens of *Dirrhagus elongatus* sensu Hisamatsu, 1960 and *Rhacopus elongatus* sensu Hisamatsu, 1985 could belong either to one of these new species, or to still undescribed new species. In the present paper, after a current comparison of various genera within Dirrhagini, new generic combinations are proposed for *Balistica elongata* Fleutiaux, 1923 и *Dirrhagus ferrugineus* Reitter, 1889.

MATERIALS AND METHODS

Habitus photographs were taken using Canon EOS 40D digital camera with a Canon MP-E 65 mm objective and Leica MZ9.5 stereo microscope equipped with a Leica DFC290 digital camera from dry specimens and were combined using the Helicon Focus software. Male genitalia, following standard preparation procedure was either placed in a drop of Euparal on a plastic card or placed in a microvial filled with glycerol and pinned beneath the dissected specimen.

The materials used for this study are deposited in the following museums and institutions: Hungarian Natural History Museum (Magyar Természettudományi Múzeum), Budapest (HNHM); Natural History Museum, London (BMNH); National Museum of Natural History (Muséum national d'Histoire naturelle), Paris (MNHN); Zoological Institute of Russian Academy of Sciences, Saint Petersburg (ZIN); Zoological Museum of Moscow State University, Moscow (ZMUM).

TAXONOMIC PART

Family **EUCNEMIDAE** Eschscholtz, 1829

Subfamily **MELASINAE** Fleming, 1821

Tribe **DIRRHAGINI** Reitter, 1911

Genus *Microrhagus* Dejean, 1833

Microrhagus nikitskyi sp. nov.

(Figs 1, 5–13, 31–32)

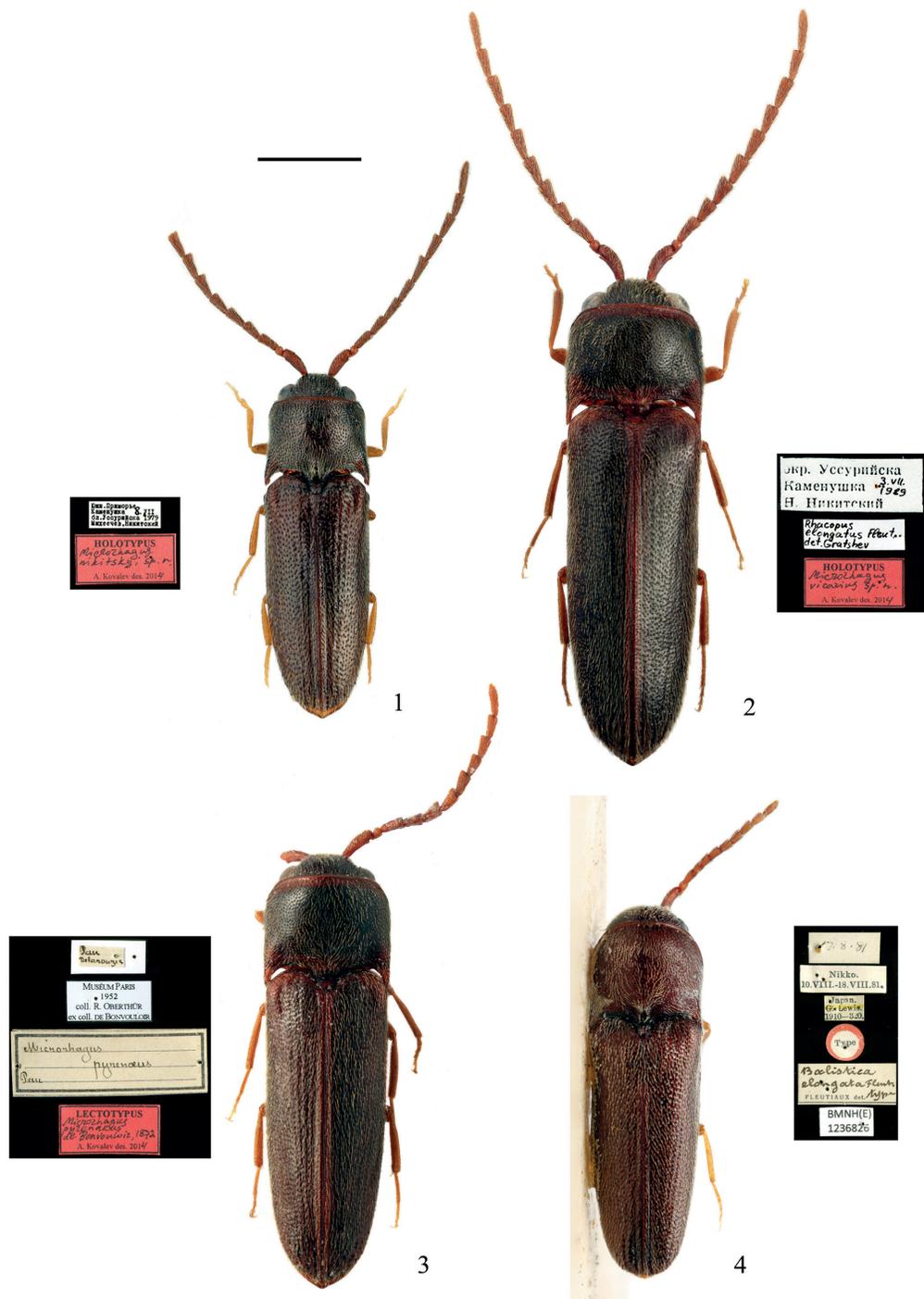
Holotype. Male (Fig. 1): **Russia**, *Primorskiy Terr.*, “Yuzhn. Primor’e, Kamenushka bl.

Ussuriyska, Mikheechev, Nikitsky, 8.VII.1979” [printed, date partly handwritten, in Cyrillic script; South Primorye, Kamenushka near Ussuriysk, 8.VII.1979, A.V. Mikheechev & N.B. Nikitsky leg.] (ZMUM).

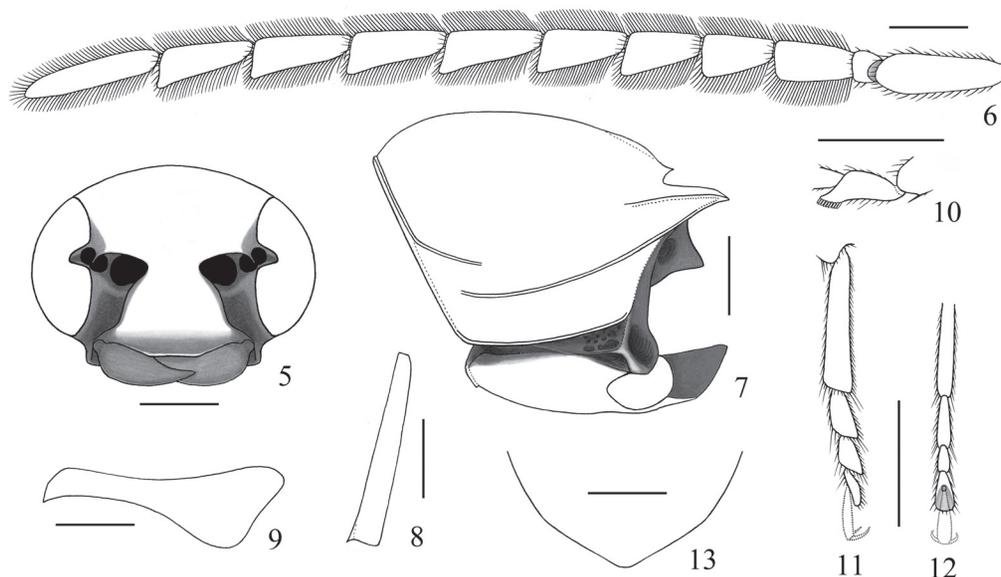
Description. Male (holotype). Body elongate, convex, subparallel, widest at humeral angles (Fig. 1). Length 3.20 mm, width 0.97 mm.

Piceous black; anterior margin of pronotum distinctly and elytra faintly lighter; antennae dark brown; legs yellowish brown, with femora slightly darkened and tarsi lighter. Head slightly shiny; pronotum and elytra distinctly shiny. Dorsum with short, fine, recumbent yellowish pubescence. Venter coarsely, densely punctate, and covered with fine, yellowish pubescence.

Head (Fig. 5) large, frons slightly convex, slightly longitudinally impressed medially. Punctuation dense and fine; interspaces between punctures about as great as or somewhat less than diameter of one puncture. Eyes large, convex and strongly prominent; inner margin of eye over antennal groove distinctly incised by subtriangular projection of frons, bearing deep antecular pit. Distance between inner edges of antennal insertions approximately equal to distance between inner edge of antennal insertion and inner margin of eye. Epistomal part of epicranium subtrapezoidal, with poorly defined lateral carina between antennal groove and base of mandibles. Antennae (Fig. 6) long, about three quarters as long as body length, slender, feebly serrate, with dense, long, light suberect setae. Antennomere 3 subtriangular, about 2.4 times as long as wide and about 1.25 times as long as antennomere 4, anteroapical angle not produced, rounded. Antennomere 4 subtriangular, about 1.5 times as long as wide, with narrowly rounded anteroapical angle. Antennomeres 5–10 subtriangular with distinctly produced anteroapical angles, gradually becoming longer and more slender towards apex: ratio of length/maximum width of antennomere 5 about 1.75, of antennomere 10 about 2.4. Antennomere 11



Figs 1–4. Dirhagini spp., dorsal habitus with corresponding labels. **1.** *Microrhagus nikitskyi* sp. nov., holotype; **2.** *M. vicarius* sp. nov., holotype; **3.** *M. pyrenaicus*, lectotype; **4.** *Balistica elongata*, holotype. Scale bar: 1.0 mm.



Figs 5–13. *Microrhagus nikitskyi* sp. nov. **5**, head, frontal view; **6**, male antenna; **7**, prothorax, lateral view; **8**, right metepisternum; **9**, right metacoxal femoral plate; **10**, male protarsomere 1, lateral view; **11**, metatarsus, lateral view; **12**, ditto, dorsal view; **13**, apex of male last abdominal ventrite. Scale bars: 0.2 mm.

elongate, about 5.2 times as long as wide and 1.7 times as long as antennomere 10.

Pronotum transverse, widest before posterior angles, about 1.3 times as wide as long at midline and approximately 1.7 times as wide as head. Surface with fine, moderately dense, oval punctures; interspaces between punctures approximately equal to transverse diameter of one puncture. Lateral sides convex at anterior half, slightly concave near the middle, and arcuate and diverging towards posterior angles. Anterior pronotal margin with convex, finely crenulate ridge, which is continuous with anterior lateral carina. Pronotal disc moderately convex, without lateral impressions or median groove, distinctly declined posteriorly, depressed on the sides towards posterior angles and on the base. Base of pronotum before antescutellar lobe with short, convex median carina. Posterior angles strongly divergent, with slightly bent dorsal carinae. Anterior lateral carina (Fig. 7) short, about one-fifth as long as pronotal length along

the middle. Posterior lateral carina long, not extending to anterior margin.

Scutellum subflattened, subtriangular and apically rounded, surface rugosely punctate. Elytra elongate, about 2.3 times as long as wide combined and 2.8 times as long as pronotum, widest at base, at basal two-thirds subparallel-sided, at apical third gradually narrowing to conjointly rounded apices. Surfaces with nearly regular rows of punctures at basal half, becoming apically irregular; punctures somewhat larger than those on pronotum, separated by 1–3 diameters of one puncture. Elytral striae weakly impressed, except sutural striae; becoming deeper and wider apically, with large hole-like punctures near the elytral apex. Lateral elytral carina sinuous, strongly prominent basally and dorsally visible. Epipleura strongly narrowed posteriorly.

Prosternum convex, notosternal sutures discernible nearest to procoxal cavities. Prosternal process from lateral view as in Fig. 7. Prohypomeron completely separated

from profemoral cavity by a poorly defined basal ridge. Internal part of prohypomeron strongly impressed, forming an antennal groove, completely separated from external part by a sharp carina, which is continuous with basal ridge. Antennal groove subparallel-sided, somewhat narrower than external part of prohypomeron between posterior lateral carina of prothorax and outer carina of antennal groove, rather deep, nearly smooth with several large punctures at base. Internobasal angle of the prohypomeron near procoxal cavity with subtriangular anterior prohypomeral pit, which is separated externally by ridge from antennal groove, delimited posteriorly and vaguely defined internally. Posterior prohypomeral pit large, deep, suboval. Metepisterna (Fig. 8) moderately narrow, subparallel, faintly widened posteriorly. Metacoxal femoral plates (Fig. 9) distinctly lengthened mesally. Abdomen convex, last visible abdominal ventrite obtusely pointed apically (Fig. 13).

Legs short and slender. Protarsomere 1 (Fig. 10) ventroapically produced and bearing sex comb consisting of 9 spines. Metatarsomere 1 distinctly longer than metatarsomeres 2–4 combined. Metatarsomere 4 distinctly wider than preceding segment; apically widened, slightly excavated dorsally and lobed ventrally. Metatarsomere 5 attached near the middle of metatarsomere 4 (Figs 11–12).

Aedeagus (Figs 31–32) weakly sclerotized. Phallobase spoon-shaped, rounded at base. Remaining part of aedeagus gradually widening three-fourths of its length towards apex. Penis slightly concave apically. Endophallus membranous, with numerous denticles and with very long, sclerotized apical spicula. Ventral plate apically enlarged, bilobed; each lobe apically rounded, bearing numerous setae.

Differential diagnosis. *Microrhagus nikitskyi* **sp. nov.** should be attributed to the genus *Microrhagus* on the basis of the following characters: inner margin of eyes with deep pits; head without lateral keels on frons and transverse belt of microcombs

on vertex; antennomere 3 elongate, longer than antennomere 4; lateral pronotal carinae divided; internal part of prohypomera with well-developed antennal grooves, completely separated by keel externally; internal and posterior sides of anterior prohypomeral pit not defined by ridges; meso- and metatarsomeres 4 widened apically, excavated dorsally and wider than preceding tarsomere; metacoxal plates lengthened mesally; males with apical sex comb of spines on protarsomere 1; aedeagus with well-developed ventral plate. The new species is distinct from the Palaearctic congeners in the eyes with the deeply incised inner margin, and also in a combination of the following characters: widely separated antennal insertions, long and feebly serrate antennae in males, pronotum with short anterior and long posterior lateral carinae, as well as structure of aedeagus. *Microrhagus nikitskyi* **sp. nov.** somewhat resembles *M. pyrenaicus* Bonvouloir, 1872 and *M. vicarius* **sp. nov.** in the widely separated antennal insertions, feebly serrate antennae, pronotum with short anterior and long posterior lateral carinae, but differs from both in deeply incised inner margins of the eyes, longer antennae with long setae on antennomeres, punctate antennal grooves, wider metepisterna, simple metafemora, non-modified metatibial apical spur in males and structure of aedeagus. The eye outline of *M. nikitskyi* **sp. nov.** is unique among Palaearctic members of *Microrhagus*, but similar to that in species of *Entomophthalmus* Bonvouloir, 1871 and *Brevisegmentus* Otto, 2016. However, the members of these two genera differ from the new species by the antennae with antennomere 3 more or less reduced and shorter than antennomere 4, and additionally, the monobasic *Brevisementus* also differs in the sex comb along the entire length of the protarsomere 1 in males.

Etymology. The new species is named in honour of its collector, the outstanding coleopterist Dr. Nikolay B. Nikitsky (Moscow).

Distribution. Russian Far East (Primorskiy Territory).

***Microrhagus vicarius* sp. nov.**

(Figs 2, 14–25, 33)

Holotype. Male (Fig. 2): **Russia, Primorskiy Terr.**, “okr. Ussuriyska, Kamenushka, N. Nikitsky, 3.VII.1989” [printed, date handwritten, in Cyrillic script; Ussuriysk env., Kamenushka, 3.VII.1989, N.B. Nikitsky leg.] (ZMUM).

Paratypes. **Russia, Primorskiy Terr.:** “Yu Primor’e, Kamenushka bl. Ussuriysk, 21.VI.1980, Nikitsky, Belov” [printed, in Cyrillic script; South Primorye, Kamenushka near Ussuriysk, 21.VI.1980, N.B. Nikitsky & V.V. Belov leg.], 1 male and 3 females (ZMUM); “Primorskiy kray, r. Cheremukhovaya, 15 km nizhe Cheremshan, Kamenny klyuch, 7.VIII.1986, Zherikhin, Gratshev leg.” [printed, in Cyrillic script; Primorskiy Territory, Cheremukhovaya river, 15 km downstream of Cheremshany village, Kamenny Klyuch, 7.VIII.1986, V.V. Zherikhin & V.G. Gratshev leg.], 1 male (ZMUM); “Primorsky Kray, Lazovsky Nature Reserve, kordon America, 17.VII.2005, K.S. Nadein lgt.” [printed], 1 male (ZIN); “Primorsky Kray, Shkotovsky Distr., Anisimovka vill. env., flight intercept traps, 5.VII–5.VIII.2012, S.I. Alexeenko lgt.” [printed], 1 male and 1 female (ZIN).

Description. Male (holotype). Body elongate, convex, widest before posterior angles of pronotum (Fig. 2). Length 4.55 mm, width 1.27 mm.

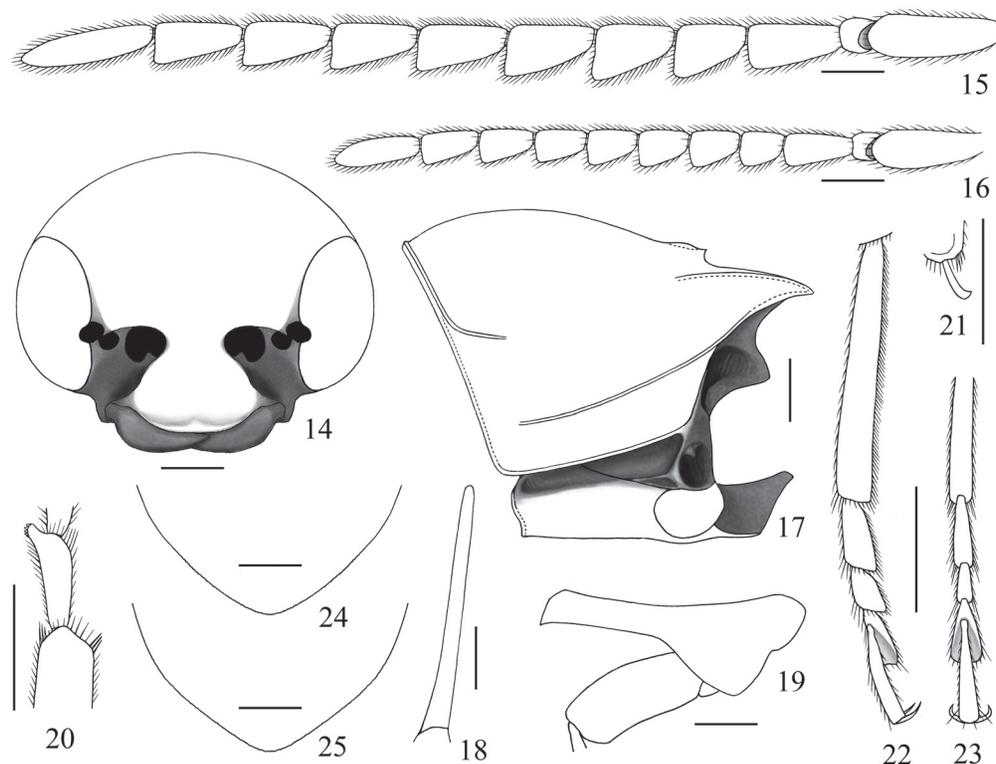
Brownish-black except anterior and posterior margins of pronotum, scutellum, basal, lateral and sutural margins of elytra, epipleura, marginal areas of the prosternum, mesoventrite with mesepimera, metepisterna, as well as margins of the metacoxal plates, metaventrite and abdominal ventrites which are light brown to brownish-red; antennae brown; legs light reddish-brown, with femora slightly darkened and tarsi lighter. Dorsum moderately shining, with short, fine, recumbent yellowish pubescence. Venter densely punctate and covered with fine yellowish pubescence.

Head (Fig. 14) large, frons slightly convex. Surface with dense, subocellate punctures; interspaces between punctures somewhat narrower than diameter of one puncture. Eyes large, convex and prominent; inner margin of eye over antennal

groove slightly incised by projection of frons bearing deep anteocular pit. Distance between inner edges of antennal insertions about 0.7 times as long as distance from inner edge of antennal insertion to inner margin of eye. Epistomal part of epicranium subtrapezoidal, with poorly defined lateral carina between antennal groove and base of mandibles. Antennae (Fig. 15) long, about 0.6 times as long as body length, slender, feebly serrate, with dense, moderately long, light semi-erect setae. Antennomere 3 subtrapezoidal, about twice as long as wide and 1.25 times as long as antennomere 4, anteroapical angle not produced, rounded. Antennomere 4 subtriangular, 1.45 times as long as wide, with rounded anteroapical angle. Antennomeres 5–10 subtriangular with slightly produced anteroapical angles, gradually becoming longer and more slender towards apex: ratio length/maximum width of antennomere 5 about 1.4, and of antennomere 10 about 2.2. Antennomere 11 elongate, 4.25 times as long as wide and 1.45 times as long as antennomere 10.

Pronotum 1.25 times as wide as long at midline and 1.2 times as wide as head, widest before posterior angles; lateral sides nearly straight, subparallel, slightly arcuate and converging at apex. Surface with very dense, round, subocellate punctures; interspaces between punctures somewhat narrower than diameter of one puncture. Anterior pronotal margin with convex, finely crenulate ridge, which is continuous with anterior lateral carina. Pronotal disc convex, somewhat flattened along midline, declined posteriorly, depressed at sides towards posterior angles and base. Base of pronotum before antescutellar lobe distinctly elevated medially. Posterior angles slightly divergent, with nearly straight dorsal carinae. Anterior lateral carina (Fig. 17) short, about one-fifth as long as pronotum along the middle. Posterior lateral carina long, not extending to anterior margin.

Scutellum nearly flattened, subtriangular and apically rounded, surface sparsely punctate.



Figs 14–25. *Microrhagus vicarius* sp. nov. 14, head, frontal view; 15, male antenna; 16, female antenna; 17, prothorax, lateral view; 18, right metepisternum; 19, right metacoxal femoral plate and metafemur; 20, male protarsomere 1, lateral view; 21, male metatibial apical spur; 22, metatarsus, lateral view; 23, ditto, dorsal view; 24, apex of male last abdominal ventrite; 25, apex of female last abdominal ventrite. Scale bars: 0.2 mm.

Elytra elongate, about 2.6 times as long as wide combined and 3.45 times as long as pronotum, widest at base, gradually narrowing to conjointly rounded apices. Punctuation mostly irregular, denser at base and moderately dense elsewhere; punctures somewhat larger than those on pronotum, separated by about 0.5–2.0 diameters of one puncture. Elytral striae weakly impressed, except sutural striae; becoming deeper and wider apically, with large hole-like punctures near the elytral apex. Epipleura strongly narrowed posteriorly.

Prosternum convex, notosternal sutures well-expressed in posterior half of prothorax. Prosternal process from lateral view as in Fig. 17. Prohypomeron distinctly separated from profemoral cavity by a

well defined basal ridge. Internal part of prohypomeron strongly impressed, forming antennal groove, completely separated from external part by sharp carina, which is continuous with basal ridge. Antennal groove subparallel-sided, distinctly narrower than external part of prohypomeron between posterior lateral carina of prothorax and outer carina of antennal groove, rather deep and nearly smooth. Internobasal angle of the prohypomeron near procoxal cavity with elongate subtriangular anterior prohypomerital pit, separated by ridge externally from antennal groove, delimited posteriorly and vaguely defined internally. Posterior prohypomerital pit very large, deep, sub-circular with projection on upper wall. Metepisterna (Fig. 18) nar-

row, subparallel, slightly widened posteriorly. Metacoxal femoral plates (Fig. 19) distinctly lengthened mesally, its posterior margin distinctly emarginate near coxa-trochanter joint. Abdomen evenly convex, last abdominal ventrite obtusely subangular apically (Fig. 24).

Legs short and slender. Protarsomere 1 (Fig. 20) distinctly produced ventroapically, bearing sex comb consisting of 4–5 small light spines. Metafemora (Fig. 19) somewhat apically widened and subparallel. Metatibial apical spur (Fig. 21) distinctly curved. Metatarsomere 1 long, distinctly longer than metatarsomeres 2–5 combined. Metatarsomere 4 much wider than preceding segment, apically widened, dorsally excavated and ventrally lobed. Metatarsomere 5 attached before the middle of metatarsomere 4, about as long as metatarsomeres 3 and 4 combined (Fig. 22–23).

Aedeagus (Fig. 33) weakly sclerotized. Phallobase large, rounded at base. Remaining part of aedeagus distinctly widened apically. Penis slightly concave apically, with narrow apical bordered edge. Endophallus membranous, covered with microscopic denticles, with long apical spicula. Ventral plate large, transverse, membranous, bladder-like, apically with numerous setiferous tubercles.

Female (paratypes). Antennae (Fig. 16) rather short, about as long as half of the body length, feebly serrate. Antennomere 3 subtrapezoidal, with widely rounded anteroapical angle, about twice as long as wide and about 1.65 times as long as antennomere 4. Antennomere 4 about 1.3 times as long as wide, with rounded anteroapical angle. Antennomeres 5 to 10 gradually becoming longer and more slender towards apex (ratio length/maximum width of antennomere 5 about 1.4; of antennomere 10 about 1.9), with more or less rounded anteroapical angles. Antennomere 11 elongate, about 3.5 times as long as wide and 1.45 times as long as antennomere 10. Last abdominal ventrite as in Fig. 25. Protarsomere 1 simple. Metatibial apical spur fine and straight.

Body length range 4.30–4.90 mm in male paratypes and 4.60–5.85 mm in female paratypes. General colouration varies greatly from dark brown to brownish-black, with lighter margins of sclerites among all examined paratypes of both sexes.

Differential diagnosis. *Microrhagus vicarius* **sp. nov.** as the previous new species should be attributed to the genus *Microrhagus* on the basis of the following characters: presence of deep pits on inner margin of eyes; absence of lateral keels on frons and transverse belt of microcombs on vertex; elongate antennomere 3; divided lateral pronotal carinae; internal part of prohypomera with well-developed antennal grooves, completely separated by keel externally; internal and posterior sides of anterior prohypomeral pit not defined by ridges; meso- and metatarsomeres 4 widened apically and dorsally excavated, wider than preceding tarsomere; metacoxal plates lengthened mesally; protarsomere 1 in males with apical sex comb of spines; and aedeagus with well-developed ventral plate. The widely separated antennal insertions, slightly notched inner margins of the eyes, feebly serrate antennae, pronotum with short anterior and long posterior lateral carinae, as well as the curved metatibial apical spur in males and specific structure of the aedeagus of *M. vicarius* **sp. nov.** are very similar to those in the European *M. pyrenaeus* Bonvouloir, 1872. The new species differs from the latter in the longer meso- and metatarsomere 1 (Fig. 22), elevated pronotal base in front of the antescutellar lobe, longer posterior lateral carina of pronotum (Fig. 17), denser punctation on the head and pronotum, and also in the less parallel-sided aedeagus with the narrow apical bordered edge of penis (Fig. 33). The largely disrupted ranges of these taxa also can be used as an evidence of their specific status. The new species also resembles externally the two Palaearctic species of the genus *Dirrhagofarsus*, *D. attenuatus* (Mäklin, 1845) and *D. modestus* (Fleutiaux, 1923), by the general colouration, widely separated antennal insertions,

feebly serrate antennae and lateral pronotal carinae similarly disposed, but differs from them in the absence of lateral frontal keels and transverse belt of microcombs on the vertex, and in having more transverse prothorax, shorter metacoxal femoral plates, subparallel metafemora, narrowly rounded apex of the last visible abdominal ventrite, well-developed sex comb on the protarsomere 1 and modified metatibial apical spur in males, and particularly in the aedeagus with large membranous ventral plate.

Etymology. The species name is a Latin adjective meaning “replacing” or “substituting”.

Distribution. Russian Far East (Primorskiy Territory).

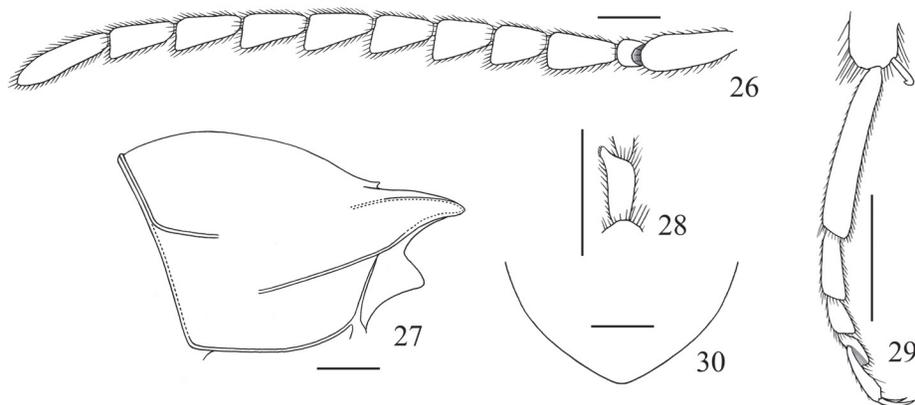
Microrhagus pyrenaicus Bonvouloir, 1872 (Figs 3, 26–30, 34)

Material examined. *Lectotype* (here designated) (Fig. 3), male, with labels “Pau Delarouzeé” [handwritten], “Muséum Paris 1952 coll. R. Oberthür ex coll. de Bonvouloir” [printed], “*Microrhagus pyrenaicus* Pau” [handwritten, large box label with black frame] (MNHN). *Paralectotype*, male: “*Microrhagus pyrenaicus*. Pau Delarouzeé” [handwritten], “le Heydeni Kr. cette même ex. typ. A.F.” [handwritten by Fauvel], “Fairmaire” [handwritten], “Muséum Paris Collection Léon Fairmaire 1906” [printed], “Bonvouloir det. sec. [handwritten] Fleu-

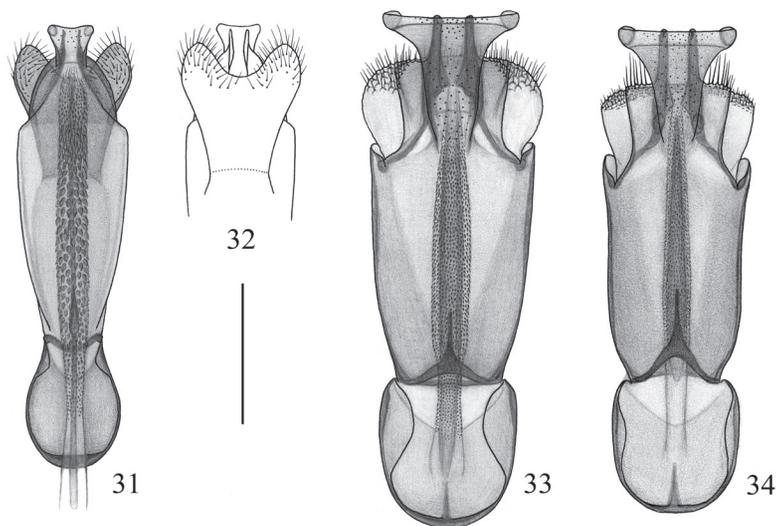
tiaux [printed]” (MNHN). **Additional material.** **Germany**, “*Dirhagus pyrenaicus* Bonv. heydeni Krtz. Frankfurt”, “795/17”, 1 female (HNHM); “Frankfurt a[m]. M[ain]. pyrenaicus? v[on]. Heyden”, “*Dirrhagus pyrenaicus* Bonv. Coll. Reitter”, 1 female (HNHM); **Croatia**, “Budinsčina”, 1 female (HNHM).

Remarks. *Microrhagus pyrenaicus* was described from five specimens from “Pau” (Bonvouloir, 1872), however, only two syntypes were found in MNHN, one of which is designated here as a lectotype. This species is extremely similar to *M. vicarius* **sp. nov.**, but differs from the latter species in the following distinctive characters: meso- and metatarsomere 1 moderately long, metatarsomere 1 about as long as metatarsomeres 2–5 combined (Fig. 29); pronotal base in front of the antescutellar lobe subflattened, without longitudinal elevation; posterior lateral carina of pronotum (Fig. 27) far not reaching anterior margin of pronotum; punctation on the head and pronotum dense, interspaces between punctures on pronotal disc about as large as diameter of one puncture; aedeagus nearly parallel-sided, with apical bordered edge of the penis larger than that in *M. vicarius* **sp. nov.** (Fig. 34).

Distribution. This rare species is distributed in Central and South Europe and currently known from France (Bonvouloir, 1872; Brustel & Van Meer, 2008; Chambord



Figs 26–30. *Microrhagus pyrenaicus*. **26**, male antenna; **27**, prothorax, lateral view; **28**, male protarsomere 1; **29**, metatarsus, lateral view; **30**, apex of male last abdominal ventrite. Scale bars: 0.2 mm.



Figs 31–34. *Microrhagus*. **31, 32,** *M. nikitskyi* sp. nov.; **33,** *M. vicarius* sp. nov.; **34,** *M. pyrenaicus*. Aedeagus, dorsal view (31, 33, 34), apex of aedeagus, ventral view (32). Scale bar: 0.2 mm.

et al. 2009), Switzerland (Chittaro & Blanc, 2012), Germany (Heyden, 1889; Reitter, 1921), Czech Republic (Vávra et al., 2014), Poland (Hilszczański et al., 2015), Italy (De Zan et al., 2014), Croatia (first record), Greece (Mertlik et al., 2009), and Bulgaria (Burakowski, 1991).

Genus *Clypeorhagus* Olexa, 1975

Clypeorhagus elongatus (Fleutiaux, 1923), **comb. nov.**
(Figs 4, 35–42)

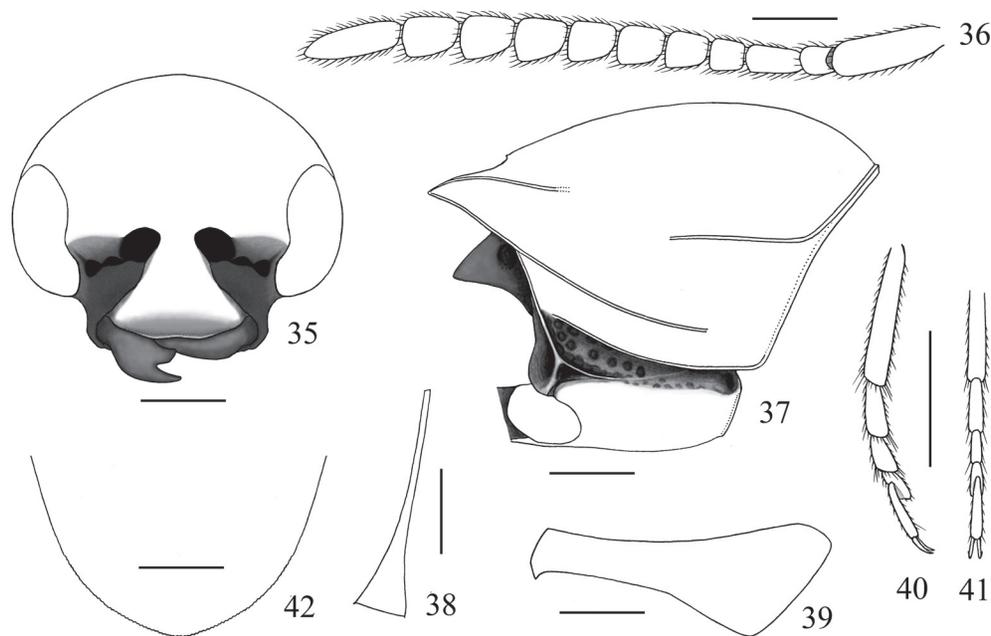
Balistica elongata Fleutiaux, 1923: 314.

Material examined. *Holotype*, female (Fig. 4), glued to a paper card with corresponding labels: “17.8.81” [handwritten on the same card on which the specimen is glued], “Nikko. 10.VIII.–18.VIII.81” [printed], “Japan. G. Lewis. 1910–320.” [printed, white label with yellow stripe], “Type” [printed, circular label with red margin], “*Balistica elongata* Fleut. Type. [handwritten] Fleutiaux det. [printed]”, “BMNH(E) 1236826” [printed] (BMNH).

Redescription. Female (holotype). Body elongate, convex, somewhat tapering posteriorly, widest between pronotal hind angles (Fig. 4). Length 3.50 mm, width 1.07 mm.

Dark reddish-brown, anterior pronotal margin somewhat lighter; antennae reddish-brown; legs yellowish-brown, with tarsi lighter. Head, pronotum and elytra moderately shining. Entire body with short, fine, recumbent, yellowish pubescence. Venter densely punctate.

Head (Fig. 35) large, frons slightly convex, slightly flattened above antennal insertions. Punctuation very dense; interspaces between punctures very narrow, about half as great as diameter of one puncture. Eyes moderately large, weakly convex and barely prominent; inner margin of eye distinctly concave. Distance between inner edges of antennal insertions about 0.4 times as long as distance from inner edge of antennal insertion to inner margin of eye. Epistomal part of epicranium subtriangular, with poorly defined lateral carina between antennal groove and base of mandibles, its apical margin convex and subtruncate at middle. Antennae (Fig. 36) rather short, about as long as half of body length, scarcely serrate, with light moderately short semierect and semirecumbent setae. Antennomere 3 subcylindrical, about twice as long as wide and about 1.6 times as long as antennomere



Figs 35–42. *Balistica elongata*. **35**, head, frontal view; **36**, female antenna; **37**, prothorax, lateral view; **38**, right metepisternum; **39**, right metacoxal femoral plate; **40**, metatarsus, lateral view; **41**, ditto, dorsal view; **42**, apex of female last abdominal ventrite. Scale bars: 0.2 mm.

4. Antennomere 4 subcylindrical, about as long as wide. Antennomeres 5–10 subtrapezoidal, with barely produced rounded anteroapical angles; antennomeres 5–8 gradually increasing in length and width, antennomeres 8–10 becoming gradually narrower toward apex: ratio length/maximum width of antennomere 5 about 1.1, of antennomere 8 about 1.2, antennomere 10 about 1.4. Antennomere 11 elongate, about 3.3 times as long as wide and 1.7 times as long as antennomere 10.

Pronotum scarcely transverse, widest before posterior angles, about 1.1 times as wide as long at midline and approximately 1.4 times as wide as head. Punctuation very dense; punctures separated by about half diameter of one puncture. Lateral sides convex in apical half, scarcely concave behind the middle and somewhat diverging towards posterior angles. Anterior pronotal margin with convex, finely crenulate ridge, which is continuous with anterior lateral carina. Pronotal disc moderately convex,

somewhat declined posteriorly, depressed at sides towards posterior angles and at base. Pronotal base with short, smooth median line before antescutellar lobe. Posterior angles acuminate, with dorsal carinae. Anterior lateral carina (Fig. 37) moderately long, about 0.4 times as long as pronotum along the middle. Posterior lateral carina moderately long, not extending to anterior margin.

Scutellum subflattened, trapezoidally rounded and apically flattened, surface coarsely and densely punctate. Elytra elongate, about 2.3 times as long as wide combined and about 2.6 times as long as pronotum, widest at base, gradually narrowing to conjointly rounded apices. Punctuation very dense, irregular and partly confluent; punctures somewhat larger than those on pronotum, separated by about 0.5–1 diameters of one puncture. Elytral striae barely impressed, except apical 2/3 of sutural striae; becoming deeper and wider apically, with large hole-like punctures near the elytral

apex. Epipleura strongly narrowed posteriorly.

Prosternum convex, notosternal sutures visible nearest to procoxal cavities. Prohypomeron completely separated from profemoral cavity by a sharp basal ridge. Internal part of prohypomeron strongly impressed, forming antennal groove, separated from external part by a sharp carina, which is not reaching to basal ridge. Antennal groove subparallel-sided, as wide as external part of prohypomeron between posterior lateral carina of prothorax and outer carina of antennal groove, rather deep, nearly smooth with several punctures. Internobasal angle of prohypomeron near procoxal cavity with oblong-triangular anterior prohypomeral pit clearly defined by ridges on all sides. Posterior prohypomeral pit comparatively small, slightly transverse. Metepisterna extremely narrow anteriorly; sharply, strongly widened posteriorly (Fig. 38). Metacoxal femoral plates distinctly lengthened mesally (Fig. 39). Abdomen convex; last visible abdominal ventrite rounded apically (Fig. 42).

Legs short and slender. Metatarsomere 1 about as long as metatarsomeres 2–4 combined. Metatarsomere 4 as wide as the preceding segment, subparallel and ventrally lobed. Metatarsomere 5 attached near the middle of metatarsomere 4, about as long as metatarsomeres 3 and 4 combined (Fig. 40–41).

Remarks. Reexamination of the holotype of *Balistica elongata* revealed some characters not corresponding to those indicated for the species erroneously named as *Dirrhagus elongatus* by Hisamatsu (1960) or as *Rhacopus elongatus* by Hisamatsu (1985) and Gratshev (1992). Based on the generic interpretation by Muona (2011), the true *Balistica elongata*, should be attributed to *Clypeorhagus* Olexa, 1975 because it is characterized by the following characters specific for this genus: non-trilobate apical margin of epistomal part of epicranium, incomplete carina separating the antennal groove from external part of

the prohypomera, notosternal suture visible only close to procoxal cavities, anterior prohypomeral pit clearly defined by ridges on all sides, metepisterna strongly widened posteriorly, and narrow meso- and metatarsomeres 4 as wide as preceding segment. The type species of this formerly monotypic genus, *Clypeorhagus clypeatus* (Hampe, 1850), differs from *C. elongatus* in the larger body-size (5.5–6.5 mm), black colouration, finer punctation of dorsum, epistomal part of epicranium with almost straight apical margin, meso- and metatarsomeres 4 very short, obliquely truncate at apex and not lobed ventrally.

Distribution. Japan, Honshu (“Nikko”).

Genus *Dirrhagofarsus* Fleutiaux, 1935

Dirrhagofarsus Fleutiaux, 1935: 15. Type species: *Microrhagus lewisi* Fleutiaux, 1900, by original designation.

Pseudorhacopus Olexa, 1975: 160, **syn. nov.** Type species: *Dirrhagus ferrugineus* Reitter, 1889, by original designation.

Attenuorhagus Olexa, 1975: 161. Type species: *Hypocoelus attenuatus* Mäklin, 1845, by original designation.

Dirrhagofarsus ferrugineus

(Reitter, 1889), **comb. nov.**

Dirrhagus ferrugineus Reitter, 1889: 282.

Material examined. *Lectotype* (here designated), male with labels “Caspi-M.-Gebiet Hamarat Leder (Reitter)” [printed], “Paratypus 1889 *Dirrhagus ferrugineus* Reitter” [standart curatorial label with red frame], “coll. Reitter” [printed] (HNHM). *Paralectotype*, female: “Caspi-M.-Gebiet Hamarat Leder (Reitter)” [printed], “Holotypus 1889 *Dirrhagus ferrugineus* Reitter” [standart curatorial label with red frame], “*Dirrhagus ferrugineus* m. 1889” [in Reitter’s handwriting], “coll. Reitter” [printed] (HNHM). **Additional material.** **Azerbaijan, Lan-karan Distr.:** “Bilyasar, 800’ na r. Vasharu-Chay Znojko 16.VII.932” [Bilyasar on Vesharyu river, 800’, 16.VII.1932, D.V. Znojko leg.], “pod koroy mertv. dereva” [under bark of dead tree], 1 female (ZIN). **Iran, Gilan:** “Gilyan. Kar.-saray Lat bliz Reshta Zarudny 22.V.904” [Gilan, Lat caravan-serai near Rasht, 22.V.1904, N.A. Zarudny leg.], 2

females (ZIN); "Gassan-kiade, ust. Sefidruda, B. Iljin 28.IV.1916" [Hasan Kiadeh, Sefid-Rud river mouth, 28.IV.1916, B.S. Iljin leg.], 3 males and 3 females (ZIN). **Iran/Turkmenistan**, "Persiya i Zak. obl. 1916 B. Iljin" [Persia and Transcaspian Province, 1916, B.S. Iljin leg.], 1 male (ZIN).

Remarks. *Pseudorhacopus* was proposed by Olexa (1975) as a subgenus of the genus *Rhacopus* Hampe, 1855 for species *Dirrhagofarsus ferrugineus* Reitter, 1889 (type species) and *D. bodemeyeri* Olexa, 1962 distinguished from other *Rhacopus* by having antennal groove on prohypomera distinctly widened posteriorly, distance between antennal insertions shorter, all tarsomeres 4 slightly widened apically and simple abdominal ventrite 4. The current studies of the type specimens of *D. ferrugineus* and additional material listed above showed that this species should be transferred from *Rhacopus* to the genus *Dirrhagofarsus* Fleutiaux, 1935 because it shares with members of the latter genus the following important characters: head with distinct lateral longitudinal keels on frons and transverse belt of microcombs on vertex, pronotum with short anterior and long posterior lateral carinae, shape of metacoxal femoral plates, last visible abdominal ventrite with acutely produced apex, and reduced sex comb on male protarsomere 1. Also structure of the aedeagus of *D. ferrugineus* (narrow penis deeply bifid at apex, subacute parameres with well-developed outer lobes and lack of ventral plate) is typical of that in species of *Dirrhagofarsus*. Thus, the name *Pseudorhacopus* should be treated as a junior synonym of *Dirrhagofarsus*. Among the Palaearctic species of this genus, *D. ferrugineus* is recognizable by the following combination of characters: body 4.8–6.5 mm; colouration uniformly reddish-brown to castaneous; frontal keels weak and without microcombs; eyes moderate-sized; pronotum with moderately dense punctation; antennal groove on prohypomera distinctly widened posteriorly; elytral apices with convex, not protruding sutural region; meso- and metatarsomeres 4 subparallel-sided and shortly lobed ventrally. The attribution of *Dirrha-*

gus bodemeyeri, known to me only from the original description, to *Dirrhagofarsus* remains questionable and needs a further consideration, although the acutely produced apex of the last visible abdominal ventrite of *D. bodemeyeri* (according to Olexa, 1962) corresponds to this character in other species of the mentioned genus.

Distribution. Southern Azerbaijan, Northern Iran. Occurrence in Southern Turkmenistan is possible but questionable since the label data "Persia [Iran] and Transcaspian Province [Turkmenistan], 1916, B.S. Iljin leg." (see material above) seem to be referred to the entire collecting area of Iljin in 1916, and in fact the male with this label could be taken in Gilan Province of Iran together with other specimens found there by this collector.

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