

A study on Georgian species of the *Carabus* Linnaeus, 1758
subgenus *Neoplectes* Reitter, 1885 (Coleoptera: Carabidae),
with description of a new species

Исследование грузинских видов подрода *Neoplectes* Reitter, 1885
рода *Carabus* Linnaeus, 1758 (Coleoptera: Carabidae)
с описанием нового вида

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Key words: Coleoptera, Carabidae, *Carabus*, *Neoplectes*, Caucasus, Georgia, distribution, ecology, iconography, a new species.

Ключевые слова: Coleoptera, Carabidae, *Carabus*, *Neoplectes*, Кавказ, Грузия, распространение, экология, иконография, новый вид.

Abstract. Basing on the material, collected mainly in 2014 in Central Georgia, further distribution and morphological data on the *Carabus* subgenus *Neoplectes* Reitter, 1885 are given and a new species *C. (Neoplectes) titarenkoi* sp.n. is described from Khvamli Mountain.

Резюме. На основании материала, собранного в основном в 2014 г. в Центральной Грузии, приводятся новые данные о распространении и морфологии жуужелиц подрода *Neoplectes* Reitter, 1885 рода *Carabus* и описывается новый вид *C. (Neoplectes) titarenkoi* sp.n. с горы Хвамли.

Introduction

So far as it is hitherto known, the Caucasian subgenus *Neoplectes* inhabits several mountain masses in Georgia, namely the Adzhar-Imereti (=Meskheti), Trialeti, Tsivi-Gombori, Surami (=Likhi), Racha, Lechkhumi, Svaneti, and Egrisi Mt. Ranges. It populates different mountainous communities ranging from the lowland forests of the Colchic (=Colchian) type up to the alpine zone.

Recently several new forms of this subgenus have been described [Retezár, 2011; Deuve, 2012, 2013], however their insufficient diagnoses and lack of suitable original illustrations require the repetitive investigations at their type localities and adjacent territories. In the course of such study, conducted by the authors in 2014, a formerly unknown population of *Neoplectes* has been found at Mt. Khvamli. This mountain mass is deposited in an interfluvium of the r. Tskhenis-Tskali and Rioni and represents orographically a part of Racha Mt. Range, separated from its main mass by the river Rioni (Fig. 16). This population is spatially insulated from the

other vicinal ones and differs from the other known congeners in some essential features, it is described below as a new species *C. (Neoplectes) titarenkoi* sp.n. Noteworthy, its objective taxonomic status requires probably a precision, this being only possible in the course of the exhaustive revision of the entire subgenus in question.

Detailed bibliography and synonymy for each form listed below are omitted, being already summarized or established by different authors [Bousquet et al., 2003; Retezár, 2011; Deuve, 2013].

Material

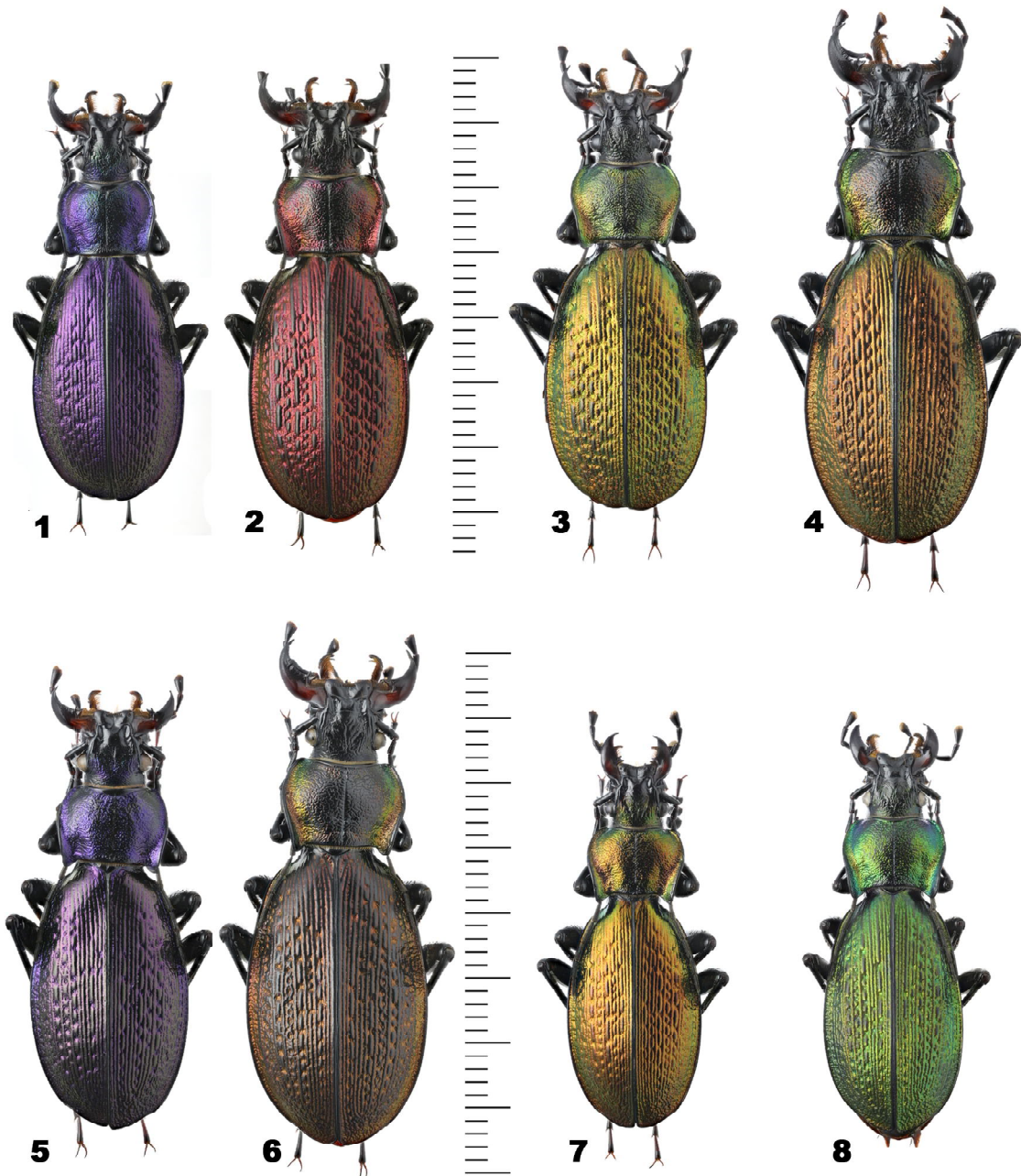
The following abbreviations are used hereafter for the depositories of the specimens examined: ZISP — Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia); cFDD — Coll. D.D. Fominykh (Krasnodar, Russia); cTAYu — Coll. A.Yu. Titarenko (Moscow, Russia); cZAM — Coll. A.S. Zamotajlov (Krasnodar, Russia); cBIA — Coll. I.A. Belousov (St. Petersburg, Russia); cZAS — Coll. A.S. Zubov (Kishinev, Moldavia).

Taxonomy, distribution, and ecological preferences

Carabus (Neoplectes) ibericus ibericus
(Fisher von Waldheim, 1823)

Figs 1, 2, 15, 16.

Material. Georgia: 269 ♂♂, 208 ♀♀ — Surami Mt. Range near Rikoti Pass, 1000 m, 22.IV–1.VII.2014, leg. D. Fominykh, A. Zubov, D. Zherebilo (cFDD, cTAYu, cZAM, cZAS).



Figs 1–8. *Carabus* (*Neoplectes*) spp., dorsal habitus, *C. (N.) ibericus ibericus* (= *imereticus*), Georgia, Surami Mt. Range near Rikoti Pass (1–2), *Carabus (Neoplectes) ibericus lafertei*, Georgia, Adzhar-Imereti Mt. Range near Abastumani vill. (4–3), *C. (N.) szekelyii*, Georgia, Racha Mt. Range near Nakerala Pass (5–6), *C. (N.) titarenkoi* sp.n., holotype (7), *C. (N.) titarenkoi* sp.n., paratype, Georgia, N slopes of Mt. Khvamli (8). Scale bars are given in mm.

Рис. 1–8. *Carabus (Neoplectes)* spp., общий вид, *C. (N.) ibericus ibericus* (= *imereticus*), Грузия, Сурамский хр. у Рикотского пер. (1–2), *Carabus (Neoplectes) ibericus lafertei*, Грузия, Аджаро-Имеретинский хр. у с. Абастумани (4–3), *C. (N.) szekelyii*, Грузия, Рачинский хр. у пер. Накерала (5–6), *C. (N.) titarenkoi* sp.n., голотип (7), *C. (N.) titarenkoi* sp.n., паратип, Грузия, сев. склоны г. Хвамли (8). Масштабные линейки даны в мм.

Distribution and habitat. Populates the low mountain forest belt of the Surami Mt. Range, at Rikoti Pass recorded for the deciduous forests admixed with rhododendron brushwood at 1000 m.

Carabus (Neoplectes) ibericus lafertei (Chaudoir, 1846)

Figs 3, 4, 11, 16.

Material. Georgia: 36 ♂♂, 45 ♀♀ — N slopes of Adzhar-Imereti Mt. Range near Abastumani vill., 1400–1600 m, 20–

21.IV.2014, leg. D. Fominykh, A. Zubov, D. Zhrebilo (сFDD, сTAYu, сZAM, сZAS); 1 ♂, 1 ♀ — Adzhar-Imereti Mt. Range near Zekari Pass, 2100–2200 m, 14.VI.2014, leg. D. Fominykh, A. Zubov (сFDD, сZAS).

Distribution and habitat. Populates forests of Adzhar-Imereti Mt. Range from the low mountain forest belt up to the alpine meadows, nearby Abastumani vill. occurs in the fir-mixed forest at 1400–1600 m. In the vicinity of Zekari Pass populates alpine meadows at 2100–2200 m.



Figs 9–15. *Carabus (Neoplectes) mellyi*, dorsal habitus, Georgia, Lechkhumi Mt. Range near Orbeli vill. (9–10), *Carabus (Neoplectes)* spp., aedeagus and fully inflated endophallus preparation (11–15). 11 — *C. (N.) ibericus lafertei*, Georgia, Adzharia-Imereti Mt. Range near Abastumani vill.; 12 — *C. (N.) szekelyii*, Georgia, Racha Mt. Range near Nakerala Pass; 13 — *C. (N.) titarenkoi* sp.n., paratype, Georgia, N slopes of Mt. Khvamli; 14 — *C. (Neoplectes) mellyi*, Georgia, Lechkhumi Mt. Range near Orbeli vill.; 15 — *C. (N.) ibericus ibericus (=imereticus)*, Georgia, Surami Mt. Range near Rikoti Pass. Scale bars are given in mm.

Рис. 9–15. *Carabus (Neoplectes) mellyi*, общий вид, Грузия, Лечхумский хр. у с. Орбели (9–10), *Carabus (Neoplectes)* spp., препарат эдеагуса и полностью раздутого эндофаллуса (11–15). 11 — *C. (N.) ibericus lafertei*, Грузия, Аджаро-Имеретинский хр. у с. Абастумани; 12 — *C. (N.) szekelyii*, Грузия, Рачинский хр. у пер. Накерала; 13 — *C. (N.) titarenkoi* sp.n., паратип, Грузия, сев. склоны г. Хвамли; 14 — *C. (Neoplectes) mellyi*, Грузия, Лечхумский хр. у с. Орбели; 15 — *C. (N.) ibericus ibericus (=imereticus)*, Грузия, Сурамский хр. у Рикотского пер. Масштабные линейки даны в мм.

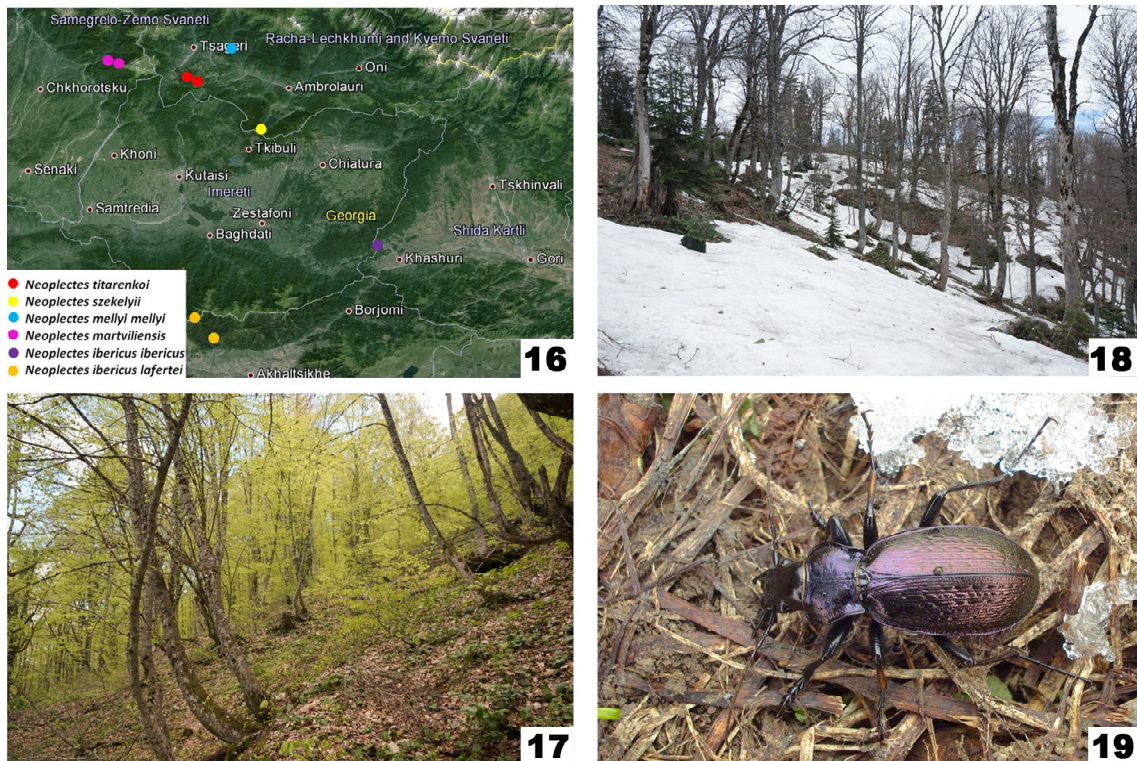


Fig. 16–18. The *Carabus* subgenus *Neoplectes* in Georgia: 16 — studied localities. Fig. 17 — habitat of *Carabus (Neoplectes) titarenkoi* sp.n., N slopes of Mt. Khvamli, 1200 m, beech forest. 18 — habitat of *Carabus (Neoplectes) titarenkoi* sp.n., N slopes of Mt. Khvamli, 1700 m, fir-mixed forest. 19 — *Carabus (Neoplectes) martviliensis* in nature, N slopes of Ofitsari Mt. Range, 2100 m, alpine meadow.

Рис. 16–18. Подрод *Neoplectes* рода *Carabus* в Грузии: 16 — изученные местообитания. 17 — местообитание *Carabus (Neoplectes) titarenkoi* sp.n., сев. склоны г. Хвамли, 1200 м н.у.м., буковый лес. 18 — местообитание *Carabus (Neoplectes) titarenkoi* sp.n., сев. склоны г. Хвамли, 1700 м н.у.м., смешанный пихтовый лес. 19 — *Carabus (Neoplectes) martviliensis* в природе, сев. склоны хр. Офицари, 2100 м н.у.м., альпийский луг.

Carabus (Neoplectes) szekelyii Retezár, 2011

Figs 5, 6, 12, 16.

Material. Georgia: 32 ♂♂, 33 ♀♀ — N slopes of Racha Mt. Range near Nakerala Pass, 1100–1200 m, 23–24.IV.2014, leg. D. Fominykh, A. Zubov, D. Zhrebilo (cFDD, cTAYu, cZAM, cZAS).

Distribution and habitat. Populates the low mountain forest belt of Racha Mt. Range, nearby Nakerala Pass recorded for the fir forest admixed with rhododendron and juniper brushwood at 1100–1200 m.

Remarks. Taxonomic status of this form obviously deserves a precision. Basing on the original description, habitual resemblance and quite close geographic pattern, *C. (Neoplectes) ibericus shaoriensis* Deuve, 2013 also seems to be the most probable synonym of the present form.

Carabus (Neoplectes) mellyi (Chaudoir, 1846)

Figs 9, 10, 14, 16.

Material. Georgia: 6 ♂♂, 6 ♀♀ — N slopes of Lechkhumi Mt. Range near Orbeli vill., 600 m, 26.IV.2014, leg. D. Fominykh, A. Zubov (cFDD, cTAYu, cZAM, cZAS).

Distribution and habitat. Populates low mountain forest belt of Lechkhumi Mt. Range, recorded for valley of the river Ladzhanuri in the deciduous forest at 600 m.

Carabus (Neoplectes) martviliensis Retezár et

Djavelidze, 1992

Figs 16, 19.

Material. Georgia: 28 ♂♂, 25 ♀♀ — N slopes of Ofitsari Mt. Range upstream Shakvi valley, 1300–2100 m, 19–25.V.2013, leg. D. Fominykh, A. Zubov, A. Safronov (cFDD, cTAYu, cZAS); 23 ♂♂, 22 ♀♀ — same locality, 800–1500 m, 4.V.–22.VI.2014, leg. D. Fominykh, A. Zubov (cFDD, cTAYu, cZAM, cZAS).

Distribution and habitat. Populates mainly different forests from the low mountain forest belt up to the subalpine and alpine meadows, at Ofitsari Mt. Range occurs in different plant communities, ranging from the beech forests up to the alpine meadows at 800–2100 m.

Carabus (Neoplectes) titarenkoi Zamotajlov et Fominykh, sp.n.

Figs 7, 8, 13, 16–18.

Material. Georgia, *Lechkhumi Province*: Holotype, ♂: N slopes of Mt. Khvamli near Okhureshi vill., 1700 m, 1.V.–16.VI.2014, leg. D. Fominykh, A. Zubov (ZISP); paratypes: 87 ♂♂, 59 ♀♀ — same data as holotype (cFDD, cTAY, cZAM, cBIA, cZAS); 98 ♂♂, 81 ♀♀ — S slopes of Mt. Dzhvari near Okhureshi vill., 1500 m, 30.IV.–15.VI.2014, leg. D. Fominykh, A. Zubov (cFDD, cTAY, cZAM, cBIA, cZAS); 12 ♂♂, 9 ♀♀ — NE slopes of Mt. Khvamli near Lakhepa vill., 1200 m, 30.IV.–16.VI.2014, leg. D. Fominykh, A. Zubov (cFDD); 15 ♂♂, 17 ♀♀ — NE slopes of Mt. Khvamli near Lakhepa vill., 900 m, 29.IV.–16.VI.2014, leg. D. Fominykh, A. Zubov (cFDD).

Description. Small form, body length 24–32 mm, males 24–28 mm, females 27–32 mm long. Underside black, dorsum usually with bright metallic lustre, bronze, less often green, olive-green, red, dark blue, black, dark purple. Body slender.

Head not inflated, unlike some other *Neoplectes* taxa, 0.62–0.82 times as wide as pronotum. Pronotum of rather constant shape, subquadrate, 1.20–1.55 times as wide as long, somewhat constricted to the base, hind angles slightly protruding backwards. Median groove distinct, disk regularly transversally rugose, microsculpture being rather uniform. Elytra elongate, 1.45–1.90 times as long as wide and 1.23–1.65 times as wide as pronotum, more rounded and flattened

in females and more elongated and convex in males, elytral apices rounded in both sexes. Elytral sculpture smoother in males, links of its intervals shorter and less pronounced than in females; in females sculpture coarser, intervals more pronounced, this resulting in the more matte surface appearance.

Aedeagus comparatively small, of characteristic in *Neoplectes* form, with prominent inflation in the middle, the latter being however comparatively faintly pronounced in *C. (Neoplectes) titarenkoi*, slightly bent. Endophallus as in fig. 13, with rather short basal part, sacculus comparatively small, aggonoporus rather large, bilobed, conspicuously sclerotized.

Differential diagnosis and remarks. A new species resembles in small body size, shape of pronotum, and elytral punctuation *C. (Neoplectes) mellyi*, which populates a neighbouring mountain mass (studied a population from Lechkhumi Mt. Range, valley of the river Lanjanuri), but differs in ovate shape of elytra and different structure of endophallus. *C. (Neoplectes) titarenkoi* seems to be also close in some morphological features to populations of *C. (Neoplectes) ibericus ibericus* (= *C. (Neoplectes) ibericus* Retezár, 2011), inhabiting Surami Mt. Range in the vicinity of Rikoti Pass, but is distinguishable by smaller body size, elongate body shape, and smooth elytral sculpture, as well as by different structure of endophallus.

This species belongs to the *C. ibericus* phylogenetic lineage, being however distributed quite close to the known localities of the *C. mellyi* lineage (including *C. (Neoplectes) martviliensis*). Basing on various reasons, a new species seems to be the most closely related to *C. (Neoplectes) szekelyi* and probably synonymic form *C. (Neoplectes) ibericus shaoriensis*, both populating a neighbouring part of the Racha Mt. Range around Shaori (=Kharistvala) reservoir. However, it differs in the smaller body size (*C. (Neoplectes) szekelyi* possesses 28–40 mm body length), more elongate body, smaller, much less massive head, and less coarse sculpture of elytra and pronotum. It differs also in the smaller size of aedeagus and some peculiarities of endophallus (see figs 11–15).

Distribution. *C. (Neoplectes) titarenkoi* is distributed in an interfluvium of the r. Tskhenis-Tskali and Rioni, populating the slopes of Mt. Khvamli of different expositions at 700–2000 m.

Habitat. Inhabits beech and fir-mixed forest sites, rich in ground litter on karstic landforms. Activity of imago proceeds from April until July, active imago has been observed by the authors at 1700 m in the beginning of May at the thawed patches within snow fields (figs 17, 18). *Carabus (Tribax) ?fossiger* Chaudoir, 1877, *C. (Sphodristocarabus) armeniacus* Mannerheim, 1830, *C. (Megodontus) septemcarinatus* Motschulsky, 1840, and *C. (Procerus) scabrosus colchicus* Motschulsky, 1844, also occur together with this species.

Etymology. We are pleased to dedicate this species to Mr. Andrey Yu. Titarenko of Moscow, in commemoration of his enormous and versatile contribution to the study of the Caucasian *Carabus*.

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