

On status and systematic position of *Pterostichus goschi* Jedlička, 1930 (Coleoptera: Carabidae)

О статусе и систематическом положении *Pterostichus goschi* Jedlička, 1930 (Coleoptera: Carabidae)

K.V. Makarov¹, Yu.N. Sundukov²
К.В. Макаров¹, Ю.Н. Сундуков²

¹ Zoology and Ecology Department, Moscow Pedagogical State University, Kibalkicha str. 6, Bld. 3, Moscow 129164 Russia. E-mail: kvmac@inbox.ru

² Federal Scientific Center of East Asia Terrestrial Biodiversity, Far East Branch of the Russian Academy of Sciences, 100-letiya Vladivostoka av. 159, Vladivostok 690022 Russia. E-mail: yun-sundukov@mail.ru

¹ Московский государственный педагогический университет, кафедра зоологии и экологии, ул. Кибальчича 6, корп. 3, Москва 129164, Россия.

² Федеральный научный центр биоразнообразия наземной биоты Восточной Азии ДВО РАН, пр. 100-летия Владивостока 159, Владивосток 690022, Россия.

KEY WORDS: synonymy, lectotype designation, redescription, Carabidae, Russian Far East, Japan.

КЛЮЧЕВЫЕ СЛОВА: синонимия, обозначения лектотипа, переописание, Carabidae, Дальний Восток России, Япония.

ABSTRACT. Based on the study of the type material, including the structure of endophallus, the status of *P. goschi* Jedlička, 1930 is restored and the following taxonomic changes are proposed: *P. goschi* Jedlička, 1930, **stat.resurr.** = *P. bandotaro* Tanaka, 1958, **syn.n.**, = *P. neglectoides* Budilov, 2022. The lectotype and paralectotype of *P. goschi* and the lectotype of *P. neglectus* A.Morawitz, 1862 are designated, and the lectotype of *P. goschi* is redescribed. A key to distinguish these species is suggested.

РЕЗЮМЕ. На основании изучения типового материала, в том числе строения эндофаллуса, восстановлен статус *P. goschi* Jedlička, 1930 и предложены следующие таксономические изменения: *P. goschi* Jedlička, 1930, **stat.resurr.** = *P. bandotaro* Tanaka, 1958, **syn.n.**, = *P. neglectoides* Budilov, 2022. Обозначены лектотип и паралектотип *P. goschi* и лектотип *P. neglectus* A.Morawitz, 1862, переописан лектотип *P. goschi*. Предлагается ключ для различения этих видов.

Introduction

Recent publications in the Far Eastern Entomologist with a description of a new species *Pterostichus* (*Phonias*) *neglectoides* Budilov, 2022 [Budilov, 2022] from the Jewish Autonomous Oblast of the Russian Far East and its synonymization with the Japanese

P. (Badistrinus) bandotaro Tanaka, 1958 [Sasakawa, 2022] forced authors to revise the taxonomic status of *P. goschi* Jedlička, 1930, previously synonymized with *P. (Phonias) neglectus* A. Morawitz, 1862 [Sundukov, 2013]. For this purpose, the type specimens of *P. goschi* and *P. neglectus*, as well as the available material on these taxa from various regions of the Far East, were studied.

The abbreviations used in text are as follows: EL — elytra length, measured from the posterior edge of the scutellum to elytral apex; EW — greatest width of elytra; HL — length of head, measured along the median line from fore margin of clypeus to rear edge of the temples; HW — greatest width of head; L — body length from fore margin of clypeus to elytral apex; ML — length of left mandible; PA — width of pronotal apex; PB — width of pronotal base; PL — length of pronotum, measured along the median line; PW — greatest width of pronotum.

Collection abbreviations: FEB — Federal Scientific Center of the East Asia Terrestrial Biodiversity, Far East Branch of the Russian Academy of Sciences, Vladivostok, Russia; KSR — State Nature Reserve “Komsomolsky”, Komsomolsk-na-Amure, Russia; KTM — Khabarovsk Territorial Museum after N.I. Grodekov, Khabarovsk, Russia; MSPU — Moscow State Pedagogical University, Moscow, Russia; NMPC — National Museum, Praha, Czech Republic; ZISP — Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

Taxonomy

*Pterostichus (Badistrinus) goschi*Jedlička, 1930, **stat.resurr.**

Figs 1–18, 25–30, 33–35, 45–50.

Pterostichus (Badistrinus?) Goschi Jedlička, 1930: 21; type locality: “Sibiria or.: Nikolsk-Ussurijsk”, synonymy established for *Pterostichus neglectus* A. Morawitz, 1862 by Sundukov, 2013: 64, **stat.resurr.**

Pterostichus (Badistrinus) bandotaro Tanaka, 1958: 78–79, fig. 1; type locality: “Lake Wadnuma in the river-bed of the Toné, Chiba Pref., Honshu, Japan”, **syn.n.**

Pterostichus (Phonias) neglectoides Budilov, 2022: 25–27, figs 1–9; type locality: “Russia: Jewish Autonomous Region, the protected zone of ‘Bastak’ Reserve”; synonymy established for *Pterostichus bandotaro* Tanaka, 1958 by Sasakawa, 2022: 19.

TYPE MATERIAL. Lectotype (designated herewith), ♂, with the following labels: “Nikolsk Ussurijsk Ussurige. Mandl” [white rectangle; printed], “*goschi* mihi, DET. ING. JEDLIČKA” [pink rectangle; handwritten/printed], “TYPE” [brown rectangle with a black border; printed], “Mus. Nat. Pragae Inv. 22370” [yellow rectangle; printed/handwritten], “LECTOTYPUS *Pterostichus (Badistrinus) goschi* Jedlička, 1930 design. K. Makarov et Yu. Sundukov, 2022” [red rectangle with a black border; printed] (NMPC). Paralectotype, ♂, with the following labels: “Nikolsk Ussurijsk Ussurige. Mandl” [white rectangle; printed], “*goschi* mihi, det. Ing. Jedlička” [white rectangle; handwritten/printed], “TYPE” [brown rectangle with a black border; printed], “Mus. Nat. Pragae Inv. 22369” [yellow rectangle; printed/handwritten], “PARALECTOTYPUS *Pterostichus (Badistrinus) goschi* Jedlička, 1930 design. K. Makarov et Yu. Sundukov, 2022” [red rectangle with a black border; printed] (NMPC).

OTHER MATERIAL. **Russia:** *Primorsky Krai:* Khasansky district, Khasan, at light, 25.VII.1970, Yu.N. Nazarov leg., 3♂♂ 7♀♀ (ZISP); *ibid.*, Golubiny Utes, 2–2.5 km on the way to Khasan, 24.V.2022, Yu. Sundukov leg., 3 ex (FEB); *ibid.*, Golubiny Utes, traps in meadow, 22–24.V.2022, Yu. Sundukov leg., 3 ex (FEB); *ibid.*, Golubiny Utes, at night on the coast, 22.V.2022, Yu. Sundukov leg., 2 ex (FEB); *ibid.*, 10.7 km east of Khasan, Cape Ostrovok Falshivy, 42°26′54″N 130°46′47″E, 23.V.2022, K. Makarov leg., 1 ex (MSPU); *ibid.*, 1.7 km north of Cape L’va, 42°42′15″N 131°14′12″E, 28.V.2022, K. Makarov leg., 1 ex (MSPU); *ibid.*, near Zanadvorovka, Kedrovaya River valley, 43°18′53″N 131°34′43″E, 9–17.VII.2000, I. Melnik leg., 1 ex (MSPU); Nadezhdensky district, lower reaches of Malaya Klyopochnaya River near Razdolnoe, 5.IX.2019, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); “near Vladivostok, 25.IV.1911, A. Chersky leg.”, 1♂ (ZISP); “Vladivostok”, 2♂♂, 1♀ (ZISP); “Vladivostok 22 III 70”, 3♂♂, 3♀♀ (ZISP); “Vladivostok 15.V.70”, 1♀ (ZISP); “Odarkovsky zavod, Prim. ob., 3.VII.1911, A. Chersky leg.”, 1♂ (ZISP); “Nikolsk Ussur. A. Ivanov 5.VIII.26”, 1♀ (ZISP); “okr. Chernigovki Prim. o. Emel’yanov 20.VI.912”, 1♂ (ZISP); “Troitskoe, oz. Khanka, Uss. kr. Chersky 5.IX.914”, 1♂ (ZISP); near Beltsovo, lower reaches of Arsenievka River, right bank, floodplain, 28.VII.2003, Yu. Sundukov & V. Shokhrin leg., 3 ex (FEB); Lazovsky district, near Lazo, 6–10.VI.2008, V. Shokhrin leg., 1 ex (FEB); *Khabarovsk Krai:* “Khabarovsk, Primorsk. obl. 7.VI.11 Speshilova-Petelina”, 1♀ (ZISP); Komsomolsky Reserve, cordon Bichi, bank of Gorin River, traps, 25–30.VII.2021, V. Bobrovsky leg., 3 ex (KSR); *ibid.*, a stream above the 3rd Byk on Gorin River, 26.VII.2021, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); *ibid.*, unnamed stream at the 2nd Byk, 28.VII.2021, O. Kuberskaya leg., 2 ex (KSR); *ibid.*, a stream between the 1st and 2nd Byk on Gorin River, 28.VII.2021, Yu. Sundukov & L. Sundukova leg., 4 ex (FEB); *ibid.*, Khawar Stream below cordon Bichi, 24.VII.2021, Yu. Sundukov & L. Sundukova leg., 2 ex (FEB); *ibid.*, 24.VII.2021, O. Kuberskaya leg., 3 ex (KSR); *ibid.*, Namek Stream, 23.VII.2021, O. Kuberskaya leg., 4 ex (FEB, KSR); *ibid.*, Chenki, bank of Amur River, 29.VII.2021, O. Kuberskaya leg., 10 ex (FEB, KSR); *ibid.*, Strelka, willow, 24.VII.2021, O. Kuberskaya leg., 2 ex (KSR); *ibid.*, cordon Tikhaya, 2.VIII.2021, O. Kuberskaya leg., 1 ex (KSR); *ibid.*, Delfin, wasteland near the children’s camp, 2–14.VII.2021, O. Kuberskaya leg., 2 ex (KSR); Komsomolsk-

na-Amure, Silinsky Park, willow sandy bank of Silinka River, 6–13.VII.2021, O. Kuberskaya leg., 1 ex (KSR); *Southern Kuriles, Kunashir Island:* Lovtsova Peninsula, a lake north of Lake Nadya, 8.VIII.2015, Yu. Sundukov & L. Sundukova leg., 4 ex (FEB); *ibid.*, swamp in southern part of Lake Nadya, 15–16.VIII.2015, Yu. Sundukov & L. Sundukova leg., 16 ex (FEB); *ibid.*, NE coast of Lake Dlinnoe, meadow, 18.VIII.2015, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); forest lake 1 km above the mouth of Tyatina River, 08.VI.2016, Yu. Sundukov leg., 13 ex (FEB); Tret’yakovo, 5.08.1973, I.M. Kerzner, 1 ♀ (ZISP); lower lake in stream valley 2 km south of western bank of Lake Peschanoe, 3.VII.2015, Yu. Sundukov & L. Sundukova leg., 9 ex (FEB); upper and middle lakes in stream valley 2 km south of the western bank of Lake Peschanoe, 4.VII.2015, Yu. Sundukov & L. Sundukova leg., 45 ex (FEB); middle lake in stream valley 2 km south of western bank of Lake Peschanoe, 26.VII.2015, Yu. Sundukov leg., 9 ex (FEB). **Japan:** “Hakodate 110-3”, “*neglectus* Mor. typ. A. Morawitz det.”, “*Pterostichus bandotaro* Tanaka, Det. S. Morta, 2012”, 1♂ (ZISP).

Comparative material on *Pterostichus neglectus* A. Morawitz, 1862.

TYPE MATERIAL. Lectotype (designated herewith), ♂, with the following labels: “M. Bureja 110-1.” [red rectangle in a black frame; handwritten], “*neglectus* Mor. typ. A. Morawitz det.” [white rectangle; handwritten], “*Pterostichus neglectus* Morawitz, Det. S. Morita, 2012” [white rectangle; printed], “LECTOTYPUS *Pterostichus (Badistrinus) neglectus* A. Morawitz, 1862 design. K. Makarov et Yu. Sundukov, 2022” [red rectangle with a black border; printed] (ZISP) (Figs 19–20). In the original description [Morawitz, 1862], two type localities are indicated — “Bureja” and the mouth of the Amur River. In addition, from the text of the description (“Der abgekürzte Scutellanstreif fehlt bei einem Exemplare, und ist bei den andern nur als kurzes, schrägers Stichelchen dicht am zweiten Streifen vorhanden”) it is clear that several specimens were at Morawitz’s disposal, but their exact number is not indicated. So, we designate a specimen from the ZISP collection, the label of which corresponds to the first mentioned type locality, as a lectotype.

OTHER MATERIAL. **Russia:** *Primorsky Krai:* Khasansky district, 18 km SW Barabash, the floodplain of the Bezmyanny Stream, a swamp near the highway, 16.VIII.2020, Yu. Sundukov leg., 1 ex (FEB); *ibid.*, 43°3′52″N 131°21′49″E, 16.VIII.2020, K. Makarov leg., 1 ex (MSPU); *ibid.*, cordon Siny Utes, sedge swamp in forest, 26.V.2021, Yu. Sundukov leg., 1 ex (FEB); Borisov Plateau, watershed of the Valunny Ridge opposite mouth of Kamenisty Stream, h=600–650 m, 28.V.2019, Yu. Sundukov leg., 2 ex (FEB); Lazovsky district, near Lazo, 28–29.VI.2006, Yu. Sundukov leg., 2 ex (FEB); *ibid.*, 6–10.VI.2008, V. Shokhrin leg., 1 ex (FEB); Spassk-Dalnii, at light, 10.VII.2016, M. Sergeev leg., 1 ex (FEB); Sikhote-Alinsky Reserve, shore of Lake Tsarskoye, 9.X.1982, A. Turchinskaya leg., 1 ex (MSPU); *ibid.*, near Terney, cordon Maysa, 10.X.1982, A. Matalin leg., 2 ex (MSPU); *Khabarovsk Krai:* Khabarovsk, Industrialnaya str., on muddy shore, end of June 1997, E. Novomodny leg., 1 ex (KTM); Komsomolsk-na-Amure, Silinsky Forest, broad-leaved forest near southern border, 27.IV–5.V.2020, O. Kuberskaya leg., 1 ex (KSR); *ibid.*, Silinsky Park, lake bank, 22.VII.2021, Yu. Sundukov leg., 1 ex (FEB); Komsomolsky Reserve, Khawar Stream below cordon Bichi, 24.VII.2021, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); *ibid.*, 24.VII.2021, O. Kuberskaya leg., 1 ex (KSR); *ibid.*, Shargol channel near Delfin base, 22.VII.2021, O. Kuberskaya leg., 1 ex (KSR); *ibid.*, cordon Tikhaya, 2.VIII.2021, O. Kuberskaya leg., 1 ex (KSR); *ibid.*, Chenki, on Amur River, 29.VII.2021, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); *ibid.*, mouth of the Gorin River (Strelka), willow, 25.VII.2021, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); *ibid.*, a stream between the 1st and 2nd Byk on Gorin River, 28.VII.2021, Yu. Sundukov & L. Sundukova leg., 1 ex (FEB); *ibid.*, cordon Bichi, bank of Gorin River, 23.VII.2021, Yu. Sundukov & L. Sundukova leg., 2 ex (FEB); *Amur Oblast:* Khingansky Reserve, Khingan forestry, Karabcha River valley, reed grass with herbs, traps, 13–23.VI.2000, E. Ignatenko leg., 2 ex (FEB); *Zabaykalsky Krai:* Chita area, near Duroy, 50°00′30″N 118°55′37″E, 16–18.VI.2000, I. Melnik leg., 1♂ (MSPU); *ibid.*, Priargunsky district, Duroy, 16–18.VI.2000, B. Kataev, 1♂ (ZISP).



Figs 1–3. *Pterostichus goschi* Jedlička, 1930, lectotype, male: 1 — dorsal habitus; 2 — ventral habitus; 3 — labels.
 Рис. 1–3. *Pterostichus goschi* Jedlička, 1930, лектотип, самец: 1 — сверху; 2 — снизу; 3 — этикетки.

LECTOTYPE REDESCRIPTION (Figs 1–11). The body moderately convex. Length 5.2 mm, width 2.0 mm.

Body black, shiny; antennae darkened, with reddish-brown basal segment and segments 2–4 proximally; palps brown, apical segment of maxillary palps bicolored: with darkened base and lightened apex; mandibles blackish, with brown apices and outer margin; upper lip brownish black. Underside black. Legs bicolored: coxae, trochanters and femora blackish-brown, tibiae and tarsi reddish-brown.

Dorsum of body with very fine scattered punctures: denser on head and in the disk of pronotum, strongly scattered on sides of pronotum and elytra; basal pits of pronotum and area between them, with large, rather sparse punctures. Microsculpture on upper side of head and pronotum practically absent, weak traces of isodiametric reticulation visible only in depressions; elytra with very weak, strongly transverse microsculpture.

Dimensions (in mm): HW = 0.98; HL = 0.65; ML = 0.40; PA = 0.98; PW = 1.60; PB = 1.23; PL = 1.28; EW = 1.98; EL = 3.03; L = 5.23.

Head small, moderately convex, its width with eyes 1.51 times its length. Eyes large, strongly protruding. Mandibles small, with pointed apices bent inwards. Labrum slightly trapezoid; its anterior margin uniformly weakly convex, with 6 setae. Clypeus trapezoid, with 2 lateral setae; its anterior margin slightly concave. Mentum median tooth short, bifid, with 2 setae at base. Submentum with 2 pairs of large setae, outer setae shorter. Gula in the center with thin, longitudinal groove. Temples very short, about 1/6 eye diameter. Supraorbital setae 2: 1/3 from anterior margin of eye and near its posterior margin. Frontal grooves weak, wide, not reaching anterior supraorbital seta. Antennae rather thin, reaching 1/5 of elytral length.

Pronotum subquadrate, with uniformly convex disc starting from narrow lateral margin, slightly transverse (PW/PL = 1.25), much wider than head (PW/HW = 1.63), with maximum width at the middle. Anterior margin very slightly concave, finely edged at anterior angles. Anterior angles slightly projecting forward, their apices widely rounded. Base rectilinear, edged near basal pits, wider than anterior

margin (PB/PA = 1.26). Posterior angles obtuse, not protruding, widely rounded at apices. Lateral sides moderately evenly convex from anterior to posterior angles. Lateral margins narrowly evenly bordered. Lateral sides with 2 setae each: at 2/3 from the base and in posterior angle. Median line thin, deep, extending to anterior and posterior transverse depressions. Transverse depressions weak, indistinct. Basal pits represented by narrow, deeply depressed strokes; inner strokes 2.5 times longer than outer ones.

Elytra long, narrow (EL/EW = 1.53, EL/PL = 2.37, EW/PW = 1.24), almost parallel-sided, moderately convex, with a maximum width at 3/5 from base. Shoulders straight, without teeth. Basal edging complete, slightly concave. Lateral flattened margin narrow, slightly widening towards apex. Outer apical angle broadly rounded. Striae complete, narrow, deep, not punctate. Intervals convex, outer ones slightly explanate. Scutellar stria distinct, rather long, located in 2nd interval. Parascutellar pores located at the apex of scutellar stria, close to 2nd stria. 3rd interval with 2 small discal setigerous punctures located near 3rd stria: anterior one approximately at the middle of elytron, posterior one approximately at 1/5 from apex. Apex of stria 7 with one preapical and one apical setigerous punctures. Lateral series (series umbilicata) consisting of 13 setae: 5+1 in humeral group and 3+4 at apex. Full-winged.

Legs moderately long, rather slender; length of hind tarsus approximately equal to length of hind tibia.

Underside of body not punctured. Anterior metasternal process not edged, widely rounded at apex. Metepisternae long, narrow: 2.7 times as long along outer margin as wide along anterior margin. Hind coxae with 2 setae. Posterior trochanters with 1 seta. Abdominal sternites simple, without pubescence and additional setae; apical sternite with 2 setae at apex.

Aedeagus (Figs 4–8) rather slender, curved at right angle; lamella symmetrical, short, distinctly narrowed towards rounded apex. Left paramere wide, discoid; right paramere narrow.

Endophallus (Figs 9–11) narrow, elongate, oriented almost at right angle to the plane of lamella and prepuce. Basal part cracked during preparation, but its shape was not distorted. Medial part with paired lateral protuberances, slightly



Figs 4–8. *Pterostichus goschi* Jedlička, 1930, lectotype, male genitalia: 4 — aedeagus, left view; 5 — same, right view; 6 — same, dorsal view; 7 — right paramere; 8 — left paramere.

Рис. 4–8. *Pterostichus goschi* Jedlička, 1930, лектотип, гениталии самца: 4 — эдеагус, слева; 5 — то же, справа; 6 — то же, сверху; 7 — правая парамера; 8 — левая парамера.

asymmetrical, below them endophallus clearly narrowed. Distally, endophallus slightly expanded, bearing a complex of strongly protruding tubercles. Ventro-apical protrusion (D) long, S-shaped, covered with sclerotized denticles and noticeably asymmetric, with small conical protrusion at the base on the left. Distally, endophallus surrounded by three asymmetric tubercles with weak sculpture: large left (C), small rounded mediodorsal (A), and strongly curved right (B). Towards gonopore, endophallus tube retaining asymmetry, distinctly inclined to the right, and bearing several tiers of large spines.

VARIABILITY. The paralectotype (Figs 12–18) is slightly larger than the holotype (length 5.5 mm, width 2.1 mm). It has fairly distinct isodiametric reticulation on the head (Fig. 12), barely visible, slightly transverse on the pronotal disc (Fig. 13) and distinct transverse microsculpture on the elytra (Fig. 14). Both third intervals have only 1 discal pore located near the middle of the elytron.

DISTRIBUTION. Russia: Jewish Autonomous Region, south of Khabarovsk Krai, Primorsky Krai, South Kuriles: Kunashir (new record); North Korea; Japan: Hokkaido, Honshu (Map). In connection with the separation of *P. neglectus* and *P. goschi*, records of *P. neglectus* from the south of Sakhalin require re-identification.

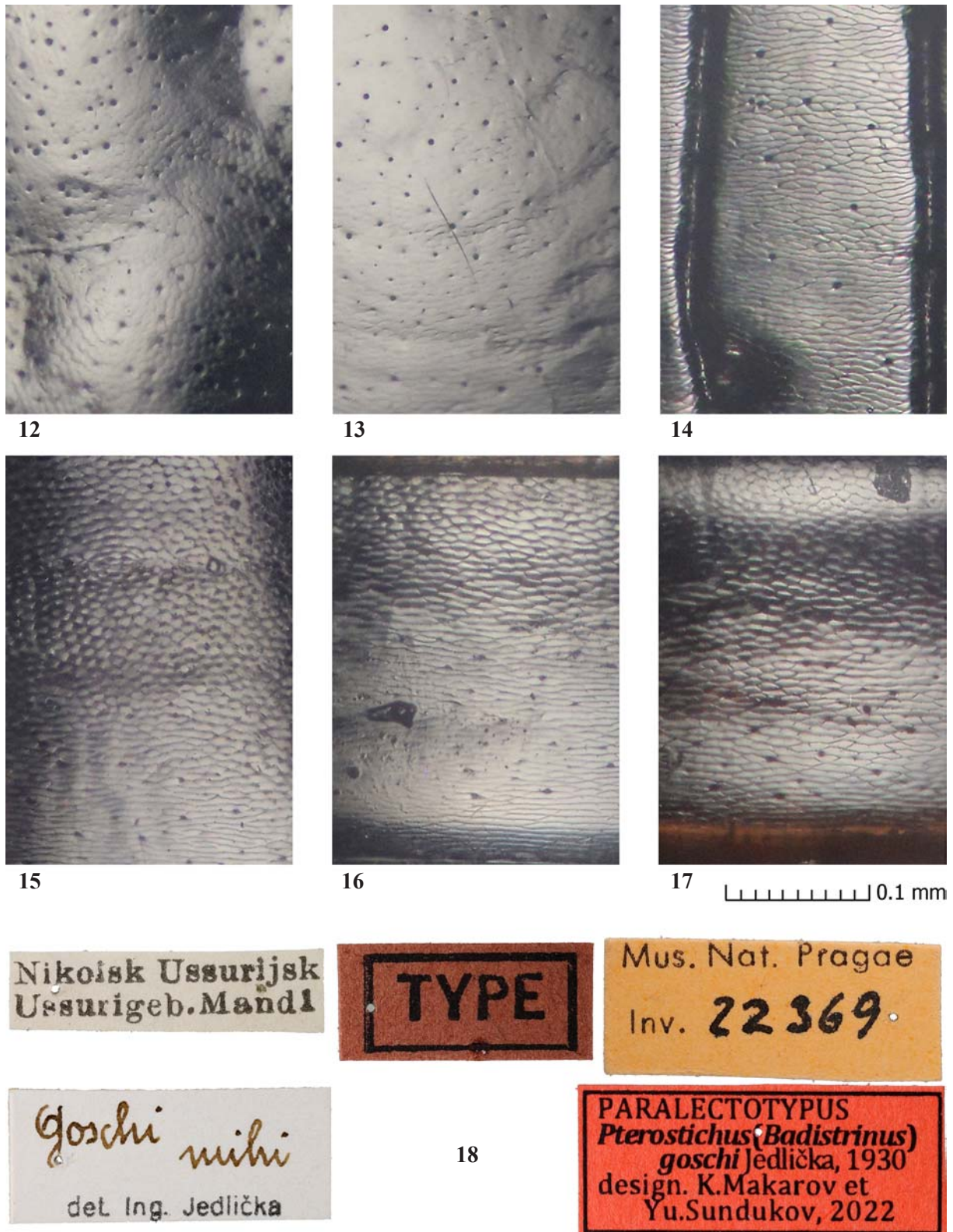
TAXONOMIC REMARKS. In the Far East, *P. goschi* lives sympatrically with *P. neglectus* A. Morawitz, 1862 (Map). The study of extensive collection material without dissection of the endophallus led to the erroneous conclusion that, in terms of the shape of the elytra, length of scutellar stria, and the coloration of legs and palps, individuals of *P. goschi* fit well into *P. neglectus* variability, which led to the reduction of *P. goschi* to junior synonyms of the latter species [Sundukov, 2013].

The differences between *P. neglectus* and *P. goschi* were rightly pointed out by Budilov [2021]. However, he designated them as “forms” of *P. neglectus*, and subsequently de-



Figs 9–11. *Pterostichus goschi* Jedlička, 1930, lectotype, male endophallus: 9 — left lateral view; 10 — ventral view; 11 — right view. Designations for the endophallus structures (A–D) according to Budilov [2022].

Рис. 9–11. *Pterostichus goschi* Jedlička, 1930, лектотип, самец, эндофаллус: 9 — слева; 10 — снизу; 11 — справа. Обозначения структур (A–D) по Budilov [2022].

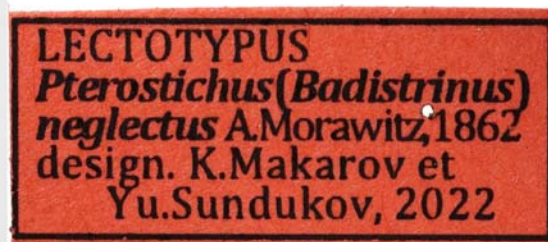
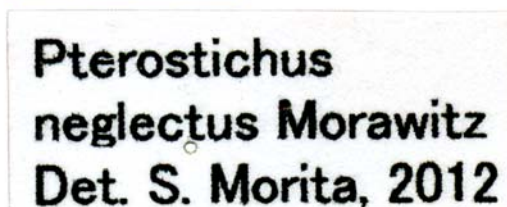
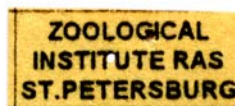
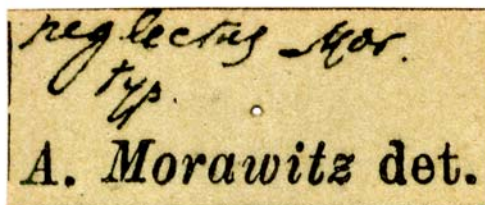
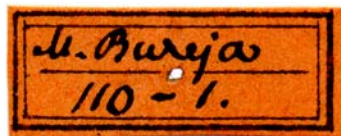


Figs 12–18. *Pterostichus goschi* Jedlička, 1930, paralectotype, male: 12–17 — microsculpture (12 — forehead; 13 — disk of pronotum; 14 — 3rd elytral interval, 15–17 — first, second and third visible sternite); 18 — labels.

Рис. 12–18. *Pterostichus goschi* Jedlička, 1930, паралектотип, самец: 12–17 — микроскульптура (12 — лоб, 13 — диск переднеспинки; 14 — 3й промежуток надкрылий; 15–17 — первый, второй и третий видимые стерниты); 18 — этикетки.



19



20

Figs 19–20. *Pterostichus neglectus* A. Morawitz, 1862, lectotype, male: 19 — dorsal habitus; 20 — labels.

Рис. 19–20. *Pterostichus neglectus* A. Morawitz, 1862, лектотип, самец: 19 — вид сверху; 20 — этикетки.

scribed one of them as an independent species [Budilov, 2022]. After publications of Budilov [2022] and Sasakawa [2022], the authors again became interested in the synonymy of these taxa. For this purpose, syntypes of *P. goschi* were studied, in one of which it was possible to evert and study the endophallus (Figs 9–11). Comparison of descriptions [Budilov, 2022; Jedlička, 1930; Morawitz, 1862; Sasakawa, 2022; Tanaka, 1958] and endophallus structure (Figs 21–28) confirmed both the differences between *P. neglectus* and *P. goschi*, and the conspecificity of the latter with *P. bandotaro* Tanaka, 1958 and *P. neglectoides* Budilov, 2022. The following characters can be used to distinguish between these species:

1. Lateral sides of pronotum evenly rounded to posterior angles (Figs 45–50), apices of posterior angles widely rounded (Fig. 30); femora and partially palps darkened

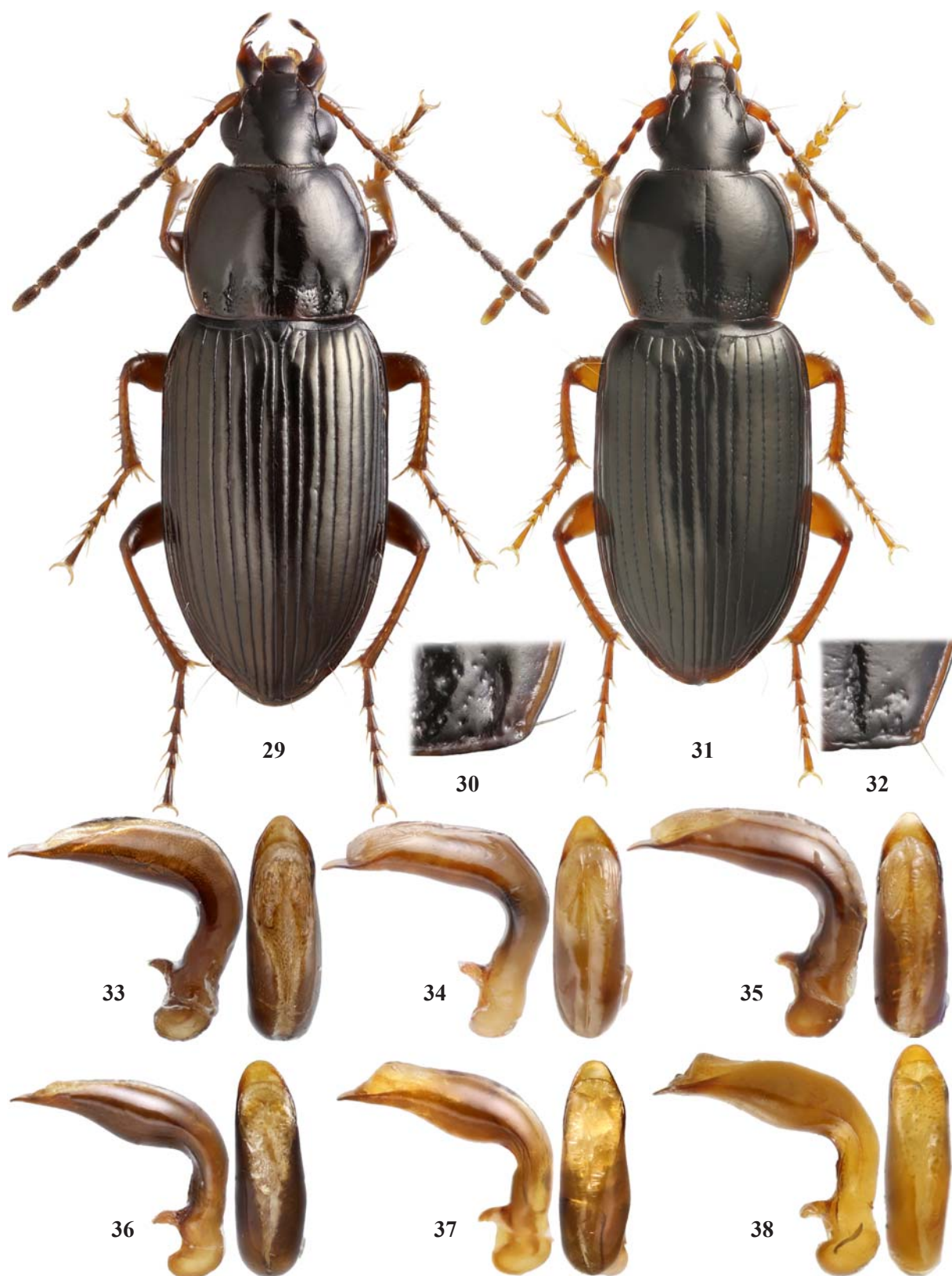
(Fig. 29), trochanters and coxae entirely black; scutellar stria usually normally developed; concave side of the aedeagus more or less even (Figs 33–35); endophallus (Figs 9–11, 25–28) *P. goschi*
 — Lateral sides of pronotum shortly concave or rectilinear in front of posterior angles (Figs 39–44), apices of posterior angles shaped like teeth (Fig. 32); legs and palps uniformly red (Fig. 31), trochanters and coxae partially reddish; scutellar stria usually shortened, often to a single point; concave side of aedeagus swollen medially (Figs 36–38); endophallus (Figs 21–24) *P. neglectus*

It should be noted that these closely related species are currently included in two subgenera, *Phonias* Gozis, 1886 and *Badistrinus* Motschulsky, 1866 [Bousquet, 2017]. The similarity of the endophallus structure plans (lack of a bend, large asymmetric tubercles, rows of spines in the apical part)



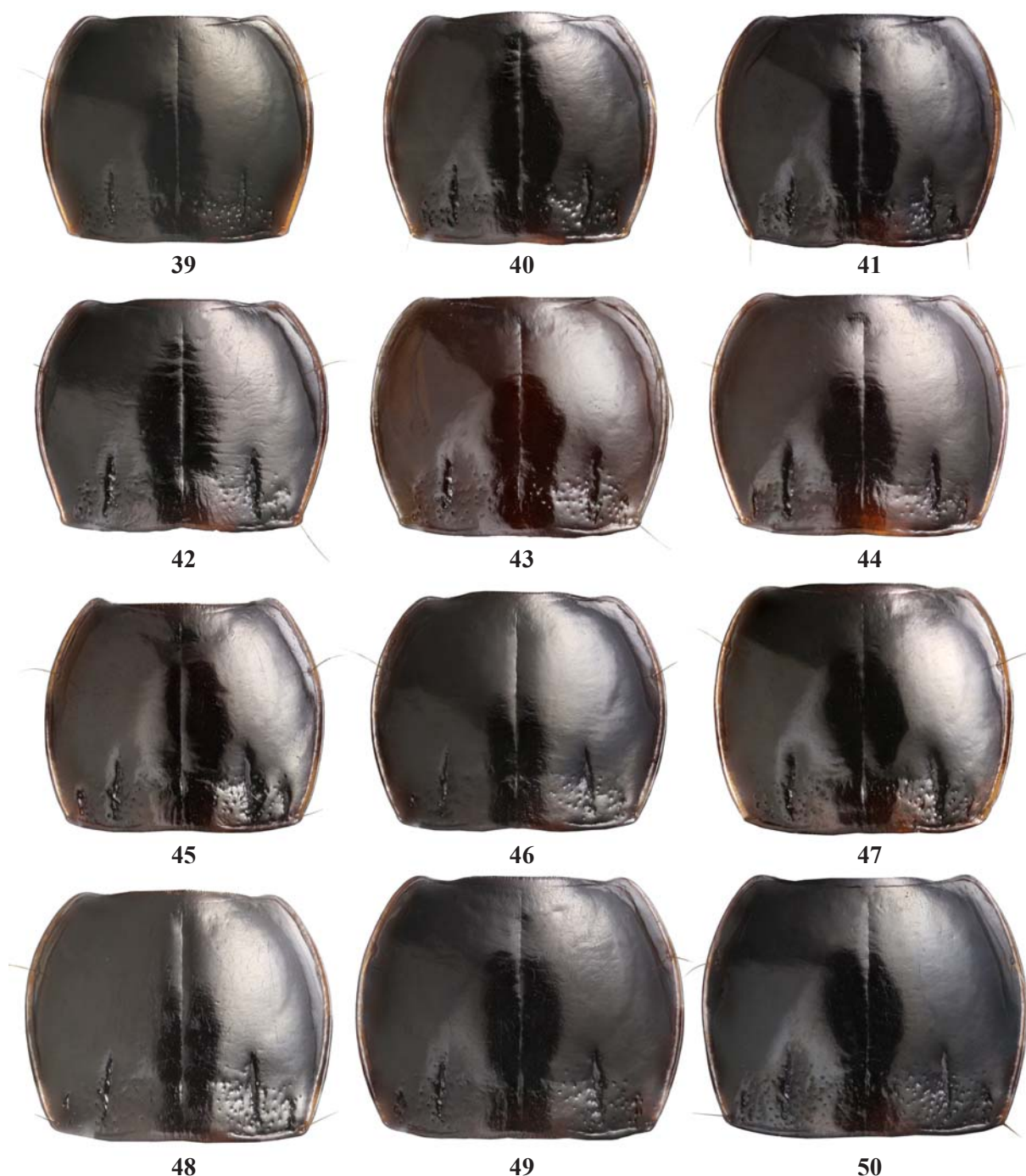
Figs 21–28. Endophallus: 21–24 — *Pterostichus neglectus* A. Morawitz, 1862 (Khabarovsky Krai, Khawar Stream below cordon Bichi); 25–28 — *P. goschi* Jedlička, 1930 (25 — Nikolsk Ussurijsk, lectotype; 26 — Kunashir, forest lake 1 km above mouth of Tyatina River; 27 — Primorsky Krai, Cape Ostrovok Falshiviy; 28 — Khabarovsky Krai, Namek Stream); 21 — left view; 22 — dorsal view; 23, 25–28 — ventral view; 24 — right view.

Рис. 21–28. Эндофаллус: 21–24 — *Pterostichus neglectus* A. Morawitz, 1862 (Хабаровский край, ручей Хавар ниже кордона Бичи); 25–28 — *P. goschi* Jedlička, 1930 (25 — Уссурйск [Nikolsk Ussurijsk], лектотип; 26 — Кунашир, лесное озеро 1 км выше устья р. Тятина; 27 — Приморский край, мыс Островок Фальшивый; 28 — Хабаровский край, ручей Намёк); 21 — слева; 22 — сверху; 23, 25–28 — снизу; 24 — справа.



Figs 29–38. Male of *Pterostichus* (*Badistrinus*) from Khasan district, details: 29–30, 33–35 — *P. goschi* Jedlička, 1930; 31–32, 36–38 — *P. neglectus* A. Morawitz, 1862; 29, 31 — dorsal habitus; 30, 32 — hind angle of pronotum; 33–38 — aedeagus, lateral and dorsal view.

Рис. 29–38. Детали строения самцов *Pterostichus* (*Badistrinus*) из Хасанского района: 29–30, 33–35 — *P. goschi* Jedlička, 1930; 31–32, 36–38 — *P. neglectus* A. Morawitz, 1862; 29, 31 — внешний вид, сверху; 30, 32 — задние углы переднеспинки; 33–38 — эдеагус, сбоку и сверху.



Figs 39–50. Variation in the shape of the pronotum: 39–44 – *Pterostichus neglectus* A. Morawitz, 1862 (39 – Primorsky Krai, 18 km SW Barabash; 40 – Khabarovsk Krai, Khawar Stream below cordon Bichi; 41 – Primorsky Krai, Sikhote-Alinsky Reserve, bank of Lake Tsarskoye; 42 – Zabaykalsky Krai, Priargunsky district, Duroy; 43 – Khabarovsk Krai, stream between the 1st and 2nd Byk on Gorin River; 44 – Zabaykalsky Krai, Chita area, near Duroy); 45–50 – *P. goschi* Jedlička, 1930 (45 – Primorsky Krai, Cape Ostrovok Falshivy; 46 – Khabarovsk Krai, Namek Stream; 47 – Kunashir Island, forest lake 1 km above mouth of Tyatina River; 48 – Primorsky Krai, 1.7 km north of Cape L'va; 49, 50 – Primorsky Krai, Khasan environs).

Рис. 39–50. Изменчивость формы переднеспинки: 39–44 — *Pterostichus neglectus* A. Morawitz, 1862 (39 — Приморский край, 18 км ЮЗ Барабаш; 40 — Хабаровский край, руч. Хавар ниже кордона Бичи; 41 — Приморский край, Сихоте-Алинский заповедник, берег оз. Царское; 42 — Забайкальский край, Приаргунский р-н, Дурой; 43 — Хабаровский край, ручей между 1-м и 2-м Быками на р. Горин; 44 — Забайкальский край, окрестности п. Дурой); 45–50 — *P. goschi* Jedlička, 1930 (45 — Приморский край, мыс Островок Фальшивый; 46 — Хабаровский край, ручей Намёк; 47 — Кунашир, лесное озеро 1 км выше устья р. Тятина; 48 — Приморский край, 1,7 км севернее мыса Льва; 49, 50 — Приморский край, окрестности п. Хасан).



Map. Distribution of *Pterostichus goschi* Jedlička, 1930 and *P. neglectus* A. Morawitz, 1862. Data for Sakhalin according to Lafer et al. [1997].

Карта. Распространение *Pterostichus goschi* Jedlička, 1930 и *P. neglectus* A. Morawitz, 1862. Данные с Сахалина даны по Lafer et al. [1997].

and the position of the apical discal pore (close to the 3rd stria) indicate that these species belong to the same subgenus and, at the same time, separate them from *Phonias*. At the present level of knowledge of the subgenus structure of *Pterostichus* Bonelli, 1810, it seems appropriate to place these species in the subgenus *Badistrinus*.

Acknowledgements. We are sincerely grateful to Jiří Hájek (NMPC, Prague, Czech) and Boris Kataev (ZISP, St. Petersburg, Russia) for the possibility to study the types of *P. neglectus* and *P. goschi*. The research of Yu. Sundukov was carried out within the state assignment of Ministry of Science and Higher Education of the Russian Federation (theme No. 121031000151-3).

Competing interests. The authors declare no competing interests.

References

- Bousquet Y. 2017. Tribe Pterostichini Bonelli, 1810 // I. Löbl, D. Löbl (eds.). Catalogue of Palaearctic Coleoptera. Vol.1. Archo-
- stemata – Myxophaga – Adephaga. Revised and Updated Edition. Volume 1. Leiden–Boston: Brill. P.675–755.
- Budilov P.V. 2021. [Study of *Pterostichus neglectus* A. Morawitz, 1862 (Coleoptera: Carabidae)] // Chteniya pamyati Alekseya Ivanovicha Kurentsova. Vol.32. P.96–101 [in Russian].
- Budilov P.V. 2022. A new species of the genus *Pterostichus* Bonelli, 1810 (Coleoptera: Carabidae) from the Russian Far East // Far Eastern Entomologist. No.446. P.24–28. DOI: 10.25221/fee.446.4
- Jedlička A. 1930. Noví palaearktští Carabici. (V. pokrač.). Neue palaeark. Carabiden. (V. Folge.) // Časopis Československé Společnosti Entomologické. Vol.27. P.21–24.
- Morawitz A. 1862. Vorläufige Diagnosen neuer Coleopteren aus Südost-Sibirien // Mélanges Biologiques tirés du Bulletin de l'Académie des Sciences de St.-Petersbourg. Vol.4. P.180–228.
- Sasakawa K. 2022. A new synonym of the ground beetle *Pterostichus bandotaro* Tanaka, 1958 (Coleoptera: Carabidae) // Far Eastern Entomologist. No.449. P.18–20. DOI: 10.25221/fee.449.3
- Sundukov Yu.N. 2013. [An annotated catalogue of the ground beetles (Coleoptera: Caraboidea) of Sikhote-Alin]. Vladivostok: Dalnauka. 271 pp [In Russian]
- Tanaka K. 1958. A new subgenus and two new species of the genus *Pterostichus* from Japan (Carabidae, Coleoptera) // Kontyû. Vol.26. P.78–83.