

A review of *Pterostichus* subgenus *Orientostichus*
(Coleoptera: Carabidae: Pterostichini) from Indochina,
with description of new species

Обзор подрода *Orientostichus* рода *Pterostichus*
(Coleoptera: Carabidae: Pterostichini) из Индокитая
с описанием новых видов

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KEY WORDS: Coleoptera, Carabidae, *Pterostichus*, *Orientostichus*, new species, Vietnam, Oriental region.

КЛЮЧЕВЫЕ СЛОВА: Coleoptera, Carabidae, *Pterostichus*, *Orientostichus*, новый вид, Вьетнам, Ориентальная область.

ABSTRACT. The subgenus *Orientostichus* Sciaky et Allegro, 2013, of the carabid genus *Pterostichus* Bonelli, 1810, is re-described. Eight species are reviewed, including new five from Vietnam: *P. matalini* **sp.n.**, *P. makarovi* **sp.n.**, *P. pseudolesticoides* **sp.n.**, *P. laevistriatus* **sp.n.**, and *P. tamdaoensis* **sp.n.** The species reviewed are arranged into two species groups, the *prattii*-group and the *lesticoides*-group. A key for identification of the species from Indochina is provided.

РЕЗЮМЕ. Переописан подрод *Orientostichus* Sciaky et Allegro, 2013, рода *Pterostichus* Bonelli, 1810. Дан обзор 8 видов подрода, включая 5 новых из Вьетнама: *P. matalini* **sp.n.**, *P. makarovi* **sp.n.**, *P. pseudolesticoides* **sp.n.**, *P. laevistriatus* **sp.n.** и *P. tamdaoensis* **sp.n.** Виды распределены по 2 видовым группам — *prattii* и *lesticoides*. Для определения видов из Индокитая составлена определительная таблица.

Introduction

The genus *Pterostichus* Bonelli, 1810 is very rich in species and it ranges across the Northern Hemisphere. The subgenus *Orientostichus* was erected quite recently [Sciaky, Allegro, 2013] for 14 species of the genus, eleven from China and three from Indochina; some of the Chinese species being previously referred to as members of the *prattii*-group [Jedlička, 1962] of *Pterostichus* incertae sedis.

In this paper we contribute new five species, all from northern Vietnam, to the genus, and it is the next stepping stone to better understanding of both the subgenus and the Oriental fauna of the genus. Major part of the material was collected during recent expeditions to highlands of northern Vietnam, sponsored by the Russia-Vietnam Tropical Centre, Moscow–Hanoi.

Acronyms used are as follows: NHML — Natural History Museum, London; MSNM — Museo Civico di Storia Naturale di Milano; SIEE — the author's reference collection at A.N. Severtsov Institute of Ecology & Evolution, Russian Academy of Sciences, Moscow; ZIN — Zoological Institute, Russian Academy of Sciences, St. Petersburg; ZMMU — Zoological Museum of the Moscow State University.

The following parameters were analyzed (Table): length of elytron, measured from the highest point of basal margin to apex (EL); maximum width of elytra (EW); width of head across eyes (HW); width of pronotum between apical (PA) or basal (PB) angles; length of pronotum along median line (PL); distance between apex and level of maximum width of pronotum, measured along mid-line (PLw); maximum width of pronotum (PW). Other measurements are as follows: lengths of antennomeres 1 to 4 (AnL , $n = 1, 2, 3, 4$), used in the antennal ratio $AR = A1L/A3L : A2L/A3L : A4L/A3L$; maximum body length, measured between apices of closed mandibles and apex of elytra (BL); distance between apex of elytron and discal pore d3 (D3); length (est3L) and width (est3W) of metepisternum along outer or anterior margin, respectively; length of tarsomere

1 or tarsomeres 2 and 3 combined in meso- (mstm1L, mstm23L) and metatarsi (mttm1L, mttm23L). Measurements were taken using an eyepiece micrometer within the accuracy of two decimal places. The means are given in round brackets for the ratios followed by the number of specimens measured (n).

Abbreviations also include US, umbilical seta, arranged into USS, umbilical seta series, that runs on elytral interval 9. Coxa, trochanter, femur, tibia, and tarsus are abbreviated to *cxn*, *trn*, *fen*, *tin*, and *tan* (n = 1, 2, 3 for pro-, meso- and metathorax, respectively).

Data on labels of specimens are in quotes, new line being marked with slash. All labels are printed, a handwritten text being italicized.

Results

Genus *Pterostichus* Bonelli, 1810

Subgenus *Orientostichus* Sciaky et Allegro, 2013

Type species: *Pterostichus prattii* Bates, 1890.

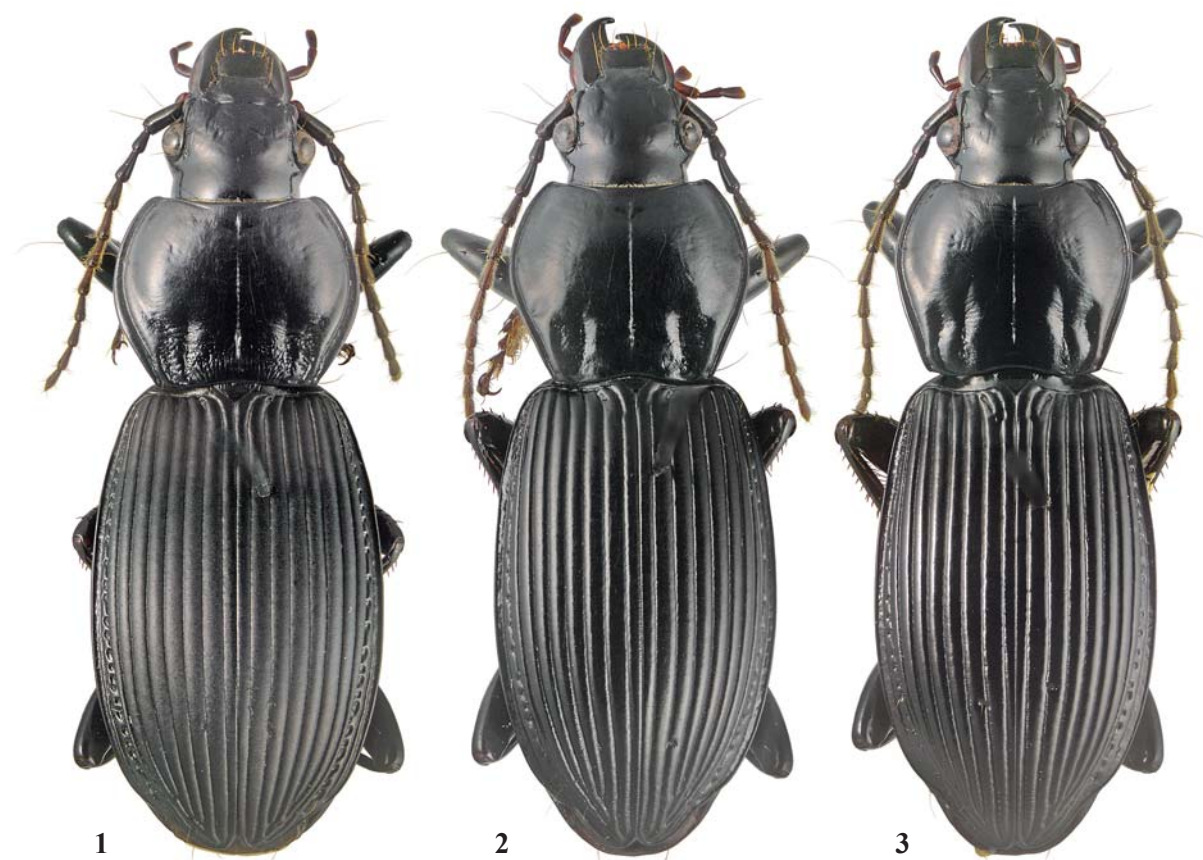
DIAGNOSIS. Rather large-sized apterous species from China and northern Indochina, recognizable chiefly by terminal labial and maxillary palpomere subtriangular, distinctly broader apically than basally; mandibular scrobe without

longitudinal sulcus at bottom; and tergite VII with a dense preapical fringe of longer setae in female (Figs 11–12). The species otherwise share characters as follows: pronotal base bisulcate, with sulci mostly joining along base, on each side; elytral parascutellar striole mostly missing, interval 3 with single or no seta behind middle (see 'Redescription' below), USS continuous, consisting of multiple and dense US. Metepisternum short. Tarsi not laterally carinate or dorsolaterally sulcate, tarsomeres 3 and 4 mostly with more than two-rowed, long and dense, ventral setae. Abdominal sternite VII mostly modified in male into a well-developed median carina (Figs 13–18). Many species also share elytral intervals more or less distinctly cross-striated on sides toward apex (Figs 10–12).

Aedeagus in lateral view geniculate or nearly so, with apical 3/5 median lobe bent much ventrad (at an acute angle); right paramere short, flat, somewhat hastate. Everted and inflated internal sac slightly bent to the left, with a characteristic Δ -shaped sclerite on left side, this sclerite being entire or divided into two.

Both female sternite VIII (Figs 53, 55, 57) and laterotergite IX with apical margin conspicuously crenulate or serrate and setulose between serrations; gonocoxite IX spatulate (Figs 58–60): short, wide, asetose, with apex widely rounded.

REDESCRIPTION. BL 14–27 mm. Body (Figs 1–9) shiny black, slightly iridescent or not, sometimes dull from coarse microsculpture in female. Dorsal microsculpture



Figs 1–3. Dorsal habitus: 1 — *Pterostichus makarovi* sp.n., paratype ♀; 2–3 — *P. matalini* sp.n., paratypes from Phan Xi Pang Mt or Bat Xat NP.

Рис. 1–3. Габитус дорзально: 1 — *Pterostichus makarovi* sp.n., паратип ♀; 2–3 — *P. matalini* sp.n., паратипы с г. Фансипан и из Национального парка Батсат.

meshed, isodiametric on head, transversely rectangular and more or less wide on pronotum. Elytral microsculpture isodiametric to very transverse or consisting of dense transverse lines depending on species, sometimes granulate in female or imperceptible; striae at bottom with meshes coarse and slightly longitudinal, reflexed lateral margin with microsculpture coarse isodiametric to superficial longitudinal.

Body setation as for many *Pterostichus*: head bisetose above each eye, submentum bisetose, mentum with two proximate setae at base of median tooth, labial palpomere 2 bisetose; pronotum quadrisetose; elytron without or with parascutellar seta; abdominal sternites IV–VI with one pair of obligatory medial setae; *fe*1 posterior face trisetose; *cx*3 bisetose laterally (inner seta missing), *tr*3 asetose, *fe*3 bisetose along anteroventral edge, tarsomere 5 mostly setose ventrally.

Head medium-sized, eyes convex, rather small to medium-sized; gena about two fifths as long as eye, meeting neck at very obtuse angle. Neck constriction almost imperceptible. Two supra-ocular setae inserted just inside deep supra-ocular groove. Frontal sulci mostly short, not reaching the level of anterior supra-ocular setae, diverging, shallow or moderately deep and impunctate; frons smooth or with faint, parallel or slightly diverging, striae between eyes. Clypeus bisetose, apically subsinuate; labrum slightly sinuate, sexsetose. Antennae submoniliform, reaching or slightly surpassing pronotal base, antennomeres 4–11 pubescent; scape and pedicel each with a long seta,

dorsal or ventral, respectively; antennomere 3 without or with shorter extra setae between apical verticillate setae. Mandibles moderately long, obliquely striated on dorsal side. Mentum in front of base with a pair of extensive, more or less deep, round pits and two proximate setae at base of median tooth; this latter bifid and deeply longitudinally grooved, its lateral edges extended into fine ridges separating between lateral lobes and epilobes, these apically angulate or toothed. Submentum bisetose, outer setae missing. Labial palpomere 3 subtriangular, with apex obliquely truncate; maxillary palpomere 3 less so, sometimes fusiform.

Pronotum quadrate to subcordate; sides rounded to sinuate in front of basal angles, finely beaded, with lateral bead slightly flattened and broadened toward base in some species, without or with a distinct sublateral line inside fine lateral groove. Basal angles slightly acute to obtuse and rounded. Base mostly distinctly sinuate at middle, bisulcate on each side. Inner basolateral sulci long and deep, outer ones shorter, either joining these latter along base or separate, with a more or less convex area in between and a costate fold between outer sulcus and lateral groove. Apex truncate to sinuate; apical bead fine, broadened medially, obliterate in about middle third. Basal and apical transverse impressions indistinct or almost so. Median line fine yet moderately deep, obliterate apically and/or basally. Disc rather smooth, base mostly impunctate or vaguely punctate. Lateral setae situated in lateral groove.



Figs 4–6. Dorsal habitus: 4 — *Pterostichus lesticoides*, holotype; 5 — *P. prattii*, ♀ from Chengkou; 6 — *P. ferreroi*, paratype ♂.

Рис. 4–6. Габитус дорзально: 4 — *Pterostichus lesticoides*, голотип; 5 — *P. prattii*, ♀ из Chengkou; 6 — *P. ferreroi*, паратип ♂.

Elytra elliptic, broadest at or just behind middle, with apices rounded separately each. Base oblique, humeri distinct, blunt to rounded, without teeth. Basal ridge entire, convex apicad, humeral angle right and sharp to very obtuse and rounded. Preapical sinuation moderately deep to very shallow, internal preapical plica well-developed, visible in dorsolateral view, sometimes much reduced. Striae entire, deep or very deep, impunctate or finely punctate, 7th starting from just outside to slightly inside humeral angle. Parascutellar striae mostly totally reduced, in some species varying individually from missing to short. Intervals mostly convex, more so before apex, 1st merged in lateral edge (apical bead) at sutural angle, 2nd separate apically, either 7th, 5th and 3rd confluent apicad in succession or 3rd and 7th joining apically. Interval 8 basally, as well as 7th and 8th just before preapical sinuation, very narrow, costate or subcarinate. Reflexed lateral margin outside stria 9 concave or flat, often vaguely catenate, more distinctly so down the middle, or with a blunt carina (additional interval) in apical half. Parascutellar seta present or (*P. curtatus* Fairmaire, 1886; *P. perlutus* Jedlička, 1938; *P. pulcher* Sciaky et Allegro, 2013) missing. Interval 3 behind middle without or with seta d3, or (*P. pulcher*) intervals 3, 5, and 7 catenulate, each broken by 5–7 setae in links. Stria 7 with two distant preapical setae, sometimes intermediate seta present. USS consisting of multiple US, 21–37 in number.

Prosternum with a shallow median groove between *cx*1; prosternal process in ventral view more or less flat, apically rounded, not or indistinctly beaded, in lateral view rectangular

or nearly so, with apex rounded or not; declivity in caudal view wide, either costate or flat to barely concave, without or with distinct lateral edges or fine beads, respectively. Mesoventrite neither carinate nor toothed laterally, anterior declivity flat or longitudinally concave. Metepisternum as wide at anterior margin as long at outer margin or wider than long. Abdominal sternites finely beaded along sides. Mesepisternum, metepisternum, sides of metaventrite and of abdominal sternites II–IV densely and rather finely punctate, underside otherwise smooth. Abdominal urite VIII moderately transverse in female (Figs 52–57): tergite slightly rounded at apical margin, basal apodemes rather short, as long as or slightly longer than wide, and slightly pigmented; sternite with apical margin conspicuously crenulate or serrate and setulose between serrations, basolateral apodemes large, as wide as long, central desclerotized (depigmented) area ω -shaped.

Legs moderately strong. *Ti*1 slightly dilated apicad, with three spinules at posterolateral edge, two apical and one preapical, and 1–2 spinules at apex of posterior ridge. *Tr*3 apically rounded or blunt, about half as long as *fe*3; *ta*2 about as long as *ti*2, *ta*/*ti*2L 0.86–1.13, *ta*3 slightly shorter than *ti*3, *ta*/*ti*3L 0.74–0.93; tarsomere 1 barely shorter to distinctly longer than tarsomeres 2 and 3 combined, *mstm*1/23L 0.88–1.25, *mttm*1/23L 0.87–1.17. Meso- and metatarsomeres 1 and 2 with outer (anterior) ventrolateral sulcus only (lateral carina and dorsolateral sulcus missing). Leg chetotaxy: *fe*2 with two anteroventral setae and 2–5 anterodorsal setae in apical half; *ti*2 with 4–6 and *ti*3 with 0–4 setae along outer



Figs 7–9. Dorsal habitus: 7 — *P. pseudolesticoides* sp.n., paratype ♀; 8 — *P. laevistriatus* sp.n., holotype; 9 — *P. tamdaoensis* sp.n., holotype.

Рис. 7–9. Габитус дорзально: 7 — *P. pseudolesticoides* sp.n., паратип ♀; 8 — *P. laevistriatus* sp.n., голотип; 9 — *P. tamdaoensis* sp.n., голотип.

margins; tarsomeres 1–4 with one pair of latero-apical setae, mesotarsomeres 1–3 and metatarsomeres 1–2 or 1–3 with one pair of dorso-apical setae; tarsomere 5 with 1–4, mostly 3, pairs of ventral setae. Tarsal ventral setae varying between species in density as well as in shape, from rather sparse, spiniform (more so on tarsomeres 1 and 2), arranged into two rows, to sparse, spiniform, two-rowed on tarsomere 1, combined with more than two-rowed, long and dense, brush-like setae, on tarsomeres 3, 4 and often also 2.

Aedeagus (Figs 19–51): apex long, narrow, dorsoventrally flattened and slightly twisted. Everted and inflated internal sac rather simple in shape, bent slightly to the left, with a fairly large right basal bulb, without or with left basal bulb. Left distal bulb replaced with (modified into) two sclerites, large medial and narrow lateral, these mostly merged into a Λ -shaped sclerite.

Female genitalia and reproductive tract (Figs 58–60): gonosubcoxite IX and gonocoxite IX glabrous. *Bursa copulatrix* large, obtrapezoidal, broader anteriorly than posteriorly; with dorsobasal wall more or less distinctly sclerotized. Spermatheca differentiated, rather short, angled; seminal canal short, 2–2.5 times as long as slightly arcuate receptacle, with no basal sclerite or bulbous structures; gland duct-spermathecal junction just in the corner.

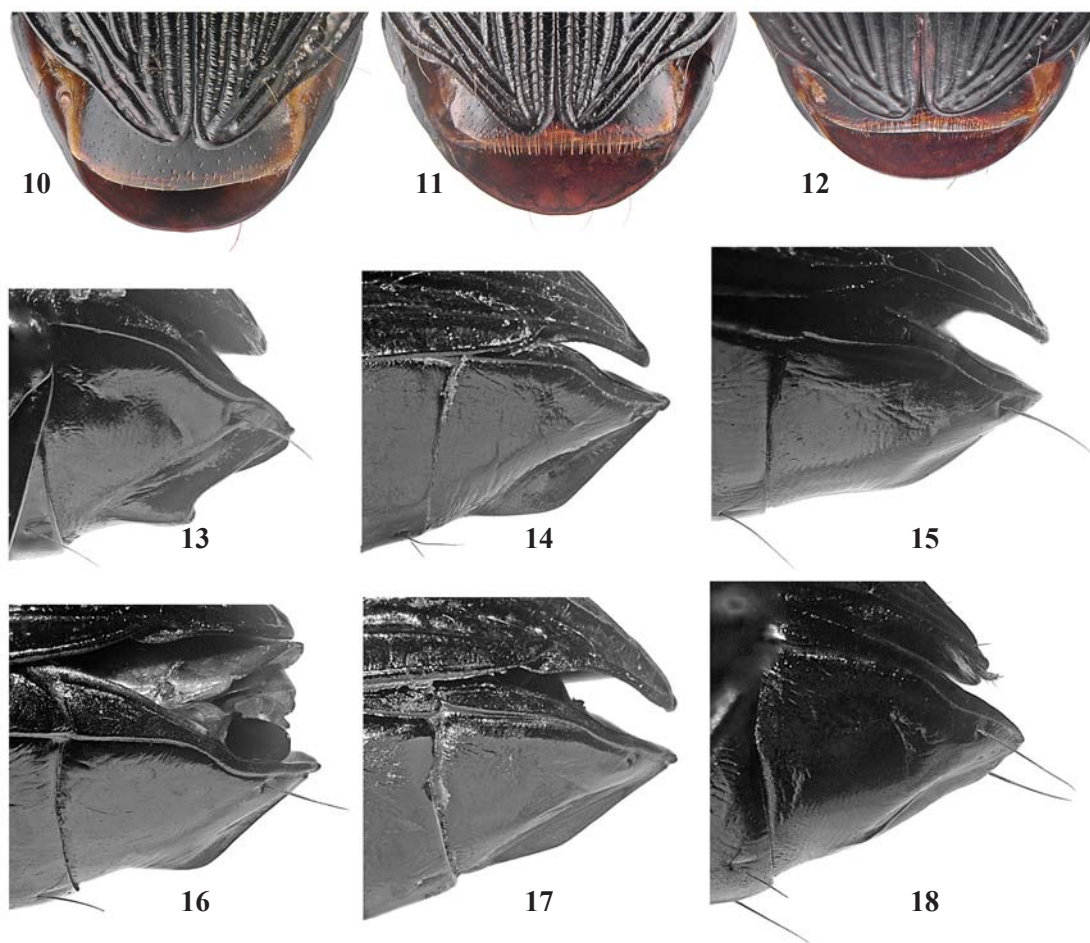
Secondary sexual characters: Male protarsomeres 1–3

dilated, with biserial squamo-setae on ventral side (vs. toothed at ventro-apical angles in female); *ti2* toothed at base of longer apical movable spur. Abdominal tergite VII without (σ) or with (ϕ) a row of multiple, long, more or less dense, preapical setae; sternite VII bi- (σ) or quadrisetose (σ). As usual in *Pterostichus* and many other carabids, elytra are barely longer and slenderer in male than in female.

DISTRIBUTION. The subgenus includes 14 described species and many undescribed ones from China, including Taiwan, and adjacent parts of Indochina (northern Burma, northern Thailand, and northern Vietnam).

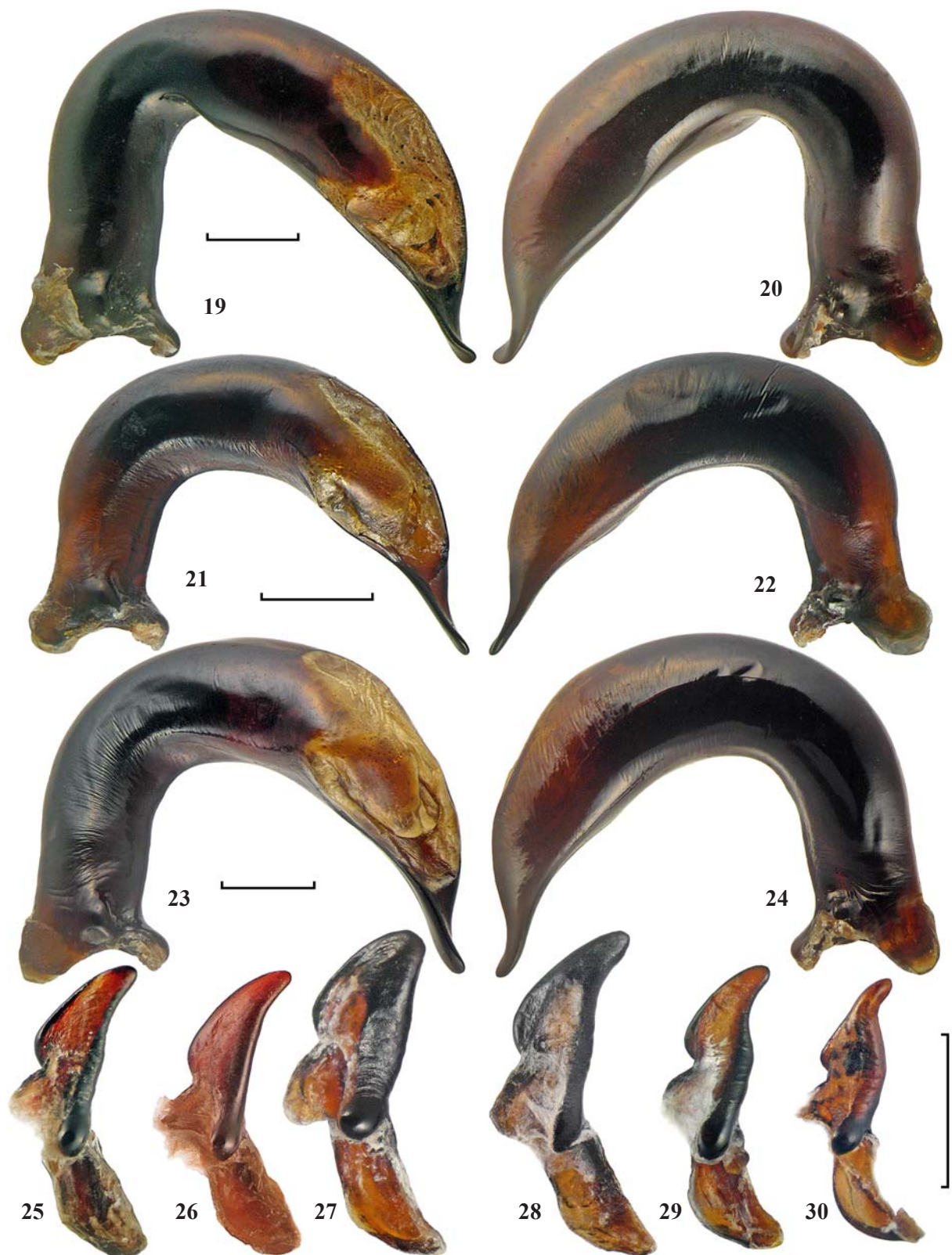
HABITS AND HABITATS. Member species of the genus inhabit cloudy forests, occurring at the altitudes of 300–1,800 m (*P. prattii* Bates, 1890 [Sciaky, Allegro, 2013]) or 2,100 m (*P. semirugosus* (Andrewes, 1947) and *P. ferreroi* Straneo, 1989), or 1,200–1,400 m (*P. gallopavo* Sciaky et Wrase, 1997), or 2,800–3,100 m (*P. pulcher* Sciaky et Allegro, 2013). Specimens of the other examined species have been collected at 1,500–3,400 m altitudes in China or 1,650–2,100 m in Vietnam.

COMMENTS. In erecting *Orientostichus*, Sciaky & Allegro [2013] pointed out its some similarity to the subgenera *Pseudethira* Sciaky, 1997 or *Sinoreophilus* Sciaky, 1996. I consider *Orientostichus* to be more closely allied to *Steropa-*



Figs 10–18. *Pterostichus*: 10, 15 — *P. matalini* sp.n.; 11, 14 — *P. prattii*, from Moupin, China; 12 — *Pterostichus* sp. from China; 13 — *P. curtatus*; 16 — *P. pseudolesticoides* sp.n.; 17 — *P. ferreroi*; 18 — *P. makarovi* sp.n.; 10–12 — apices of elytra and abdomen, dorsal aspect; 13–18 — abdominal sternite VII in male, left lateral view. Not to scale.

Рис. 10–18. *Pterostichus*: 10, 15 — *P. matalini* sp.n.; 11, 14 — *P. prattii*, из Мовпин, Китай; 12 — *Pterostichus* sp. из Китая; 13 — *P. curtatus*; 16 — *P. pseudolesticoides* sp.n.; 17 — *P. ferreroi*; 18 — *P. makarovi* sp.n.; 10–12 — вершины надкрылий и брюшка, дорзально; 13–18 — стернит VII брюшка самца, вид слева. Без масштаба.



Figs 19–30. Aedeagus: 19–20, 25 — *Pterostichus prattii*, from Moupin, China; 21–22, 27 — *P. matalini* sp.n.; 23–24, 26 — *P. ferreroi*; 28 — *P. makarovi* sp.n.; 29 — *P. pseudolesticoides* sp.n.; 30 — *P. lesticoides*; 19–24 — median lobe; 25–30 — right paramere; 19, 21, 23, 25–30 — left lateral aspect; 20, 22, 24 — right lateral aspect. Scale bars 1 mm.

Рис. 19–30. Эдеагус: 19–20, 25 — *Pterostichus prattii*, из Мопин, Китай; 21–22, 27 — *P. matalini* sp.n.; 23–24, 26 — *P. ferreroi*; 28 — *P. makarovi* sp.n.; 29 — *P. pseudolesticoides* sp.n.; 30 — *P. lesticoides*; 19–24 — средняя доля; 25–30 — правая парамера; 19, 21, 23, 25–30 — слева; 20, 22, 24 — справа. Масштаб 1 мм.

nus Fairmaire, 1888, while recognizing the latter as hardly separable from *Pseudethira*, and it seems to me that *Wraseiellus* Shi et Sciaky, 2013, is the next relative of *Orientostichus*.

As far as *Orientostichus* and *Steropanus* are concerned, both are similar in pronotal shape and structure. The two taxa also share similar body setation, including *cx3* bisetose, *tr3* asetose, etc., combined with many, certainly apotypic characters such as the bisetose submentum, the asulcate mandibular scrobe, the terminal labial palpomere dilated apically, elytral USS continuous and consisting of multiple US, the parascutellar striae much reduced or missing, the elytral interval 8 often attenuated and thence subcarinate before and behind, the elytral discal setae reduced much in number, and the tarsi distinctive, not laterally sulcate, with the ventral setae being more or less brush-like and the dorso-apical setae tending to be present on the basal three segments, instead of basal two, as is characteristic of many other *Pterostichus*. Furthermore, aedeagi are similar in general except only that right paramere is mostly longer in *Steropanus* than in *Orientostichus*. This also is true of the internal sac, which is rather simple in its general shape and has either a well-developed preapical sclerite or (*P. pseudoglymmiger* Fedorenko, 2020) bulbs apparently homologous to the sclerites observed in *Orientostichus*.

On the other hand, pregenital segments, genitalia and reproductive tract are much less similar in females of the taxa compared. The similarity is due only to (1) no basal sclerite of the seminal canal found, (2) gonosubcoxite IX glabrous, and (3) gonocoxite IX short and wide, with ensiform setae reduced to enlarged ventral ones (*Steropanus*) or totally (*Orientostichus*). *Steropanus* otherwise has spermatheca well-differentiated, angulate, including seminal canal long and receptacle clavate, and a well-developed bulbous structure at spermathecal-oviduct junction, which is peculiar to many other *Pterostichus*. The reproductive tract of *Orientostichus* has spermatheca differentiated yet rather short, with no bulbous structure at its base, which character combination may suggest remote relationships between *Orientostichus* and the *Platysma* lineage, including *Sinoreophilus*.

All the species from Indochina are here arranged into two species groups whose members share the elytra with parascutellar seta and intervals barely to conspicuously cross-striated toward apices. The *prattii*-group mostly includes larger-sized and rather slender species such as *P. semirugosus* (Andrewes, 1947); *P. ferreroi* Straneo, 1989; *P. matalini* sp.n.; *P. makarovi* sp.n.; and probably *P. distinctissimus* Jedlička, 1940. The *lesticoides*-group includes four species, which are very similar in appearance.

KEY TO SPECIES OF *PTEROSTICHUS* (*ORIENTOSTICHUS*) FROM INDOCHINA.

- 1(10) Pronotal lateral bead fine, not or barely wider in basal than in apical half (Figs 1–3, 5–6). Pronotum narrow at base, its sides straight or subsinuate in front of basal angles; inner and outer basolateral sulcus joining along base. Elytron with seta d3, intervals mostly distinctly cross-striated on sides toward apex or densely transversely rugose in apical third. Metatibia with 1–4 setae along outer margin. Body large, BL 22–27 mm. The *prattii*-group.
- 2(5) Elytra down the middle dull due to intervals densely transversely rugose (Fig. 6); elytral microsculpture isodiametric. Pronotal basal angles pointed, right or acute.
- 3(4) Elytral intervals subequally developed. Pronotal base broader, PB/PA 1.29. — Northern Myanmar. *P. semirugosus* (Andrewes, 1947)
- 4(3) Odd elytral intervals more developed than even ones in

- apical half, with their median shiny stripes reaching apex or not, respectively. Pronotal base narrower, PB/PA 1.19. — Northern Thailand 4. *P. ferreroi* Straneo, 1989
- 5(2) Elytra shiny, with intervals more or less distinctly cross-striated toward apices (Figs 10–11), or entirely dull from coarse isodiametric microsculpture in female. Pronotal basal angles more or less obtuse and mostly blunt.
- 6(7) Elytral microsculpture isodiametric in both sexes, base of interval 8 in form of fairly long carina. Meso- and metatarsomeres 1–3 with dorsolateral setae. Abdominal sternite VII in male with a high median carina (Fig. 14). — Southern China. [3. *P. prattii* Bates, 1890]
- 7(6) Elytral microsculpture consisting of transverse meshes or transverse lines, or granulate in female. Meso- and metatarsomeres 1 and 2 with dorsolateral setae. Abdominal sternite VII in male with a small, slightly longitudinal, tubercle in and slightly down the centre (Figs 15, 18). — Northern Vietnam.
- 8(9) Pronotal base densely punctate on each side. Elytral microsculpture sexually dimorphic, coarse and granulate (♀) or consisting of superficial transverse meshes (♂), thus giving elytra dull or shiny appearance, respectively. Reflexed lateral margin of elytra with a fine carina in apical half. Pronotal lateral bead wide, more so in basal half. — Phia Oac Mt. 2. *P. makarovi* sp.n.
- 9(8) Pronotal base impunctate to finely and very sparsely punctate on each side. Elytra shiny, with microsculpture consisting of very transverse superficial meshes (♀) or dense transverse lines (♂). Reflexed lateral margin of elytra with no carina. Pronotal lateral bead narrow, barely wider in basal than in apical half. — Hoang Lien Son Mt. ridge. 1. *P. matalini* sp.n.
- 10(1) Pronotal lateral bead thick anteriorly, flat and dilated in basal half (Figs 4, 7–9). Pronotum wide at base, rounded on sides; inner and outer basolateral sulci separate, basal bead missing. Elytron without discal setae, intervals smooth. Metatibia asetose at outer margin The *lesticoides*-group.
- 11(14) Body smaller, BL 18–20 mm. Elytra without discal setae, with microsculpture consisting of very dense transverse lines on disc and of longitudinal meshes at bottom of reflexed lateral margin. — Hoang Lien Son Mt. ridge.
- 12(13) Pronotal base wide, mean PB/PA ~1.3. Aedeagus apex in lateral view with dorsal margin distinctly s-shaped (Fig. 4). 5. *P. lestitoides* (Straneo, 1939)
- 13(12) Pronotal base narrow, mean PB/PA ~1.1. Aedeagus apex in lateral view with dorsal margin smoothly sinuate (Fig. 7). 6. *P. pseudolesticoides* sp.n.
- 14(11) Body large, BL 22–23 mm. Elytra with discal seta d3 adjoining stria 2 a fourth from apex and microsculpture consisting of transverse meshes on disc and of isodiametric meshes at bottom of reflexed lateral margin. Pronotal base wide, PB/PA 1.27 or 1.30.
- 15(16) Elytral striae smooth, reflexed lateral margin with a slight and blunt carina in apical half. — Phia Oac Mt. 7. *P. laevistriatus* sp.n.
- 16(15) Elytral striae finely yet distinctly punctate, reflexed lateral margin with a vague carina in apical half. — Tam Dao Son Zuong Mt. ridge. 7. *P. tamdaoensis* sp.n.

1. *Pterostichus* (*Orientostichus*) *matalini* Fedorenko, sp.n. Figs 2–3, 10, 15, 21–22, 27, 36, 42–43, 49, 54–55.

MATERIAL. Holotype ♂ (ZMMU) labelled: 'N[orthern] Vietnam, Lao Cai Prov[ince]/ Hoang Lien Son Mt. Ridge, / env. Fansipan [=Phan Xi Pang] Mt, Tram Ton/, h= 1950-2100 [m], / 15-30./ leg. D. Fedorenko VII.2007'. Paratypes (SIEE), 10♂♂, 5♀♀, same

label; 6♂♂, 3♀♀, 'N[orthern]-Vietnam, 40 km WNW of/ Lao Cai, env. Y Ty/ Bat Xat National Park/ 22°37'36"N 103°37'32"E/ h= 1850 m, 4–14.VI.2019/ leg. D. Fedorenko'; 5♂♂, 3♀♀, same label, except for '... / Bat Xat N[ational]P[ark]/ 22°36'31"N 103°37'23"E/ h= 2000–2100 m ...'.

Aedeagus examined in eight males, with internal sac

examined in five males; genitalia and reproductive tract examined in two females.

DIAGNOSIS. A slender large-sized species with pronotum subcordate, its sides straight, basal angles obtuse and blunt; elytra with parascutellar seta, 0–1 discal seta, intervals



Figs 31–39 Median lobe of aedeagus: 31–32, 38 — *Pterostichus pseudolesticoides* sp.n.; 33–34, 39 — *P. lesticoides*; 35 — *P. prattii* from Moupin, China; 36 — *P. matalini* sp.n.; 37 — *P. ferreroi*; 31, 33 — left lateral aspect; 32, 34 — right lateral aspect; 35–39 — dorsal aspect. Scale bars 1 mm.

Рис. 31–39. Средняя доля эдеагуса: 31–32, 38 — *Pterostichus pseudolesticoides* sp.n.; 33–34, 39 — *P. lesticoides*; 35 — *P. prattii* из Муопин, Китай; 36 — *P. matalini* sp.n.; 37 — *P. ferreroi*; 31, 33 — слева; 32, 34 — справа; 35–39 — дорзально. Масштаб 1 мм.

distinctly cross-striated on sides before apex, and elytral microsculpture not sharply sexually dimorphic.

DESCRIPTION. BL 22–25.1 mm. Body (Figs 2–3) shiny black, elytra slightly iridescent in male. Antennae toward apices and palps at extreme apices slightly reddish brown. Microsculpture superficial, consisting of slightly transverse meshes on pronotum. Elytral microsculpture consisting of dense transverse lines to extremely transverse meshes in male and of very to moderately transverse meshes in female; reflexed lateral margin with microsculpture uneven, mostly transverse, at bottom while longitudinal along stria 9.

Head convex, neck constriction hardly traceable on sides only. Eyes rather small, convex, genae short. Frontal sulci rather shallow and short, almost reaching the level of anterior supra-ocular seta, nearly parallel or barely diverging posteriorly. Frons on each side between supra-ocular setae with 1–3, very small, punctiform impressions. Antennae moderately long, with about apical 2–2.5 segments surpassing pronotal base, barely longer in male than in female; AR (1.46 : 0.65 : 0.92, $n = 2$).

Pronotum subcordate, rather flat, broadest two fifths from apex, PLw/PL 0.40–0.46 (0.42, $n = 12$); sides rounded, straight to barely sinuate in front of basal angles. Base narrow, sinuate medially, slightly oblique laterally, barely wider than apex; basal angles obtuse and blunt. Inner basolateral sulci 2/5 pronotal length, moderately deep, running parallel anteriorly, slightly diverging basally, mostly not quite reaching base; outer sulci about as deep and half as long, each extended into lateral section of basal bead that is obliterate in middle two quarters; a more or less convex area between inner and outer sulcus impunctate or with a few fine punctures toward inner and/or outer sulcus; this latter separated by a convex fold from lateral groove. Apex evenly sinuate between apical angles, these right or slightly acute, and sharp; apical bead mostly obliterate in middle third. Lateral bead narrow, reaching base, slightly wider basally than apically. Lateral groove fine, deep and impunctate; sublateral line fairly deep in apical half, increasingly shallow basad, almost reaching inner basolateral sulcus. Median line fine, deep, entire or nearly so. Basal and apical transverse impressions hardly traceable.

Elytra elliptic, rounded on sides, broadest at about middle, with a fairly deep preapical sinuation and a distinct preapical plica each; apices slightly attenuated and rounded separately each. Base very oblique and narrow, with striae 1–6 inside humeral angle; humeri rounded, without tooth. Basal ridge transverse, slightly concave, humeral angle very obtuse and blunt. Striae fine, deep or very deep, more so toward apex and lateral margin, and impunctate or inner striae crenulate at bottom in apical third, sometimes crenulations being traceable all along. Intervals convex, very convex laterally, costate in apical third, inner intervals often nearly flat at middle in female; interval 1 apically very narrow and directly extended into lateral bead; intervals 7, 5 and 3 confluent apicad in succession and separated from others at apex; less often 3 and 7 only adjoining apically. Interval 8 narrow and costate to subcarinate both basally and apically. Reflexed lateral margin narrow, flat, barely uneven, more so in apical half, or with one to a few, underdeveloped, separate or catenate tubercles reminiscent of a rudimentary blunt carina behind middle. Parascutellar striole short to missing. Discal seta d3 large, adjoining or separate from stria 2 about three fourths from base of one or both elytra, or missing. Stria 7 bisetose at apex, posterior seta at a distance from apex. USS: 29–30.

Ventral side. Prosternal process mostly slightly convex, with apex truncate and often vaguely beaded, in lateral view rectangular or slightly obtuse, with apex not or barely blunted and inclination slightly concave; this latter wide and slightly concave in caudal view, with lateral edges indistinctly beaded. Venter smooth, mesepisternum in basal half and abdominal sternites II–III finely and more or less densely punctate, metepisternum and sides of metaventricle finely and sparsely punctate to nearly impunctate. Male abdominal sternite VII in apical 3/5 elevated in form of a small and oblong tubercle, with a shallow impressions on each side, that does not reach apex (Fig. 15).

Legs: *fe*2 in apical half with 3–5 anterodorsal spinules; *ti*1 with two postero-apical spinules or, less often, but one; *ti*3 with 1–3 outer setae; meso- and metatarsomeres 1 and 2 with dorso-apical setae.

Aedeagus (Figs 21–22, 27, 36): median lobe in lateral view arcuate; apex in dorsal view parallel-sided, rounded at tip. Everted and inflated internal sac (Figs 42–43, 49) with two, large, basal bulbs, left and right, and a large Λ -shaped sclerite of characteristic shape. Left bulb with two processes, proximal one is small, distal long and curved dorsad.

DISTRIBUTION. The species is only known from two scattered localities on the Hoang Lien Son Mt. Ridge.

NAME. Patronymic, given after my good friend, specialist in Cicindelinae, Dr. Andrey Matalin (The Moscow Pedagogical State University).

HABITATS AND HABITS. Most specimens of the type series were taken by pitfall traps in cloudy forests at 1.850–2.100 m altitudes and some others from the Bat Xat NP were hand collected at night.

COMMENTS. Adults from the two populations examined are slightly different in some characters. Except for subtle morphometric differences (Table), specimens from Mt. Phan Xi Pang mostly have the elytral discal pore d3 inserted separate from stria 2, D3/EL 0.20–0.27 (0.25, $n = 6$), the adults with the seta present, or absent from one elytron, or from both elytra being subequally frequent in the population. Eight specimens examined from the Bat Xat National Park have the seta adjoining stria 2, D3/EL 0.25–0.32 (0.27, $n = 3 \times 2$), and one specimen has none.

2. *Pterostichus (Orientostichus) makarovi* Fedorenko, **sp.n.** Figs 1, 18, 28, 44–45, 50.

MATERIAL. Holotype ♂ (ZMMU) labelled: 'N-Vietnam, 40 km W of/ Cao Bang, Phia Oac Mt./ 22°36'25"N 105°52'08"E, h~1650-1700 m./ deciduous forest, 3-11.X./ leg. D. Fedorenko 2018'. Paratype ♀ (SIEE), same label, except for '.../ 22°36'50"N 105°52'0"E, h~1800 m, deciduous/ ba[m]boo forest, 3-11.X.2018/ leg. D. Fedorenko'.

DIAGNOSIS. Distinctive from the previous species chiefly in having the elytra sexually dimorphic, rather shiny in male vs. dull in female due to microsculpture being superficial and transversely meshed or granulate, respectively. Furthermore, reflexed lateral margin of elytra in apical half has a distinct blunt carina. For other differences see the key and 'Description' below.

DESCRIPTION. Very similar to *P. matalini* **sp.n.**, except for the following differences. BL 21.2–24.2 mm. Body (Fig. 1) black, shiny in male, dull in female. Microsculpture distinct, consisting of moderately transverse meshes on pronotum and of moderately to very transverse meshes on elytra in male and of very coarse, isodiametric to barely longitudinal, meshes on elytra in female; reflexed lateral margins of elytra with microsculpture isodiametric, coarse or very coarse.

Frontal sulci shallow and shorter. AR (1.58 : 0.70 : 0.99, $n = 2$).

Pronotum broadest just in front of middle, PLw/PL 0.45 (♂) or 0.47 (♀), sides straight in front of sharp basal angles. Basolateral sulci deeper, finely and densely punctate at bottom and on each side, with sparser punctures between inner and outer sulcus and almost reaching median line; inner sulci slightly shorter, running on basal third and

almost reaching basal margin; outer sulci slightly shorter than inner ones.

Elytral basal ridge transverse and straight. Striae impunctate and very deep, more so toward apex. Intervals very convex. Parascutellar striole missing. Discal seta d3 adjoining stria 2, D3/EL 0.25–0.35 (0.28, n = 2×2). Stria 7 bisetose



Figs 40–45. Aedeagus with everted and inflated internal sac: 40–41 — *Pterostichus ferreroi*, paratype; 42–43 — *P. matalini* sp.n.; 44–45 — *P. makarovi* sp.n.; 40, 42, 43 — left lateral aspect; 41, 43, 45 — right lateral aspect. Scale bars 1 mm.

Рис. 40–45. Эдеагус с вывернутым и раздутым внутренним мешком: 40–41 — *Pterostichus ferreroi*, паратип; 42–43 — *P. matalini* sp.n.; 44–45 — *P. makarovi* sp.n.; 40, 42, 43 — слева; 41, 43, 45 — справа. Масштаб 1 мм.

at apex, with intermediate, right unilateral, seta in the male. USS: 27–31.

Ventral side similar, except for sides densely and more coarsely punctate. Male abdominal sternite VII similar (Fig. 18).

Legs: *ti*1 with single postero-apical spinule.

Aedeagus (Figs 28, 44–45, 50) with its everted and inflated internal sac similar except chiefly that Λ -shaped sclerite is distinctive (other differences are not described as they may have come from not maximally inflated internal sac).

DISTRIBUTION. The species is known from the type locality only.

NAME. Patronymic, given after my good friend, specialist in Carabidae, Dr. Kirill Makarov (The Moscow Pedagogical State University).

HABITATS AND HABITS. Both specimens were taken in cloudy forests.

3. *Pterostichus* (*Orientostichus*) *prattii* Bates, 1890

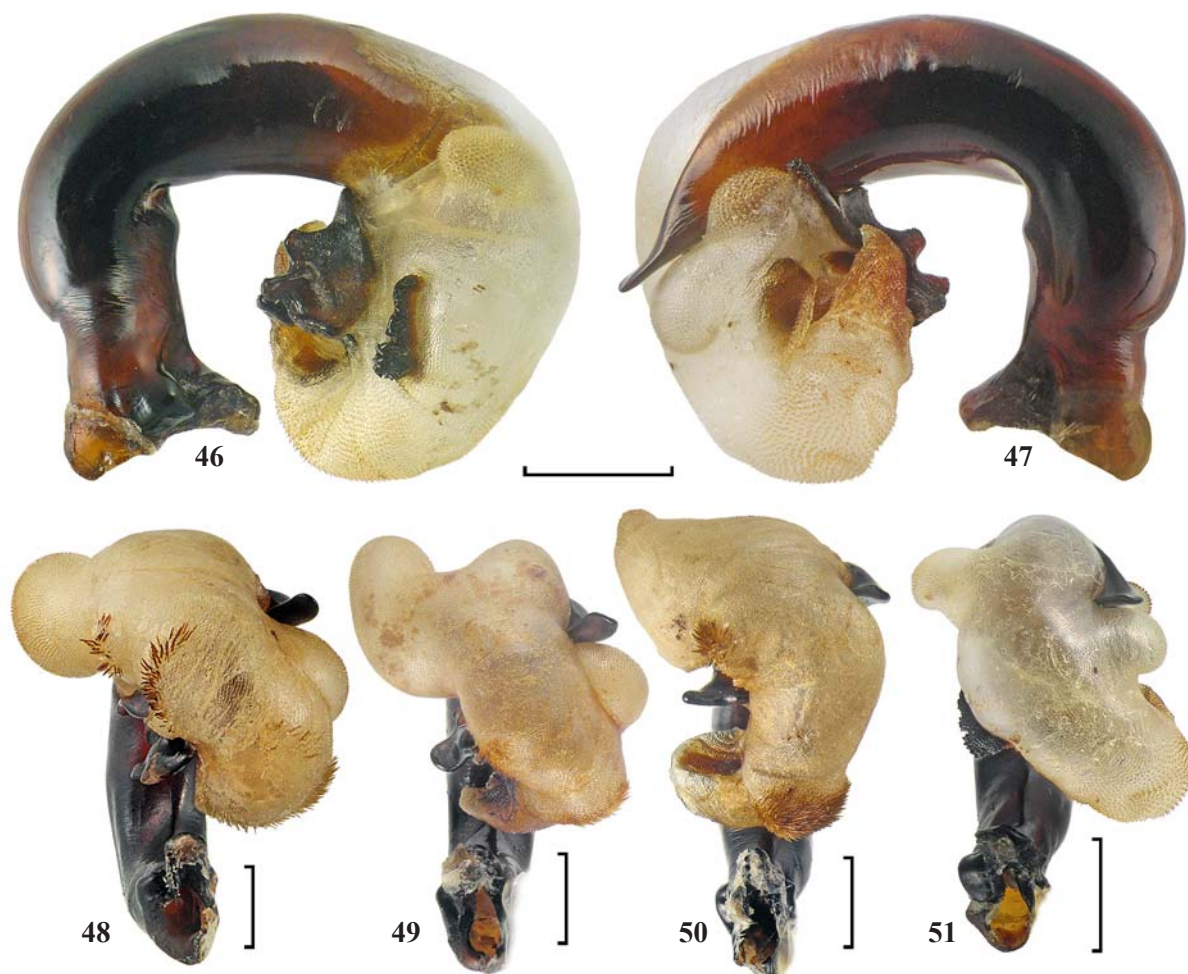
Figs 5, 11, 14, 19–20, 25, 35, 52–53, 58–59.

Bates, 1890: 212 ('Wa-shan', Sichuan); Bousquet, 2003: 516; 2017: 748. — *prattii*: Tschitscherine, 1898: 173; Csiki, 1930: 670; Jedlička, 1962: 296; Lorenz, 1998: 266; 2005: 287; Sciaky, Allegro, 2013: 114.

MATERIAL. ♂ (ZIN) labelled: 'MUSEUM PARIS, MOUTIN, A. DAVID 1870' and '*Pratti*, H.W. Bates, Tschitscherin det', and two ♀♀ (SIEE) labelled: NE Chongqing, 50 km N of Chengkou, h=1500–2000 m, 30.VI–5.VII.1995, leg. A. Shamaev.

Aedeagus examined in the male, genitalia and reproductive tract examined in a female.

DIAGNOSIS. Different from *P. matalini* **sp.n.** chiefly in the following characters. BL 22–26 mm. Body as in Fig. 5. Microsculpture distinct, isodiametric on elytra, including reflexed lateral margin. Pronotum broadest slightly before middle, PLw/PL 0.43–0.45 (0.44, n=3), with inner basolateral sulci slightly deeper and barely longer, reaching basal margin; outer sulci shorter, 1/3–1/2 as long; base impunctate. Median line obliterate basally and apically. Elytral striae deep, impunctate; parascutellar striole missing or very short. Intervals convex or very so, those 3 and 7 confluent apically, 7 and 8 subcarinate apically and 8 also basally. Discal seta d3 adjoining stria 2, D3/EL 0.24–0.29 (0.26, n=3×2). Stria 7 bi- or trisetose at apex. USS: 32–39. Prosternal process flat, with apex truncate, in lateral view rectangular, with apex blunt; inclination with apex truncate and often vaguely beaded, in lateral view rectangular or slightly obtuse, with apex not or barely blunted and declivity more or less straight; this decliv-



Figs 46–51. Aedeagus with everted and inflated internal sac: 46–47, 51 — *Pterostichus pseudolesticoides* **sp.n.**; 48 — *P. ferreroi*, paratype; 49 — *P. matalini* **sp.n.**; 50 — *P. makarovi* **sp.n.**; 46 — left lateral aspect; 47 — right lateral aspect; 48–51 — ventrobasal aspect. Scale bars 1 mm.

Рис. 46–51. Эдеагус с вывернутым и раздутым внутренним мешком: 46–47, 51 — *Pterostichus pseudolesticoides* **sp.n.**; 48 — *P. ferreroi*, paratype; 49 — *P. matalini* **sp.n.**; 50 — *P. makarovi* **sp.n.**; 46 — слева; 47 — справа; 48–51 — вентробазально. Масштаб 1 мм.

ity in caudal view slightly concave, with sides finely beaded. Mesepisterna, metepisterna, sides of metaventrite and abdominal sternites II–III finely and densely punctate. Apical 5/6 abdominal sternite VII in male with a high, triangular, median carina reaching apex (Fig. 14). Legs: *ti1* with single postero-apical spinule; *ti3* with 2–4 outer setae; meso- and metatarsomeres 1–3 with dorso-apical setae.

Aedeagus (Figs 19–20, 25, 35): apical 3/5 median lobe in lateral view bent ventrad at an acute angle; apex in dorsal view subtriangular.

DISTRIBUTION. Southern China: Sichuan, Chongqing, Yunnan, Fujian, Gansu, Guizhou.

HABITATS AND HABITS. No exact data other than this species occurs at 300–1.800 m altitudes [Sciaky, Allegro, 2013].

4. *Pterostichus (Orientostichus) ferreroi* Straneo, 1989
Figs 6, 17, 23–24, 26, 37, 40–41, 48.

Straneo, 1989: 283 (Fang, Chiangmai); Sciaky, Allegro, 2013: 114.

MATERIAL. Paratype ♂ (ZIN; left antennomere 11 and right antennomeres 10–11 lost) with labels: 'Thailand/ Chang Mai/ Fang 25-9-1989', 'Paratypus/ *Pterostichus ferreroi* St.', and '*Pterostichus ferreroi* n.sp./ det. S. L. Straneo 1989/ Paratypus [red ink]'.

DIAGNOSIS. Different from *P. matalini* sp.n. chiefly in the following characters. BL 23–27 mm. Body (Fig. 6) shiny black, elytra dull behind, except for intervals that become increasingly narrow strips toward apex; this dull area starting from about midway at suture and from second third laterally. Microsculpture distinct, isodiametric on elytra within shiny area and at bottom of reflexed lateral margin; dull area, including striae and sides of each interval, coarsely granulate, combined with confluent subtransverse rugosities that become increasingly short cross-striations anteriorly. Head and pronotum with dense microscopic punctures.

Frontal sulci rather deep, s-shaped, reaching the level of anterior supra-ocular seta. Frons inside posterior supra-ocular setae with a pair of small punctiform impressions. Antennae about reaching pronotal base, barely longer in male than in female; AR 1.46 : 0.67 : 0.94.

Pronotum cordate, rather flat, broadest almost two fifths from apex, PLw/PL 0.38; sides rounded, sinuate in front of basal angles. Base sinuate medially, straight laterally, a fifth wider than apex; basal angles acute and sharp. Inner basolateral sulci deep, running on basal two fifths, parallel anteriorly, reaching and diverging toward base; outer ones half as long, adjoining inner sulci along base, with nearly flat and impunctate area in between. Apical angles rounded at tips; lateral bead narrow all along. Sublateral line hardly traceable in basal half only.

Elytral apices truncate combined. Striae deep and very finely punctate in basal half, shallow and moderately punctate behind, except for 7th and 8th, these two being deep and reaching apex. Intervals convex and shiny in basal half, subconvex to nearly flat behind; shiny median stripes of intervals 2, 4 and 6 merging gradually into rugose sculpture in apical third while those of intervals 7, 5, 3 and inner part of 1 become subcarinate toward apex; the former three confluent apicad in succession and joining apical bead outside sutural angle. Interval 7 very convex and carinate in apical third. Interval 8 narrow and costate both basally and apically while shortly carinate in front of preapical sinuation. Reflexed lateral margin very even, narrow and concave throughout. Parascutellar striole missing. Discal seta d3 large, left unilateral, situated on shiny median part of interval 3, D3/EL 0.34. Stria 7 bisetose at apex, posterior seta at a distance from apex. USS: 28–29.

Metepisternum, sides of metaventrite and abdomen nearly impunctate. Male abdominal sternite VII as for *P. prattii*, except for median carina lower (Fig. 17).

Legs: *ti1* with single postero-apical spinule; *ti3* asetose externally.

Aedeagus (Figs 23–24, 26, 37): apex of median lobe in dorsal view slightly narrowed apicad. Everted and inflated internal sac (Figs 40–41, 48) similar, except chiefly that Λ -shaped sclerite is distinctive and left basal bulb less wide at base.

DISTRIBUTION. The species is only known from the type locality in northern Thailand.

HABITATS AND HABITS. No data, except that the holotype was taken at 2.100 m elevation.

COMMENTS. This species is very similar to *P. semirugosus* (Andrewes, 1947) from 'Kambaiti' [= Kan Paik Ti], northern Myanmar. Differences of the latter only include barely wider pronotal base, PB/PA 1.29 (vs. 1.19), and the elytral intervals subequally shaped in apical third (vs. intervals 3, 5 and 7 more developed than intervals 2, 4 and 6). As for the dull appearance of elytra of *P. semirugosus*, which, according to the description, is due to confluent microscopic punctures, it appears to be similar to that observed in *P. ferreroi*.

5. *Pterostichus (Orientostichus) lexicoides* (Straneo, 1939)
Figs 4, 30, 33–34, 39.

Straneo, 1939: 122 (*Feronia*; 'Chapa' [= Sa Pa]);

MATERIAL. Holotype ♂ (NHML; mesothoracic legs lost) with labels: 'Type' (circle edged with red); red 'Holotypus', 'Tonkin./ Chapa./ May 1916./ R.V.de Salvaza.', '*Feronia lexicoides* nov./ det. ing. Straneo/ Holotypus', 'Brit.Mus./ 1939-316'. Paratype ♀ (NHML) with labels 'Para-type' (circle edged with red), red 'Paratypus', 'Tonkin./ Chapa./ May 1916./ R.V.de Salvaza.', '*Feronia lexicoides* nov./ det. ing. Straneo', 'Brit.Mus./ 1939-316'; the specimen is strongly damaged, with antennomeres 5–11, left protarsomere 5 and left metatarsus lost; right elytron damaged, left one broken off behind base and glued inaccurately back; head broken off and glued roughly back, with labial palp, mentum and right maxilla dissected and mounted on separate paper rectangle.

DIAGNOSIS. This species is medium-sized for the subgenus and recognized chiefly by having pronotum quadrate, with lateral bead flattened and broadened, more so in basal half, its sides rounded, basal angles obtuse and blunt; elytra with parascutellar seta, no discal setae, intervals smooth, and microsculpture consisting of dense transverse lines.

REDESCRIPTION. BL 18.2 mm. Body (Fig. 4) shiny black, elytra slightly iridescent in male. Antennae, tarsi, and tibiae toward apices dark reddish brown. Microsculpture superficial yet distinct, consisting of slightly transverse meshes on pronotum; elytral microsculpture consisting of dense transverse lines.

Head convex, without neck constriction. Eyes convex, genae short, meeting eyes at very obtuse angle; labrum barely sinuate, clypeus truncate, frontoclypeal suture fine and transverse. Frontal sulci s-shaped, moderately deep, impunctate, parallel anteriorly, then diverging, converging and shallow behind, barely surpassing level of anterior supra-ocular seta. Frons between eyes with a pair of short, impressed, diverging lines. Antennae reaching about pronotal base, antennomere 3 without extra setae; AR 1.35 : 0.67 : 0.96.

Pronotum quadrate, broadest just before middle, PLw/PL 0.48 (♂) or 0.47 (♀); sides evenly rounded. Base wide, subsinuate medially, basal angles obtuse and blunt. Basolateral sulci impunctate, inner surpassing basal two fifth, deep medially, more shallow apically and basally, parallel in anterior 2/3 their lengths, diverging behind; outer sulci two thirds

as long, vaguely joining inner ones along base, with a fairly smooth convexity in between and a convex plica outside. Apex evenly sinuate, apical angles slightly projecting, apically blunt; apical bead obliterate in middle third. Lateral bead slightly explanate and slightly reflexed, becoming increasingly broad basad, broadest a third from base; lateral groove disappearing in front of basal angle. Sublateral line deep, apical transverse impression vague, basal one very shallow. Median line fine, obliterate apically, vague behind basal transverse impression. Disc convex and smooth; apex faintly striated, extreme base unevenly striated and rather finely rugulose at bases of inner basal sulci and along vague lateral section of basal bead between basolateral sulci.

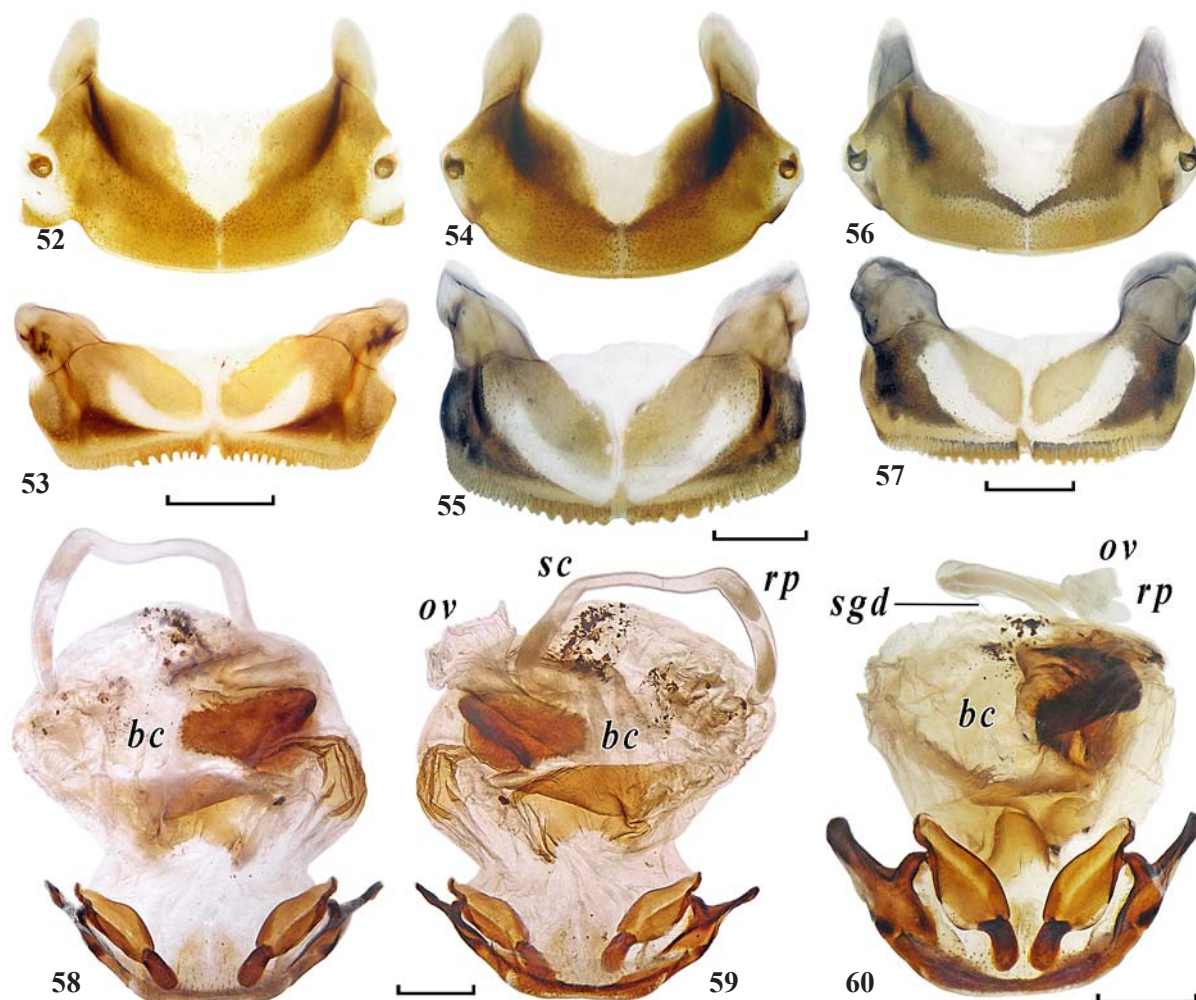
Elytra (when locked) almost parallel-sided, with a fairly deep preapical sinuation and a distinct preapical plica each; apices rounded combined so that sutural angle is nearly right. Base oblique, moderately wide, with striae 1–7 inside humeral angle; humeri distinct, without tooth. Basal ridge nearly straight and transverse, humeral angle obtuse. Striae fine,

deep, impunctate. Intervals convex, more so in apical fourth, those 7, 8, as well as extreme apices of 5 and 6, subcarinate there; interval 9 in apical third much wider than 8th; this latter attenuated toward and subcarinate just behind humerus. Parascutellar striole and discal setae missing. Stria 7 bisetose at apex. USS: 25–29.

Ventral side smooth, sides of meso- and metathorax finely and moderately densely punctate, abdominal sternites II–III vaguely punctate. Prosternal process not beaded, inclination convex. Metepisternum as long at outer margin as wide. Male abdominal sternite VII with a low median tubercle and a fine median carina behind.

Legs: *ti*1 with single postero-apical spinule; *ti*3 asetose externally; meso- and metatarsomeres 1 and 2 with dorso-apical setae.

Aedeagus (Figs 30, 33–34, 39; median lobe reconstructed from damaged one, broken two fifths from base): median lobe in dorsal view barely wider preapically than basally; apex in lateral view distinctly s-shaped, densely striated on right side



Figs 52–60. Abdominal urites VIII–IX and reproductive tract in female: 52–53, 58–59 — *Pterostichus prattii*; 54–55 — *P. matalini* sp.n.; 56–57, 60 — *P. laevistriatus* sp.n.; 52, 54, 56 — tergite VIII; 53, 55, 57 — sternite VIII; 58–60 — urite IX and reproductive tract; 52–58, 60 — ventral aspect; 59 — dorsal aspect; *bc* — bursa copulatrix; *ov* — common oviduct; *rp* — receptacle; *sgd* — spermathecal gland duct; *sc* — seminal canal. Scale bars 1 mm.

Рис. 52–60. Уриты VIII–IX брюшка и репродуктивный тракт самки: 52–53, 58–59 — *Pterostichus prattii*; 54–55 — *P. matalini* sp.n.; 56–57, 60 — *P. laevistriatus* sp.n.; 52, 54, 56 — тергит VIII; 53, 55, 57 — стернит VIII; 58–60 — урит IX и репродуктивный тракт; 52–58, 60 — вентрально; 59 — дорзально; *bc* — копулятивная сумка; *ov* — непарный яйцевод; *rp* — семеприемник; *sgd* — проток железы сперматеки; *sc* — семепровод. Масштаб 1 мм.

(two more characters of median lobe in lateral view, such as apically rounded re-entrant angle between basal two and apical three fifths or slightly convex 2/5 inner margin may be artifacts that have come from imperfectly reconstructing).

DISTRIBUTION. The species is known from the type locality only.

HABITATS AND HABITS. No data.

COMMENTS. The paratype is slightly different from the holotype. The pronotum is very smooth, the basolateral sulci isolated, obliterated just basally, with no basal bead traceable; the inner sulci being deep throughout, parallel anteriorly and barely diverging basad in their basal thirds; outer ones smooth, barely convex outward.

6. *Pterostichus (Orientostichus)*

pseudolesticoides Fedorenko, **sp.n.**

Figs 7, 16, 29, 31–32, 38, 46–47, 51.

MATERIAL. Holotype ♂ (ZMMU), labelled: 'N[orthern]-Vietnam, 40 km WNW of/ Lao Cai, env. Y Ty, Bat Xat/ Nat[io]n[al]. Park, h=1600-1900 m/ 22°37'–37.6°N/ 103°37.3'–38.3°E, 16-21./ leg. D. Fedorenko X.2018'. Paratypes (SIEE): 2♂♂, same label; ♀, 'N[orthern]-Vietnam, 40 km WNW of/ Lao Cai, env. Y Ty/ Bat Xat N[at]ional P[ar]k, Lao Than Mt./ 22°36'31"N 103°37'23"E/ h=2000-2100 m, 4–14.VI.2019/ leg. D. Fedorenko'; ♂ (teneral), ♀, 'N[orthern] Vietnam, Lao Cai Prov[ince]/ Hoang Lien Son Mt.Ridge./ env. Phan Xi Pang Mt./ Tram Ton/ pitfall traps/ leg. A. Anichkin V-VI.2006'.

Aedeagus examined in three males, with internal sac examined in one male.

DIAGNOSIS. No significant differences from *P. lesticoides* except only that the pronotum is slightly narrower and less transverse, mean PW/PL 1.38 (vs. 1.46), with its base narrower relative to apex, mean PB/PA 1.13 (vs. 1.29).

Aedeagus (Figs 29, 31–32, 38) is more distinctive: median lobe in dorsal view with a conspicuous preapical dilation of the right margin; its apex smooth or sparsely striated on right side, with dorsal margin barely convex proximal to apical sinuation. Sharply angulate curve of ventral margin and a small prominence just proximal to the angle are the next two features.

DESCRIPTION. Distinctive from *P. lesticoides* in the following characters.

BL 17–20.2 mm. Body (Fig. 7) shiny black, elytra iridescent.

Head: genae meeting neck at obtuse or very obtuse angle. Frontal sulci moderately deep, impunctate or subpunctate, varying from s-shaped and reaching the level of anterior supra-ocular seta, through short and diverging much behind, to very short, distinct just behind frontoclypeal suture only. Frons otherwise smooth or with 1–2 paired, small and shallow, impressions between eyes. AR 1.46 : 0.66 : 0.93.

Pronotal base moderately wide, without basal bead traceable between basolateral sulci; these separate, inner moderately deep, running on basal two fifth, reaching base or not, slightly diverging or parallel anteriorly. Outer ones shorter, more shallow and thence wider, obliterate basally, sometimes very shallow and very short. Area between inner and outer sulci slightly convex, finely and moderately densely punctate to nearly impunctate. Lateral bead narrower in basal half than that of *P. lesticoides*; lateral groove varying from obliterate slightly in front of basal angle to basal fifth. Disc, base and apex smooth. PLw/PL 0.44–0.49 (0.47, n=6).

Elytra oblong-oval in female, slenderer in male; apices rounded combined or slightly blunted so that sutural angle varies from nearly right to slightly obtuse. Striae very thin and thence with microsculpture barely traceable at bottom, consisting of very small, coarse, slightly longitudinal meshes

arranged into hardly more than two rows; striae 1–6 inside humeral angle, which is obtuse and blunt. Parascutellar striae and discal setae missing (only male paratype from Phan Xi Pang Mt has seta d3 at middle of interval 3, D3/EL 0.25–0.30). Either intervals 7, 5 and 3 confluent apicad in succession or those 3 and 7 joining apically. Stria 7 with two proximate setae at apex, posterior seta distant far from apex. Reflexed lateral margin narrow, slightly uneven, mostly with sparse uneven punctures toward apex; microsculpture superficial, consisting of moderately to very longitudinal meshes. USS: 25–29.

Ventral side. Propleura near sternopleural suture, sides of meso- and metathorax, and abdominal sternites II–III finely and moderately densely punctate; surface otherwise smooth; sometimes propleura smooth.

Legs: apical 2/5 *fe*2 with two, separate, anterodorsal setae; *ti*3 asetose externally (with a vestigial unilateral seta in female paratype from Phan Xi Pang Mt.).

Aedeagus: everted and inflated internal sac (Figs 46–47, 51) with two basal bulbs, left medium-sized, right divided into two; two, separate, preapical sclerites present, large medial and small, longitudinal, on left side.

DISTRIBUTION. The species is known from two very close localities and a distant one on the Hoang Lien Son Mountain ridge.

NAME. Refers to the great similarity between the new species and *P. lesticoides*.

HABITATS AND HABITS. The specimens were collected by either hands or pitfall traps in cloudy forests at 1.800–2.100 m altitudes.

COMMENTS. *Pterostichus pseudolesticoides* **sp.n.** is very similar to *P. lesticoides*, both being based on very limited material which has come from one and the same or two very close localities. However, morphological, including aedeagal, differences found, make me consider the two species separate unless otherwise is proven.

7. *Pterostichus (Orientostichus)*

laevistriatus Fedorenko, **sp.n.**

Figs 8, 56–57, 60.

MATERIAL. Holotype ♀ (ZMMU), labelled: 'N-Vietnam, 40 km W of/ Cao Bang, Phia Oac Mt./ 22°36'30"N/ 105°52'20"E, h~1450 m/ deciduous forest, 3–11.X./ leg. D. Fedorenko 2018'.

DIAGNOSIS. A large-sized species of the *lesticoides*-group, distinctive in having the elytra with single discal seta d3 each; elytral microsculpture consisting of very transverse meshes, with admixture of few moderately transverse ones here and there; reflexed lateral margin with a long, fine and blunt, carina in apical half.

DESCRIPTION. No differences from *P. lesticoides* other than as follows: BL 23 mm. Body (Fig. 8) shiny black, elytra without iridescence.

Head: Frontal sulci impunctate, slightly diverging, deep before, gradually more shallow behind, almost reaching the level of anterior supra-ocular seta. Frons on each side between eyes with two vague impressions, anterior one in form of oblique line, posterior punctiform. Antennae about reaching pronotal basal margin. AR 1.56 : 0.68 : 0.90.

Pronotum broadest just medially, PLw/PL 0.50; base wide, without basal bead traceable. Basolateral sulci separate, running parallel to one another, obliterate basally; inner ones fine, moderately deep, slightly crenulate, about as long as basal 2/5 pronotum. Outer sulci two thirds as long, very smooth, wider and more shallow; area between inner and outer sulcus flat and impunctate but one, very fine, puncture at middle. Base faintly and sparsely striated.

Table. Body ratios in species of *Pterostichus*.
Таблица. Индексы пропорций тела видов *Pterostichus*.

Species/ locality	n	PW/HW	mean	PW/PL	mean	PB/PA	mean	EW/PW	mean	EL/EW	mean
<i>matalini</i> sp.n. FA	3♂♂, 3♀♀ 3♂♂ 3♀♀	1.56–1.65	1.62	1.32–1.40	1.35	1.02–1.05	1.03	1.14–1.22	1.19	1.59–1.68	1.62
Bat Xat	3♂♂, 3♀♀ 3♂♂ 3♀♀	1.56–1.64	1.59	1.28–1.36	1.32	1.06–1.10	1.07	1.14–1.17 1.20–1.22 1.18–1.23	1.16 1.21 1.20	1.61–1.68 1.59–1.60 1.59–1.71 1.61–1.71 1.59–1.68	1.66 1.60 1.66 1.67 1.61
in toto:	12	1.56–1.65	1.60	1.28–1.40	1.33	1.02–1.10	1.05	1.14–1.23	1.19	1.59–1.71	1.64
<i>makarovi</i> sp.n.	♂ \ ♀	1.57 \ 1.59	1.58	1.38 \ 1.39	1.39	1.03 \ 1.0	1.02	1.16 \ 1.19	1.18	1.69 \ 1.59	1.64
<i>pratitii</i>	♂, 2♀♀	1.50–1.62	1.56	1.26–1.35	1.31	1.05–1.16	1.11	1.23–1.29	1.26	1.63–1.65	1.64
<i>ferreroi</i>	PT ♂		1.60		1.37		1.19		1.21		1.64
<i>lesticoides</i>	HT \ PT	1.79 \ 1.78	1.79	1.47 \ 1.44	1.46	1.37 \ 1.20	1.29	~1.11 \	1.11	~1.49 \	1.49
<i>pseudolesticoides</i> sp.n.	4♂♂, 2♀♀	1.64–1.69	1.67	1.34–1.40	1.38	1.07–1.18	1.13	1.09–1.16	1.12	1.56–1.63	1.60
<i>laevistriatus</i> sp.n.	HT ♀		1.69		1.36		1.27		1.18		1.57
<i>tamdaoensis</i> sp.n.	HT ♀		1.70		1.35		1.30		1.23		1.60

Elytra elliptic, apices rounded combined and very slightly blunted. Base slightly oblique. Striae slightly wider, at bottom with microsculpture coarse and very distinct, consisting of longitudinal meshes arranged mostly into 3–4 rows; striae 1–6 inside humeral angle, which is obtuse and blunt. Parascutellar striae missing. Intervals convex, those 7, 5, 3 and 8 confluent apicad in succession separate from the others. Interval 3 with seta d3 adjoining stria 2, D3/EL 0.27–0.30. Stria 7 bisetose at apex, posterior seta at some distance from apex. USS: 27–30. Reflexed lateral margin rather flat, with a fine and nearly flat carina in apical half, indistinctly catenate in front, *i.e.*, broken by very shallow, sparse and uneven, punctures in links; microsculpture superficial isodiametric.

Ventral side smooth, abdominal sternites II–III nearly so, sides of meso- and metathorax moderately punctate. Prosternal process in ventral view rounded apically, not beaded, in lateral view obtuse and blunt; inclination convex, straight in lateral view. Metepisternum short, est3L/W 0.71.

Legs: apical 1/3 *fe*2 with three anterodorsal setae, one proximal and two, proximate, distal.

Urites VIII and IX in female as in Figs 56–57, 60.

DISTRIBUTION. The species is known from the type locality only.

NAME. Refers to the smooth elytral striae.

HABITATS AND HABITS. The only specimen was hand collected in a cloudy forest at 1.450 m altitude.

8. *Pterostichus (Orientostichus) tamdaoensis* Fedorenko, **sp.n.**

Fig. 9.

MATERIAL. Holotype ♀ (ZIN), labelled: 'Вьетнам, Там-Дэо/ 8-13 IV 986/ Горюхов' [Vietnam, Tam Dao/ 1986/ Gorokhov].

DIAGNOSIS. A large-sized species of the *lesticoides*-group, scarcely different from the previous species in the following character combination: head slightly smaller relative to elytral width, EW/HW 2.1 (vs. 2.0); pronotal lateral bead barely narrower in basal half; basolateral sulci more shallow, outer ones vague; elytral striae, especially marginal one, very finely yet distinctly punctate.

DESCRIPTION. As for *P. laevistriatus* **sp.n.** except as follows: BL 22 mm. Body with rubbed integuments (Fig. 9).

Head: Frontal sulci fine and rather shallow, impunctate, diverging, almost reaching the level of anterior supra-ocular seta. Antennae about reaching pronotal basal margin. AR 1.52 : 0.69 : 0.97.

Pronotum broadest just behind middle, PLw/PL 0.53, with inner basolateral sulci barely diverging, outer ones very shallow; area between them flat and impunctate. Base smooth.

Elytra elliptic, with apices rounded combined. Base oblique. Stria 7 opposite very obtuse humeral angle. Intervals convex, very so toward lateral margin and toward apex; striae 1–4 slightly convex on disc; 7, 5, 3 and 2 confluent apicad in succession separate from the others. Interval 3 with seta d3 adjoining stria 2 (and duplicate on right elytron), D3/EL 0.30–0.31/0.22. Stria 7 bisetose at apex, posterior seta close to apex. USS: 31–32. Reflexed lateral margin more uneven, with posterior carina vague, due to stria 9 being conspicuously punctate; microsculpture distinct, isodiametric.

Ventral side smooth, with vague punctures just outside sternopleural suture; sides of meso- and metathorax finely and densely punctate; abdominal sternites II–III with similar yet very shallow punctures. Prosternal process in ventral view rounded apically, not beaded, in lateral view rectangular and apically rounded. Metepisternum short, est3L/W 0.70.

Legs: apical 1/3 *fe*2 with three anterodorsal setae, distal two proximate.

DISTRIBUTION. Known from the type locality only.

NAME. Toponymic, referring to the type locality of this species.

HABITATS AND HABITS. No data.

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