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A review of *Chlaenius* subgenus *Haplochlaenius* (Coleoptera: Carabidae) of Vietnam, with description of eight new species

Обзор *Chlaenius* подрода *Haplochlaenius* (Coleoptera: Carabidae) Вьетнама с описанием 8 новых видов

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КЛЮЧЕВЫЕ СЛОВА: Coleoptera, Carabidae, *Chlaenius*, *Haplochlaenius*, новый вид, новый синоним, Вьетнам, Ориентальная область.

ABSTRACT. The subgenus *Haplochlaenius* Lutshnik, 1933 of the genus *Chlaenius* Bonelli, 1810, is reassessed to be interpreted in a wide sense, with *Haplochlaenius* sensu Azadbakhsh et Kirschenhofer, 2019, considered as corresponding to the *costiger*-group only and *Sphodromimus* Casale, 1984, **syn.n.**, divided into two species groups, complemented at the moment by some ungrouped species. Twelve species recorded in Vietnam are reviewed and keyed, including new seven described: *Ch. bicoloripes* **sp.n.**, *Ch. capitatus* **sp.n.**, *Ch. costulipennis* **sp.n.**, *Ch. fuscipes* **sp.n.**, *Ch. opacus* **sp.n.**, *Ch. planicollis* **sp.n.**, and *Ch. silvestris* **sp.n.** Besides, the name *Ch. pseudopilosus* **sp.n.** is proposed for the species from Yunnan, China, misidentified [Qin *et al*., 2022] as *Ch. pilosus* (Casale, 1984). *Chlaenius tamdaoensis* Kirschenhofer, 2003, **stat.rest.**, is resurrected from synonymy of *Ch. enleensis* Mandl, 1992. Also, new synonymy *Ch. peterseni* (Louwerens, 1967) = *Ch. dacatrai* Kirschenhofer, 2023, **syn.n.**, is established.

РЕЗЮМЕ. Подрод *Haplochlaenius* Lutshnik, 1933, рода *Chlaenius* Bonelli, 1810, принят в расширенной трактовке: *Haplochlaenius* sensu Azadbakhsh et Kirschenhofer, 2019 считается соответствующим группе *costiger*, а *Sphodromimus* Casale, 1984, **syn.n.**, разделён на 2 видовые группы и ряд видов неясной групповой принадлежности. Дан обзор 12 видов, отмеченных для Вьетнама, составлена таблица для их определения. Описаны 7 новых видов: *Ch. bicoloripes* **sp.n.**, *Ch. capitatus* **sp.n.**, *Ch. costulipennis* **sp.n.**, *Ch. fuscipes* **sp.n.**, *Ch. opacus* **sp.n.**, *Ch. planicollis* **sp.n.**, и *Ch. silvestris* **sp.n.** Название *Ch. pseudopilosus* **sp.n.** предложено для вида из Китая (Юннань), ошибочно определённого [Qin *et al*., 2022] как *Ch. pilosus* (Casale, 1984). *Chlaenius tamdaoensis* Kirschenhofer, 2003, **stat.rest.**, восстановлен из синонимов *Ch. enleensis* Mandl, 1992. Также установлена новая синонимика — *Ch. peterseni* (Louwerens, 1967) = *Ch. dacatrai* Kirschenhofer, 2023, **syn.n.**

Introduction

In this paper, we review the subgenus *Haplochlaenius* Lutshnik, 1933, of the genus *Chlaenius* Bonelli, 1810, from Vietnam. This subgenus is mostly Oriental in distribution, with a few species rerecorded in the Papuan region as a southeastern part of the genus range. It includes species that are by comparison larger-sized within the genus and have forest-dwelling, instead of riparian, habits.

The subgenus currently includes about three dozen species, of which many have originally been described within different genus-group taxa, such as *Haplochlaenius* or *Macrochlaenites* Kuntzen, 1919; or *Vachinius* Casale, 1984; or *Sphodromimus* Casale, 1984, these being assessed as either subgenera or separate genera depending on author. Many of these species have been contributed to the subgenus and/or revised just recently [Lassalle, 2001; Kirschenhofer, 2003, 2011, 2012, 2014; 2023; Deuve, Tian, 2005; Wrase, 2012; Brunk, 2015; Brunk, Kirschenhofer, 2016; Terada *et al*., 2016; Azadbakhsh, Kirschenhofer, 2019; Zettel, 2020; Qin *et a*l., 2022; Häckel *et al*., 2023], with a number of species being reassigned. Wrase [2012] found no significant differences between *Haplochlaenius* and *Vachinus* and briefly discussed this fact to draw the researchers' attention to clarifications of the status of the three taxa. Azadbakhsh & Kirschenhofer [2019] on the contrary recognized *Haplo-*

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chlaenius, *Vachinius* and *Sphodromimus* as distinct subgenera, somewhat re-defined them and re-arranged the species between the three. On the other hand, character combination the authors provided to diagnose the subgenera proved too slight and insufficient for separating between them.

Based on comparison between species examined in many characters, genital and non-genital, I deem it expedient to consider the names *Sphodromimus* and *Haplochlaenius* as consubgeneric, and *Vachinius* as a species groups of *Haplochlaenius*, *i.e.*, the next probable synonym.

In this paper, we review twelve species hitherto recorded in Vietnam and describe seven new species from the country. Major part of material was collected during expeditions to highlands of Central and northern Vietnam, sponsored by the Joint Russia-Vietnam Tropical Centre, Moscow-Hanoi. Species not recorded in Vietnam are in square brackets in the text.

Acronyms used are as follows: ISEA — Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Novosibirsk; MSPU —Moscow State Pedagogical University; NHML — Natural History Museum, London; SIEE — the author's reference collection at A.N. Severtsov Institute of Ecology & Evolution, Russian Academy of Sciences, Moscow; ZISP — Zoological Institute, Russian Academy of Sciences, St. Petersburg; ZMMU — Zoological Museum of the Moscow State University.

The following parameters were analyzed (Table): maximum body length measured between apices of closed mandibles and apex of elytra (BL); length of elytron, measured from the highest point of basal margin to apex (EL); maximum width of elytra (EW); metepisternum length along outer margin (est3L) and width along anterior margin (est3W); 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). Besides, lengths of antennomeres 2, 3 and 4 were measured and analyzed.

Measurements were taken using an eyepiece micrometer within the accuracy of two decimal places. All labels are printed. Data on labels of type specimens are in quotes, new line is marked with slash, and a handwritten text is italicized.

Results

Chlaenius Bonelli, 1810
Subgenus ***Haplochlaenius*** Lutshnik, 1933

Lutshnik, 1933: 169; Wrase, 2012: 1196; Kirschenhofer, 2014: 70; Terada *et al*., 2016: 19; 2017: 491; Azadbakhsh, Kirschenhofer, 2019: 9; Häckel *et al*., 2023: 3; Ueno, 1964: 259 (gen. bon.); Louwerens, 1967: 203, 1969: 772; Habu, 1987: 34 (*costiger*-group). — *Sphodromimus* Casale, 1984: 374 (*Vachinius* subg., type species: *V. holzschuhi* Casale, 1984); Kirschenhofer, 2012: 84; 2017: 497; Azadbakhsh, Kirschenhofer, 2019: 6 (*Chlaenius* subg.); Zettel, 2020: 29; Qin *et al*., 2022: 63, **syn.n.** — *Macrochlaenites*: Jeannel, 1949: 780 (part.); Mandl, 1992: 97; Kirschenhofer, 1998: 318. — ? *Vachinius* Casale, 1984: 372 (gen. bon., type species: *Pristonychus subglaber* Andrewes, 1937); Kirschenhofer, 1998: 325; 2012: 84; 2017: 497; Lassalle, 2001: 240; Brunk, Kirschenhofer, 2016: 52; Azadbakhsh, Kirschenhofer, 2019: 4 (*Chlaenius* subg.).

Type species: *Chlaenius costiger* Chaudoir, 1856, by monotypy.

DIAGNOSIS. Macropterous to apterous species not associated with waters, with body large-sized, mostly 19–27 mm in length (Figs 1–22). Elytra mostly black, without yellow pattern; often head and/or pronotum bright metallic green, cupreous, bronzed, etc.; and femora red but apices and longer black bases. Submentum bisetose, mentum tooth reduced much in size, wide and short to indistinct; labial palpomere 2 plurisetose; terminal palpomere subcylindric to slightly triangular in male. Antennomere 3 long, about 3–5 times as long as pedicel and about 1.5–2 times as long as antennomere 4. Pronotum with sides convex to sinuate, rather sparsely punctate to impunctate, disc more or less flattened in many species; prosternal process mostly neither laterally nor apically beaded, sometimes finely beaded. Elytral humeral angle usually highly obtuse and almost imperceptible; basal ridge mostly reaching stria 3, more rarely vestigial inside humeral angle; intervals nearly flat to costate or carinate, from evenly and densely punctate and pubescent to punctate and pubescent along sides only, rarely (*Vachinius*) smooth and glabrous.

Mesotibia a triangular setal brush contiguous to anterolateral apical ctenidium, consisting of moderately dense setae (*vs*. with a narrow vertical brush consisting of very dense setae or glabrous, without any preapical brush). Metatibia densely pubescent in apical 2/3 posterolateral face. Meso- and metatarsomeres 2–4 or 3–4 mostly with dense ventral pubescence toward apices. In male, profemur not ventrally toothed, dilated protarsomeres 1–3 fairly long.

Aedeagus with long and wide dorsobasal fissure and very large basal orifice; internal sac with flagellate sclerite long and slender to short and robust.

Gonocoxite IX falcate in female, neither dorsal nor ventral ensiform setae present (Figs 131–142); spermatheca slender, with receptacle imperceptible, to missing.

Otherwise with characters of *Chlaenius*, *i.e.*, body setulose or pubescent; single supraocular seta on each side, mentum tooth bifid; pronotum with single, posterolateral, seta on each side, much in front of basal angle; metacoxa unisetose (anterolateral seta present), mesocoxa trisetose laterally, *bursa copulatrix* with a well-developed villous canal, etc.

REDESCRIPTION. Unnecessary here, except for some details as follows.

Elytral microsculpture isodiametric or (mostly) barely longitudinal.

Antennae long, with about apical six antennomeres surpassing pronotal base in male, slightly shorter in female. Antennomeres 4–11 densely pubescent, 3rd with sparse erect setae (which also present on scape and pedicel if antennomere 3 is densely pubescent); scape and pedicel each with fixed, long, apical seta, dorsoapical or ventrolateral, respectively; pedicel with shorter, verticillate apical setae; these varying from minute to fairly long depending on species.

Metepisternum slightly longer then wide in macropterous species (*Ch. flavofemoratus* Laporte, 1834, *Ch. costiger*, *Ch. sabahensis* (Kirschenhofer, 1998)), as long as or barely shorter than wide in apterous ones, est3L/W 1.11–1.22 or 0.93–1.0, respectively. Abdomen finely laterally-to-apically beaded, sternite II anterolaterally beaded or not; sternites densely punctate and pubescent to glabrous along middle; sternites IV–VII with one pair of median obligatory setae; sternite VII bisetose in male, quadrisetose in female (quadrisetose or sexsetose, respectively, in *Ch. flavofemoratus* only).

Table. Body ratios in species of *Chlaenius* (*Haplochlaenius*).

Таблица. Индексы пропорций тела видов *Chlaenius* (*Haplochlaenius*).

Species	n	PW / HW	mean	PW / PL	mean	PB / PA	mean	EW / PW	mean	EL / EW	mean
Ch. flavofemoratus	4♂♂	1.35–1.45	**1.40**	1.17–1.19	**1.18**	1.15–1.26	**1.22**	1.51–1.57	**1.55**	1.70–1.73	**1.72**
	4♀♀	1.33–1.38	**1.36**					1.61–1.65	**1.63**	1.59–1.61	**1.60**
Ch. bicoloripes **sp.n.**	2♂(♂)	1.28–1.31	**1.29**	1.05–1.10	**1.08**	1.07–1.18	**1.11**	(1.49	1.49	1.84	1.84)
	2♀♀							1.58–1.62	1.60	1.66–1.71	1.69
Ch. tamdaoensis	♂	1.25–1.29	1.27	1.04–1.07	1.06	1.15	1.15	1.53	1.53	1.90	1.90
	♀							1.67	1.67	1.66	1.66
Ch. planicollis **sp.n.**	4♂♂	1.19–1.28	**1.24**	1.08–1.14	**1.12**	1.07–1.14	**1.10**	1.50–1.62	**1.57**	1.71–1.75	**1.73**
	4♀♀							1.59–1.68	**1.66**	1.60–1.69	**1.65**
Ch. fuscipes **sp.n.**	2♂♂	1.21–1.25	1.23	1.07–1.11	1.09	1.09–1.18	1.14	1.52–1.57	1.55	1.88–1.92	1.90
Ch. opacus **sp.n.**	2♀♀	1.20–1.22	1.21	1.09–1.10	1.10	1.04–1.08	1.06	1.74–1.81	1.78	1.54–1.58	1.56
Ch. pilosus	2♂♂	1.16–1.19	**1.18**	1.12	**1.12**	1.02–1.06	1.04	1.59–1.65	1.62	1.78–1.79	1.79
	♀							1.75	1.75	1.62	1.62
Ch. hajeki	2♂♂	1.24–1.28	1.26	1.07–1.13	1.10	1.06–1.08	1.07	1.55–1.58	1.57	1.70–1.74	1.72
	♀							1.62	1.62	1.66	1.66
Ch. capitatus **sp.n.**	4♂♂	1.03–1.13	**1.07**	1.0–1.06	**1.03**	0.97–1.03	**1.01**	1.64–1.82	**1.75**	1.66–1.73	**1.70**
	3♀♀							1.78–1.89	**1.83**	1.56–1.59	**1.59**
Ch. silvestris **sp.n.**	♂	1.15–1.19	1.17	1.07–1.09	1.08	1.03–1.05	1.04	1.62	1.62	1.70	1.70
	♀							1.75	1.75	1.54	1.54
Ch. c. costiger	5♂♂	1.29–1.51	**1.39**	1.11–1.26	**1.21**	1.17–1.32	**1.24**	1.47–1.61	**1.55**	1.73–1.83	**1.75**
	5♀♀							1.52–1.60	**1.57**	1.61–1.68	**1.67**
Ch. c. almorae	HT♂	1.52	1.52	1.36	1.36	1.18	1.18	1.49	1.49	1.62	1.62
Ch. costulipennis **sp.n.**	4♂♂	1.36–1.47	**1.42**	1.12–1.19	**1.16**	1.10–1.16	**1.12**	1.49–1.54	**1.51**	1.66–1.73	**1.70**
	4♀♀	1.33–1.41	**1.37**					1.51–1.60	**1.57**	1.56–1.69	**1.63**
Ch. femoratus (NHML)	2♂♂	1.37–1.39	1.38					1.62–1.68	**1.64**	1.62–1.67	1.65
	2♀(♀)	1.30–1.35	1.33	(1.19	1.19	1.10	1.10)			1.55–1.56	1.56

Protibia with longitudinal sulcus distinct in basal 3/4 anterior face to obliterate.

Female tergite VIII and sternite VIII as in Figs 111–130.

DISTRIBUTION. The genus range extends from northern India and Nepal east to southern China, Korea and Japan and southeast to the Sunda Isles, Philippines and New Guinea. In Vietnam, two macropterous species, *Ch. flavofemoratus* and *Ch. costiger*, are only widespread, whereas the others, brachypterous to apterous, have very restricted species ranges, being confined to particular mountains or mountain ridges.

HABITATS AND HABITS. All the member species of the subgenus are forest-dwellers, instead of riparians, as is characteristic of most other congeners. Macropterous species mostly occur in piedmonts, as well as in mountains at lower altitudes, while flightles species predominantly occupies mid-montane belt. Adults of the former often flight to light at night.

COMMENTS. It follows from my comparison between species examined that similarities exceeds differences between *Haplochlaenius*, *Sphodromimus* and *Vachinius*. The most constant of these differences include the elytral intervals that are nearly flat, impunctate and glabrous in *Vachinius*, costate to carinate and mostly punctate and pubescent along striae only in *Haplochlaenius* while 'convex and sparsely punctate-pubescent' in *Sphodromimus* [Azadbakhsh, Kirschenhofer, 2019]. On the other hand, the latter group also contains species that have either odd elytral intervals subcostate and glabrous in basal half or all the intervals punctate and pubescent along striae only. The former pattern is peculiar to *Ch. pilosus* Casale, 1984, while being observed in many populations of *Ch. flavofemoratus*.

Both male and female genital characters, such as the shape and the structure of the aedeagus median lobe, its apex, the parameres, *bursa copulatrix*, and the extent, to which the spermatheca is reduced, vary much between species.

All variety of aedeagal types observed in the subgenus appears to have evolved from that having the median lobe moderately attenuated apicad in dorsal view, with its apex subtruncate and terminated in a small transverse capitulum; this latter having a transverse, preapical, dorsal ridge and a less distinct, tooth-like, apical or preapical ventral one. This prototype (retained by *Ch. costiger* and its allies) supposedly evolved toward that having a lager capitulum, with the dorsal ridge conspicuous and toothed on each side, and a distinct tooth substituted for the ventral ridge (Figs 39–40, 71). The aedeagus described then probably evolved in two major directions, toward the apex either (1) widely quadrate to widely rounded in dorsal view, with the capitulum and both dorsal and ventral teeth reduced much in size (Figs 62–63) to completely, or (2) asymmetrically hastate, with the ventral tooth lost and the dorsal teeth mostly reduced in size (Figs 53–59). *Chlaenius caperatus* Qin *et al*., 2022 and *Ch. hunanus* (Morvan, 1997) have aedeagi [Qin *et al*., 2022] that may represent successive morphogenetic stages primary to the aedeagus type developed in the second way.

Some minor evolutionary trends for the aedeagus were as follows: (1) toward the ventral ridge or both ridges strengthened or raised, thus forming the apex of aedeagus T- or Γ-shaped in lateral view (many species of the *costiger*-group); (2) toward the apical capitulum obtrapezoidal or subtriangular, slightly extended and obliquely set in lateral view (*Ch. holzschuhi*, *Ch. subglaber*, and some species of the *costiger*-group, such as *Ch. costulipennis* **sp.n.**, *Ch. sabahensis*, *Ch. aruensis* Häckel *et al*., 2023). Finally, some species (*e.g.*, *Ch. silvestris* **sp.n.**: Figs 47–48, 64) have developed the aedeagus very peculiar in shape and thence hardly deducible from any other one.

The parameres probably evolved from those with longer or shorter apices sclerotized (Figs 77–85, 87–93) toward the left (Figs 86, 94) or both (Figs 95–98) parameres totally membranous inside.

The internal sac of aedeagus varies very much within *Haplochlaenius* as well. We assume that when everted and inflated the sac was primitively fairly short and slender, terminating in a fine and long apical flagellate sclerite, or flagellum, characteristic of many *Chlaenius*, combined with another, rounded, apical sclerite at its base. Both these sclerites have been observed in some species such as, *e.g.*, *Ch. caperatus*, *Ch. hunanus*, *Ch. deuvei* [Qin *et al*., 2022] and *Ch. capitatus* **sp.n.**, and the sac as described above is peculiar to all the species of the *flavofemoratus*-group but *Ch. flavofemoratus*. On the other hand, the species of the latter group share the flagellate sclerite short, supposedly secondarily shortened, and the species of the *costiger*-group have a still shorter, robust, one. Also, the fact is noteworthy here that internal sacs (and the respective *bursae copulatrix* in females) are not seldom much more different in shape and in size within a particular species group than between some, primitive, species from different species groups.

When very large or extremely long *bursa copulatrix* (*bc*) (Figs 134, 141) left out of consideration the reproductive tracts of females examined could be arranged into the following six groups:

(1) the spermatheca (*spm*) is in form of a slender seminal canal, with nearly an indistinct receptacle, and the spermathecal gland (*spg*) are present (*Ch. caperatus*, *Ch. hunanus*, *Ch. deuvei* (Morvan, 1997) [Qin *et al*., 2022]);

(1a) the same pattern except that *bc* is enlarged, with *spm*-to-*spg* association being very slender up to the spermatheca-bursal junction (the *costiger*-group: Figs 140–142);

(2) *spm* increasingly narrow apicad, with no *spg* found (Figs 137, 139, 143, 144). — Be *spg* missing an artifact resulted from improper specimen preparation, this pattern would correspond to the previous one;

(3) *spm* is reduced to a conical unciform process of the ventral wall of the *bc* proximal section (Figs 142, 145);

(4) both *spm* and *spg* are totally reduced (Figs 135–136, 146);

(5) the same pattern, in couple with a supposedly apotypic feature, transverse bifid callosity or process at the base of the dorsal wall of *bc*; this structure is either well-developed (*Ch. yinggelingensis* [Qin *et al*., 2022]) or small and symmetric, or asymmetric, with its right lobe extended into a long tapered process (the *flavofemoratus*-group: Figs 131–134, 147–148).

From this one could infer that differences between many representatives and species groups of *Sphodromimus* are much greater than those between *Sphodromimus* and *Haplochlaenius* as postulated by Azadbakhsh & Kirschenhofer [2019]. Besides, some intermediate characters or species do exist. In particular, a member of the *costiger*-group, *Ch. costulipennis* **sp.n.**, has retained the elytral basal ridge well-developed, and some species of '*Sphodromimus*' either have (*Ch. pilosus*, *Ch. yinggelingensis* Qin *et al*., 2022) or tend to have (*Ch. flavofemoratus*) the elytral intervals subcostate to costate and glabrous along middle, this being a feature of *Haplochlaenius*. Finally, many species from different species groups of the subgenus (*e.g.*, *Ch. arakanensis* Brunk et Kirschenhofer, 2016; *Ch. holzschuhi*, *Ch. pilosus*, *Ch. laosensis* (Kirschenhofer, 2012), most species of the *flavofemoratus*-group, *Ch. costulipennis* **sp.n.**, some specimens of *Ch. klapperichi* Jedlička, 1956, and *Ch. costiger*) share the elytral apices characteristic in shape, rounded combined and minutely toothed at sutural angles, suggesting this feature to be an underlying synapomorphy at the least.

For the reason I consider *Sphodromimus* and *Haplochlaenius* as synonyms. Because none of the three species currently included in *Vachinius* has been examined during this study, I only suppose, without formally synonymizing here, *Vachinius* to be the next one.

Thus treated the subgenus *Haplochlaenius* is here recognized to include at least three species groups and some ungrouped species that need clarification of their relationships. Of these species, two, *Ch. luzoensis* Brunk, 2016, and *Ch. donabaueri* Zettel, 2020, recently described from the Philippines, are certain to form a particular species group. Both are more similar to some '*Sphodromimus*' in body appearance and less so in the shape of aedeagus, which is small, slender, with a small basal bulb, and has subtriangular apex, with a small, preapical, dorsal tooth on each side, thus being by comparison primitivemost within the subgenus while somewhat similar to those observed in the *flavofemoratus*- and the *hajeki*-group.

Key to species of *Chlaenius* (*Haplochlaenius*) of Vietnam

1(2) Antennomeres 1–3, tibiae and femora pale but extreme femoral apices infuscated (Figs 19–20). Forebody metallic green or golden green, or cupreous green; elytra greenish to nearly black. Pronotum rather short, broadest just medially, rounded on sides, basal angles obtuse, rounded or blunt. Elytron with no humeral angle due to basal ridge obliterate inside virtual base of stria 6; intervals costate along middle in basal 1/3–1/2, subcarinate to carinate behind, finely and densely punctate and pubescent along striae, with 1–3, mostly two, uneven punctate rows traceable on each side; interval 8 (sub)carinate except basal and apical 1/4–1/5. Macropterous, with metepisterna longer than wide. — Indochina, China, Korea, Japan; south to Sumatra and Java (other subspecies in Myanmar, Nepal and North India). ..... 11. *Ch. c. costiger* Chaudoir, 1856

2(1) Antennomeres 1–3 black, legs black or femora each with a shorter or longer reddish-yellow ring toward apex. Elytral basal ridge inwardly reaching stria 3, humeral angle more or less distinct. Pronotum mostly more or less cordate and longer.

3(8) Body and legs black. Metepisternum short, about as long as wide.

4(5) Body dorsum dull from coarse microsculpture, elytral microsculpture granulate. Pronotum moderately densely punctate and pubescent, flat, more so basally, with basolateral foveae vestigial. Prosternal process with a distinct marginal bead. Elytral intervals flat, barely convex at bases, densely punctate along striae, unevenly and sparsely or very sparsely punctate along middle. Elytra barely shorter in female, EL/EW 1.54–1.58, with a highly obtuse reentrant angle between apices; sutural angles right or very slightly obtuse and minutely toothed. — N-Vietnam. .... 7. *Ch. opacus* **sp.n.**

5(4) Head and pronotum rather shiny. Pronotal basolateral foveae long and rather deep. Elytra barely longer in female, EL/EW 1.62.

6(7) Pronotum nearly impunctate; basal angles subrectangular and sharp, not posteriorly projecting. Elytral intervals flat, apices as above. — NE-Laos. .... [*Ch. laosensis* (Kirschenhofer, 2012)]

7(6) Pronotum more or less densely punctate, with sides sinuate and diverging slightly toward basal angles; these very slightly acute, apically blunt or rounded and as small lobes slightly surpassing base. Intervals very unevenly and sparsely punctate, more so along middle, subcostate and shinier along middle, interval 7 narrow and subcarinate in basal third. Prosternal process without marginal bead. Elytral apices rounded combined, sutural angles right or slightly acute, sharp or minutely toothed. — N-Vietnam (Hoang Lien Mt. ridge). ..... 6. *Ch. pilosus* (Casale, 1984)

8(3) Body dorsum contrastingly coloured, with elytra black or nearly so and at least pronotum bright metallic. Femora often with reddish-yellow rings.

9(10) Legs, head and elytra black, pronotum metallic green. Metepisternum short. Elytral apices rounded combined, with sutural angles acute and minutely toothed; intervals 1–5 or at least 3 and 5 sparsely punctate. Apex of aedeagus median lobe asymmetrically hastate (Figs 54, 67). BL 22.5–23.2. — N-Vietnam (Nghe An Province). ....5. *Ch. fuscipes* **sp.n.**

10(9) Meso- and metafemora contrastingly bicoloured, black, each with a longer or shorter red ring toward apex; pronotum golden green to cupreous green.

11(12) Elytral intervals 7 and 8 sharply carinate, the others costate basally, carinate behind, punctate along striae, with 1–2 punctate rows traceable on each side. Head and pronotum bright metallic, elytra black; femora with reddish-yellow rings in apical halves. Pronotum very finely and densely striate and punctate at base, otherwise smooth, with imperceptible punctation on disc. Pubescence very short on elytra, very sparse and imperceptible on head and pronotum. — Central Vietnam. .....12. *Ch. costulipennis* **sp.n.**

12(11) Elytral intervals flat or subconvex, sometimes only odd ones slightly raised along middle in basal half. Head largely black; profemur black or with a pale ring.

13(14) Macropterous, metepisternum slightly longer than wide. Elytral apices rounded separately each, with very obtuse re-entrant angle in between, sutural angle very obtuse and rounded or blunt; interval 8 at middle much wider than (1.45–1.90 times as wide as) interval 7. Prosternal process in lateral view more or less convex ventrally toward rounded apex. Abdominal sternite 7 quadri- (♂) or sexsetose (♀). Pronotum rather short, PW/PL 1.17–1.19, and wide at base, PB/PA 1.15–1.26; sides straight to indistinctly sinuate in front or blunt or rounded basal angles. Apical 1/2–2/3 femur with a pale ring. BL 23.4–26.5 mm. — Indochina, south to Sumatra and Java; China. .... 1. *Ch. flavofemoratus* Laporte, 1834

14(13) Apterous or brachypterous, metepisternum about as long as or slightly shorter than wide. Elytral interval 8 at middle usually as wide as or slightly wider than interval 7. Prosternal process in lateral view with ventral margin straight or concave and apex rectangular or somewhat toothed. Abdominal sternite 7 bi- (♂) or quadrisetose (♀). Pronotum longer, PW/PL 1.0–1.14, with base narrow, PB/PA 0.97–1.18; sides sinuate and parallel or diverging toward basal angles; these straight or slightly acute.

15(24) Pronotal disc very finely and sparsely punctate to impunctate.

16(21) Elytral intervals more or less evenly punctate, often odd ones being more sparsely punctate in basal half; elytral apices rounded combined and minutely toothed at sutural angles, these being right. Body larger in general, BL 21.6–27.5 mm. Median lobe of aedeagus asymmetrically hastate at apex (Figs 55–57). Profemur black, meso- and metafemora with red rings in apical halves.

17(18) Apex of median lobe of aedeagus barely longer, in dorsal view with a distinct, basal, longitudinal carina toward left margin; capitulum large, dorsally convex, curved slightly to the right and ventrad (Figs 27–28, 55, 68). Pronotal disc smooth and glabrous, laterobasal foveae rather

deep and wide basally; pronotum convex, barely longer, parallel-sided in front of basal angles and truncate at apex. Elytra deep bluish black. BL 24.5–27.5 mm. — N-Vietnam (Phu Tho Province). ..... 3. *Ch. bicoloripes* **sp.n.**

18(17) Apex of median lobe of aedeagus barely shorter, with capitulum smaller, straight or slightly upturned in lateral view.

19(20) Apex of median lobe of aedeagus straight in lateral view, with capitulum oblong and convex dorsally, and a conspicuous, longitudinal, dorsal carina in basal half; right lateral tooth small yet distinct (Figs 29–30, 56, 69). Other character as in couplet **17**. — N-Vietnam (Tam Dao Mt. ridge). ....2. *Ch. tamdaoensis* Kirschenhofer, 2003, **stat.rest.**

20(19) Apex of median lobe of aedeagus slightly upturned in lateral view, longitudinally concave up to subtle capitulum in dorsal view, with right lateral tooth vestigial and no dorsal longitudinal carina (Figs 31–32, 57, 70). Pronotum cordate, with sides more deeply concave in front of and diverging toward basal angles, flat in at least basal half, finely and sparsely yet distinctly punctate and pubescent on disc, moderately and rather densely punctate and pubescent in basal third and along apical margin; apex evenly sinuate, with angles slightly projecting; laterobasal foveae longitudinal, narrow, shallow basally. Elytra black; sometimes almost imperceptible vestiges of profemoral pale rings traceable dorsally and/or laterally. Body smaller, BL 21.5–24 mm. — N-Vietnam (Cao Bang Province). ....4. *Ch. planicollis* **sp.n.**

21(16) Elytral intervals punctate only laterally, widely smooth and glabrous along middle; elytral apices blunt or rounded at sutural angles. Body generally smaller, BL 18–23 mm. Apex of aedeagus median lobe wide, truncate, rounded or triangular (Figs 62–63). Femora with red rings in apical two thirds.

22(23) Head narrow, PW/PL 1.15–1.19; pronotum slightly wider, parallel-sided in front of right basal angles. Elytral apices rounded separately each, intervals convex. Abdomen minutely punctate and pubescent along middle. Aedeagus median lobe in lateral view very slender, with ventral margin convex preapically, in dorsal view with a large rounded convexity at middle of left margin; apex in dorsal view widely triangular and longitudinally tetracarinate, median carina being much finer than conspicuous lateral ones (Figs 47–48, 64). Body larger, BL 21.5–23 mm. — N-Vietnam (Ha Giang Province). ..... 10. *Ch. silvestris* **sp.n.**

23(22) Head wide, PW/PL 1.03–1.13; pronotum slightly narrower, with sides diverging slightly toward base; basal angles slightly acute. Elytral sutural angles right, intervals subconvex. Abdomen smooth and glabrous along middle. Aedeagus median lobe moderately wide in lateral view, with ventral margin straight and apex abruptly bent ventrad; apex widely subquadrate in dorsal view, with a small preapical tooth on each side (Figs 43–46, 63, 73). Body smaller, BL 18–21 mm. — S-Vietnam. ....9. *Ch. capitatus* **sp.n.**

24(15) Pronotum distinctly, moderately and rather densely, punctate and pubescent; body pubescence otherwise fairly dense, especially on antennomere 3. Elytral intervals 1–7 convex, largely glabrous along middle but individual scattered punctures. Femora in apical halves with red rings, these being ventrally to completely reduced on profemur. BL 22–22.6 mm. — S-Laos and Central Vietnam. .... 8. *Ch. hajeki* (Kirschenhofer, 2012)

The ***flavofemoratus*** species group

DIAGNOSIS. Large species, with BL 21.3–27.5 mm. Body macropterous or apterous, contrastingly bicolour, with pronotum bright metallic, golden green, golden cupreous, green or bronzed, head black, elytra black or dark violaceous blue; antennomeres 1–3 black, legs black or femora with reddish-yellow rings in at least middle and hind legs, often these ring being much wider dorsally than ventrally. Elytral intervals flat or subconvex, densely and rather evenly punctate and pubescent, often with interval 1 almost smooth and those 3, 5 and 7 slightly narrower, slightly more raised toward base and slightly more sparsely punctate along middle in basal half. Elytral apices rounded combined, with a minute tooth at sutural angle, or separately each (*Ch. flavofemoratus*), with a very obtuse re-entrant angle in between and no tooth at obtuse sutural angle. Abdominal sternite II not anterolaterally beaded; abdominal sternites V–VII nearly impunctate and glabrous along middle. Protibia with a distinct median sulcus in basal 1/2–3/5 anterior face.

Apex of median lobe of aedeagus in dorsal view asymmetrically hastate, subtriangular and very elongate, bent to the right, with a rounded apical capitulum and a small tooth on each side of base (Figs 53–59, 67–70, 74–75). Parameres with apices well sclerotized inside but left paramere totally membranous in *Ch. flavofemoratus* (Figs 77–86).

Female reproductive tract very distinctive: spermatheca and spermathecal gland totally reduced; dorsal wall of *bursa copulatrix* with a transverse bifid callosity (Figs 131–134, 147–148). Abdominal tergite VIII and sternite VIII as in Figs 111–114; sternite VIII well sclerotized (pigmented) laterally, including anterolateral apodemes.

COMMENTS. This group is certain to include at least seven species: *Ch. enleensis* Mandl, 1992 (from China or Indochina), *Ch. davidi* Qin et al., 2022 (from southern China), and the others from Vietnam. All these species but one are very similar and very close, sharing also very narrow species ranges, which is due certainly to flightless imago. Exceptions to the rule only include *Ch. flavofemoratus*, which is very distinctive in many morphological, genital and non-genital characters, including macroptery followed by a very wide species range.

Furthermore, the representatives of this group are hardly separable from *Ch. yinggelingensis* by the body appearance and the female reproductive tract, while being very slightly different from *Ch. pilosus* and *Ch. opacus* in the female reproductive tract and in the elytral sculpture. This may suggest closer relationships between the species discussed and thus does not prevent one from an extensive interpretation of this group in future. However, the fact that *Ch. yinggelingensis* and *Ch. pilosus* have the aedeagi uncharacteristic of the group leaves these two ungrouped here.

Another species, *Ch. peterseni* (Louwerens, 1967), from Palawan, the Philippines, is here provisionally placed within this group because it is similar to *Ch. flavofemoratus* in appearance, as well as in the sculpture of the elytral intervals [Qin *et al*., 2022], and also has the aedeagus [Louwerens, 1967, 1969], which is more similar to those characteristic of the *flavofemoratus*-group rather than of any other group of the subgenus. It was just recently illustrated, with comments on some characters of a paratype specimen examined [Qin *et al*., 2022] and then surprisingly re-described under the name *Ch.* (*Haplochlaenius*) *dacatrai* Kirschenhofer, 2023, **syn.n.**, from the same island [Kirschenhofer, 2023]. This latter species was only compared in the description with *Ch. femoratus* Dejean, 1826, with reference to a paper [Louwerens, 1967], in which *Ch. peterseni* had been described, including its ae-

Figs 1–6. Dorsal habitus: 1–2 — *Chlaenius flavofemoratus*, from Tay Con Linh NP (1) and Song Thanh NP (2); 3 — *Ch. fuscipes* **sp.n.**, holotype; 4–5 — *Ch. pilosus*, from Bat Xat NP; 6 — *Ch. opacus* **sp.n.**, holotype; 1, 3–4 — ♂♂; 2, 5–6 — ♀♀.
Рис. 1–6. Габитус дорзально: 1–2 — *Chlaenius flavofemoratus*, из нац. парков Tay Con Linh (1) и Song Thanh (2); 3 — *Ch. fuscipes* **sp.n.**, голотип; 4–5 — *Ch. pilosus*, из нац. парка Bat Xat; 6 — *Ch. opacus* **sp.n.**, голотип; 1, 3–4 — ♂♂; 2, 5–6 — ♀♀.

deagus illustrated. Besides, it was differentiated from *Ch. femoratus* [Kirschenhofer, 2023] by the legs uniform black (*vs*. having the femora red), which is not correct (for details see 'Comments' to *Ch. costiger* below).

1. *Chlaenius* (*Haplochlaenius*) *flavofemoratus* Laporte, 1834
Figs 1–2, 23–24, 53, 85–86, 104, 111–112, 133–134, 148–149.

Laporte, 1834: 81 (Java); Andrewes, 1919: 207; 1928: 12; 1929: 312; 1933: 335; 1941: 308; 1947: 6; Mandl, 1992: 99; Azadbakhsh, Kirschenhofer, 2019: 7; Qin *et al*., 2022: 64, 78. — *nigricoxis* Motschulsky, 1864: 339 (Hong-Kong); Chaudoir, 1876: 94; Bates, 1892: 312.

MATERIAL. Holotype ♂ (ZMMU) of *Ch. nigricoxis*, labelled: '*China*', '*Chlaenius*/ *nigricoxis*/ *Motsch*/ *China*', '*Chl. flavofemoratus Cast.*/ = *nigricoxis Motch.*/ H.E.Andrewes det.'.

Other material: 26♂♂, 25♀♀, including 23♂♂, 21♀♀ (SIEE): ♀, **Vietnam**, Lao Cai Prov., Sa Pa, at light, 23.IV–6.V.2013 (A. Prosvirov); 4♂♂, Ha Giang Prov., Tay Con Linh Natn. Park, Cao Bo, h~570 m, 22°45′23″N, 104°52′06″E, 15–27.IV.2023 (D. Fedorenko); ♂♀, same data except 22°45′37″N, 104°51′51″E, h~700 m, mud with sparse vegetation by pool; ♀, 40 km W of Cao Bang, Phia Oac Mt., 22º36′30″N 105º52′20″E, h~1600–1650 m, deciduous forest, 3-11.X.2018 (D. Fedorenko); 2♂♂, 2♀♀, Phu Tho Province, ~90 km W of Hanoi, Xuan Son Natn. Park, 21°07′29″N, 104°57′28″E, h = 400 m, at light, 6–15.VI.2014 (D. Fedorenko); ♂, same locality, except for 21°08′12″N, 104°57′04″E, h = 450 m, 27.VI–7.VII.2014 (A. Abramov, A. Shchinov); 2♀♀, Ha Tinh Province, Vu Quang Natn. Park, Kim Quang env., h~200 m, 18°17′38″N, 105°22′06″E, 24.V–1.VI.2022 (D. Fedorenko); 3♂♂, 2♀♀ (MSPU), Quang Binh Prov., Minh Hoa Distr., Ke Bang, env. Yen Hop, 27.IV.1999 (S. Kruskop); ♂♀, Phong Nha – Ke Bang Natn. Park, Bo Trach, h = 375 m, 17°22′14″N 106°13′18″E, at light, 12–21.V.2022 (D. Fedorenko); ♀, 41 km SSW Hue, A Luoi Distr., Sao La Natn. Park, h~900 m, 16°06′09″N, 107°27′48″E, 6–17.V.2023 (D. Fedorenko); 7♂♂, 4♀♀, Quang Nam Province, Nam Giang Distr., Song Thanh Natn. Park, 15°34′26″N 107°23′22″E, h = 1050 m, 23.IV–11.V. 2019 (D. Fedorenko); 2♂♂, ♀, same data except 15°33′48″N 107°23′30″E, h = 1070–1170 m; 2♂♂, ♀, Kon Tum Prov., Kon Plong Distr., 14°43′N, 108°19′E, h=1030, Dak Khe River, 8–23.IV.2015 or 4–12.VI.2016 (D. Fedorenko); ♂♀, same data except 14°44′N, 108°18′E, env. ngoc Boc 1 Mt, h=1100–1200 m, 8–23.IV.2015; ♂, 14°26′1″N 107°43′1″E, Chu Mom Ray Natn. Park, 28 km SW of Dak To, Bar Goc Station, h = 710 m, 1–10.V.2014 (A. Abramov); ♂♀, Gia Lai Province, ~40 km NEE of Pleiku, 14°12′11″N 108°18′54″E, Kon Ka Kinh Natn. Park, h = 890 m, 9–22.V.2016 (D. Fedorenko); ♀, same locality, except for ~55 km ENE of Pleiku, 14°17′45″N 108°26′57″E, h = 600 m, 8–20.V.2017; ♀, Binh Phuoc Province, Bu Gia Map Nat. Park, 12°11′37″N, 107°12′21″E, h=350–540 m, at light, 17.IV.2009 (D. Fedorenko); ♀, **Thailand**, near Chiang Mai, VIII.2005 (A. Sokolov); ♀, same locality, 2004 (local collectors); ♀ (ISEA) same locality except for Phang, 20.V.2012 (local coll.); ♀ (ISEA), Prov. Lampang, Seat Wang Nuea, 19°8′N 99°37′E, 2012 (local coll.).

Aedeagus and its internal sac examined in 16 and 3 males, respectively. Genitalia and reproductive tract examined in three females.

DIAGNOSIS. The only species of the subgenus with abdominal sternite VII quadrisetose in male and sexsetose in female (*vs*. bi- or quadrisetose, respectively, in the other species).

Both median lobe of aedeagus and its apex robust, the latter in dorsal view nearly straight, with apex rather widely rounded, right dorsolateral tooth missing while left one large and blunt; left paramere entirely membranous inside (throughout right side) (Figs 23–24, 53, 85–86). The internal sac (Fig. 104) and *bursa copulatrix* (Fig. 134) very large, the former very subtile.

For other details see the key.

REDESCRIPTION. BL 23.4–26.5 mm. Body (Figs 1–2) macropterous. Head and pronotum shiny, head black or with slight to nearly indistinct violaceous, bluish or greenish reflections in basal half; pronotum mostly golden cupreous, more rarely golden green, with a slight violaceous blue reflections along sides; elytra dull, black or (more often) almost indistinctly blue but black inside stria 1. Antennomeres 1–3 black, remaining ones gradually paler apicad from brown black to brown. Legs black, femora each with a wide reddish-yellow ring in apical half. Dorsal microsculpture almost obliterate on head, pronotal microsculpture obliterate on disc, superficial yet traceable on sides, very coarse to granulate on elytra.

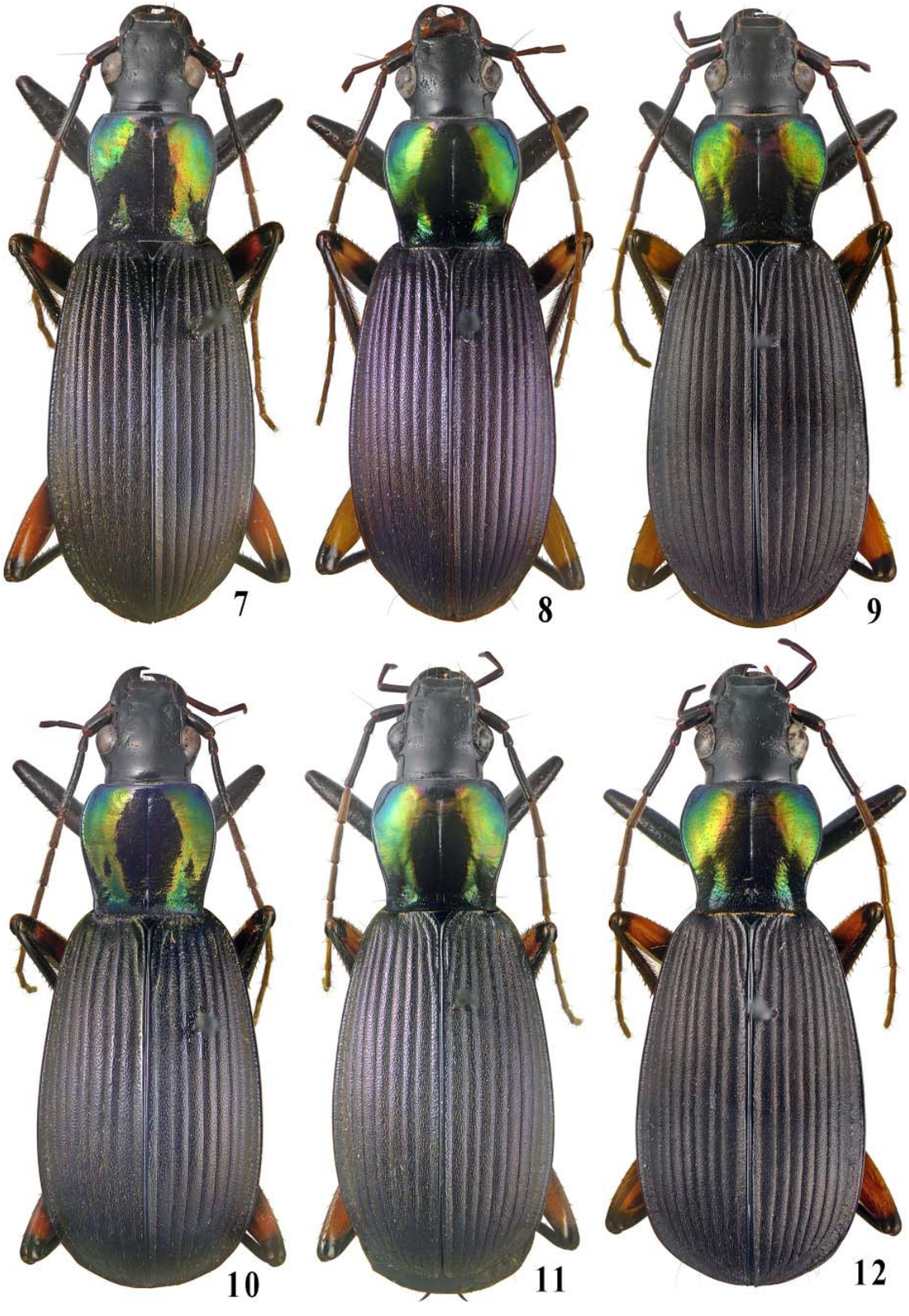
Head more or less smooth on each side of frontoclypeal suture, at middle of frons and at base, moderately and rather densely punctate on vertex and along sides of frons, with admixture of dense and fine punctures; clypeus, frons and neck mostly finely punctate. Frontal foveae vestigial, wide, rugulose. Terminal labial palpomere similar in both sexes, very slightly dilated apicad, parallel-sided in apical third, with apex obliquely truncate. Antennomeres 8–11 and sometimes antennomere 7 with a median lateral carina.

Pronotum subquadrate, convex, broadest slightly in front of middle; sides rounded in apical three fifths, straight to subsinuate behind. Base about a fifth wider than apex, both truncate; basal angles obtuse and rounded or blunt, with imperceptible posterior lobes; these bent ventrad, leaving basal margin transversely straight. Basolateral foveae rather wide and deep, each with a shallow, trefoil impression at bottom; its branches being directed apicad, toward basal angle and posteromesad, this inner branch inwardly obliterate or extended into a shallow to indistinct basal transverse impression. Lateral margin barely explanate in basal three fifths, narrow anteriorly, wide and slightly reflexed outside basal foveae; marginal bead fine laterally and in about lateral 1/3 apex, otherwise obliterate or vestigial. Punctation sparse yet distinct, sparser and finer on disc, slightly coarser and denser at base and at apex. Median line very deep, reaching or almost reaching apex, obliterate or replaced with an indistinct blunt ridge in basal fourth.

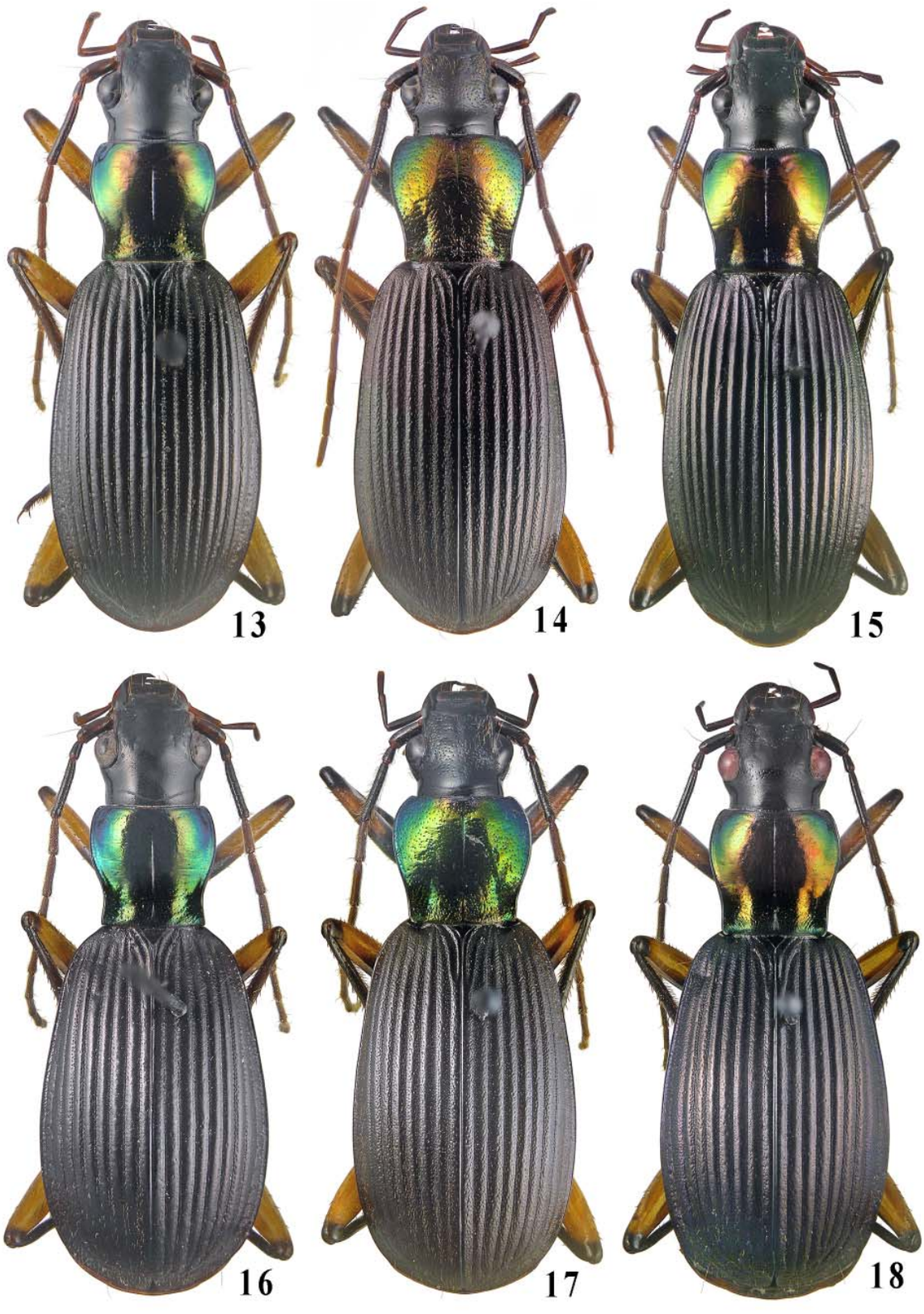
Elytra broadest about a third from apex, with humeri rounded; apices rounded separately each, with a distinct reentrant angle in between; sutural angle obtuse and blunt. Basal ridge fine, reaching stria 3, humeral angle highly obtuse, just traceable. Striae fine yet deep, very finely punctate, obliterate very close to base, those 1 to 6 apically entire or almost so, stria 7 and 8 shallow and interrupted there. Intervals slightly to moderately convex, densely punctate and pubescent; those 3, 5 and 7 often narrower, more raised, more sparsely punctate and usually shinier than even ones in basal 1/2–2/5; sutural interval (1st) and parascutellar interval mostly smooth in basal half but very sparse punctures along stria 1.

Ventral side. Prosternal process in lateral view rounded toward apex, this latter rounded apically. Metepisternum slightly longer than wide, est3L/W 1.11–1.21. Abdominal sternite VII bisetose on each side in male, trisetose, with medial two setae proximate, on each side in female.

Female reproductive tract and abdominal urites VIII and IX as in Figs 111–112.



Figs 7–12. Dorsal habitus: 7, 10 — *Chlaenius tamdaoensis*; 8, 11 — *Ch. bicoloripes* **sp.n.**, holotype (8) and paratype (11); 9, 12 — *Ch. planicollis* **sp.n.**, paratypes; 7–9 — ♂♂; 10–12 — ♀♀.
Рис. 7–12. Габитус дорзально: 7, 10 — *Chlaenius tamdaoensis*; 8, 11 — *Ch. bicoloripes* **sp.n.**, голотип (8) и паратип (11); 9, 12 — *Ch. planicollis* **sp.n.**, паратипы; 7–9 — ♂♂; 10–12 — ♀♀.



Figs 13–18. Dorsal habitus: 13, 16 — *Chlaenius capitatus* **sp.n.**, paratypes; 14, 17 — *Ch. hajeki*; 15, 18 — *Ch. silvestris* **sp.n.**, holotype (15) and paratype (18); 13–15 — ♂♂; 16–18 — ♀♀.
Рис. 13–18. Габитус дорзально: 13, 16 — *Chlaenius capitatus* **sp.n.**, паратипы; 14, 17 — *Ch. hajeki*; 15, 18 — *Ch. silvestris* **sp.n.**, голотип (15) и паратип (18); 13–15 — ♂♂; 16–18 — ♀♀.

DISTRIBUTION. Widespread in Indochina, mostly in the north (Myanmar, Thailand, Laos, Vietnam), ranging south to Sumatra and Java; southern China. Throughout Vietnam except the southernmost parts of the country.

HABITATS AND HABITS. A very common species, occurring mostly along forest edges and forest trails at 350–1.200 m, sometimes up to 1.600 m, altitudes. Adults often flight to light at night.

COMMENTS. Azadbakhsh & Kirschenhofer [2019: 7] established synonymy *Ch. flavofemoratus* = *Ch. birmanicus* Chaudoir, 1876 based merely on their comparison between many specimens of both species examined. Unfortunately, the authors did not argue for this synonymy, since they neither mentioned type specimens of *Ch. birmanicus* examined nor discussed its distinctive features specified in the original description [Chaudoir, 1876: 93], such as the body smaller, 18.5 mm in length, with the dorsum black and the body appendages pale. The fact that all these peculiarities are not characteristic of *Ch. flavofemoratus* leaves this synonymy not indisputable.

2. *Chlaenius* (*Haplochlaenius*) *tamdaoensis* Kirschenhofer, 2003, **stat.rest.**
Figs 7, 10, 29–30, 56, 69, 81–82, 100–101, 149.

Kirschenhofer, 2003: 32 (subg. *Haplochlaenius*; Tam Dao, North Vietnam); Azadbakhsh, Kirschenhofer, 2019: 7 (subg. *Sphodromimus*). — *enleensis*: Qin *et al*., 2022: 83 (part.).

MATERIAL. ♂♀ (MSPU), labelled: N Viet-Nam, 55 km NNW Hanoi, Tam Dao vill. env., VII.1997 (A. Rjabov [Ryabov]); both damaged by dermestid larvae.

Aedeagus and internal sac (damaged by a dermestid larva) examined.

DIAGNOSIS. Only different from the following species in having the median lobe of aedeagus distinctive (see the key). Other differences are imperceptible if at all and only include barely more distinct punctation of the pronotum, which is a very little bit coarser and denser in basal third.

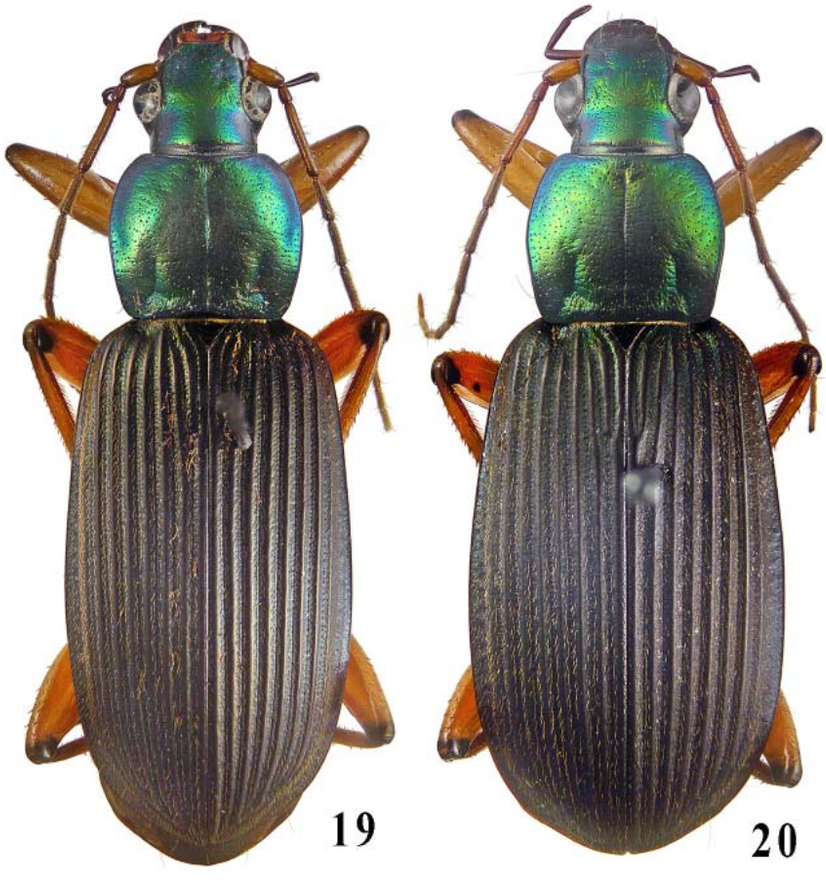
DESCRIPTION. Unnecessary here except the following few. Body as in Figs 7, 10. BL 24.5–27.5 mm. Median line of pronotum almost reaching base and apex.

Everted and inflated internal sac of aedeagus (Figs 100–101) very similar to that of *Ch. planicollis* **sp.n.**

DISTRIBUTION. Only known from the Tam Dao mountain ridge, Vinh Phuc Province, northern Vietnam.

HABITATS AND HABITS. No exact data; apparently as for allied species.

COMMENTS. This species was described based on three males, but a paratype specimen illustrated [Kirschenhofer, 2003: fig. 2] was a female. Qin *et al*. [2022] do not separate between totally five male specimens examined as follows: (1) the holotype of *Ch. enleensis* Mandl, 1992 (*flavofemoratus* ssp.; 'En-le', Yunnan, China); (2) one specimen from Cao Bang Province; (3) another one from Hoa Binh, having the aedeagus damaged; and (4) two specimens, including a para-



Figs 19–20. *Chlaenius c. costiger*, dorsal habitus: 19 — ♂ from Bat Dai Son NP; 20 — ♀ from Phia Oac Mt.
Рис. 19–20. *Chlaenius c. costiger*, габитус дорзально: 19 — ♂ из нац. парка Bat Dai Son; 20 — ♀ с г. Phia Oac.

type of *Ch. tamdaoensis* from Tam Dao. Therefore they proposed the synonymy *Ch. enleensis* (= *Ch. tamdaoensis*), and accordingly supposed Vietnam, Indochina, rather than Yunnan to have been the type locality of the former.

My comparison of material from Vietnam has revealed small yet constant differences between the populations in some characters of the adults, including the aedeagi distinctive. These populations, including *Ch. enleensis* (Figs 35–36, 59, 74), represent a separate and very local species each. Accordingly (1) *Ch. enleensis* is here recognized as a species not recorded in Vietnam, (2) *Ch. tamdaoensis* is reinstated, (3) a new species from Cao Bang Province is describe below, and (4) the specimen from Hoa Binh is provisionally assigned to *Ch. bicoloripes* **sp.n.**

3. *Chlaenius* (*Haplochlaenius*) *bicoloripes* Fedorenko, **sp.n.**
Figs 8, 11, 27–28, 55, 68, 79–80, 149.

? *enleensis*: Qin *et al*., 2022: 83 (part.).

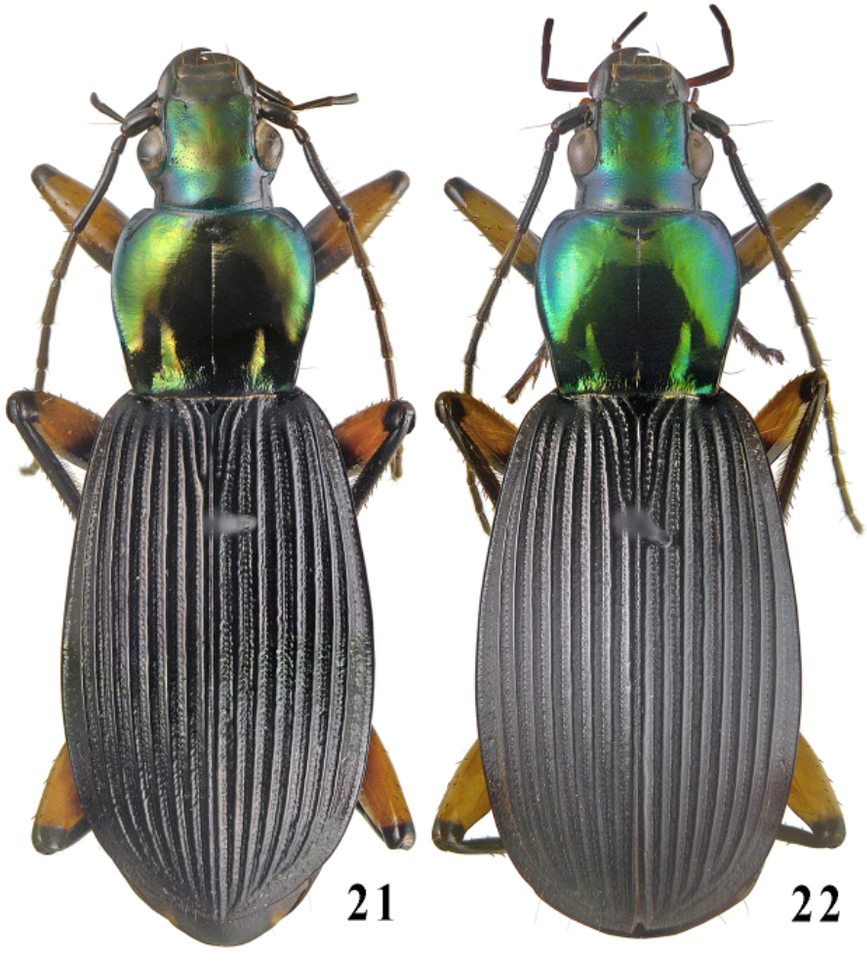
MATERIAL. Holotype ♂ (ZMMU), labelled: ‘N-Vietnam, Phu Tho Prov[ince]./ ~ 90 km W of Hanoi,/ Xuan Son Nat[io] n[al]. Park,/ 21°07′52″N 104°57′07″E, h = 400–470 m, at light, 6–15.VI./ D. Fedorenko leg. 2014’ (slightly teneral, resulting in aedeagus poorly sclerotized and depigmented, and antennae pale, with antennomeres 2 and 3 reddish brown and those 4–11 still paler). Paratypes: ♂, 2♀♀ (SIEE), same locality, except for ‘…/Xuan Son N.P., h=450 m/ 21°08′12″N 104°57′04″E/ Exped.Russ.-Vietn.Tropic./ Center, 27.VI–7.VII.2014/ A.Abramov, A. Shchinov leg’ (male paratype slightly teratological, with elytra unlocked and a little twisted toward apices).

Genitalia and the female reproductive tract examined in the specimens listed but a female.

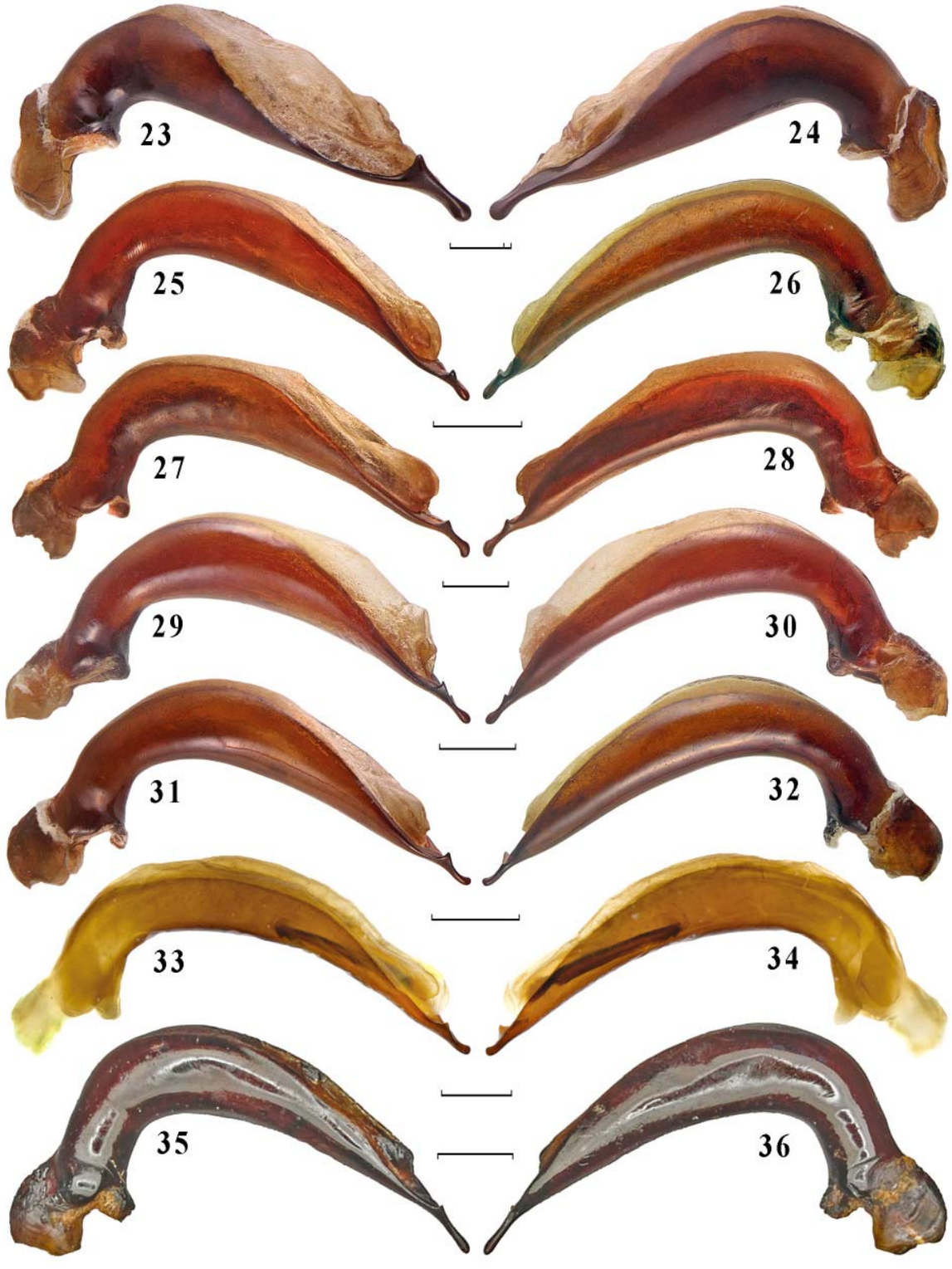
DIAGNOSIS. Distinguishable from the species of the *flavofemoratus*-group chiefly by the combination of the pronotum bright metallic, convex and impunctate, profemur black, meso- and metafemur bicolour, and aedeagus peculiar (see the key and the description).

DESCRIPTION. As for *Ch. flavofemoratus* except as follows:

Body (Figs 8, 11) apterous, barely larger, BL 24.6–27.5 mm, and slightly slenderer. Head black. Antennomeres 4–11 and extreme apices of scape and pedicel rather pale reddish brown,



Figs 21–22. *Chlaenius costulipennis* **sp.n.**, paratypes ♂ (21) and ♀ (22), dorsal habitus.
Рис. 21–22. *Chlaenius costulipennis* **sp.n.**, паратипы ♂ (21) и ♀ (22), габитус дорзально.



Figs 23–36. Median lobe of aedeagus: 23–24 — *Chlaenius flavofemoratus*; 25–26 — *Ch. fuscipes* **sp.n.**, holotype; 27–28 — *Ch. bicoloripes* **sp.n.**, paratype; 29–30 — *Ch. tamdaoensis*; 31–32 — *Ch. planicollis* **sp.n.**, holotype; 33–34 — *Ch. davidi*; 35–36 — *Ch. enleensis*, holotype; 23, 25, 27, 29, 31, 33, 35 — left lateral aspect; 24, 26, 28, 30, 32, 34, 36 — right lateral aspect; 33–36 — redrawn from Qin *et al*. [2022]. Scale bars 1 mm.

Рис. 23–36. Средняя доля эдеагуса: 23–24 — *Chlaenius flavofemoratus*; 25–26 — *Ch. fuscipes* **sp.n.**, голотип; 27–28 — *Ch. bicoloripes* **sp.n.**, паратип; 29–30 — *Ch. tamdaoensis*; 31–32 — *Ch. planicollis* **sp.n.**, голотип; 33–34 — *Ch. davidi*; 35–36 — *Ch. enleensis*, голотип; 23, 25, 27, 29, 31, 33, 35 — слева; 24, 26, 28, 30, 32, 34, 36 — справа; 33–36 — по Qin *et al*. [2022]. Масштаб 1 мм.

distinctly darker than black antennomeres 1–3. Femoral pale rings absent from profemur. Elytra shinier due to microsculpture being more superficial.

Head almost glabrous, much more finely and more sparsely punctate. Antennomeres 6–11 with a median lateral carina.

Pronotum subcordate, convex, broadest a third from apex, largely glabrous and impunctate, with very sparse, almost imperceptible punctures (and similar pubescence) in basal third only; sides sinuate toward and parallel in front of right and blunt basal angles. Base slightly wider than apex. Lateral margin not or indistinctly explanate toward base. Median line obliterate at base and at apex.

Elytral apices rounded combined, with sutural angle right and minutely toothed. Basal ridge and obtuse humeral angle distinct. Striae slightly deeper, more so basally and apically, all reaching base but those 6 and 7. Intervals subequally wide and convex, those 1, 3 and 5 a little more sparsely punctate toward base than others; parascutellar interval smooth and glabrous, sutural interval smooth and glabrous along suture only; interval 8 barely wider than 7th.

Ventral side. Prosternal process with no or imperceptible marginal bead in form of wide and very shallow, just traceable, groove; in lateral view more or less distinctly concave toward blunt apex so that the latter is slightly acute or right, respectively. Metepisternum short.

For aedeagus (Figs 27–28, 55, 68, 79–80) see the key; left and right parameres with apices more less triangular, blunt, inwardly sclerotized, convex or flat, respectively.

Female reproductive tract and abdominal urites VIII and IX as in *Ch. planicollis* **sp.n.**

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

NAME. Refers to the bicolour hind two leg pairs.

HABITATS AND HABITS. This flightless species is (partly) sympatric and lives syntopically with *Ch. flavofemoratus* in the sympatric area.

4. *Chlaenius* (*Haplochlaenius*) *planicollis* Fedorenko, **sp.n.** Figs 9, 12, 31–32, 57, 70, 83–84, 102–103, 113–114, 131–132, 147, 149.

– *enleensis*: Qin *et al*., 2022: 83 (part.).

MATERIAL. Holotype ♂ (ZMMU), labelled: 'N-Vietnam, ♀, 40 km W of/ Cao Bang, Phia Oac Mt./ E[astern]-slope, h=1600–1650 m, deciduous forest/ 22º36′27″N 105º52′0″E/ 22.V–6.VI.2018/ leg. A. Abramov'. Paratypes (SIEE): 3♂♂, 2♀♀, with the same label; 4♂♂, 2♀♀, same data, except for '…// 22º36′30″N 105º52′20″E/ h~1600–1650 m,/ deciduous forest, 3-11.X./ leg. D. Fedorenko 2018'.

Aedeagus and its everted sac examined in four or three males, respectively; female genitalia and reproductive tract examined in two specimens.

DIAGNOSIS. Very slightly different from *Ch. bicoloripes* **sp.n.** chiefly in the pronotal shape and sculpture (see the key). Other differences include the body smaller, with both the pronotum and the elytra barely duller from a slightly coarser microsculpture, which is traceable throughout the pronotum and the head. The aedeagus apex is distinctive.

DESCRIPTION. As for *Ch. bicoloripes* **sp.n.** except as follows:

Body (Figs 9, 12) smaller, BL 21.6–23.8 mm. Pronotum golden green to cupreous, slightly bluish along base, at middle of apex and sometimes along sides; elytra black and fairly dull.

Head slightly more distinctly punctate.

Pronotum cordate, flat in basal half and often laterally in apical half, distinctly punctate, finely and sparsely on disc, moderately and rather densely in basal third and at apex, with short pubescence throughout. Sides sinuate and slightly diverging in front of barely acute, blunt or rounded, basal angles. Basal margin straight or barely concave, apical margin mostly slightly and evenly concave between slightly acute, blunt and a little projecting apical angles. Basolateral foveae very shallow and longitudinal due to their inner branch, as well as basal transverse impression, totally reduced. Median line reaching base and apex or nearly so.

Elytral intervals 1, 3 and 5 not or a bit more sparsely punctate than others toward base; interval 1 barely shinier than other ones.

Aedeagus (31–32, 57, 70, 83–84, 102–103): apex of median lobe slightly upturned, dorsal side longitudinally concave between lateral teeth and very short to indistinct capitulum, with no dorsal longitudinal carina; right lateral tooth vestigial.

Female abdominal urites VIII and IX as in Figs 113–114, 131–132, 147; reproductive tract (Figs 131–132, 147): *bursa copulatrix* medium-sized, with an asymmetrically bifid dorsal callosity at base; spermatheca totally reduced.

DISTRIBUTION. The new species is known from the type locality and recorded in another close locality, Nguen Binh, Cao Bang Province [Qin *et al*., 2022].

NAME. Refers to the flat pronotum.

HABITATS AND HABITS. A flightless forest-dwelling species living at ca. 800–1600 m altitudes.

COMMENTS. While being compared here with *Ch. bicoloripes* **sp.n.**, *Ch. planicollis* **sp.n.** is closest to *Ch. davidi* Qin *et al*., 2022 [= *Ch. wrasei* Kirschenhofer, 2003 (*Vachinius*), n.praeocc.], which has been recorded in two Chinese provinces, Guangdong as the type locality and Guangxi. The latter species is recognizable chiefly by the entirely black legs and a differently coloured, metallic purple or green purple, pronotum. *Chlaenius davidi* and *Ch. planicollis* **sp.n.** otherwise are very similar to each other in many characters, including pronotal shape and sculpture and, especially, the shape of the aedeagus and its apex (Figs 33–34, 58, 75).

5. *Chlaenius* (*Haplochlaenius*) *fuscipes* Fedorenko, **sp.n.** Figs 3, 25–26, 54, 67, 77–78, 149.

MATERIAL. Holotype ♂ (ZMMU), labelled: 'N-Vietnam, Nghe An Prov[ince]./ Que Phong Distr[ict]./ Pu Hoat National Park, 19°45′42″N 104°47′28″E/ h=1130 m 15–27.V.2019/ leg.D. Fedorenko'. Paratype ♂ (SIEE), same locality, except for '…/// 19°46′12″N/ 104°48′16″E/ h=1340 m …' (teneral).

Aedeagus examined in the holotype.

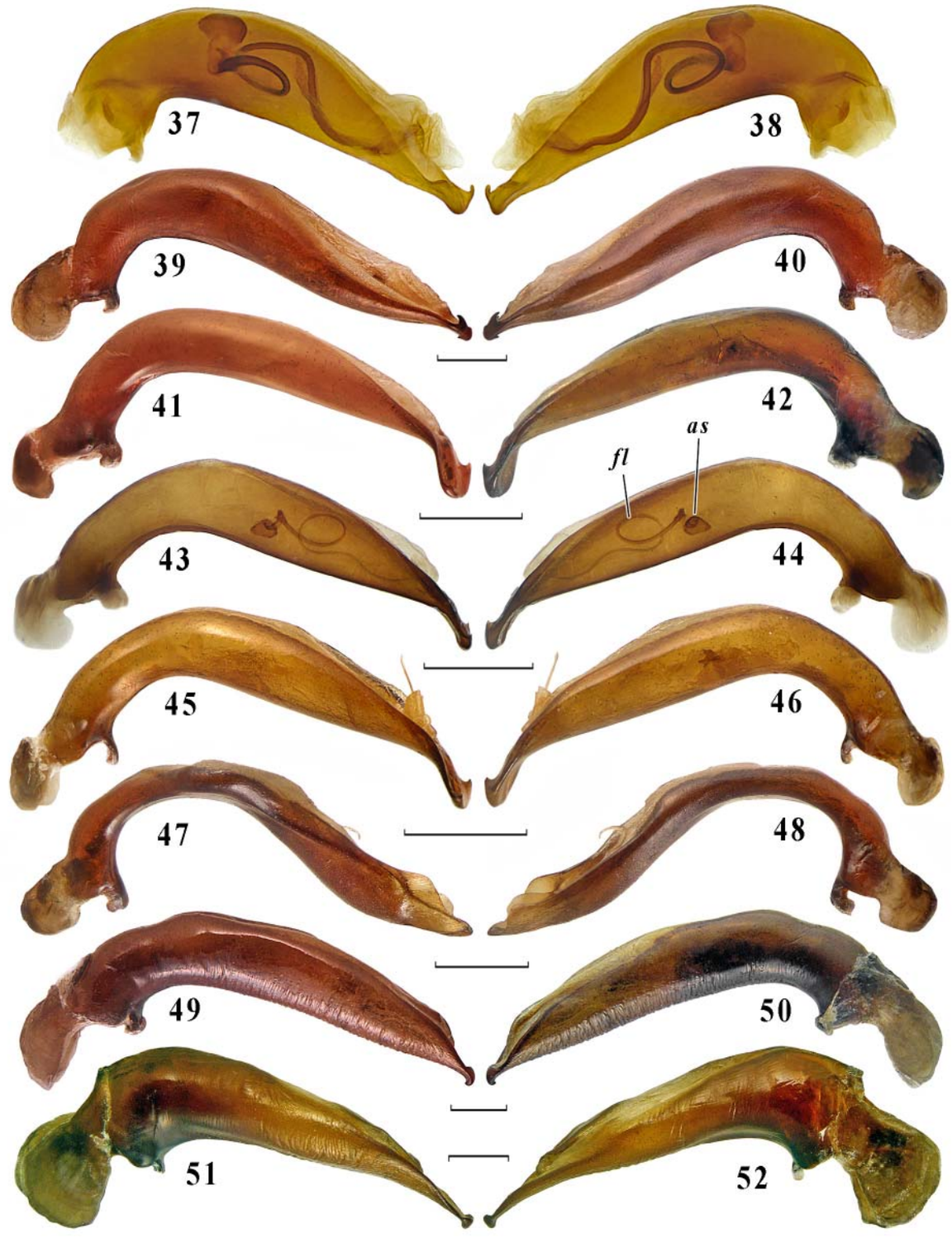
DIAGNOSIS. Recognizable within the *flavofemoratus*-group by the combination of the legs and the elytra black; the pronotum deep metallic green and nearly impunctate on disc; the elytral sutural angles acute and intervals rather sparsely and unevenly punctate. The aedeagus apex is distinctive, differentiating the new species from the other two species of the group, *Ch. enleensis* and *Ch. davidi*, which have black legs.

DESCRIPTION. As for *Ch. bicoloripes* **sp.n.** except the following points:

Body (Fig. 3) slightly smaller, BL 22.5–23.2 mm. Head black, pronotum metallic green or golden green. Isodiametric microsculpture superficial yet traceable over pronotum.

Pronotum flat at base, with median line reaching base and apex.

Elytral apices rounded combined, with sutural angle acute and minutely toothed. Intervals rather sparsely punctate, with 4–5 (*vs*. 6) uneven rows of punctures, intervals 2–5 (holotype) or those 2, 3 and 5 very unevenly and more sparsely punctate



Figs 37–52. Median lobe of aedeagus: 37–38 — *Chlaenius pseudopilosus* **sp.n.** (redrawn from Qin *et al*. [2022]); 39–40 — *Ch. pilosus*, from Bat Xat NP; 41–42 — *Ch. hajeki*; 43–46 — *Ch. capitatus* **sp.n.**, paratypes; 47–48 — *Ch. silvestris* **sp.n.**, holotype; 49–50 — *Ch. costulipennis* **sp.n.**, holotype; 51–52 — *Ch. c. costiger*, from Pai, Thailand; 37, 39, 41, 43, 45, 47, 49, 51 — left lateral aspect; 38, 40, 42, 44, 46, 48, 50, 52 — right lateral aspect; ***as*** — apical sclerite; ***fl*** — flagellum. Scale bars 1 mm.

Рис. 37–52. Средняя доля эдеагуса: 37–38 — *Chlaenius pseudopilosus* **sp.n.** (по Qin *et al*. [2022]); 39–40 — *Ch. pilosus*, из нац. парка Bat Xat; 41–42 — *Ch. hajeki*; 43–46 — *Ch. capitatus* **sp.n.**, паратипы; 47–48 — *Ch. silvestris* **sp.n.**, голотип; 49–50 — *Ch. costulipennis* **sp.n.**, голотип; 51–52 — *Ch. c. costiger*, из Таиланда (Pai); 37, 39, 41, 43, 45, 47, 49, 51 — слева; 38, 40, 42, 44, 46, 48, 50, 52 — справа; ***as*** — апикальный склерит; ***fl*** — флагеллюм. Масштаб 1 мм.

along middle; interval 1 smooth and glabrous in its inner half or along suture only.

Aedeagus (Figs 25–26, 54, 67, 77–78): apex of median lobe straight in lateral view, dorsal side longitudinally concave but capitulum, with two, proximate, paramedian carinae running parallel to each other; lateral teeth well-developed; capitulum oblong and barely differentiated.

DISTRIBUTION. Only known from the type locality.

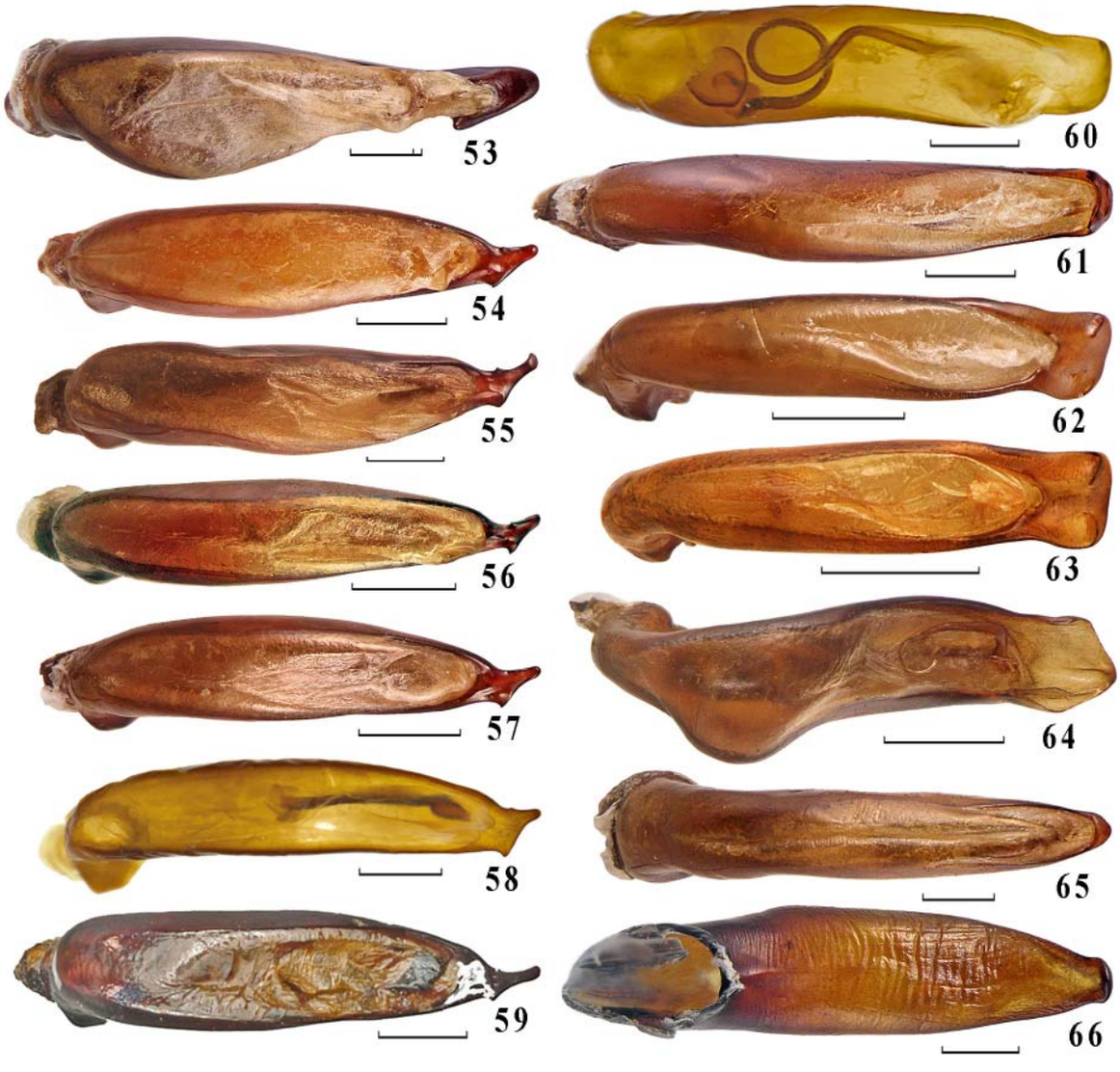
NAME. Refers to the infuscated (black) legs.

HABITATS AND HABITS. A forest-dwelling flightless species.

6. *Chlaenius* (*Haplochlaenius*) *pilosus* (Casale, 1984)
Figs 4–5, 39–40, 61, 71, 93–94, 115–116, 135, 146, 149.

Casale, 1984: 379 (*Vachinius*; Sa Pa, northern Vietnam); Azadbakhsh, Kirschenhofer, 2019: 9 (*Chlaenius* subg. *Sphodromimus*).

MATERIAL. 2♂♂, ♀ (SIEE), labelled: Northern 40 km WNW of Lao Cai, env. Y Ty, Bat Xat Natn. Park, h=1600–1900 m, 22°37′-37.6′N 103°37.3-38.3′E, 16–21.X.2018 (D. Fedorenko).



Figs 53–66. Median lobe of aedeagus: 53 — *Chlaenius flavofemoratus*; 54 — *Ch. fuscipes* **sp.n.**, holotype; 55 — *Ch. bicoloripes* **sp.n.**, paratype; 56 — *Ch. tamdaoensis*; 57 — *Ch. planicollis* **sp.n.**, holotype; 58 — *Ch. davidi*; 59 — *Ch. enleensis*, holotype; 60 — *Chlaenius pseudopilosus* **sp.n.**; 61 — *Ch. pilosus*, from Bat Xat NP; 62 — *Ch. hajeki*; 63 — *Ch. capitatus* **sp.n.**, paratype; 64 — *Ch. silvestris* **sp.n.**, holotype; 65 — *Ch. costulipennis* **sp.n.**, holotype; 66 — *Ch. c. costiger*, from Pai, Thailand, ventro-basal aspect; 53–65 — dorso-apical aspect; 58–60 — redrawn from Qin *et al*. [2022]. Scale bars 1 mm.

Рис. 53–66. Средняя доля эдеагуса: 53 — *Chlaenius flavofemoratus*; 54 — *Ch. fuscipes* **sp.n.**, голотип; 55 — *Ch. bicoloripes* **sp.n.**, паратип; 56 — *Ch. tamdaoensis*; 57 — *Ch. planicollis* **sp.n.**, голотип; 58 — *Ch. davidi*; 59 — *Ch. enleensis*, голотип; 60 — *Chlaenius pseudopilosus* **sp.n.**; 61 — *Ch. pilosus*, из нац. парка Bat Xat; 62 — *Ch. hajeki*; 63 — *Ch. capitatus* **sp.n.**, паратип; 64 — *Ch. silvestris* **sp.n.**, голотип; 65 — *Ch. costulipennis* **sp.n.**, голотип; 66 — *Ch. c. costiger* из Pai, Таиланд, вентробазально; 53–65 — дорзо-апикально; 56–60 — по Qin *et al*. [2022]. Масштаб 1 мм.

Genitalia and female reproductive tract examined in all the specimens.

DIAGNOSIS. A uniform black species, with antennae becoming gradually paler apicad up to red. Pronotum rather densely punctate and pubescent, cordate, with sides sinuate in front of and slightly diverging toward base; basal angles slightly acute and projecting posterolaterad in form of very short, apically rounded lobes. Basolateral foveae longitudinal, in form of oblique and wide grooves extended to and occupying basal corners. Elytral apices rounded combined and sharp or minutely toothed at sutural angles; intervals, especially those 3, 5 and 7 subcarinate, rather smooth and shiny along middle. Aedeagus distinctive.

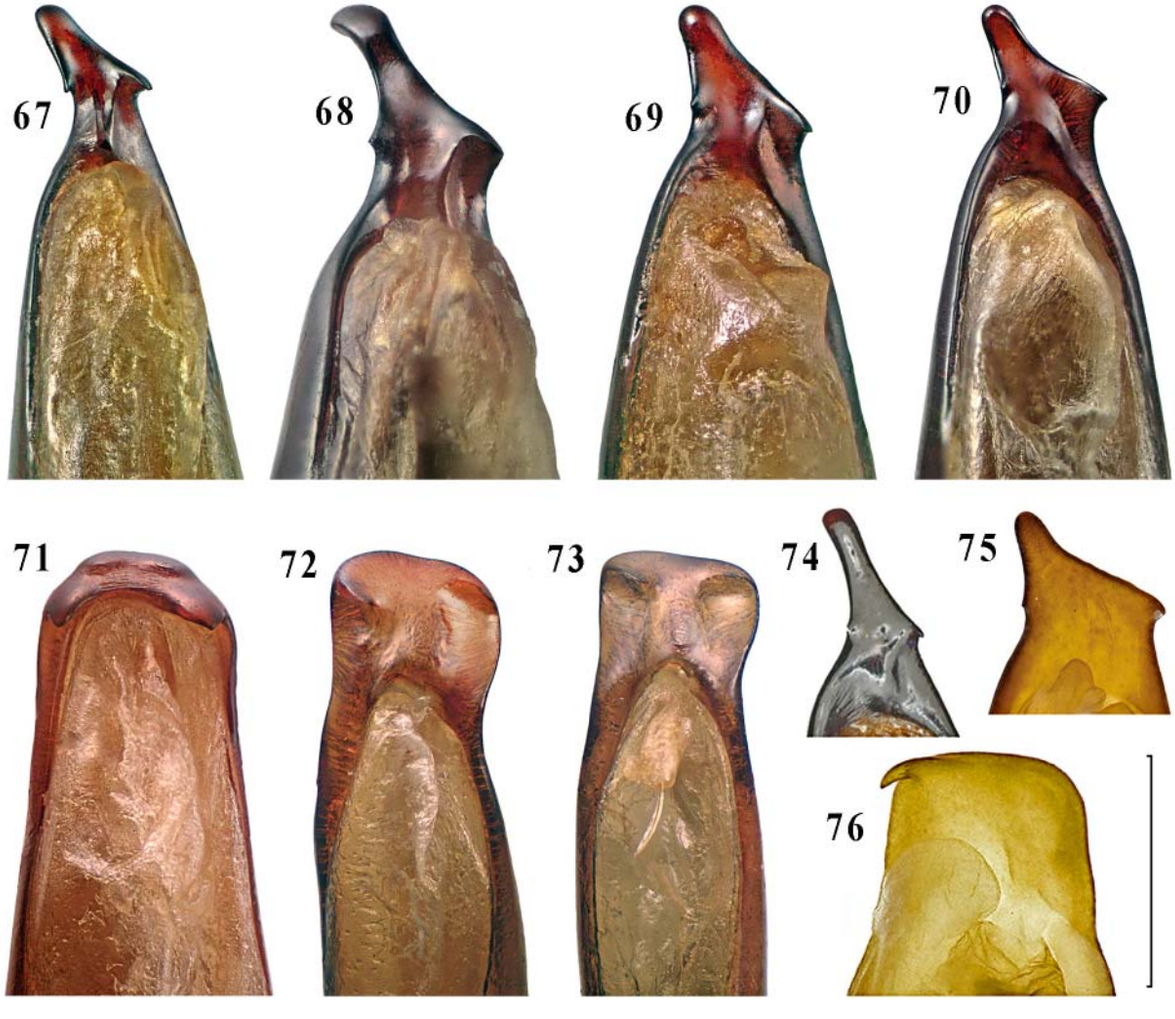
REDESCRIPTION. Not necessary here except the following details. BL 20.5–22.6 mm. Body (Figs 4–5) apterous. Dorsal microsculpture almost obliterate on head, distinct on pronotum, coarse on elytra.

Head shiny, smooth and glabrous on frons and clypeus, rather coarsely punctate and pubescent on sides, vertex and neck; pubescence short, erect or directed slightly forward, rather dense on vertex, neck and genae. Frontal foveae short, rather deep, more so anteriorly, and diverging. Terminal labial palpomere similar in both sexes, very slightly dilated apicad, parallel-sided in apical third, with apex obliquely truncate. Antennomeres 5– or 6–11 with a median lateral carina.

Pronotal pubescence long, disc densely micropunctate between setigerous punctures.

Elytra broadest two fifths (♀) from apex or behind middle (♂). Interval 8 slightly wider than 7th.

Ventral side. Prosternal process without marginal bead, in lateral view ventrally straight or concave, with apex either obtuse and blunt or slightly toothed, respectively. Metepisternum



Figs 67–76. Apex of aedeagus: median lobe, dorso-apical aspect; 67 — *Chlaenius fuscipes* **sp.n.**, holotype; 68 — *Ch. bicoloripes* **sp.n.**, paratype; 69 — *Ch. tamdaoensis*; 70 — *Ch. planicollis* **sp.n.**, holotype; 71 — *Ch. pilosus*, from Bat Xat NP; 72 — *Ch. hajeki*; 73 — *Ch. capitatus* **sp.n.**, paratype; 74 — *Ch. enleensis*, holotype; 75 — *Ch. davidi*; 76 — *Chlaenius pseudopilosus* **sp.n.**; 74–76 — redrawn from Qin *et al*. [2022]. Scale bar 1 mm.

Рис. 67–76. Вершина средней доли эдеагуса дорзо-апикально; 67 — *Chlaenius fuscipes* **sp.n.**, голотип; 68 — *Ch. bicoloripes* **sp.n.**, паратип; 69 — *Ch. tamdaoensis*; 70 — *Ch. planicollis* **sp.n.**, голотип; 71 — *Ch. pilosus*, из нац. парка Bat Xat; 72 — *Ch. hajeki*; 73 — *Ch. capitatus* **sp.n.**, паратип; 74 — *Ch. enleensis*, голотип; 75 — *Ch. davidi*; 74–76 — по Qin *et al*. [2022]. Масштаб 1 мм.

short. Abdomen finely and moderately densely punctate and pubescent along middle.

Median lobe of aedeagus (Figs 39–40, 61, 71) conspicuously convex in apical 1/2 ventral margin; its apex short, wide and trapezoidal in dorsal view, with a small transverse capitulum barely separated from a sharp dorsal ridge; the ridge deeply and evenly concave between large lateral teeth, left subrectangular, right one acute; a preapical ventral, ridge present, being short and transverse in ventral view and forming a distinct tooth in lateral view. Ventral side dull due to a moderately coarse microsculpture not reaching apex and consisting of short and dense longitudinal lines that give it dull shine. Left paramere widely rounded apically, entirely membranous inside; right paramere apically triangular, with blunt tip, and somewhat sclerotized (Figs 93–94).

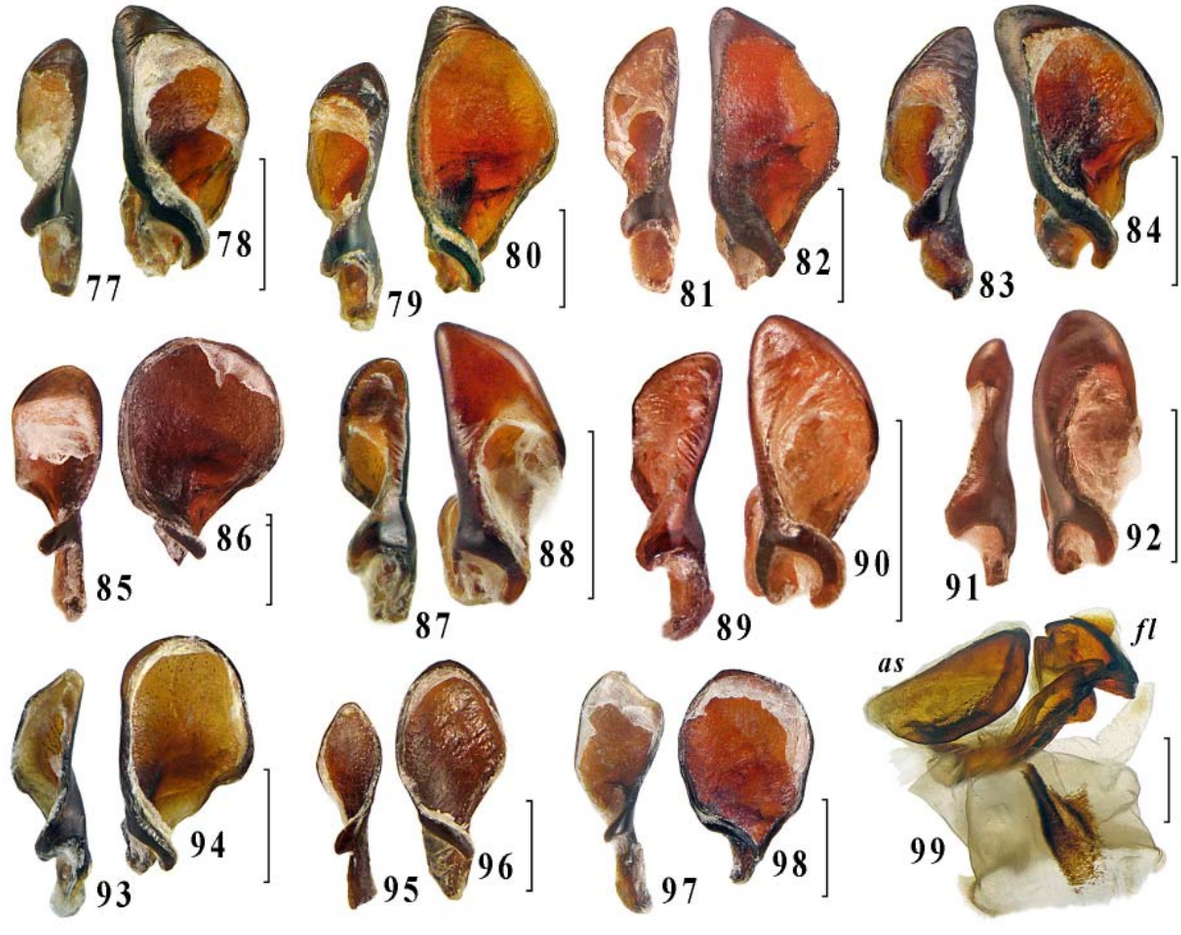
Female abdominal urites VIII and IX as in Figs 115–116; reproductive tract with *bursa copulatrix* medium-sized; spermatheca and spermathecal gland totally reduced (Figs 135, 146).

DISTRIBUTION. Only known from two localities on the Hoang Lien mountain ridge, Lao Cai Province, northern Vietnam. The record of this species in China [Qin *et al*., 2022] is wrong (see 'Comments' below).

HABITATS AND HABITS. The specimens listed above were hand collected on bare clay sand with sparse or no vegetation on the roadside in a secondary forest.

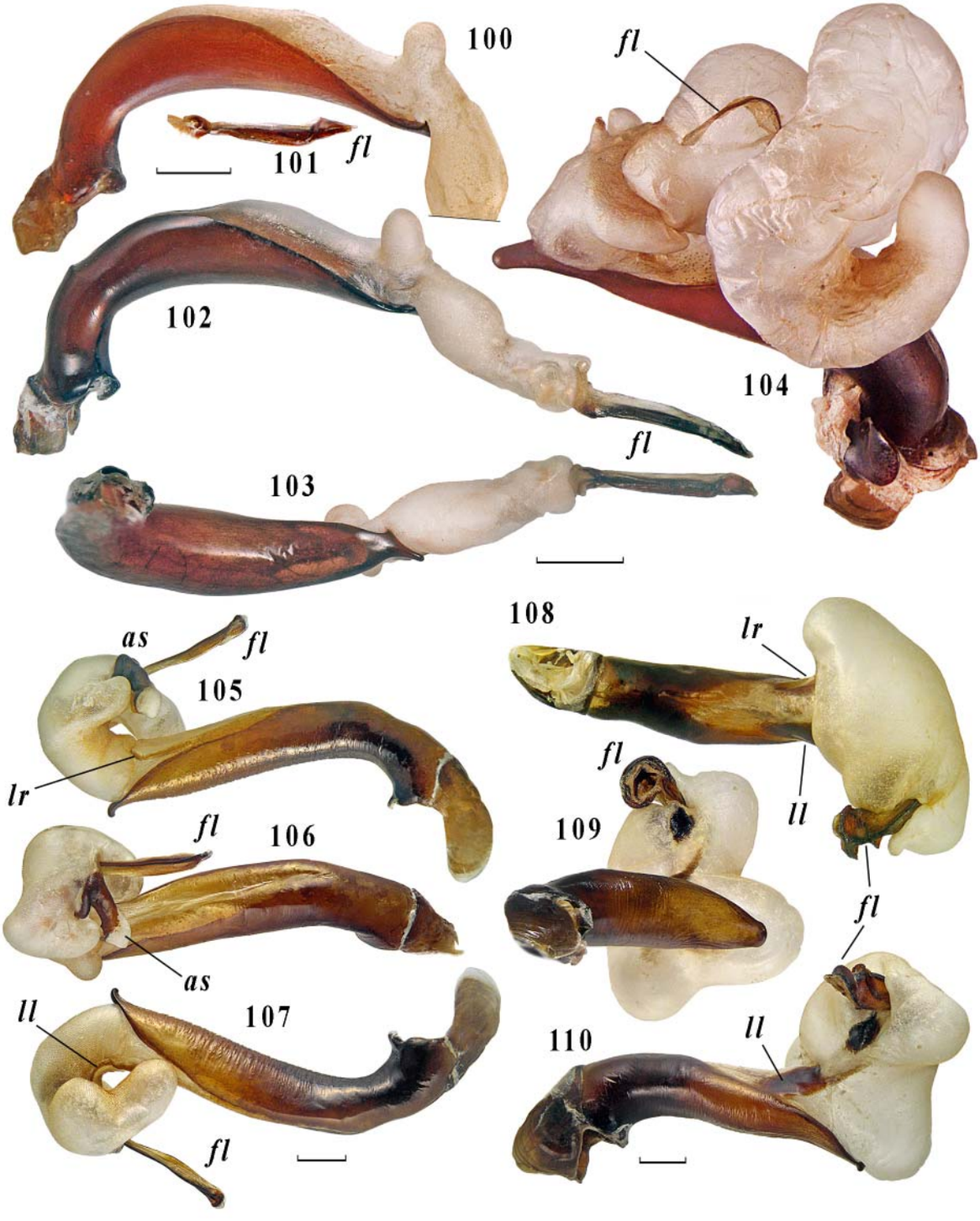
COMMENTS. *Chlaenius burmanensis* (Lassalle, 2001) from Shan State, Myanmar, has a very similar aedeagus, which may suggest its close relationship to *Ch. pilosus*.

Qin *et al*. [2022] have recently recorded this species in Dawei Shan, Pingbian (Yunnan, China). Yet, it follows from my comparison of the specimens examined of *Ch. pilosus* with the species re-described thoroughly by Qin *et al*. [2022] that the



Figs 77–99. Aedeagus: 77–78 — *Chlaenius fuscipes* **sp.n.**, holotype; 79–80 — *Chlaenius bicoloripes* **sp.n.**, paratype; 81–82 — *Ch. tamdaoensis*; 83–84 — *Ch. planicollis* **sp.n.**, holotype; 85–86 — *Ch. flavofemoratus*; 87–88 — *Ch. hajeki*; 89–90 — *Ch. capitatus* **sp.n.**, paratype; 91–92 — *Ch. silvestris* **sp.n.**, holotype; 93–94 — *Ch. pilosus* from Bat Xat NP; 95–96 — *Ch. costulipennis* **sp.n.**, holotype; 97–99 — *Ch. c. costiger*, from Pai, Thailand; 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97 — right paramere, left lateral aspect; 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98 — left paramere, right lateral aspect; 99 — piece of everted internal sac, with apical sclerites; ***as*** — apical sclerite; ***fl*** — flagellum. Scale bars 1 mm.

Рис. 77–99. Эдеагус: 77–78 — *Chlaenius fuscipes* **sp.n.**, голотип; 79–80 — *Chlaenius bicoloripes* **sp.n.**, паратип; 81–82 — *Ch. tamdaoensis*; 83–84 — *Ch. planicollis* **sp.n.**, голотип; 85–86 — *Ch. flavofemoratus*; 87–88 — *Ch. hajeki*; 89–90 — *Ch. capitatus* **sp.n.**, паратип; 91–92 — *Ch. silvestris* **sp.n.**, голотип; 93–94 — *Ch. pilosus* из нац. парка Bat Xat; 95–96 — *Ch. costulipennis* **sp.n.**, голотип; 97–99 — *Ch. c. costiger* из Pai, Таиланд; 77, 79, 81, 83, 85, 87, 89, 91, 93, 95, 97 — правая парамера, вид слева; 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98 — левая парамера, вид справа; 99 — часть вывернутого внутреннего мешка с апикальными склеритами; ***as*** — апикальный склерит; ***fl*** — флагеллюм. Масштаб 1 мм.



Figs 100–110. Aedeagus with everted and inflated internal sac: 100–101 — *Chlaenius tamdaoensis*; 102–103 — *Ch. planicollis* **sp.n.**, paratype; 104 — *Ch. flavofemoratus*, from Song Thanh NP; 105–107 — *Ch. costulipennis* **sp.n.**, paratype; 108–110 — *Ch. c. costiger*, from Bat Dai Son NP; 101 — isolated apical flagellate sclerite; ***as*** — apical sclerite; ***fl*** — flagellum; ***ll*** — left ligule; ***lr*** — right ligule. Scale bars 1 mm.
Рис. 100–110. Эдеагус с вывернутым и раздутым внутренним мешком: 100–101 — *Chlaenius tamdaoensis*; 102–103 — *Ch. planicollis* **sp.n.**, паратип; 104 — *Ch. flavofemoratus*, из нац. парка Song Thanh; 105–107 — *Ch. costulipennis* **sp.n.**, паратип; 108–110 — *Ch. c. costiger*, из нац. парка Bat Dai Son; 101 — изолированный апикальный жгутиковидный склерит; ***as*** — апикальный склерит; ***fl*** — флагеллюм; ***ll*** — левая лигула; ***lr*** — правая лигула. Масштаб 1 мм.

latter is a separate and new. I think it advisable to introduce the new name *Ch. pseudopilosus* **sp.n.** for it and designate the specimen illustrated in Qin *et al*. [2022: figs 6A and 6B] as its holotype.

Diagnostic combination of this new species is as follows: (1) the pronotum subquadrate, with sides nearly straight and converging slightly basad (*vs*. cordate, with sides deeply sinuate and diverging basad, in *Ch. pilosus*); (2) pronotal basal angles right, slightly blunted and rather flat (*vs*. slightly acute, as small lobes surpassing base posterolaterally, and reflexed due to basolateral foveae are wide inside); (3) the elytral intervals flat, densely and evenly punctate (*vs*. raised, subcostate to subcarinate, sparsely and unevenly punctate, each with a smoother area along middle). Finally, (4) aedeagus is very distinctive, with ventral margin straight (*vs*. convex in apical half), the apex quadrate (*vs*. trapezoidal) in dorsal view, dorsal teeth small and situated just apically (*vs*. both large and preapical), and no (*vs*. distinct) ventral tooth (compare Figs 37–38, 60, 76 with Figs 39–40, 61, 71).

7. *Chlaenius* (*Haplochlaenius*) *opacus* Fedorenko, **sp.n.** Figs 6, 129–130, 136, 149.

MATERIAL. Holotype ♀ and Paratype ♀ (ZISP), labelled: 'VIETNAM, Nghe-An/ Prov[ince]., VI.2017/ A. Astrashabov leg.'.

Female genitalia and reproductive tract examined in the holotype.

DIAGNOSIS. Uniform black species, distinguishable from similar species, *Ch. pilosus* and *Ch. laosensis*, spread in the adjacent regions of Indochina by the characters specified in the key.

DESCRIPTION. BL 21.5–22.5 mm. Body (Fig. 6) apterous and black. Elytra dull, pronotum a little, and head still less so. Antennomeres 4–11 brownish rather dark. Microsculpture superficial yet very distinct on clypeus and frons, coarse on vertex and over pronotum, combined with dense microscopic punctures, nearly granulate, isodiametric to barely longitudinal meshes on elytra.

Head rather coarsely and densely punctate and pubescent, including genae (and centre of frons with a group of ca. 20 dense punctures in the holotype), clypeus and frons except sides otherwise smooth and glabrous, neck finely punctate. Antennomeres 6–11 with a median lateral carina.

Pronotum cordate, flat in basal half, broadest nearly a third from apex (PLw/PL 1.34–1.38), moderately, rather densely and unevenly punctate and pubescent. Base indistinctly sinuate, slightly wider than apex. Basolateral foveae vestigial, wide and very shallow basally, not reaching basal margin while anteriorly extended into a very shallow sublateral line traceable in at least basal half. Basal transverse impression missing. Apex slightly sinuate, being nearly straight on each side; apical angles slightly acute, blunt or rounded at tips. Sides rounded, sinuate a fifth from base, parallel in front of slightly acute and blunt basal angles. Lateral margin not explanate, marginal bead fine and distinct only laterally and in lateral fourths of apex. Median line fine and deep, imperceptible at base and at apex.

Elytra broadest two fifths from apex, with no humeri distinct; apices rounded combined, with an indistinct re-entrant, nearly straight, angle in between; sutural angle right and minutely toothed. Basal ridge and humeral angle more or less distinct. Striae fine, very finely punctate, almost reaching base and apex, 5th reaching and impressed at base, 7th and 8th interrupted apically. Intervals subequally wide and nearly flat, moderately densely punctate and pubescent, those 1–7 or at least 1–3 and 5 very unevenly punctate, very sparsely along middle, thereby making these intervals rather smooth, glabrous and shinier toward middle and interval 1 along suture; interval 8 distinctly wider than (*ca*. 1.4 times as wide as) 7th.

Ventral side. Prosternal process distinctly beaded on sides, more so apically; in lateral view barely concave toward right or slightly obtuse, blunt or rounded apex. Metepisternum short. Abdomen finely and densely punctate and pubescent along middle.

Female reproductive tract and abdominal urites VIII and IX as in Figs 129–130, 136; spermatheca missing.

DISTRIBUTION. Only known from Nghe An Province (without exact locality), northern Vietnam.

NAME. Refers to the dull body dorsum.

HABITATS AND HABITS. No data.

The ***hajeki*** species group

DIAGNOSIS. As for the *flavofemoratus*-group except the following. Body apterous and on average smaller, BL 18–23 mm. Elytral intervals flat or subconvex, those 1–7 punctate along sides, with no or very sparse and very uneven punctures along middle. Elytral apices rounded combined, with sutural angle blunt. Protibia with a distinct median sulcus in basal 3/4 anterior face.

Apex of median lobe of aedeagus (Figs 41–46, 62–63, 72–73) long, in lateral view distinctly bent ventrad, in dorsal view subquadrate and wide, with the dorsal ridge obliterate medially and a distinct preapical tooth on each side. Parameres with apices sclerotized inwardly in about apical halves (Figs 87–90). Internal sac with flagellate sclerite thin and long (Figs 43–44).

Female reproductive tract (Figs 137, 139, 143, 144): *bursa copulatrix* small, spermatheca (at least seminal canal) well developed, moderately long, broader at spermatheca-bursal junction. Abdominal tergite VIII and sternite VIII as in Figs 117–120.

COMMENTS. This group is defined chiefly by a very distinctive aedeagus *Ch. hajeki* and *Ch. capitatus* **sp.n.** only share. These species are likely to have closer relatives, such as *Ch. deuvei* from Guanxi, China, and *Ch. thailandensis* (Morvan, 1992) from Thailand. Of these, *Ch. deuvei* has both the aedeagus and the female reproductive tract similar to those of *Ch. hajeki* and *Ch. capitatus* **sp.n.**, except that the aedeagus is straight ventrally, combined with the body black and the elytral intervals evenly punctate. *Chlaenius thailandensis* is similar to *Ch. hajeki* in appearance, while being known from females only.

8. *Chlaenius* (*Haplochlaenius*) *hajeki* (Kirschenhofer, 2012) Figs 14, 17, 41–42, 62, 72, 87–88, 117–118, 137, 143, 149.

Kirschenhofer, 2012: 84 (*Vachinius*; Dong Ampham, Laos); Azadbakhsh, Kirschenhofer, 2019: 9 (*Chlaenius* subg. *Sphodromimus*).

MATERIAL. 2♂♂, ♀ (SIEE): Vietnam, Gia Lai Province, ~40 km NEE of Pleiku, 14°12′11″N 108°18′54″E, Kon Ka Kinh Natn. Park, h = 900–950 m, 24–30.V.2017 (D. Fedorenko).

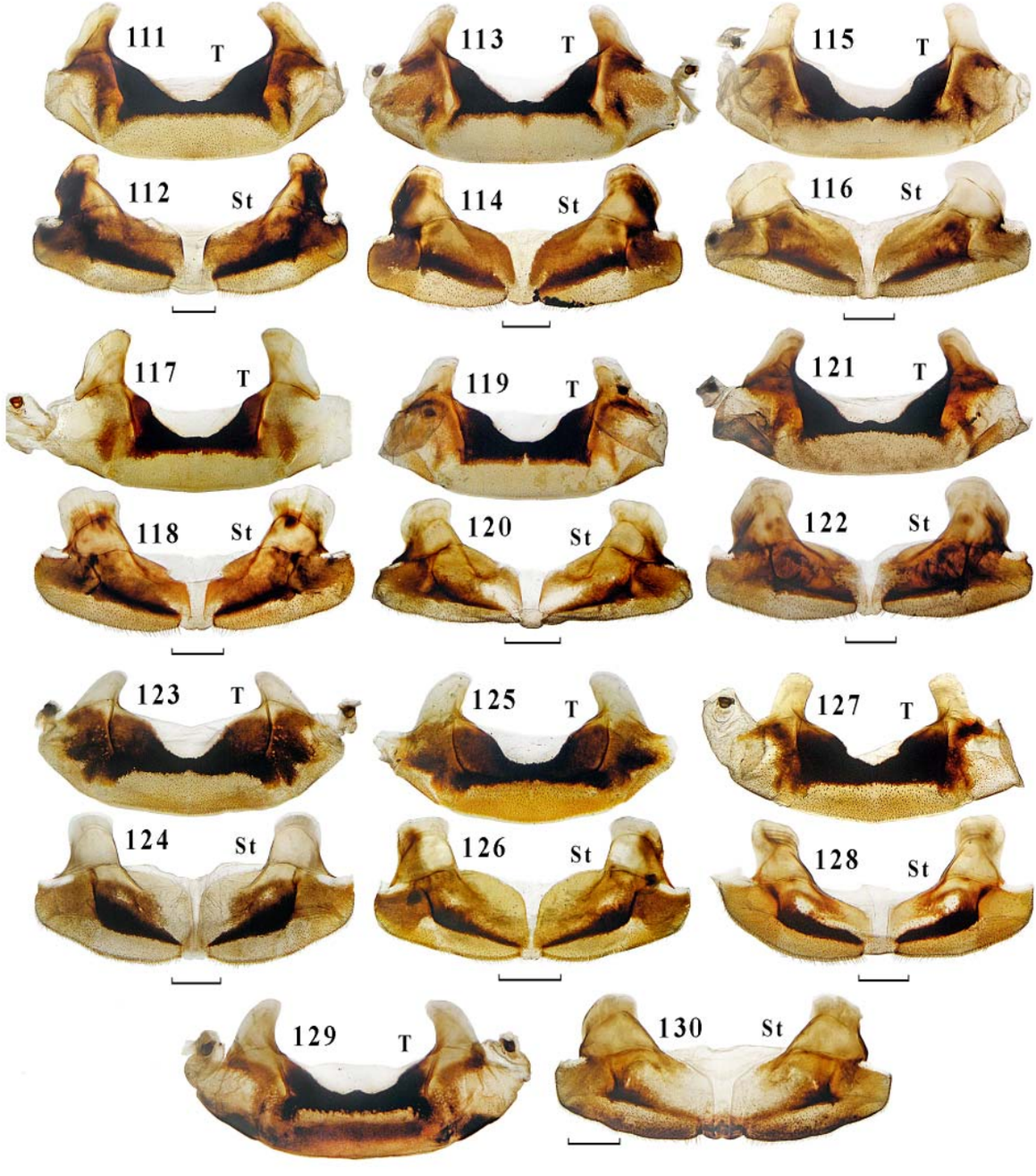
Genitalia and female reproductive tract examined in all the specimens listed.

DIAGNOSIS. A shiny black species, with a bright metallic pronotum and femoral red rings; head, antennae and pronotum with dense yellow pubescence, elytral intervals 1–7 subconvex and almost glabrous along middle.

REDESCRIPTION. BL 22–22.6 mm. Body (Figs 14, 17) brachypterous and black, pronotum golden cupreous, reflexed

lateral margins of elytra very slightly bluish; antennomeres 4–11 becoming gradually paler apicad from nearly black to brown; femora with reddish-yellow rings in apical half, these rings very narrow ventrally, each interrupted by black lateral ridges of ventral groove for receipt of tibia; profemoral rings broken ventrally or reduced to vestigial, deep red, dorsal maculae, or missing (holotype). Microsculpture isodiametric, absent from head and pronotum, distinct yet fairly superficial on elytra, resulting in shiny appearance of dorsum.

Head almost totally, including genae, coarsely and densely punctate and pubescent; clypeus and neck along pronotum glabrous and nearly smooth. Frontal foveae short, shallow,

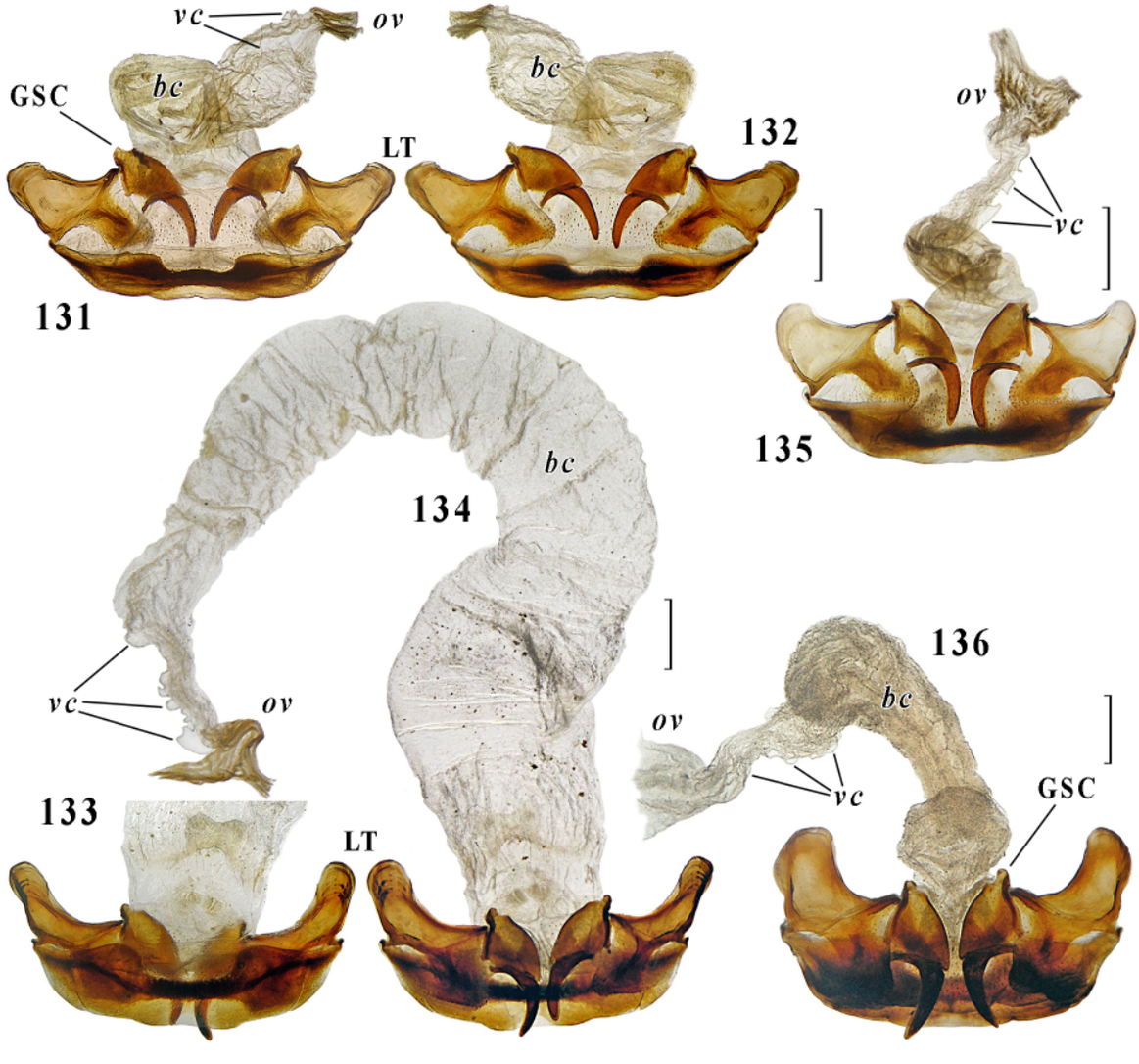


Figs 111–130. Abdominal urite VIII in female: 111–112 — *Chlaenius flavofemoratus*; 113–114 — *Ch. planicollis* **sp.n.**; 115–116 — *Ch. pilosus*; 117–118 — *Ch. hajeki*; 119–120 — *Ch. capitatus* **sp.n.**; 121–122 — *silvestris* **sp.n.**; 123–124 — *Ch. costulipennis* **sp.n.**; 125–126 — *Ch. sabahensis*; 127–128 — *Ch. c. costiger*; 129–130 — *Ch. opacus*, holotype; **T** — tergite; **St** — sternite. Scale bars 1 mm.
Рис. 111–130. Урит VIII брюшка самки: 111–112 — *Chlaenius flavofemoratus*; 113–114 — *Ch. planicollis* **sp.n.**; 115–116 — *Ch. pilosus*; 117–118 — *Ch. hajeki*; 119–120 — *Ch. capitatus* **sp.n.**; 121–122 — *silvestris* **sp.n.**; 123–124 — *Ch. costulipennis* **sp.n.**; 125–126 — *Ch. sabahensis*; 127–128 — *Ch. c. costiger*; 129–130 — *Ch. opacus*, голотип; **T** — тергит; **St** — стернит. Масштаб 1 мм.

slightly diverging. Antennomeres 6–11 each with a lateral median carina.

Pronotum cordate, broadest about a third from apex, flattened in basal half, moderately, rather densely punctate and pubescent, more so in basal third, as well as at apex and along sides, combined with dense and fine striation at base and dense micropunctation. Base truncate or barely convex at middle, slightly wider than apex, slightly convex between basolateral foveae; these in form of shallow longitudinal lines in basal third, each with a rounded, small and shallow, pit on a level with a vestigial basal transverse impression a fifth from base. Apex slightly sinuate between apical angles; these slightly acute and pointed. Sides rounded, sinuate and running parallel to each other in front of right and blunt basal angles. Lateral margin not or barely explanate outside basolateral foveae, marginal bead fine and distinct only laterally and in lateral thirds of apex. Median line fine and deep, almost reaching apex, replaced with a blunt black carina posterior to basal transverse impression.

Elytra broadest two fifths from apex, with no humeri distinct; apices rounded combined and blunt at sutural angle, each with subtle preapical sinuation in male. Basal ridge very distinct, concave, inwardly reaching stria 3, humeral angle obtuse and sharp. Striae fine and deep, deeper apically, very finely punctate at bottom, those 1–3 only reaching basal ridge, striae 3–6 complete while remaining obliterate or interrupted apically. Intervals equally wide and more or less convex, densely punctate and pubescent along striae only, with 1–3, mostly two, longitudinal rows traceable on each side of nearly smooth and glabrous median area but scattered, finer or coarser, punc-



Figs 131–136. Female urite IX and reproductive tract: 131–132 — *Chlaenius planicollis* **sp.n.**; 133–134 — *Ch. flavofemoratus*; 135 — *Ch. pilosus*; 136 — *Ch. opacus*, holotype; 131, 133 — dorsal aspect; 132, 134–136 — ventral aspect; ***bc*** — *bursa copulatrix*; **GSC** — gonosubcoxite; **LT** — laterotergite; ***ov*** — common oviduct; ***vc*** — villous canal. Scale bars 1 mm.

Рис. 131–136. Урит IX и репродуктивный тракт самки: 131–132 — *Chlaenius planicollis* **sp.n.**; 133–134 — *Ch. flavofemoratus*; 135 — *Ch. pilosus*; 136 — *Ch. opacus*, голотип; 131, 133 — дорзально; 132, 134–136 — вентрально; ***bc*** — копулятивная сумка; **GSC** — гоносубкоксит; **LT** — латеротергит; ***ov*** — непарный яйцевод; ***vc*** — виллозный канал. Масштаб 1 мм.

tures here and there; parascutellar interval entirely and interval 1 along suture smooth and glabrous.

Ventral side. Prosternal process not laterally beaded; in lateral view nearly flat, with apex rectangular or slightly obtuse and blunt. Metepisternum about as long as wide. Abdomen finely and densely punctate and minutely pubescent along middle.

Aedeagus (Figs 41–42, 62, 72, 87–88): apex of median lobe in dorsal view obliquely truncate, with a deep and wide longitudinal groove at left margin; left paramere triangular and straight at ventral margin.

Female reproductive tract and abdominal urites VIII and IX as in Figs. 117–118, 137, 143.

DISTRIBUTION. Southern Laos; first recorded in central Vietnam.

HABITATS AND HABITS. A forest-dwelling species taken at low altitudes in Vietnam and at slightly higher altitudes of ca. 1160 m in the type locality in Laos.

COMMENTS. The specimens examined from Vietnam have the profemoral red rings more or less distinct *vs*. totally reduced in the female holotype illustrated [Kirschenhofer, 2012: fig. 1].

9. *Chlaenius* (*Haplochlaenius*) *capitatus* Fedorenko, **sp.n.**
Figs 13, 16, 43–46, 63, 73, 89–90, 119–120, 139, 144, 149.

MATERIAL. Holotype ♂ (ZMMU), labelled: 'S[outhern] Vietnam, Lam Dong Prov[ince]./ Bi Doup – Nui Ba [Nature] Reserve/ 12°11′[N] 108°42′E, ~4 km/ SSE of Hon Giao Mt./ h=1500–1800 m, *2-3*./ leg. D. Fedorenko IV.2008'. Nine paratypes (SIEE): 2♂♂, with the same label; ♀ from the same locality, but taken 7–8.IV.2008; ♂, same label except for 'h=1500–1700 m, 5.V.2009'; ♂, same locality, except for '…// 12°10′44″N 108°40′44″E/ env. Long Lanh, h=1400–1600 m *20-21*./ leg. D. Fedorenko IV.2008'; ♂♀, from the same locality, but taken 2–10.V.2009; ♂, same label except 30.V.2009; ♂, 'Vietnam/ Khanh Hoa prov[ince]./ Hon Ba Mts/ ~1400 m asl/ IV.2003/ leg. A.V. Borisenko'.

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

DIAGNOSIS. Distinctive well from the previous species in having forebody nearly smooth and glabrous, head wide, and pronotal sides deeply sinuate in front of and diverging to acute and sharp basal angles; elytral intervals punctate along striae only, interval 8 sparsely punctate, with punctures arranged into about four (*vs*. 5–6) uneven longitudinal rows. Body barely smaller.

DESCRIPTION. As for *Ch. hajeki* except the following characters. BL 18.2–20.7 mm. Body (Figs 13, 16) micropterous. Pronotum golden green; antennomeres 4–11 reddish brown, rather pale, paler apicad; femoral reddish-yellow rings wide dorsally, occupying apical 2/3 femur except apex. Isodiametric microsculpture very superficial, traceable on head, as well as on pronotal disc in female.

Head glabrous and smooth, except for sparse and minute, almost imperceptible, punctures on neck and along sides.

Pronotum impunctate and glabrous, very finely and very sparsely punctate and pubescent in basal third, with dense micropunctation. Base barely wider than apex, both truncate. Basolateral foveae as rather wide, shallow, rounded, slightly oblique impressions in basal fourth. Sides slightly diverging toward apical angles, poorly rounded behind, sinuate a fourth from base, thence diverging to acute and sharp basal angles that project laterally. Lateral margin very gently explanate from basal fifth to two thirds, very narrow anteriorly, wider behind. Median line mostly obliterate in apical fifth and vestigial in basal 1/4–1/5. Basal transverse impression imperceptible or missing.

Elytra with no preapical sinuation. Basal ridge slightly concave, oblique, humeral angle very obtuse, blunt or rounded. Intervals 1–7 with single row of setigerous punctures along striae.

Ventral side. Prosternal process not laterally beaded or with an imperceptible vestige on each side of apex; in lateral view more or less convex (oblique posterodorsad), with apex obtuse and blunt to widely rounded. Abdomen smooth and glabrous along middle.

Aedeagus (Figs 43–46, 63, 73, 89–90) very similar, except chiefly for apex of median lobe transverse in dorsal view and groove at its left margin shallow basally; left paramere rounded at both apex and ventral margin.

Female reproductive tract and abdominal urites VIII and IX as in Figs. 119–120, 139, 144.

DISTRIBUTION. The Dalat Plateau within Lam Dong and Khanh Hoa provinces, southern Vietnam.

NAME. Refers to the wide head as a distinctive feature of this species.

HABITATS AND HABITS. A montane forest-dwelling species living in leaf-litter and under tree remains on the ground.

10. *Chlaenius* (*Haplochlaenius*) *silvestris* Fedorenko, **sp.n.**
Figs 15, 18, 47–48, 64, 91–92, 121–122, 142, 145, 149.

MATERIAL. Holotype ♂ (ZMMU) and paratype ♀ (SIEE), labelled: 'Vietnam, Ha Giang Prov[ince]./ Tay Con Linh Mts & N[ational]P[ark],/ 22°47′26″N 104°53′30″E/ h~1300–1320 m/ 15–27.IV.2023/ leg. D.Fedorenko'.

Aedeagus and female genitalia and reproductive tract examined.

DIAGNOSIS. Very similar to the previous species in many characters, except for a very distinctive aedeagus, head narrower, pronotum differently shaped, body barely larger, and elytra fairly dull, very deep purple or black, with only reflexed lateral margin and apex purple blue, depending on lighting.

DESCRIPTION. BL 21.5–22.8 mm. Body (Figs 15, 18) apterous and black, pronotum golden cupreous, elytra deep purple black. Antennomeres 4–11 dark brown, becoming gradually paler apicad to brown. Femora coloured as in *Ch. capitatus* **sp.n.** Isodiametric microsculpture imperceptible in anterior half of head, barely traceable behind, slightly more distinct along pronotal base and apex while obliterate on disc; elytral microsculpture distinct, consisting of barely longitudinal and rather coarse meshes, giving elytra little shine.

Head almost smooth and glabrous, with sparse medium-sized punctures across vertex and outside shallow and short frontal foveae, combined with very fine and rather sparse punctures along sides; neck very finely and moderately densely punctate; genae with a few very short setae. Frontal foveae short, very shallow, running parallel to each other. Antennomeres 6–11 each with a lateral median carina.

Pronotum cordate, broadest about a third from apex, flattened in basal half, impunctate and glabrous, except for very sparse and minute punctures at base, bearing very short setae; these latter traceable also along sides and at apex; micropunctation imperceptible. Base truncate, slightly wider than apex, slightly convex between basolateral foveae; these in form of rather deep, rounded, oblique impressions in basal third. Apex slightly sinuate, apical angles slightly acute, blunt or rounded, slightly projecting. Sides rounded, sinuate and running parallel to each other in front of right and blunt basal angles. Explanate lateral margin missing or very narrow and nearly indistinct,

marginal bead fine, distinct laterally and in lateral thirds of apex. Median line fine and deep, reaching apex and base, basal transverse impression imperceptible.

Elytra just as in *Ch. hajeki*, except for preapical sinuation missing, humeral angle very slightly obtuse, almost right, elytral intervals barely more convex, with 1–2 longitudinal rows traceable along striae, parascutellar stria finer, surface dull, and interval 8 slightly wider than 7th in the female paratype.

Ventral side. Prosternal process not laterally beaded; in lateral view flat, with apex rectangular or slightly obtuse and blunt. Metepisternum about as long as wide. Abdomen minutely punctate and pubescent along middle.

Aedeagus (Figs 47–48, 64, 91–92): median lobe very slender in lateral view, with ventral margin very convex in apical half; in dorsal view wide, with a large, rounded, lateral bulge before middle of left margin; apex in dorsal view wide, triangular, foliaceous, with four, thin, longitudinal carinae; median carina being low and short while two marginal carinae and left submarginal one high and long. Ventral side dull and rasp-like, which is due to dense microsculpture consisting of dispersed setigerous punctures and rectangular meshes in between; punctures being oblong, each two separated by two longitudinal rows of small meshes about twice as long as wide.

Parameres apically convex and well sclerotized inside. Internal sac with flagellate sclerite moderately long, thick and right-angled at base.

Female reproductive tract and abdominal urites VIII and IX as in Figs. 121–122, 142, 145; spermatheca reduced to a short basal vestige.

DISTRIBUTION. Known from the type locality only.

NAME. Refers to the silvicolous way of living of this new species.

HABITATS AND HABITS. Both specimens were collected by pitfall traps in a rain forest.

COMMENTS. This species exhibits a very special combination of characters. The body appearance, including a smaller size, bright and contrasty colouration of both the body and the legs, and the elytral intervals punctate and pubescent along the striae make it very similar to the members of the *hajeki*-group. The vestigial spermatheca may link *Ch. silvestris* **sp.n.** with both the *hajeki*-group and the species (*e.g.*, *Ch. pilosus* and those of the *flavofemoratus*-group), of which the totally reduced spermatheca is characteristic. Besides, *Ch. pilosus* is the only species within the subgenus, with the aedeagus somewhat similar to a bizarre one of *Ch. silvestris* **sp.n.**; the similarity is due only to the ventral margin convex preapically and microsculptured in a very particular manner.

In *Ch. silvestris* **sp.n.**, the foliaceous apex of the aedeagus is barely separated from what may be a vestige of the primary, convex, apex by a shallow, subtransverse, ventral groove. The former apex could have evolved into the latter through its dorsal wall becoming expanded much apicad and spread. Be true, this could also explain the slender appearance of the aedeagus in lateral view.

The ***costiger*** species group

DIAGNOSIS. Body macropterous to apterous. Dorsum black or bright metallic forebody contrasting with black or greenish-black elytra. Elytral intervals all or at least odd ones costate or subcarinate medially, punctate and pubescent along sides only, 7th mostly carinate medially. Abdomen more or less distinctly beaded or impressed along metepimeron, finely and densely punctate and pubescent (*Ch. costiger*) to nearly impunctate and glabrous along middle. Protibia with median sulcus vestigial, shallow (*Ch. costiger*) to obliterate (*Ch. sabahensis*, *Ch. costulipennis* **sp.n.**).

Median lobe of aedeagus (Figs 49–52, 65–66): ventral margin crenulate in lateral view due to ventral side coarsely and rather densely cross-striated in at least some species (*Ch. costiger*, *Ch. sabahensis*, *Ch. costulipennis* **sp.n.**, *Ch. klapperichi*, *Ch. femoratus*); apex with a wide, longer or shorter, ventral groove proximal to a well-developed, small, transverse capitulum; this latter T- or Γ- shaped in lateral view (*i.e.*, toothed both dorsally and ventrally or ventrally only owing to either dorsal and ventral or ventral transverse ridge only raised); dorsal transverse ridge without lateral teeth. Apical orifice long, each side at middle with a longitudinal sclerotized ligule; internal sac fairly large, with two, large, apical sclerites, of which flagellate one is short. Parameres membranous inside.

Female reproductive tract (Figs 140–142): *bursa copulatrix* large, spermatheca almost undifferentiated, in form of a very slender seminal canal extended into spermathecal gland duct, with imperceptible receptacle in between. Abdominal tergite VIII and sternite VIII as in Figs 123–128.

COMMENTS. This group was established, diagnosed and keyed within *Chlaenius*, for two species from Japan [Habu, 1987], chiefly *Ch. costiger*. The group corresponds well to the subgenus *Haplochlaenius* sensu Azadbakhsh et Kirschenhofer [2019] and currently includes about a dozen species. Of them, *Ch. costiger* ranges almost throughout the Oriental region and the adjacent Palearctic regions in China and Japan while the other species are more local, being confined to some mountain regions of the continental Southeast Asia or to islands of the Malay Archipelago east to the Philippines and New Guinea. About half of this species diversity has been discovered just recently.

Häckel *et al*. [2023] updated the checklist of this group by listing *Ch. hutiaoxiaensis* Kirschenhofer, 2011, omitted before [Azadbakhsh, Kirschenhofer, 2019], and delimited '*Ch. moluccensis* complex' established for four very similar species from the southeastern parts of the range of the *costiger*-group, at least two species of this complex, *Ch. moluccensis* Kirschenhofer, 2003, and *Ch. aruensis*, having the aedeagi barely different from each other if at all. The authors also restituted *Ch. pecirkai* Jedlička, 1932, from a subspecies of *Ch. costiger*, yet without commenting on this change.

Only two species have been recorded in Vietnam, including a new one described below.

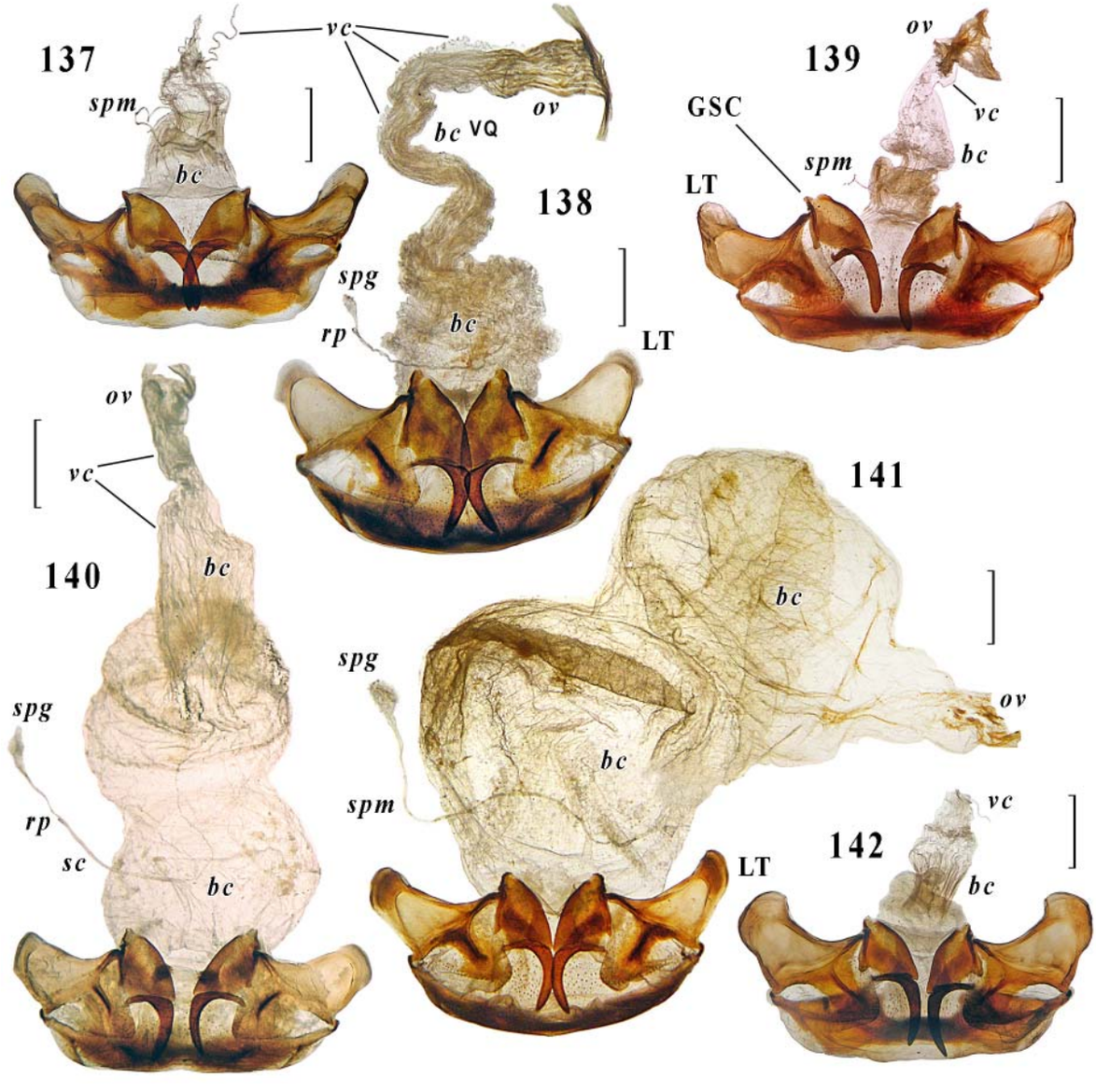
11. *Chlaenius* (*Haplochlaenius*) *costiger* Chaudoir, 1856
Figs 19–20, 51–52, 66, 97–99, 108–110, 127–128, 141, 149.

Chaudoir, 1856: 258 (Hongkong); 1876: 95; Bates, 1873: 253; Bates, 1889: 265; Lesne, 1904: 70; Andrewes, 1933: 334; 1941: 308; Habu, 1987: 34; Mandl, 1992: 97 (subg. *Macrochlaenites*); Azadbakhsh, Kirschenhofer, 2019: 19. — ssp. *bhamoensis* Bates, 1892: 311 (Bhamo, Burma); Andrewes, 1920: 239 (*costiger* var.); 1947: 6; Mandl, 1992: 98 (*costiger* ssp. *bhamaensis*). — ssp. *almorae* Andrewes, 1920: 239 (*costiger* var.; Sunderhunga Valley, North India); Mandl, 1992: 98. — ssp. *nigrotibitarsis* Mandl, 1992: (*costiger* ssp.; Jumla, West Nepal). — ? ssp. *pantarensis* Kirschenhofer, 2014: 70 (Pantar Is., West Java); Azadbakhsh, Kirschenhofer, 2019: 15.

MATERIAL. Holotype ♂ (BMNH, high resolution image) of *Ch. costiger almorae*, labelled: 'Holo-/type' and 'Type' (two circles edged with red), 'Sunderhunga V./ W.Almora Divn./ 8000–12000 feet/ June' 19. H.G.C[hampion].', 'Brit. Mus./ 1923–1924', '3066' '*Chlaenius*/ *costiger Chaud.*/ *race almorae*/ *Type Andr.*/ H.E.Andrewes det.', 'NHMUK 010792580' [Natural History Museum. 2014].

Other material: 15 specimens (SIEE) of the nominotypical subspecies: ♂, **China**, Sichuan, env. Chadping, Xiling

Mts, 6.VIII.1996 (D. Fedorenko); 2♂♂, ♀, Gansu, Liupan Mts, 10 km W of Shangguan, 35°03′N, 106°29′E, VI.2005 (V. Sinyaev team); ♀, **Vietnam**, 35.5 km W of Cao Bang, Phia Oac Mt., 22°37′40″N 105°54′40″E, h~850 m, boggy wasteland, 3–11.X.2018 (D. Fedorenko); ♂♀, Bat Dai Son Natn. Park, Thanh Van env., h~950 m, 23°06′01″N 104°58′25″E, cornfield, 14–22. IV.2022 (D. Fedorenko); ♀, Ha Tinh Province, Vu Quang Natn. Park, Kim Quang env., 18°17′59″N, 105°22′31″E, h~70 m, floodland forest, 24.V–1.VI.2022 (D. Fedorenko); ♀, Quang Binh Prov., Minh Hoa Distr., env. Yen Hop, 9.IV.1999 (A. Devyatkin); ♀, Dong Nai Province, Cat Tien Nat. Park, at light HQL 450, 18–25.X.2004 (D. Fedorenko); ♂, **Thailand**, Mae Hong Son Prov., env. Pai, near Chiang Mai, 19°21′48″N, 98°27′57″E, h~600 m, at light, 2–9.V.2013 (I. Melnik); ♀ (ISEA), Thailand, Lampang Prov., Seat Wang Nuea, 19°8′N, 99°37′E, 2012 (local collector); 2♂♂, ♀ (ISEA), Nong Bun Nak, deciduous gallery forest, h = 200 m, 14°41′25″N, 102°27′45.7″E, 19–24.05.2010 (A.V. Korshunov).



Figs 137–142. Female urite IX and reproductive tract, ventral aspect: 137 — *Chlaenius hajeki*; 138 — *Ch. costulipennis* **sp.n.**; 139 — *Ch. capitatus* **sp.n.**; 140 — *Ch. sabahensis*; 141 — *Ch. c. costiger*; 142 — *Ch. silvestris* **sp.n.**; ***bc*** — *bursa copulatrix*; **GSC** — gonosubcoxite; **LT** — laterotergite; ***ov*** — common oviduct; ***rp*** — receptacle; ***sc*** — seminal canal; ***spg*** — spermathecal gland; ***spm*** — spermatheca; ***vc*** — villous canal. Scale bars 1 mm.

Рис. 137–142. Урит IX и репродуктивный тракт самки вентрально: 137 — *Chlaenius hajeki*; 138 — *Ch. costulipennis* **sp.n.**; 139 — *Ch. capitatus* **sp.n.**; 140 — *Ch. sabahensis*; 141 — *Ch. c. costiger*; 142 — *Ch. silvestris* **sp.n.**; ***bc*** — копулятивная сумка; **GSC** — гоносубкоксит; **LT** — латеротергит; ***ov*** — непарный яйцевод; ***rp*** — семеприемник; ***sc*** — семепровод; ***spg*** — железа сперматеки; ***spm*** — сперматека; ***vc*** — виллозный канал. Масштаб 1 мм.

Aedeagus and its internal sac examined in four and two males, respectively. Genitalia and reproductive tract examined in one female.

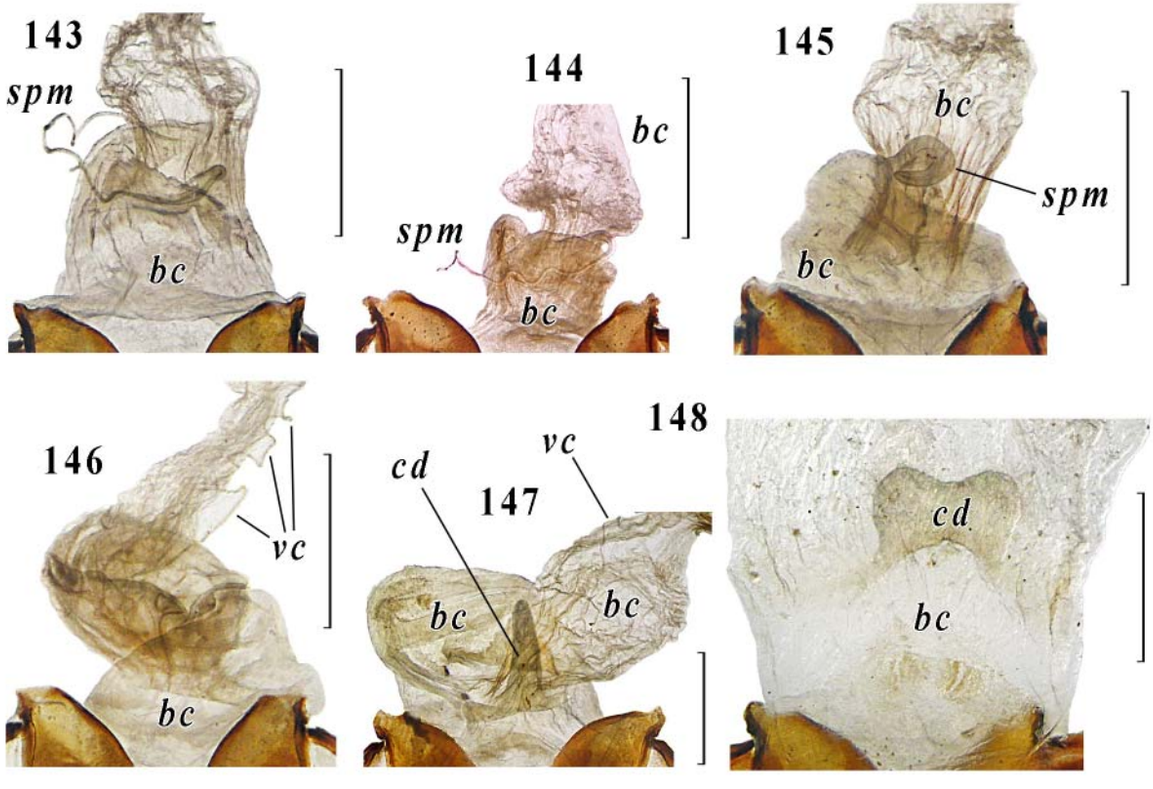
DIAGNOSIS. See the key.

REDESCRIPTION. BL 21.7–26 mm. Body (Figs 19–20) macropterous. Head and pronotum moderately shiny, bright metallic, golden green or cupreous; elytra slightly shiny in male, dull in female, greenish black or deep green; pronotum and elytra often bluish along sides. Femora reddish-yellow, labrum, tibiae and antennomeres 1–3 more or less pale red, antennomeres 4–11 brown, becoming gradually paler apicad, tarsi and palps rather dark brown to reddish brown. Venter otherwise black, including coxae and metatrochanters; pro- and mesotrochanters more or less infuscated; extreme femoral apices infuscated, mostly black. Head and pronotum densely and finely rugulose, more so along base and at apex of pronotum, with isodiametric microsculpture almost obliterate yet traceable here and there. Elytral intervals with microsculpture consisting of slightly yet distinctly longitudinal meshes, more or less coarse along middle while granulate on sides, thus giving costae shiny appearance; this microsculpture being much more coarse in female than in male.

Head finely and densely punctate, clypeus very finely punctate to nearly smooth, pubescence very short and very sparse to missing. Frontal foveae very short and shallow. Terminal labial palpomere similar in both sexes, very slightly dilated apicad, parallel-sided in apical third, with apex obliquely truncate. Antennae short, with apical five antennomeres surpassing pronotal base in male; antennomeres 8-, sometimes 6- or 7–11, with a median lateral carina.

Pronotum subquadrate, convex, broadest just medially, with sides rounded, moderately and densely punctate, often finely and densely strigose on each side of median line at base and at apex; punctation often sparser at middle of disc. Base truncate, a fourth wider than apex; basal angles obtuse and rather widely rounded. Basolateral foveae wide, deep, running on basal third, each with a trefoil impression at bottom and very dense microscopic punctures; inner branches of trefoils extended inwardly into a shallow basal transverse impression, which is about a sixth distant from basal margin. Lateral margin not or barely explanate at middle; explanate area narrow, sometimes extended to apical angles; sides and lateral 1/3–2/5 apex finely beaded. Median line deep, reaching base and almost reaching apex.

Elytra broadest at or just behind middle, with humeri rounded; apices rounded combined, with sutural angles right and sharp or blunt. Basal ridge obliterate inside virtual base of stria 6, humeral angle missing. Striae very fine and very finely punctate, very fine apically and laterally, obliterate at base; much finer and more finely punctate in female than in male. Intervals punctate and pubescent along striae, with 1–3, mostly two, uneven punctate rows traceable on each side, raised along



Figs 143–148. Female reproductive tract, proximal section of *bursa copulatrix*: 143 — *Chlaenius hajeki*; 144 — *Ch. capitatus* **sp.n.**; 145 — *Ch. silvestris* **sp.n.**; 146 — *Ch. pilosus*; 147 — *Ch. planicollis* **sp.n.**; 148 — *Ch. flavofemoratus*; 143–146 — ventral aspect; 147–148 — dorsal aspect; ***bc*** — *bursa copulatrix*; ***cd*** — dorsal callosity; ***spm*** — spermatheca; ***vc*** — villous canal. Scale bars 1 mm.

Рис. 143–148. Репродуктивный тракт самки, проксимальный отдел копулятивной сумки: 143 — *Chlaenius hajeki*; 144 — *Ch. capitatus* **sp.n.**; 145 — *Ch. silvestris* **sp.n.**; 146 — *Ch. pilosus*; 147 — *Ch. planicollis* **sp.n.**; 148 — *Ch. flavofemoratus*; 143–146 — вентрально; 147–148 — дорзально; ***bc*** — копулятивная сумка; ***cd*** — дорзальное мозолевидное образование; ***spm*** — сперматека; ***vc*** — виллозный канал. Масштаб 1 мм.

middle in form smooth and glabrous costae, wide and shiny in basal 1/3–1/2 in male, narrow and a little shiny closer to base in female, thence carinate. Interval 8 (sub)carinate except basal and apical 1/4–1/5, mostly 1.3–1.6 times as wide as, sometimes indistinctly wider than, 7th.

Ventral side. Prosternal process in lateral view mostly concave, its apex rather sharp, slightly acute or rectangular, sometimes slightly obtuse and blunt. Metepisternum slightly longer than wide, est3L/W 1.13–1.22. Abdomen finely and densely punctate along middle.

Aedeagus (Figs 51–52, 66, 97–98): median lobe very wide at base in lateral view; ventral margin deeply cross-striated and longitudinally striated toward apex, with coarse and dense isodiametric microsculpture in basal two fifths; apical capitulum small and set perpendicular to long T-shaped apex; ventral apical groove fairly short. Left paramere round, right one apically wide, varying slightly in shape due to extreme apex being desclerotized. Internal sac (Figs 108–110, 99) large, with two, large, apical sclerites and a small preapical one; flagellate sclerite being short, robust and transversely bicarinate at apex.

Female reproductive tract (Fig. 141) with a large *bursa copulatrix*. Abdominal tergite VIII and sternite VIII as in Figs 127–128.

DISTRIBUTION. The nominotypical subspecies ranges from Indochina (Thailand, Cambodia, and Vietnam) east to China, including Taiwan, Korea and Japan, south and southwest to at leas the Greater Sunda Isles (Sumatra, Java). While the species range extends from the north to the south in Vietnam, the species occurs sporadically and never in numbers.

HABITATS AND HABITS. This species inhabits various biotopes in plains and piedmonts, and flights to light at night.

COMMENTS. According to the descriptions, including illustrations compared, *Ch. costiger* is very similar to both *Ch. pantarensis* Kirschenhofer, 2014 and *Ch. p. moradianae* Azadbakhsh et Kirschenhofer, 2019, in all characters, except only for uniform black legs and antennae in the latter two. While 'strong differences' having been proclaimed for their aedeagi, I failed in finding any difference between the three taxa by comparing the specimens at my hand with those illustrated in Azadbakhsh & Kirschenhofer [2019: figs 13 A–D]. As for the colouration of the body appendages, it varies considerably between subspecies of *Ch. costiger*, as well as between individuals of both *Ch. femoratus philippinus* Jedlička, 1935 and *Ch. f. femoratus* Dejean, 1826 [Louwerens, 1966, 1967] (see also specimens listed below for comparison with *Ch. costulipennis* **sp.n.**). The two subspecies have the legs bicoloured, black, with the femora red, in some specimens while uniform black in some others (ab. *nigrofemoratus* and ab. *piceofemoratus* [Jedlička, 1935]). This variation makes subspecies rank of *Ch. pantarensis* not improbable.

12. *Chlaenius* (*Haplochlaenius*) *costulipennis* Fedorenko, **sp.n.**
Figs 21–22, 49–50, 65, 95–96, 105–107, 123–124, 138, 149.

MATERIAL. Holotype ♂ (ZMMU) and paratypes: 4♂♂, 4♀♀ (SIEE), labelled: 'Vietnam, Ha Tinh Prov[ince]./ Vu Quang Nat[io]n[al]. Park,/ Kim Quang env., h~200 m/ 18°17′38″N, 105°22′06″E/ 24.V–1.VI.2022/ leg. D. Fedorenko'; ♀ from same locality: 'Vietnam/ prov. Ha Tinh/ Vu Quang (Phu Quon)/ [Nature] reserve, h~1.200 m/ 5–26.VIII.1997/ leg. M. Kaliakin'; 2♂♂, ♀ (MSPU), with label 'Vietnam, C. Annam,/ prov. Quan[g] Binh,/ Minh Hoa distr., Ke Bang/ 8 km SO[=SE] env. Yen Hop/ 2-8.IV.1999 (Dalat campus)/ leg. S. Kruskop' (female and aedeagus of a male damaged by dermestid larvae). — Aedeagus and its internal sac examined in four and two males, respectively. Genitalia and reproductive tract examined in one female.

Additional material for comparison: ♂ of *Ch. femoratus philippinus* (SIEE, aedeagus examined), Philippines, Luzon, Aurora near Dingalan village, Mingan Mt., southern slope, h = 600–1200 m, 15°25′N 121°24′E, 3.III.2020 (D. Fominykh); four specimens [Natural History Museum, 2014]: ♀, with labels: '*Java*/ *Kediri*', '*V. Hugel*', 'Fry Coll./ 1905.100' 'NHMUK 013460474'; ?♂, with same labels except 'NHMUK 013460466' and additional label '*Chlaenius*/ *femoratus*/ *var. Dej.*/ H.E.Andrewes det./ *(femora nigra)*'; ♀, with labels: 'G Papanda jan/ Java. Drescher/ *4.1915*', 'Ex Mus./ Amsterdam', 'H.E. Andrewes Coll./ B.M.1945-97', 'NHMUK 013460477'; ?♂, labelled: '*Sumatra*/ Eing. 1925 Nr. 10.', '*Chl*[*aenius*]. *fem*[*oratus*]/ *v. femora-nigra*', 'Ex Mus./ Hmburg', 'H.E. Andrewes Coll./ B.M.1945-97', 'NHMUK 013460473'.

DIAGNOSIS. Very similar to *Ch. f. femoratus* in most characters. This latter subspecies has the aedeagus [Ueno, 1964; Louwerens, 1969] different in shape owing to its median lobe parallel-sided in dorsal view, ventral margin more convex and apex distinctive. These species also have their ranges far apart, with a very wide gape in between.

DESCRIPTION. BL 24.2–27 mm. Body (Figs 21–22) brachypterous. Head and pronotum shiny, bright metallic, golden green; elytra black, shiny in male, rather dull in female. Body otherwise black, femora with reddish-yellow rings; antennae becoming more or less paler apicad, with apical segments ranging from dark brown to dark reddish-brown. Head and pronotum not or very slightly rugulose, with isodiametric, very superficial yet traceable microsculpture. Elytral microsculpture isodiametric and superficial in male, while consisting of barely longitudinal granules on each side of longitudinal costae and of more superficial, isodiametric, meshes between costae in female, thus giving these costae more shine.

Head finely and densely punctate, more sparsely and more finely on clypeus and on frons but sides. Frontal foveae vestigial, very short and parallel or posteriorly diverging and almost reaching bases of supra-antennal plates. Antennae fairly short, with not more than apical five antennomeres surpassing pronotal base; those 6–11 and sometimes base of 5th with a median lateral carina.

Pronotum subcordate, broadest two fifths from apex, flattened at base. Sides rounded, straight or indistinctly sinuate in front of base. Lateral margin not explanate or with a narrow and shallow groove between lateral edge and apical 3/5 disc; lateral bead fine, very fine to imperceptible at apical angles; apical bead distinct in lateral 1/3–3/8. Base truncate, barely wider than apex; basal angles slightly obtuse and blunt. Basolateral foveae wide, deep, running on basal two fifths, each with a deep trefoil impression at bottom, its anterior branch longitudinal, posterolateral branch at first oblique, then longitudinal and almost reaching basal margin, posteromedial branch very short, obliterate inside. Basal transverse impression missing or indistinct. Apex slightly and evenly sinuate between slightly acute and blunt angles. Median line more or less deep, mostly crenulate and almost reaching while more shallow at base and at apex. Disc smooth, with moderately dense yet imperceptible punctures, finely and densely striate and slightly more distinctly punctate in basal fifth, often very finely rugulose or cross-striated along sides and at sides of base.

Elytra broadest just behind middle (♂) to between middle and three fifths (♀), with humeri rounded; apices rounded combined, with a shallow to indistinct sinuation just outside right, minutely toothed or sharp, sutural angle. Basal ridge

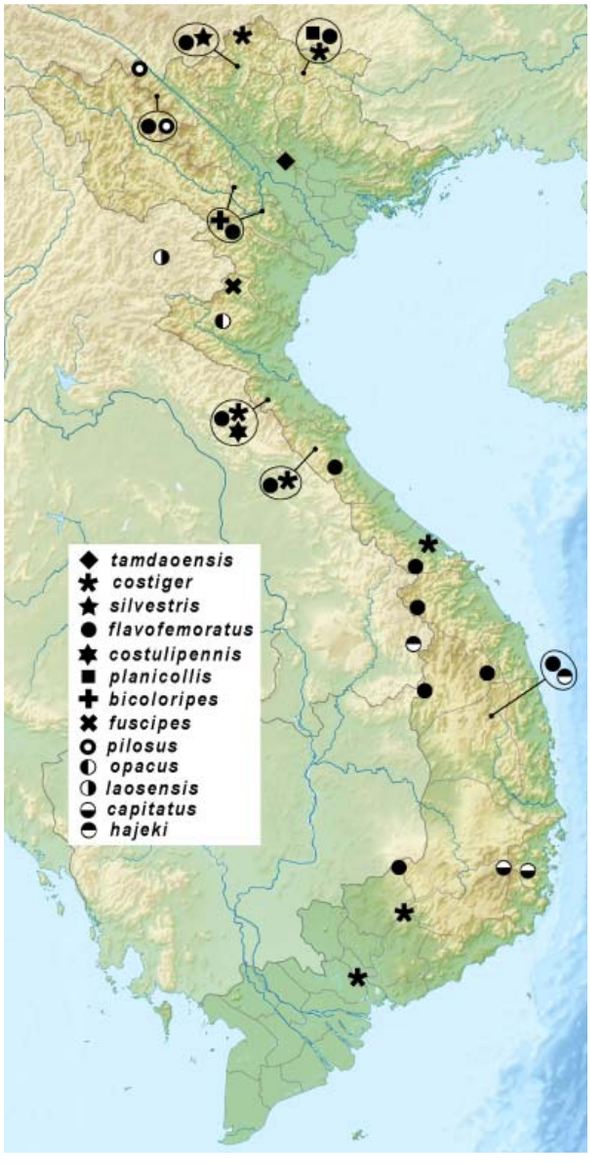


Fig. 149. Geographical distribution map of *Chlaenius* spp. in Vietnam.
Рис. 149. Карта распространения *Chlaenius* во Вьетнаме.

conspicuous, reaching stria 3, humeral angle obtuse and mostly sharp. Striae deep, finely punctate, slightly deeper toward apex, almost reaching base; 7th interrupted while 8th obliterate before apex. Intervals punctate and pubescent along striae, with 1–2, uneven, punctate rows on each side and 3–5 rows inside stria 8 traceable, raised along middle in form smooth and glabrous costae. Costae 1, 3 and 5 wider and higher than even ones or costae 1–5 wider and higher than 6th; interval 7 sharply carinate all along while intervals 6 and/or 8 less so in male; all intervals in apical 1/2–3/5 carinate or subcarinate and those 6–8 sharply carinate throughout their lengths in female.

Ventral side. Prosternal process slightly convex to concave behind procoxae, in lateral view mostly slightly concave preapically, with apex rather sharp or slightly blunted, slightly acute or rectangular, sometimes slightly obtuse. Metepisternum as long as wide. Abdomen imperceptibly punctate along middle.

Aedeagus (Figs 49–50, 65, 95–96): median lobe moderately wide all along; ventral margin deeply cross-striated and very unevenly granulate between these striae in apical half; apex short, narrow and triangular in dorsal view, in form of oblique and apically convex capitulum, with apical ventral tooth, in lateral view; ventral apical groove short and wide. Left paramere oblong, right one triangular. Internal sac (Figs 105–107) medium-sized, with apical sclerites both large, flagellate sclerite short and slender.

Female reproductive tract (Fig. 138): *bursa copulatrix* large and long. Abdominal tergite VIII and sternite VIII as in Figs 123–124.

DISTRIBUTION. Known from two close localities in Vietnam only.

NAME. Refers to the elytral sculpture consisting of longitudinal costulae, or smaller costae.

HABITATS AND HABITS. A soil-dwelling species living in monsoon montane forests. Major part of the type series was hand collected together with specimens of *Ch. flavofemoratus* at night.

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