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TAXONOMY OF THE SUBGENUS *TRIACANUS* ERICHSON, 1843 AND ITS DISTRIBUTION IN THE PALAEARCTIC AND INDO-MALAYAN REGIONS (COLEOPTERA: NITIDULIDAE)

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ABSTRACT

The paper devoted to summarizing of new data on the Asian members of the subgenus *Triacanus* Erichson, 1843 *sensu stricto* considered together with subgenus *Monafricus* Kirejtshuk, 1995, stat. nov. in composition of one genus. All Asian species of *Triacanus* were re-examined, except for *T. (Triacanus) japonicus* Hisamatsu, 1985 from Japan. *Triacanus (Triacanus) conformis* sp. nov. from Sichuan (China), *T. (T.) pullus* sp. nov. from Fujian (China) and *T. (T.) unicolor* sp. nov. from Cameron Highland (Malaysia) were described. *Triacanus (Triacanus) nigripennis* Reitter, 1873 with a very wide range in the Indo-Malayan Region is regarded as including three forms, *forma typica*, *forma "parva"* from Vietnam and *forma "punctatissima"* from Myanmar (Burma); Vietnam; India, Kerala; Sri Lanka; Malaysia, Cameron Highlands, Sabah (names of these forms taken from synonyms of *T. (T.) nigripennis: punctatissimus* Grouvelle, 1892 and *parvus* Kirejtshuk, 1990, syn. nov.). The new data on distribution of all studied species of *Triacanus* were given and a key to species of this subgenus was elaborated. The probable mode of life of the species of the considered subgenus is discussed.

Key words: new species, generic diagnostics, synonymy, distribution, key to species

ТАКСОНОМИЯ ПОДРОДА *TRIACANUS* ERICHSON, 1843 И ЕГО РАСПРОСТРАНЕНИЕ В ПАЛЕАРКТИЧЕСКОЙ И ИНДО-МАЛАЙСКОЙ ОБЛАСТЯХ (COLEOPTERA: NITIDULIDAE)

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РЕЗЮМЕ

Статья посвящена обобщению новых данных по азиатским представителям подрода *Triacanus* Erichson, 1843 *sensu stricto*, рассматриваемым вместе с подродом *Monafricus* Kirejtshuk, 1995, stat. nov. в составе одного рода. Все азиатские виды *Triacanus* были переизучены, за исключением *T. (Triacanus) japonicus* Hisamatsu, 1985 из Японии. Описаны *Triacanus (Triacanus) conformis* sp. nov. из Сычуаня (Китай), *T. (T.) pullus* sp. nov. из Фуцзяня (Китай) и *T. (T.) unicolor* sp. nov. из Нагорья Кэмерон (Малайзия). *Triacanus (Triacanus) nigripennis* с очень широким ареалом в Индо-Малайской области рассматривается как включающий три формы: *forma typica*, *forma "parva"* из Вьетнама и *forma "punctatissima"* из Мьянмы (Бирмы); Вьетнама, Индии, Кералы; Шри Ланки; Малайзии (Нагорья Кэмерон, Сабаха) (названия этих форм образованы от синонимов *T. (T.) ni-*

gripennis: punctatissimus Grouvelle, 1892 и *parvus* Kirejtshuk, 1990, syn. nov.). Приводятся новые сведения по распространению всех изученных видов *Triacanus* sensu stricto и составлены определительные таблицы для видов этого подрода. Обсуждается предположительный образ жизни видов рассматриваемого подрода.

Ключевые слова: новые виды, родовая диагностика, синонимия, распространение, определительные таблицы для видов

INTRODUCTION

The genus *Triacanus* Erichson, 1843 belongs to the *Oxycnemus*-complex of genera of the tribe Cyllocini Everts, 1898 (Kirejtshuk 2008) spread in all zoogeographic regions, except Antarctic. This complex is rather diverse and numerous in the West Hemisphere (particularly in the Central America and Amazonia), however most groups from there are poorly known and need a further extensive revision. At the same time in the East Hemisphere the *Oxycnemus*-complex is represented only by few species of four taxa of the genus-group, two of which are closely related to *Triacanus* (*Eugoniopus* Reitter, 1884 from the Indo-Malayan Region and *Monafricus* Kirejtshuk, 1995 from Afrotropical Region) and *Gymnocychramus* Lea, 1922 from Australia which maintains many plesiotypic states of the characters showing some synapomorphies with the Afro-Asian groups (Kirejtshuk 1995, 2008). The paper has aim to revise the data obtained after publications of A. Grouvelle (1892, 1908, 1914) and Hisamatsu (1985), and particularly the materials recently studied with some preliminary revision of all species, except *Triacanus* (*Triacanus*) *japonicus* Hisamatsu, 1985 (the type series of which remains not examined by the author but very important information on it was obtained from Sadatomo Hisamatsu), and describe new species and clarify a position of some species and the genus in general.

MATERIALS AND METHODS

The specimens of the genus *Triacanus* examined are mostly housed in the collection of the Zoological Institute of the Russian Academy of Sciences (further **ZIN**) and Muséum national d'Histoire naturelle, Paris (further **MNHN**), although other specimens are deposited in the Natural History Museum in London (further **BMNH**), Senckenberg Deutsches Entomologisches Institut, Münchenberg (further

SDEI), Hungarian Natural History Museum, Budapest (further **HNHB**), Institut royal des Sciences naturelles, Bruxelles (further **IRSN**), Institute of Zoology of the Chinese Academy of Sciences, Beijing (further **IZCAS**), Naturhistorisches Museum, Basel (further **NMB**), National Museum of Wales, Cardiff (further **NMC**), Naturhistorische Museum, Vienna (Wien) (further **NMW**), Naturhistoriska Kiksmuseet, Stockholm (further **NRS**), Rijkmuseum van Natuurlijke Historie, Leiden (further **RMNH**), Staatliches Museum für Naturkunde, Stuttgart (further **SMNS**), Staatliches Museum für Tierkunde, Dresden (further **SMTD**), Zoologisches Museum, Museum für Naturkunde an der Humboldt-Universität, Berlin (further **ZMB**).

The studies of the specimens were carried out on the stereomicroscopes MBS 1 and Leica MZ 12.0 and the pictures of them were made with camera taken with the Canon EOS 11 40D digital camera with a Canon MP-E 65 mm objective and were combined in the Zerene Stacker 1.04 software.

SYSTEMATICS

Family Nitidulidae Latreille, 1802

Subfamily Nitidulinae Latreille, 1802

Tribe Cyllocini Everts, 1898

Genus *Triacanus* Erichson, 1843

Type species: *Nitidula apicalis* Erichson, 1834, Recent, by monotypy.

Notes on diagnostics of *Triacanus*. This genus is very similar and closely related to the Indo-Malayan *Eugoniopus* and Afrotropical *Monafricus*, and their synapomorphies in structure of legs and very deep mesoventrite demonstrate traces a comparatively recent common ancestry. *Gymnocychramus* maintains the structure of legs and mesoventrite more similar to that in other members of *Oxycnemus*-complex from the West Hemisphere (i.e. its tibiae have neither long

outer subapical process nor very long spurs, the tarsomeres 1–3 are moderately lobed, and metaventrite is moderately deepened and with not sharp median carina only at mesoventral bottom but not extending along posterior slope). In addition to the differences in legs, these groups can be easily diagnosed after the following characters:

Triacanus

- antennal grooves very distinct (subparallel-sided, or slightly convergent/divergent distally);
- prosternum with the rather raised and strongly sharp carina (somewhat obliterated in *T. (T.) conformis* sp. nov. and *T. (T.) pullus* sp. nov.);
- prosternal process somewhat flattened and with the tridentate apex, i.e. ending by three sharp processes (only in *T. (T.) pullus* sp. nov. the lateral sharp processes are not raised);
- metaventrite with median basal depression (s) to receipt of prosternal process and its posterior edge between metacoxae arcuately excised;

Eugonipus

- antennal grooves short, reduced and strongly convergent distally;
- prosternum with the slightly raised and more or less obliterated carina;
- prosternal process somewhat flattened and widely rounded at apex;
- metaventrite without median basal depression (s) to receipt of the prosternal process and its posterior edge between metacoxae straight;

Monafricus

- antennal grooves very distinct (subparallel-sided, or slightly convergent distally);
- prosternum with rather raised and strongly sharp carina;
- prosternal process somewhat flattened and with unidentate apex, i.e. ending by one sharp (median) process, narrow (*T. (M.) major* Grouvelle, 1899) or somewhat widened at apex (*T. (M.) piloferens* (Kirejtshuk, 1995), comb. nov.);
- metaventrite with median basal depression to receipt of prosternal process and its posterior edge between metacoxae angularly excised;

Gymnocyramus

- antennal grooves very distinct (subparallel-sided);
- prosternum with the slightly raised median elevation, but without clear carina and its anterior part subflattened;
- prosternal process vertically high and subangular at apex;
- metaventrite without median basal depression to receipt of the prosternal process and its posterior edge between metacoxae moderately deeply excised.

Thus, it can be estimated that the distinctness between *Triacanus* sensu stricto and *Monafricus* is expressed mostly in the posterior edge of the metaventrite (see above), while the prosternal process in both groups in exposed variability demonstrates a certain similarity (*T. (T.) pullus* sp. nov., on the one hand, and *T. (M.) piloferens* comb. nov. and particularly one undescribed species of *Monafricus*, on the other), which was apparently obtained independently, although other members of both groups can be easily distinguished after difference on the structure of prosternal process. At the same time the prosternal process in common members of both *Triacanus* sensu stricto and *Monafricus* shows a significant variability and, therefore, this character can be used in the species diagnostics with a certain caution. It is a reason to interpret these taxa as subgenera of one genus with difference in distribution (*Triacanus sensu stricto* – Indo-Malayan Region and *Monafricus* stat. nov. – Afrotropical Region). The subgenus *Monafricus* includes two described species (*T. (M.) major* and *T. (M.) piloferens* comb. nov.), although there are also some species of this subgenus which need to be described.

The congeners of *Triacanus* usually have sexual dimorphism in structure of tarsi: females have simple (subcylindrical) tarsomeres 1–3 while males show more or less widened pro- and mesotarsomeres 1–3 (sometimes rather weakly) with distinctly isolated paramedian and somewhat membranous areas on below surface of each of these tarsomeres. The *Triacanus* male pygidium is truncate or emarginate at apex, from under which the apex of anal sclerite exposed (in males of the *Triacanus* sensu stricto species a markedly larger portion of the anal sclerite is exposed than in those of *Monafricus*), while the female pygidium in both groups is widely rounded at apex and closed with rounded apex of hypopygidium. Besides,

in most cases males of both groups have a brush of long hairs in the anterior half of the prosternal carina, although in smaller males and in males of the species with obliterated carina (*T. (T.) conformis* sp. nov. and *T. (T.) pullus* sp. nov.) such brush is absent. The pygidium of some species of *Triacanus* sensu stricto with very distinct and very coarse punctures, interspaces between which are rather smoothed to completely smooth, while in other subcongeners the puncturation of the pygidium similar to that characteristic of most cylodine groups.

**Descriptions of the new species
of the subgenus *Triacanus* Erichson, 1843**

***Triacanus (Triacanus) conformis* sp. nov.**
(Figs 1–2, 14–17)

Type specimen: Holotype, male (IZCAS), China, “E’mei Shan, 5.17.1941” (Sichuan Province), “IOZ(E)693111” (in Chinese characters).

Description. *Holotype (male).* Length 7.1, breadth 4.0, height 2.3 mm. Body rather convex dorsally and moderately ventrally; dorsum subunicolorous dark reddish brown with darkened antennal club and elytra, and underside somewhat lighter (reddish brown); integument with a slight fat lustre; dorsum without pubescence, underside mostly with very short, sparse and slightly conspicuous yellowish hairs, although below surface of head, pygidium and legs with longer and more conspicuous hairs; prosternum without brush of long hairs.

Head with moderately small and distinct punctures, more or less larger than eye facets, interspaces between them subequal or somewhat greater than one puncture diameter, extremely finely and densely cellularly microreticulated to alutaceous. Pronotum with very finer, rather sparse and distinct punctures, much smaller than eye facets, but along base intermixed with much larger and very sparse punctures: interspaces between punctures 2–5 times as great as eye facets in diameter and very finely and densely cellularly microreticulated to alutaceous. Elytral surface with double puncturation: (1) coarse and distinct punctures (about twice as large as eye facets) arranged in longitudinal rows and (2) very fine and slightly visible punctures diffusely spread through over whole elytral surface; interspaces between coarser punctures in rows about twice as great as one diameter of punctures in rows, interspaces between finer

punctures 3–5 diameters of fine punctures and with very fine alutation (almost smooth). Pygidium with very coarse and somewhat different in size punctures (somewhat coarser than coarser punctures on elytra), but intervals between them more or less smaller than one puncture diameter and nearly smooth. Hypopygidium about as punctured and sculptured as pygidium, although with punctures somewhat smaller and sparser. Prosternum with very coarse but shallow and very dense irregular punctures (about as coarse as those on pygidium), interspaces between them cellularly microreticulated; prosternal process very finely and sparsely punctured, and with rather smoothed sculpture between punctures. Pterothoracic sterna and abdominal ventrites 1–4 with extremely fine and sparse puncturation, but more or less smoothed interspaces between punctures.

Head transverse (about 1.5 times as wide as long), gently and evenly convex, with medium-sized eyes (composed by rather fine facets). Labrum with lobes subtruncate at apex and wide median excision. Mandibles very slightly exposed from under frons and sharply curved along outer edge. Antennae somewhat shorter than head wide; scape rather swollen, slightly longer than thick and slightly curved; pedicel narrow, subcylindrical, about as long as scape; flagellomeres short ($1/3$ – $1/2$ as long as pedicel); 3-segmented club suboviform (antennomeres 9 and 11 subequal in length) and composing about $2/5$ of total antennal length. Pronotum strongly transverse. Elytra gently narrowing posteriorly and subtruncate at apices. Pygidium with slightly emarginate apex.

Mentum subtrapeziform and with transverse apex, about 1 and $2/3$ as wide as long. Ultimate labial palpomere about 1 and $1/3$ as long as thick. Ultimate maxillary palpomere about three times as long as thick. Lateral edge of mandibles not dilated. Antennal grooves divergent, their inner ridge reaching base of temples. Prosternum with obliterated median carina becoming sharp only at anterior edge; prosternal process with very short lateral processes and median process rather extended behind the posterior edges of procoxae, procoxal cavities completely closed posteriorly. Distance between mesocoxae subequal to that between metacoxae and to that between procoxae. Median depression at base of metaventrite not reaching level of posterior edge of mesocoxal cavities. Abdominal ventrite 1 nearly as long as hypopygidium and slightly longer than ventrites 2–4 combined. Epi-pleura at base about 1.5 times as wide as antennal club.



Figs 1–2. *Triacanus (Triacanus) conformis* sp. nov., male, holotype (IZCAS, “E’mei Shan”): 1 – body, dorsal view; 2 – anterior part of body, ventral view. Length of body 7.1 mm. Scale bar for Fig. 2 = 1.0 mm.

Tibiae as wide as antennal club, with far projecting and sharp outer apical angle. Profemur nearly twice as long as wide, mesofemur about 1.5 times as long as wide and metafemur about 2.5 times as long as wide; mesofemur subparallel-sided and slightly widened posteriorly and metafemur subrectilinearly widening posteriorly. Protarsus very wide (about 3/5 as wide as antennal club), stout and slightly lobed; setae of underside in tarsomeres 1–3 very well developed; claws simple and very narrow. Mesotarsus similar but with narrower lobes of mesotarsomeres 1–3. Metatarsus with subcylindrical tarsomeres 1–3 bearing two rows of setae along lower plane.

Aedeagus. Moderately sclerotised.

Etymology. The epithet of the new species referred to a considerable similarity of it to *T. pullus* sp.

nov. (Latin “conformis” – correspondence, adequacy, aptitude, balance, concordance, conformity, parity).

Comparison. *Triacanus (Triacanus) conformis* sp. nov. can be easily diagnosed after the below key. The most peculiar character of this new species and *T. (Triacanus) pullus* sp. nov. among the congeners is the rather obliterated median prosternal carina, which also share similarities in many features, including coloration, prosternal process, and structure of legs. However *Triacanus (Triacanus) conformis* sp. nov. differs from the latter in the shape of antennal club, puncturation on elytra, shape of apex of prosternal process and receiving fixing device of base of metaventrite, and male genitalia. This new species together with *T. (Triacanus) pullus* sp. nov. differ from other consubgenera in the body coloration, not strongly

raised prosternal carina, strongly reduced lateral processes of prosternal apex, more weak depression of anterior part of metaventrite for receipt of the apex of prosternal process, and somewhat narrower meso- and metafemora with almost straight posterior edge. Besides, *Triacanus (Triacanus) conformis* sp. nov. differs from:

– *T. (T.) apicalis* in the shape of antennal club, convex anterior part of frons with truncate anterior edge, length of labral lobes, truncate elytral apices, not dilated mandibular base, shape of mentum swollen along anterior edge, diverging antennal grooves reaching or almost reaching the level of posterior end of temples, and also puncturation of elytra, prosternum and apical segment of abdomen;

– *T. (T.) nigripennis* Reitter, 1873 in the shape and coloration of antennal club, convex anterior part of frons with truncate anterior edge, length of labral lobes, not dilated mandibular base, shape of mentum swollen along anterior edge, diverging antennal grooves, and also puncturation of elytra, structure of prosternum and apical segment of abdomen;

– *T. (T.) ruficolor* Kirejtshuk, 1884 in the shape and coloration of antennal club, convex anterior part of frons with truncate anterior edge (anterior edge of *T. (T.) ruficolor* shallowly emarginate), length of labral lobes, puncturation of elytra, and also sculpture of prosternum;

– *T. (T.) striato-punctatus* Grouvelle, 1892 and *T. (T.) japonicus* in the shape of antennal club, and also puncturation of elytra;

– *T. (T.) unicolor* sp. nov. in the shape of antennal club, narrower mentum, not acuminate ultimate maxillary palpomeres, and also puncturation of elytra, prosternum and apical segment of abdomen.

Notes. This new species can be more closely related to *Triacanus (Triacanus) ruficolor* than any other congeners because they share similarities in the shape of mentum and puncturation of apical abdominal segment. At the same time the coarse puncturation of apical abdominal segment of *Triacanus (Triacanus) conformis* sp. nov. is similar to that in *T. (T.) striato-punctatus*, *T. (T.) japonicus* and somehow to that in *T. (T.) unicolor* sp. nov., and these four species are similar each to other by the anterior edge of frons, shape of labral lobes and mandibular base not dilated externally, diverging antennal grooves, although the level of divergence of antennal grooves in the new species and *T. (T.) unicolor* sp. nov. is not so great as in *T. (T.) striato-punctatus* and *T. (T.) japonicus*. And

the punctures of the apical abdominal segment of *T. (T.) unicolor* sp. nov. have somehow intermediate size between those in *T. (T.) conformis* sp. nov., *T. (T.) japonicus* and *T. (T.) striato-punctatus*, on one hand, and those in other members of the subgenus *Triacanus* sensu stricto, on the other.

***Triacanus (Triacanus) pullus* sp. nov.**

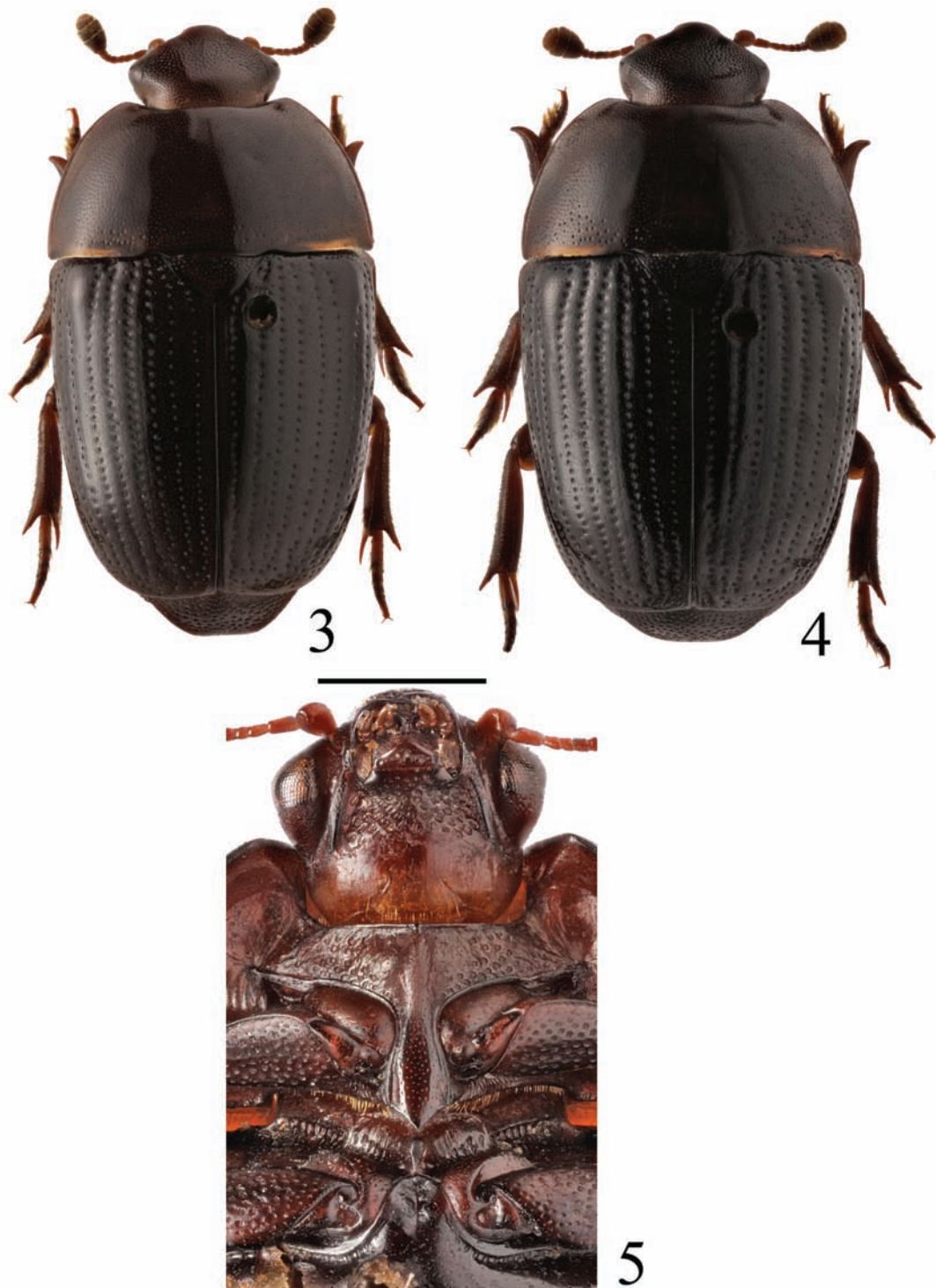
(Figs 3–5, 29–32)

Type specimens. Holotype, male (IZCAS) and 7 paratypes (IZCAS), China, “Fujian: Jianyang: Huangkeng: Aotou, 800–950 m, IZO, AC”, “IOZ(E)693118”–“IOZ(E)693125”(holotype – “IOZ(E)693122”), “Leg. Pu Fuji” (in Chinese characters); 2 paratypes (IZCAS and ZIN), “Wuyi Shan, IOZ, AC”, “IOZ(E)693131” and “IOZ(E)693131” (in Chinese characters).

Note. This new species is very similar to *T. (T.) conformis* sp. nov. (see above) and some characters common for both new species are omitted in the below description.

Description. *Holotype (male).* Length 6.0, breadth 3.3, height 2.2 mm. Body rather convex dorsally and moderately ventrally; dorsum subunicolorous dark reddish brown with darkened elytra, underside somewhat lighter (reddish brown) with reddish to yellowish antennal clubs, procoxae and tarsi; integument with a slight fat lustre; dorsum without pubescence, underside mostly with very short, sparse and slightly conspicuous yellowish hairs, although below surface of head, pygidium and legs with longer and more conspicuous hairs; prosternum without brush of long hairs.

Head with moderately small and distinct punctures, more or less larger than eye facets, interspaces between them subequal or somewhat greater than one puncture diameter, extremely finely and densely cellularly microreticulated to alutaceous. Pronotum with somewhat finer punctures, but larger than eye facets, interspaces between punctures 1–2 times as great as eye facets in diameter and very finely and densely cellularly microreticulated to alutaceous. Elytral surface with double puncturation: (1) very coarse and distinct punctures (about 3 times as large as eye facets) arranged in longitudinal rows and (2) very fine and slightly visible punctures diffusely spread through over whole elytral surface; interspaces between coarser punctures in rows subequal to or smaller than one diameter of punctures in rows, interspaces between



Figs 3–5. *Triacanus (Triacanus) pullus* sp. nov.: 3 – body of paratype, male (IZCAS, “Fujian: Jianyang: Huangkeng: Aotou, 800–950 m”), dorsal view; 4 – body of paratype, male (IZCAS, “Wuyi Shan”), dorsal view; 5 – anterior part of body of holotype (see above), ventral view. Length of body of paratype on Fig. 3 – 6.3 mm and paratype on Fig. 4 – 6.8 mm. Scale bar for Fig. 5 = 1.0 mm.

finer punctures in general smaller than 5 diameters of finer punctures and with very fine alutination (almost smooth). Pygidium with very coarse and somewhat different in size punctures (somewhat coarser than coarser punctures on elytra), but intervals between them more or less smaller than one puncture diameter and nearly smooth. Hypopygidium about as punctured and sculptured as pygidium, although with punctures somewhat smaller and sparser. Prosternum with very coarse, indistinct, shallow, irregular and subcontiguous punctures; prosternal process very finely and very sparsely punctured, and with rather smoothed sculpture between punctures.

Head transverse (about 1.5 times as wide as long). Labrum with lobes subtruncate at apex and wide median excision. Mandibles very slightly exposed from under frons and sharply curved along outer edge. Antennae somewhat shorter than head wide; scape rather swollen, slightly longer than thick and slightly curved; pedicel narrow, subcylindrical, about as long as scape; flagellomeres short ($1/3$ – $1/2$ as long as pedicel); 3-segmented club suboval (antennomeres 9 longer than antennomere 11) and composing about $2/5$ of total antennal length. Mentum subpentagonal and with subangular apex, about twice as wide as long. Ultimate labial palpomere almost twice as long as thick. Ultimate maxillary palpomere about three times as long as thick. Lateral edge of mandibles not dilated. Antennal grooves divergent, their inner ridge reaching base of temples. Prosternum with obliterated median carina and becoming sharp only at anterior edge; prosternal process without lateral processes and median process rather extended behind the posterior edges of procoxae. Median depression at base of metaventrite not reaching level of posterior edge of mesocoxal cavities.

Aedeagus. Moderately sclerotised.

Female. Differing from male in narrower and simple pro- and mesotarsomeres 1–3, and rounded apex of pygidium. Ovipositor slightly sclerotized.

Variations. Length 6.0–8.0 mm. Coloration of some specimens completely unicolorous brownish. Some variation observable in shape of antennal club. Puncturation and sculpture of interspaces between punctures is somewhat diverse: coarser punctures on elytra sometimes about twice as large as eye facets and distance between them in rows about as great as one puncture diameter; punctures on other dorsal sclerites somewhat different from those in the holotype; sometimes prosternum with more or less clear punctures.

Etymology. The epithet of the new species means “dark”.

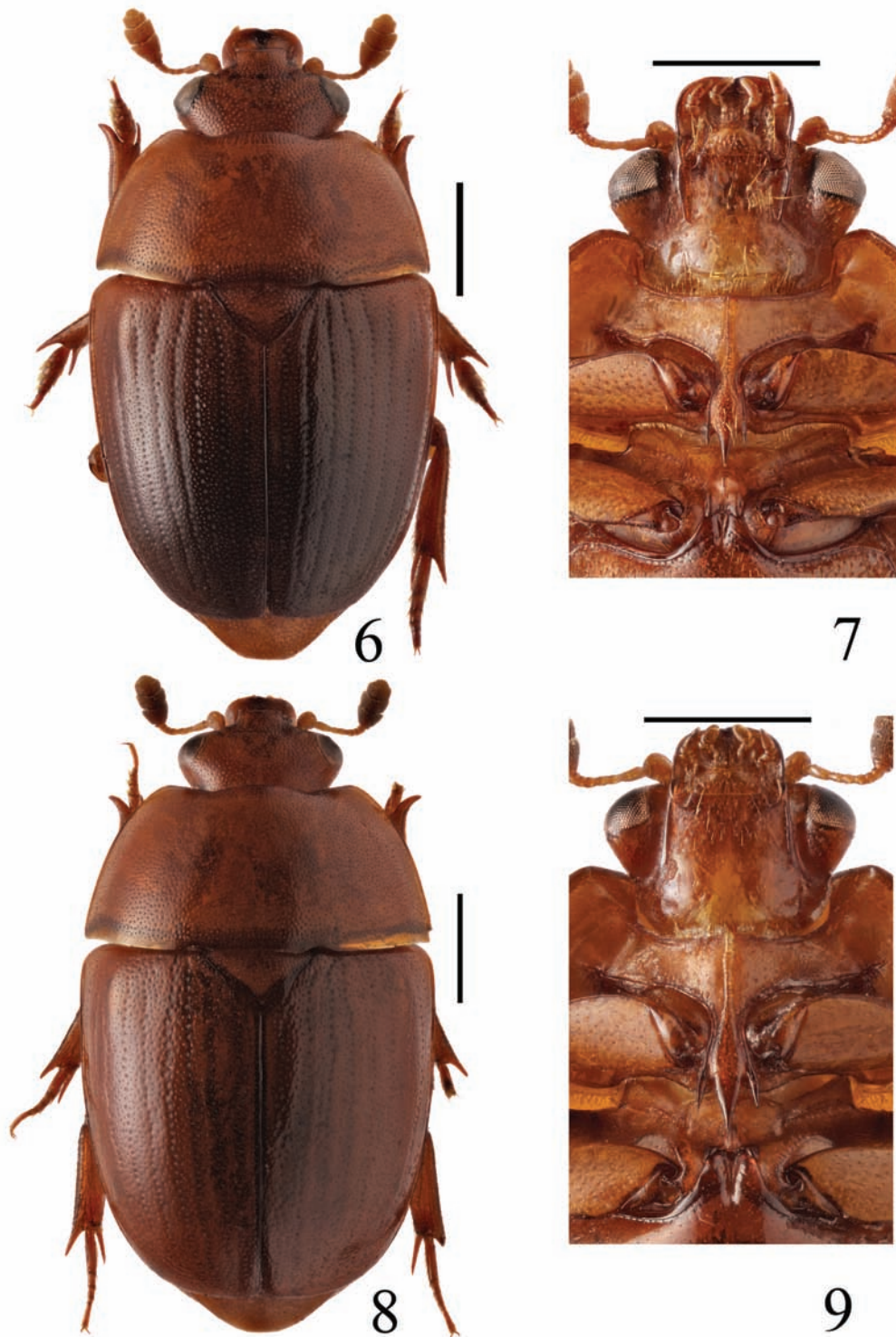
Comparison. *Triacanus (Triacanus) pillus* sp. nov. can be easily diagnosed after the below key and it is very similar to *T. (T.) conformis* sp. nov. (see comparison for this species)

***Triacanus (Triacanus) unicolor* sp. nov.**
(Figs 8–9, 37–39)

Type specimens. Holotype, male (SMNS) and 1 paratype, female (ZIN), “Malaysia: Cameron Highland, Power Station (km 29), 21.6.1990, A. Riedel”.

Description. *Holotype (male).* Length 5.2, breadth 3.2, height 1.8 mm. Body rather convex dorsally and moderately ventrally; body subunicolourous dark reddish with darkened antennal club; integument with slight fat lustre; dorsum without pubescence, underside mostly with very short, sparse and slightly conspicuous yellowish hairs, although below surface of head, pygidium and legs with longer and more conspicuous hairs; prosternum with brush of long hairs.

Head and pronotum with moderately fine and distinct punctures, more or less larger than eye facets, interspaces between them subequal or somewhat greater than one puncture diameter, extremely finely and densely cellularly microreticulated to alutaceous. Elytral surface with double puncturation: (1) coarse and distinct punctures (about twice as large as eye facets) arranged in not quite regular longitudinal rows and (2) fine punctures slightly finer than those on head and pronotum and diffusely spread through over whole elytral surface; interspaces between coarser punctures in rows 1.0–1.5 times as great as one diameter of punctures in rows, interspaces between finer punctures 3–5 diameters of finer punctures and with very fine alutination (almost smooth). Pygidium with very coarse and somewhat different in size punctures (mostly as coarse as coarser punctures on elytra), but intervals between them about one puncture diameter and nearly smooth. Hypopygidium about as punctured and sculptured as pygidium, although with punctures somewhat finer and sparser. Prosternum with moderately coarse but shallow and very sparse punctures, interspaces between them cellularly microreticulated; prosternal process very finely and sparsely punctured, and with rather smoothed sculpture between punctures. Pterothoracic sterna and abdominal ventrites 1–4 with extremely fine and sparse puncturation, but smooth interspaces between punctures.



Figs 6–9. Species of the subgenus *Triacanus*. *Triacanus (Triacanus) ruficolor* (6–7): 6 – body of male from Vietnam (ZIN, Vietnam, Thái Nguyên, Phú Lương District), dorsal view; 7 – anterior part of body of the same specimen, ventral view; length of body 5.3 mm; *T. (T.) unicolor* sp. nov. (8–9): 8 – body of paratype, female (ZIN, “Cameron Highland, Power Station (km 29)”), dorsal view; 9 – anterior part of body of same specimen; length of body 5.3 mm. Scale bar = 1.0 mm.

Head transverse (about 1.5 times as wide as long), gently and evenly convex, with medium-sized eyes (composed by rather fine facets). Labrum with lobes subtruncate at apex and wide median excision. Mandibles very moderately exposed from under frons and sharply curved along outer edge. Antennae somewhat shorter than head wide; scape rather swollen, slightly longer than thick and slightly curved; pedicel narrow, subcylindrical, about as long as scape; flagellomeres short (1/3–1/2 as long as pedicel); 3-segmented club elongate (antennomeres 9–11 subequal in width and antennomeres 9 and 11 subequal in length) and composing slightly more than third of total antennal length. Pronotum strongly transverse. Elytra gently narrowing posteriorly and subtruncate at apices. Pygidium with slightly emarginate apex. Mentum subtrapeziform and with nearly truncate apex, about 2.5 times as wide as long. Ultimate labial palpomere about 1.5 times as long as thick. Ultimate maxillary palpomere about 2.5 times as long as thick at base and with subacute apex. Lateral edge of mandibles somewhat dilated. Antennal grooves divergent, their inner ridge not reaching base of temples. Prosternum with rather raised and sharp median carina; prosternal process with rather long lateral processes and median process rather extended behind posterior edges of procoxae. Distance between mesocoxae subequal to that between metacoxae and to that between procoxae. Median depression at base of metaventrite not reaching level of posterior edge of mesocoxal cavities. Abdominal ventrite 1 nearly as long as hypopygidium and slightly longer than ventrites 2–4 combined. Epipleura at base about 1.5 times as wide as antennal club.

Tibiae somewhat wider than antennal club, with far projecting and sharp outer apical angle. Profemur more than twice as long as wide, mesofemur almost twice as long as wide and metafemur more than 2.5 times as long as wide; mesofemur with convex posterior edge and slightly widened posteriorly and metafemur with convex posterior edge. Protarsus very wide (about 3/5 as wide as antennal club), stout and slightly lobed; setae of underside in protarsomeres 1–3 very well developed; claws simple and very narrow. Mesotarsus similar but with narrower lobes of mesotarsomeres 1–3. Metatarsus with subcylindrical tarsomeres 1–3 bearing two paramedial rows of setae along lower plane.

Aedeagus. Moderately sclerotised.

Female. Length 5.3 mm. Differing from male in narrower and simple pro- and mesotarsomeres 1–3,

lack of brush of long hairs on prosternal carina and rounded apex of pygidium. Ovipositor moderately sclerotized.

Etymology. The epithet of the new species referred to the unicolorous body of this new species (Latin “unicolor” – unicolorous, monotonous, isochromatic).

Comparison. *Triacanus (Triacanus) unicolor* sp. nov. can be easily diagnosed after the below key. It is very distinct by the subacute apex of the ultimate maxillary palpomere and apex of ovipositor, which is not so acuminate as that in other consubgenera. It is characterized by the subunicolorous reddish body and can be compared with *T. (T.) ruficolor*, but differs from the latter in the shape of antennal club, mentum, ultimate palpomeres, antennal grooves, apex of the prosternal process and structure of the aedeagus.

Key to species of the subgenus *Triacanus* sensu stricto based on the key proposed by Grouvelle (1892)

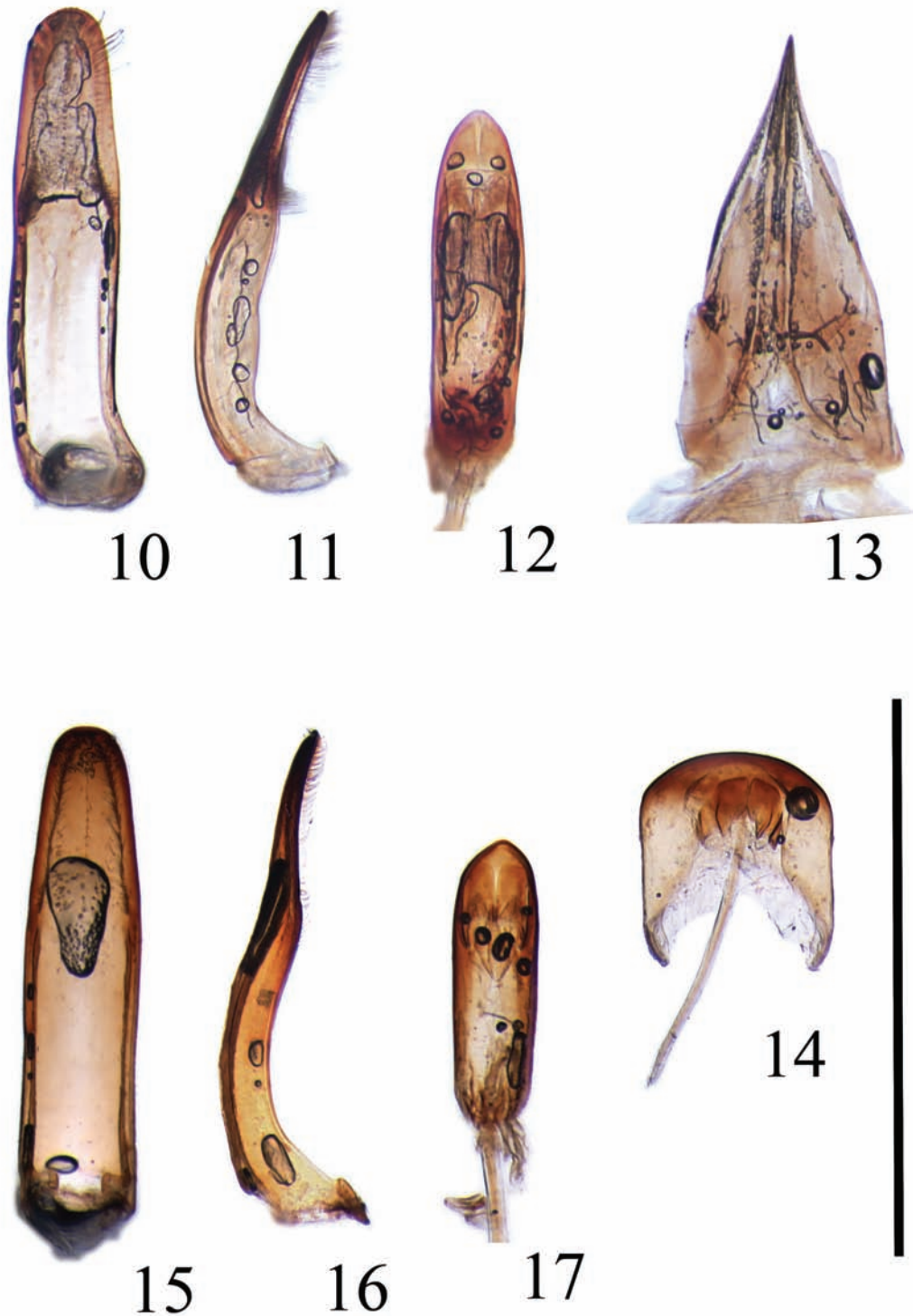
1. Dorsum nearly dark unicolorous: dark brownish to blackish (or sometimes head and prothorax somewhat lighter: dark brownish to brownish); prosternum with smooth (obliterated) median carina and with not strongly acuminate apex, its lateral processes not strongly acuminate or not raised; antennal grooves distinctly divergent posteriorly; median prosternal carina without sexual dimorphism 2
- Dorsum usually bicolorous: reddish with dark brownish to blackish elytra, or unicolorous reddish; prosternum with sharp median carina and with strongly acuminate apex, its lateral processes strongly acuminate; antennal grooves more or less subparallel, sometimes very slightly divergent or convergent posteriorly; median prosternal carina with sexual dimorphism: males usually with more or less raised brush of hairs near the middle 3
- 2 (1). Interspaces between longitudinal rows on elytra 4–5 times as wide as punctures diameter; mentum subquadrate; prosternal process with small lateral processes at apex. Male: tegmen with subtruncate apex; penis trunk with subangular apex. 7.1 mm. Figs 1–2, 14–17. China, Sichuan *T. (T.) conformis* sp. nov.
- Interspaces between longitudinal rows on elytra about 3 times as wide as punctures diameter; mentum subpentagonal and with rounded apex; prosternal process without lateral processes at apex. Male: tegmen with rounded apex; penis trunk with rounded apex. 6.0–8.0 mm. Figs 3–5, 29–32. China, Fujian *T. (T.) pullus* sp. nov.
- 3 (1). Dorsum of body (sub) unicolorous: reddish or elytra sometimes somewhat darker; elytra subtruncate at apices 4

- Body bicolorous, general coloration reddish but elytra or at least their apices black or blackish; elytra various at apices 5
- 4 (2). Ultimate antennomere much narrower than penultimate one (latter at least 1.5 times as wide as former); antennal grooves slightly convergent distally; ultimate labial palpomere of usual shape and at least three times as long as thick; mentum about twice as wide as long; lateral processes of apex of prosternal process subparallel-sided. Male: tegmen with a pair of paramedian brushes of very long and dense hairs at apex; penis apex narrowly rounded. 5.4–5.5 mm. Figs 6–7 (also Kirejtshuk 1984: Figs 114–122). Myanmar; Vietnam
 *T. (T.) ruficolor* Kirejtshuk, 1884
- Antennomeres of antennal club comparable in width; antennal grooves slightly divergent distally; ultimate labial palpomere acuminate at apex and about twice as long as thick; mentum about 2.5 times as wide as long; lateral processes of apex of prosternal process distinctly divergent. Male: tegmen with rather short and sparse hairs along its sides; penis apex widely rounded. 5.2–5.3 mm. Figs 8–9, 37–39. Malaysia, Cameron Highlands *T. (T.) unicolor* sp. nov.
- 5 (2). Elytra only at apices black or blackish; punctures on pygidium smaller than punctures in longitudinal rows on elytra; another part of elytra and other sclerites yellow; antennal grooves slightly convergent distally. Male: tegmen with widely rounded apex; penis with subacute apex. 5.0–7.8 mm. Figs 10–13. India, Darjeeling; Malaysia, Sabah; Vietnam; Philippines, Mindanao, Luzon, Santa Cruz Island (Marinduque), Leyte; Indonesia, Kalimantan, Sulawesi
 *T. (T.) apicalis* (Erichson, 1834)
- Elytra subunicolorous and markedly darker, dark reddish, dark brownish to blackish; combination of other characters different 6
- 6 (5). Antennal club suboviform (about 1.5 times as long as wide); punctures in distinct longitudinal rows on elytra, significantly coarser than very fine (to inconspicuous) punctures between rows; antennal grooves divergent posteriorly; femora narrower: mesofemur about 2.5 times as long as wide and subparallel-sided, and metafemur less than 2.5 times as long as wide and with slightly convex posterior edge 7
- Antennal club elongate (about twice as long as wide or longer); punctures nearly diffuse or in more or less distinct longitudinal rows on elytra, slightly coarser than very finer punctures between rows; antennal grooves more or less convergent posteriorly; femora more or less wider: meso- and metafemora with clearly more convex posterior edge. Male: protarsi markedly more than half as wide as protibiae. India, Darjeeling, Kerala, Andaman Islands; Sri Lanka; China, Yunnan; Taiwan; Myanmar, Vietnam; Laos; Malaysia, Pahang, Cameron Highlands, Sabah; Brunei; Indonesia, Java, Kalimantan, Sumatra *T. (T.) nigripennis* Reitter, 1873 8
- 7 (6). First segment of antennal club (antennomere 9) distinctly less than half of total length of club. Male: protarsi less than half as wide as protibiae; tegmen slightly longer than penis trunk and with rounded apex bearing comparatively short setae; penis trunk about 2.5 times as long as wide and with moderately rounded apex. 6.3–7.6 mm. Figs 33–36. Myanmar (Burma); Vietnam; Malaysia, Cameron Highlands, Perak, Sabah; Indonesia, Kalimantan, Sumatra, Java
 *T. (T.) striato-punctatus* Grouvelle, 1892
- First segment of antennal club (antennomere 9) about half of total length of club. Male: protarsi much more than half as wide as protibiae; tegmen more than 1.5 times as long as penis trunk and with truncate apex bearing paramedian brushes of rather long setae; penis trunk nearly four times as long as wide and with moderately rounded apex. 5.2–5.3 mm. Hisamatsu, 1985: Pl. 31, Fig. 7. Japan
 *T. (T.) japonicus* Sadanari Hisamatsu, 1985
- 8 (6). Punctures in longitudinal rows on elytra nearly as coarse as punctures on interspaces between rows; meso- and metafemur much less than 2.5 times as long as wide. Male: protarsi about 2/3 as wide as protibiae; tegmen almost twice as long as penis trunk and with rounded apex; penis trunk with rounded apex. 5.4–6.6 mm. Figs 25–28 *forma punctatissima*
- Punctures in longitudinal rows on elytra much coarser than punctures on interspaces between rows; meso- and metafemur in general somewhat narrower. Male: protarsi about 2/3 as wide as protibial; tegmen about 1.5 times as long as wide 9
- 9 (8). Body more oval with more arcuate elytral sides and longer than 4.8 mm; median depression at base of metaventre reaching the level of posterior edge of mesocoxae. Male: tegmen and penis trunk comparatively longer. 4.8–7.5 mm. Figs 18–21. (also Kirejtshuk 1990: Fig. 107) *forma typica*
- Body more subquadrate with subparallel elytral sides and shorter than 4.2 mm; median depression at base of metaventre not reaching the level of posterior edge of mesocoxae. Male: tegmen and penis trunk comparatively shorter. 4.0–4.2 mm. Figs 22–24 (also Kirejtshuk 1990: Figs 103–106) *forma parva*

Remarks on distribution and synonymy

Triacanus (Triacanus) apicalis (Erichson, 1834)

Specimens examined. 1 syntype (ZIN) – Philippines, “Manila, Megen”; 9 (ZIN, ZMB) – “Philippinen, St. Cruz, Okt. 1915, leg. Böttcher”; 4 (ZIN, ZMB) – “Philippinen, Leyte, Duranen”, “S. Boettcher, V.1915”; 4 (ZIN, ZMB) – “Philippinen, Mindanao, Surigao”, “Boettcher, V.1915”; 2 (SMTD) – “Los Ba-



Figs 10–17. Genitalia of species of the subgenus *Triacanus*. *Triacanus (Triacanus) apicalis*, male from (ZIN, “Mindanao, Surigao”) (10–13): 10 – tegmen, ventral view; 11 – idem, lateral view; 12 – penis trunk, dorsal view; *T. (T.) apicalis*, female from (ZIN, “Leyte, Duranen”): 13 – ovipositor, ventral view; *T. (T.) conformis* sp. nov., holotype (IZCAS, “E’mei Shan”): (14–17): 14 – male genital capsule and spiculum gastrale, ventral view; 15 – tegmen, ventral view; 16 – idem, lateral view; 17 – penis trunk, dorsal view. Scale bar = 1.0 mm.

nos, P.J. Baker”; 1 (MNB) – **India**, “Indien Darjeeling D., Bhakta B.”, “Reenok, 9–13.V.1990”; 3 (HNHB, ZIN) – **Vietnam**: Cao Phuong, Ninh Binh, 12–18.V.1966, Gy. Topál”, “Nr. 384, sifted litter of forest”; 1 (BMHN) – **Malaysia**, Sabah, Sandakan, S. Lokan (LF), Sept. 96, A.Y.C. Chung”; 1 (MNHN) – Indonesia, “Borneo, Doesonlanden”; 1 (MNHN) – “Nord-Celebes, Toli-Toli, Nov.-Dez. 1895, H. Fruhstorfer”.

Triacanus (Triacanus) japonicus Hisamatsu, 1985

Notes. Sadanari Hisamatsu published in “Coloured illustration of the Coleoptera of Japan” (Hisamatsu 1985: 193) the new name of “*Triacanus japonicus*” with some short notes in the key to species and only with a rather small habitus picture of it. Thanks to generous cooperation of Sadatomo Hisamatsu the pictures of high resolution and important comments of structures of the type specimens deposited in the collection of the Ehime University were obtained by the author for these studies. This contribution made it possible to estimate main characters of them and find a placement of this species among congeners. This species is very similar to *Triacanus striatopunctatus*, differing from the latter only in the body size and the characters mentioned in the above key to species.

Triacanus (Triacanus) nigripennis Reitter, 1873

(=*Triacanus punctatissimus* Grouvelle, 1892;

=*Triacanus sauteri* Grouvelle, 1914;

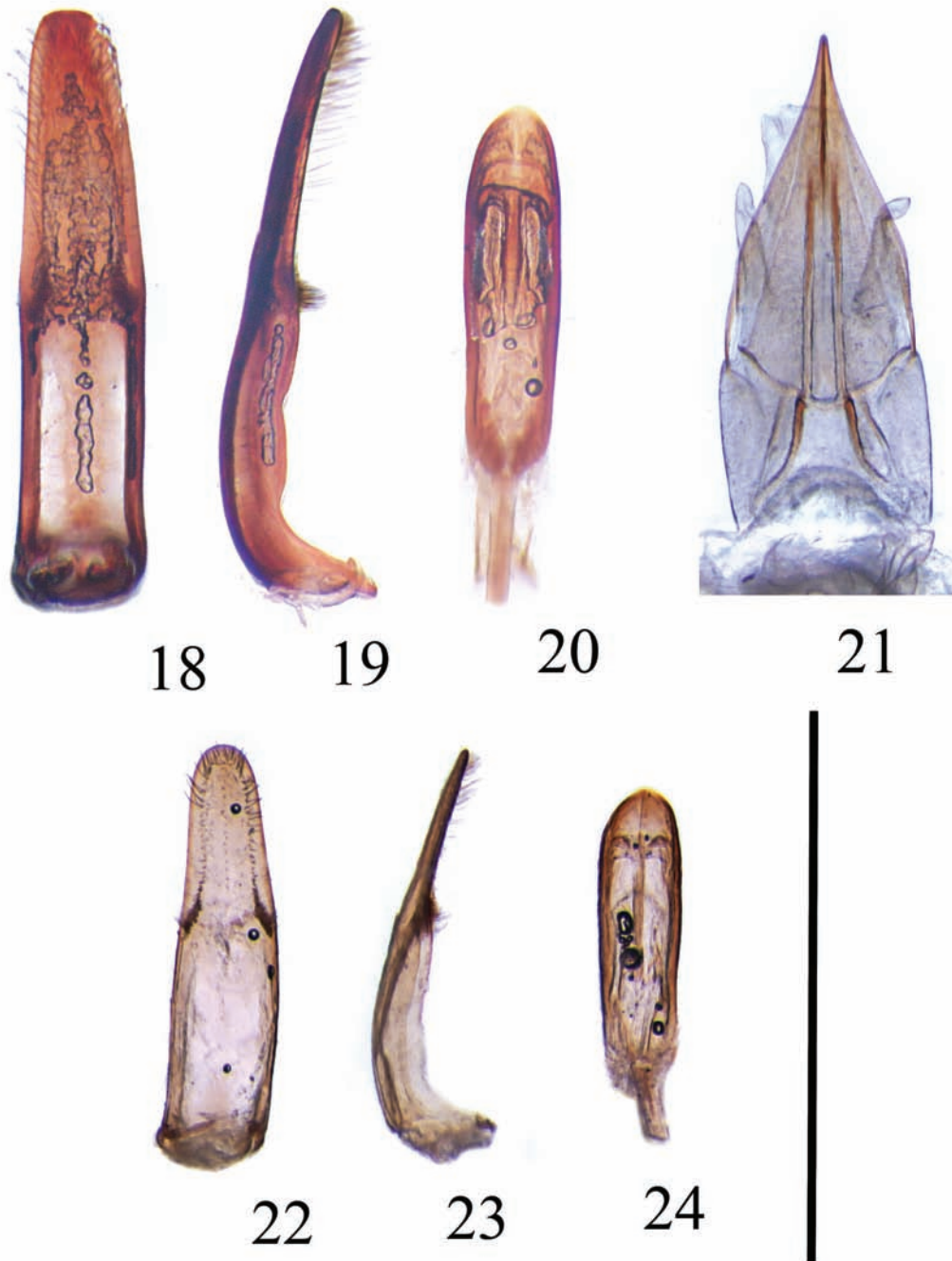
= *Triacanus parvus* Kirejtshuk, 1990, syn. nov.)

Specimens examined. *Forma typica*: Lectotype of *T. (T.) nigripennis* (MNHN), male, here designated – “Ind. or., Ind or.”, “Type”, “*Triacanus nigripennis* Reitter., type, Ind. or.” (written by E.Reitter); 1 probable paralectotype of *T. (T.) nigripennis* (MNHN) – **Sri Lanka**, “*Triacanus nigripennis* Murray, Ceylon”; 1 paralectotype of *T. (T.) nigripennis* (ZIN) – “Ceylon”; 1 (NMB) – **India**, “Indien Darjeeling D., Bhakta B.”, “Reenok, 9–13.V.1990”; 3 (MNHN) – Andaman Islands, “Andaman”, “*Triacanus punctatissimus* var. Grouvelle”; 2 (ZMUC) – **Sri Lanka**, “Ceylon, Mus. Drews”; 3 (ZMUC, ZIN) – “Ceylon, Mus. Drews”; 4 paralectotypes of *T. (T.) sauteri* (MNHN) – **Taiwan**, “Kankau (Koshun), Formosa, H. Sauter, viii.1912”, “Type”, “*Triacanus sauteri* ty. Grouv.” (handwritten); 1 (SMNS) – **China**, “Yunnan, 1500–2500 m, 25.22N 98.49E, 17–24/5.1995, Gaoligong Mts., Vit Kubán”;

1 (ZIN) – **Vietnam**, Prov. Són La, der. Songma, 3 May 1986, A.Gorokhov; 2 (ZIN, ZMB) – “Central Tonkin, Chiem-Hoa, Aug.Sept., H. Fruhstorfer”; 1 (ZIN) – **Laos**, Takhek, Boneng, 26 x 1984, Kabakov”; 2 (ZIN) – “N03°20,619′, E101°51,607′, **Malaysia**, Pahang, Bentong bk, Tinggi, Janda Baik, 425 m, at loop road, through Janda Baik, secondary forest”, “10:38–13:30, 10:25, 17 May 2001, in fl. *Orchidantha fimbriata*”, “L.B. Pedersen & B. Johansen”; 1 (ZIN) – “N03°20,619′, E101°51,607′, Malaysia, Pahang, Bentong bk, Tinggi, Janda Baik”, “10:38–13:30, 10:25, 17 May 2001, in fl. *Orchidantha fimbriata*, 427 m, at loop road, through Janda Baik, secondary forest.”, “L.B. Pedersen & B. Johansen”; 1 (MNHN) – “Kelantan”; 4 (NRS, ZIN) – **Indonesia**, “Java”, “Nyman”; 9 (MNHN, ZIN) – “Java, Malang”; 1 (MNHN) – “Java”; 3 (RMNH, ZIN) – “Java, 22–2–1927, Res. Semarang, 40 m”, “Fr.A.Th.H. Verbeek, Manggar, N W 193”, “collectie Karshoven”; 1 (MNHN) – “Kuching, Aug. 17, 1900”, “Borneo”; 2 (MNHN) – “Kuching, Sept. 25, 1900”, “Borneo”; 1 (MNHN) – “Kuching, Mar.6, 1902”, “Borneo”; 1 (MNHN) – “Kuching, Aug. 16, 1900”, “Borneo”; 1 (MNHN) – “Matang, June, 1900”, “Borneo”; 1 (MNHN) – “Buitenzorg, 1000, Febr. 90, I.Z. Kannegieter”; 1 (NRS) – “Bandar, Baroe”, “Sumatra, Mjöberg”; 1 (NMW) – “Borneo, 1881, Post II”; 1 (NMW) – “Breitsi, 1882, Borneo, Tew”; 1 (SMTD) – “Borneo, W. Morton, 1898”; 1 (SDEI) – “Sumatra, leg. H. Fulmek”, “Atjeh, N Sumatra, 26.IX.21”; 4 (MNHN, ZIN) – “?Indrapur, Sumatra”, “Veyer”; 1 (MNHN) – “Sumatra, Palembang”; 4 (MNHN, ZIN) – “Brunei, Borneo”; 1 (MNHN) – Malaysia or Brunei, “North Borneo, ex coll. Fruhstorfer”; 1 (MNHN) – Malaysia or Indonesia, “Borneo, Hollandais”.

Forma “parva”: holotype and paratype of *T. (T.) parvus* (ZIN). According to the information from J. Jelínek some small specimens collected by him in Vietnam, which could belong to this form, are deposited in the Národní Muzeum v Praze.

Forma “punctatissima”: 3 syntypes of *T. (T.) punctatissimus* (MNHN, ZIN) (in addition to those mentioned in Kirejtshuk, 2005) – **Myanmar**, “Carin Chebá, 400 m, L. Fea, XI.88”, “*Triacanus punctatissimus* n. sp.” (handwritten by A. Grouvelle); 1 syntypes of *T. (T.) punctatissimus* (MNHN) – “Poulon (Pegu), L. Fea, viii-ix.1897”, “*Triacanus punctatissimus*” (handwritten by A. Grouvelle); 2 syntypes of *T. (T.) punctatissimus* (MNHN) – “Burmania, Fea”; 1 (NMB) – “S. India, Kerala, 1250 m,



Figs 18–24. Genitalia of *Triacanus* (*Triacanus*) *nigripennis*, male of *forma typica* (ZIN, “Ceylon, Mus. Drews”) (18–21): 18 – tegmen, ventral view; 19 – idem, lateral view; 20 – penis trunk, dorsal view; female of *forma typica* (ZIN, “Prov. So’n La, der. Songma”): 21 – ovipositor, ventral view; *forma parva*, holotype of *T. (T.) parvus*, male (ZIN, Vietnam, mountains north from Hanoi, 13 June 1962, O.Kabakov): (22–24): 22 – tegmen, ventral view; 23 – idem, lateral view; 24 – penis trunk, dorsal view. Scale bar = 1.0 mm.

15 km NW Munnar, 1–9.v.1997, 10.02N76.57E, Kallar Valley, Dembický & Dembický”; 4 (MNHN, ZIN) – “Cochinchin”; 8 (SMNS, ZIN) – “**Malaysia**: Cameron Highland, Power Station (km 29), 21.6.1990, A. Riedel”; 2 (BMNH) – “Malaysia, Sabah, Sandakan, S. Lokan (LF), Sept. 96, A.Y.C. Chung” (March 97).

Notes. The lectotype of *Tricanus (Tricanus) nigripennis* described from Ceylon designated from the specimens came to MNHN from E. Reitter who sometimes wrote under the specimens collected in Ceylon “Ind. or.” and the specimen from designated as a probable paralectotype of *T. (T.) nigripennis* could have the same origin. Besides it, because E. Reiter mentioned the origin of type series in the Dohrn’s collection (Reitter, 1873, p. 139: “Von Herrn Dr. C.A. Dohrn aus Stettin freundlichst mitgeteilt.”) which was ruined during the Second World War, the author has chosen as a lectotype one specimen from the descriptor’s collection. The type specimens of *T. (T.) punctatissimus* as those of *T. (T.) striato-punctatus* are here considered as syntypes, because it would better to designate the lectotypes of both in the collection of the Museo Civico di Storia Naturale “Giocomo Doria”, Genova, where specimens collected by L. Fea were initially deposited. Some notes on synonymy and distribution of this species were published by Kirejtshuk and Kabakov (1997) and Kirejtshuk (2005) with proposal of synonymy of *T. (T.) nigripennis*, *T. (T.) punctatissimus* and *T. (T.) sauteri* and data on its distribution in Sri Lanka, India (Darjeeling, Andaman Islands), Myanmar (Burma), Laos, Vietnam, Malaysia (Cameron Highlands, Kalimantan), Taiwan, Indonesia (Sumatra), with reference to Grouvelle (1908). Additional studies confirmed this synonymy and made it possible to suppose that *T. (T.) parvus* represents only comparatively small specimens of *T. (T.) nigripennis*. It is a reason of the proposal to use for the groups of specimens of this species mostly different in body size and puncturation as forms (typica, “*parva*” and “*punctatissima*”). Besides, the females from Brunei are very narrow and look like very different from most other specimens of this variable species, however, taking into consideration that this species strongly varies in its body convexity (more convex specimens become more slender), it would be reasonable to regard them not more than an extreme of variability or may be a separate form.

***Tricanus (Tricanus) ruficolor* Kirejtshuk, 1884**

Specimens examined. 1 (ZIN) – Vietnam, Thái Nguyên, Phú Lương District, 15–23 April 1988, A. Gorochov; 1 (ZMB) – “Hugiang, Tonkin”.

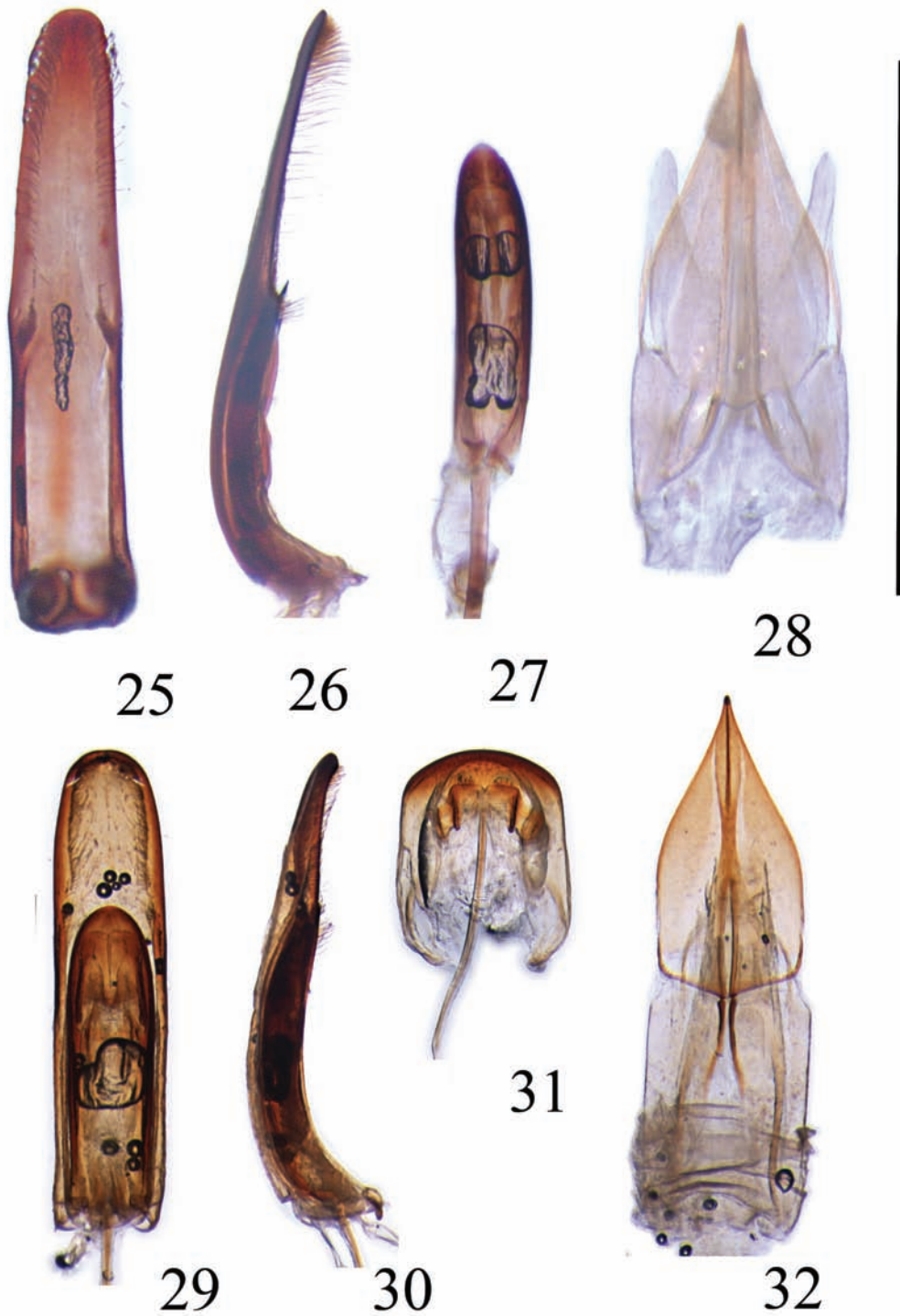
***Tricanus (Tricanus) striato-punctatus* Grouvelle, 1892**

Specimens examined. 5 syntypes of *T. (T.) punctatissimus* (IRSN, MNHN, ZIN) – Myanmar, “Carin Chebá, 400 m, L. Fea, XI.88”, “*Tricanus striato-punctatus* n.sp.” (handwritten); 3 syntypes of *T. (T.) punctatissimus* (MNHN) – “Burmania, Fea”; 1 (ZIN) – Vietnam, “okr. Bao Lac, 1200 m, 15.6.1962, Kabakov”; 1 (ZIN) – Vietnam, Thái Nguyên, Phú Lương District, 15–23 April 1988, A. Gorochov; 8 (SMNS, ZIN) – “**Malaysia**: Cameron Highland, Power Station (km 29), 21.6.1990, A. Riedel”; 1 (ZIN) – “N05°27,471’, E101°25,076’, Malaysia, Upper Perak, Belum Valley, clearing in primary forest at bank of Jasik, Temengor, 275 m, 10:25, 15 May 2001, in fl. *Orchidantha fimbriata*”, “L.B. Pedersen & B. Johansen”; 1 (NMC) – “Borneo: Sabah, Danum Valley, 5.01°N, 117.47°E, 13–16.ix.1990, 1–200 m, A.J. Davis”, “dung baited pitfall, Trap No 0168, Grid No Hydo 2”; 1 (MNHN) – “Buri, Jan.6, 19021”; 2 (ZIN, ZMB) – Indonesia, “S.O. Borneo, Wahnes”; 1 (SDEI) – “Sumatra, Atjeh”, “leg. H. Fulmek”; 3 (RMNH, ZIN) – “Java, 22–2–1927, Res. Semarang, 40 m”, “Fr.A.Th.H. Verbeek, Manggar, N W 193”, “collectie Karshoven”; 1 (MNHN) – “Java, Malang”; 1 (MNHN) – “?Indrapur, Sumatra”, “Veyer”; 1 (MNHN) – Malaysia or Indonesia, “Borneo, Hollandais”; 1 (MNHN) – “Borneo, Doesonland”.

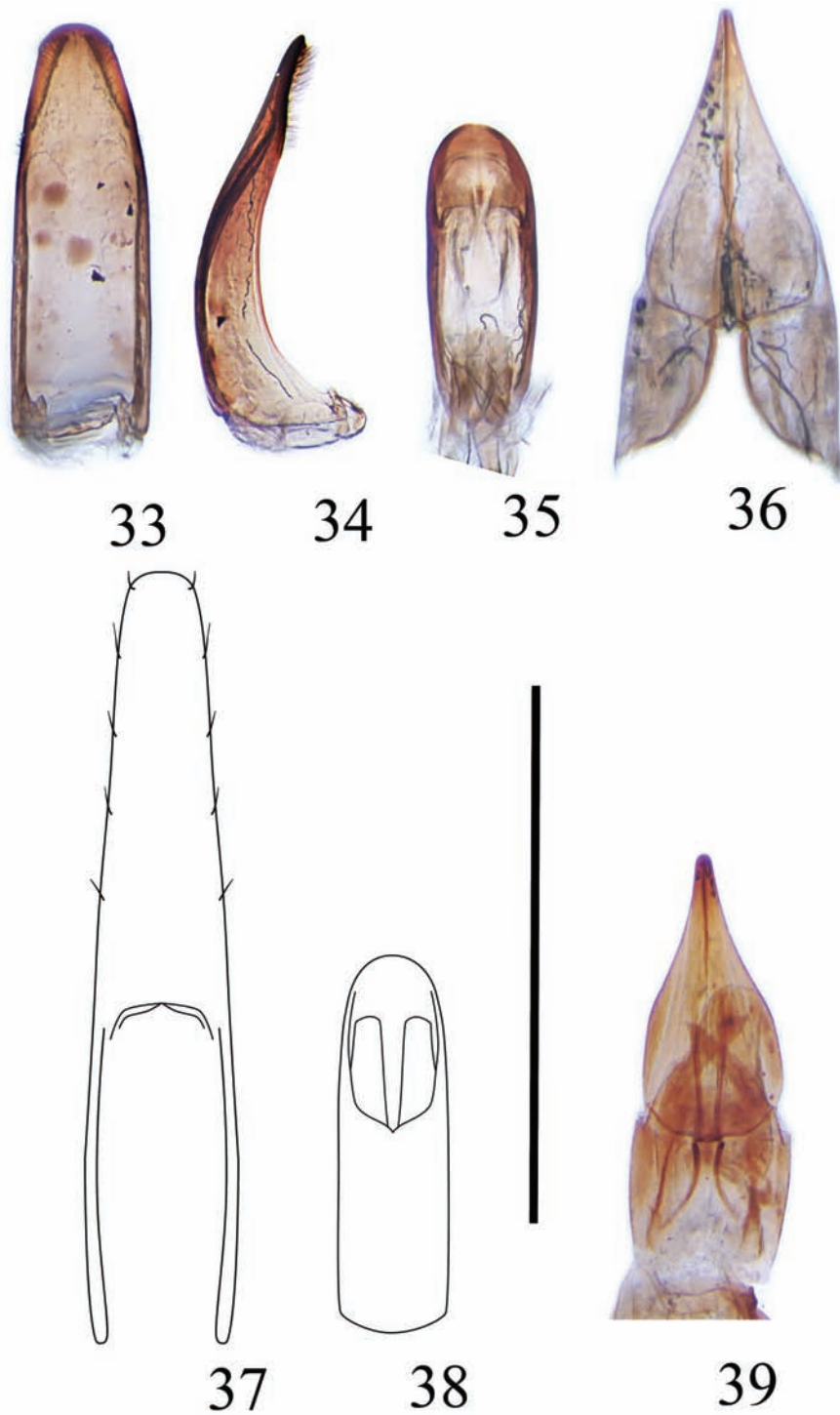
Notes. This species is quite distinct due to the characters mentioned in the above key to species and some data on the distribution of this species were published by Kirejtshuk and Kabakov (1997).

Notes on bionomy

Josef Jelínek more than once observed that small specimens of this subgenus (could be *forma* “*parva*” of *Tricanus (Tricanus) nigripennis*) were on fungi from Phallaceae (stinkhorns) (personal communication). On the other hand, some specimens *T. (T.) nigripennis* and *T. (T.) striato-punctatus* were sometimes collected on flowers of *Orchidantha fimbriata* (Lowi-



Figs 25–32. Genitalia of species of the subgenus *Triacanus*. *T. (T.) nigripennis, forma punctatissima*, male and female (ZIN, “Cameron Highland, Power Station (km 29)”): (25–28): 25 – tegmen, ventral view; 26 – idem, lateral view; 27 – penis trunk, dorsal view; 28 – ovipositor, ventral view; *Triacanus (Triacanus) pullus* sp. nov., paratypes, male and female (ZIN, “Fujian: Jianyang: Huangkeng: Aotou”) (29–32): 29 – aedeagus, ventral view; 30 – idem, lateral view; 31 – male genital capsule and spiculum gastrale; 32 – ovipositor, ventral view. Scale bar = 1.0 mm.



Figs 33–39. Genitalia of species of the subgenus *Triacanus*. *Triacanus (Triacanus) striato-punctatus*, male (ZIN, “Upper Perak, Belum Valley”): (33–36): 33 – tegmen, ventral view; 34 – idem, lateral view; 35 – penis trunk, dorsal view; and female (ZIN, “Cameron Highland, Power Station (km 29)”): 36 – ovipositor, ventral view; *T. (T.) unicolor* sp. nov., holotype, male and paratype, female (ZIN, “Cameron Highland, Power Station (km 29)”): (37–39): 37 – tegmen, ventral view; 38 – idem, lateral view; 38 – penis trunk, dorsal view; 39 – ovipositor, ventral view. Scale bar = 1.0 mm.

aceae). Besides, P. Puccio (2016) mentioned that in this plant species “the flowers are pollinated by coleopterans belonging to the family of the Nitidulidae”. These facts could pertain to the same species and indicating on different aspect of the bionomy of *Triacanus* species. Teichert et al. (2012) described in detail the participation of one cyllodine species from fungivorous group (*Pycnocnemus* Sharp, 1891) in pollination of the South American *Duguetia cadaverica* (Annonaceae) (saproanthrophily). In cases with *Triacanus* species something similar can be admitted. Such admission seems to be probable taking into consideration that another Orchidantha species (*O. inouei* from Kalimantan) is known to imitate the smell of dung in order to attract the small dung beetles *Onthophagus* Latreille, 1892 (Scarabaeidae Latreille, 1802) as pollinators (Sakai and Inoue 1999). The concept of anthrophagization of coleopterous groups (Kirejtshuk 1994, 1997; etc.) supposes that different coleopterans (mostly members of the superfamily Cucujoidea) are at an early stage of settling down to a lifestyle involving larval development in decaying flowers, and these groups demonstrate a regular association with decomposing flowers. It may be that this substrate is similar enough to fungi so that the shift from mycophagy to saproflorivory is relatively easy. Another aspect is the maintaining larval associations with fungal substrates (or even decaying flowers) and adaptation of adults to live in flowers during anthesis feeding on pollen (instead of spores of fungi) and participate in pollination. According to this concept the mentioned peculiarities of bionomy of *Triacanus* species fit an initial stage of anthrophagization when their fungivorous adults begin to specialize to inhabitation in flowers of entomophilous plants with participations in pollination of these plants, while their larvae remain to be associated with fungi (as in other groups of Nitidulidae considered in detail in some previous publications: Kirejtshuk 1994, 1996, 1997; etc.).

Composition of the subgenus

Triacanus sensu stricto

- Triacanus (Triacanus) apicalis* (Erichson, 1834)
Triacanus (Triacanus) conformis sp. nov.
Triacanus (Triacanus) japonicus Hisamatsu, 1985
Triacanus (Triacanus) nigripennis Reitter, 1873 (= *punctatissimus* Grouvelle, 1892; *sauteri* Grouvelle, 1914; *parvus* Kirejtshuk, 1990, syn. nov.)

- Triacanus (Triacanus) pullus* sp. nov.
Triacanus (Triacanus) ruficolor Kirejtshuk, 1884
Triacanus (Triacanus) striato-punctatus Grouvelle, 1892
Triacanus (Triacanus) unicolor sp. nov.

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REFERENCES

- Grouvelle A. 1892.** Viaggio di Leonardo Fea in Bimania et regioni vicini. 50. Nitidulides, Cucujides et Parnides. 2. *Annali del Museo Civico di Storia Naturale “Giocomo Doria”*, Genova, **32**: 833–868.
- Grouvelle A. 1908.** Coleoptères de la region Indienne. Rhizodidae, Trogossitidae, Nitidulidae, Colydiidae, Cucujidae. 1-ere memoire. *Annales de la Société entomologique de France*, **77**: 315–495.
- Grouvelle A. 1914.** H. Sauter Formosa Ausbeute (Rhizodidae, Nitidulidae, Ostomatidae, Colydiidae, Passandridae, Cucujidae, Cryptophagidae, Dyphillidae, Lathridiidae, Mycetophagidae, Dermestidae). *Archiv für Naturgeschichte*, **79**(A11, 1913): 33–76.

- Hisamatsu Sadanari 1985.** Nitidulidae. In: Kurosawa Y., Hisamatsu S. and Sasaji H. Coloured illustration of the Coleoptera of Japan. Vol. 3. Hoikusha Publishing Co., Osaka: 175–196.
- Kirejtshuk A.G. 1984.** New taxa of Nitidulidae (Coleoptera) from the Indo-Malayan fauna. *Annales Historico-Naturales Musei Nationalis Hungarici*, **76**: 169–195.
- Kirejtshuk A.G. 1990.** New taxa and notes on taxonomy of sap beetles (Coleoptera, Nitidulidae) of Indochina and adjacent territories. Part 1. *Proceedings of the Zoological Institute of the Russian Academy of Sciences*, **209**: 61–98. [In Russian]
- Kirejtshuk A.G. 1994.** System, evolution of mode of life and phylogeny of the order Coleoptera. I. *Entomologicheskoye obozrenie*, **73**(2): 266–288. [In Russian].
- Kirejtshuk A.G. 1995.** New taxa of sap beetles (Coleoptera, Nitidulidae) of the East Hemisphere. Part 5. *Proceedings of the Zoological Institute of the Russian Academy of Sciences*, **257**: 3–50. [In Russian].
- Kirejtshuk A.G. 1996.** System, evolution of mode of life, and phylogeny of the order Coleoptera. II. *Entomologicheskoye obozrenie*, **75**(1): 39–62. [In Russian].
- Kirejtshuk A.G. 1997.** On the evolution of anthophilous Nitidulidae (Coleoptera) in tropical and subtropical regions. *Bonner Zoologische Beiträge*, **47**(1–2): 111–134.
- Kirejtshuk A.G. 2005.** On the fauna of Nitidulidae (Insecta, Coleoptera) from Taiwan with some taxonomical notes. *Annales Historico-Naturales Musei Nationalis Hungarici*, **97**: 217–279.
- Kirejtshuk A.G. 2008.** A current generic classification of sap beetles (Coleoptera, Nitidulidae). *Zoosystematica Rossica*, **17**(1): 107–122.
- Kirejtshuk A.G. and Kabakov O.N. 1997.** Notes on sap-beetles (Coleoptera, Nitidulidae) collected by O.N. Kabakov in Vietnam and Laos. *Izvestia Khak'kovskogo Entomologicheskogo obshchestva*, **5**(2): 13–23. [In Russian].
- Puccio P. 2016.** *Orchidantha fimbriata*: **Family: Lowiaceae**. Updated August 2016 [updated at <http://www.photomazza.com/?Orchidantha-fimbriata&lang=en>]
- Reitter E. 1873.** *Systematische Einteilung der Nitidularien*. Verhandlungen des naturforschenden Vereines in Brünn, **12**(1): 3–194.
- Sakai S. and Inoue T. 1999.** A new pollination system: dung-beetle pollination discovered in *Orchidantha inouei* (Lowiaceae, Zingiberales) in Sarawak, Malaysia. *American Journal of Botany*, **86**(1): 56–61.
- Teichert H., Doetterl S., Frame D., Kirejtshuk A. and Gottsberger G. 2012.** A novel pollination mode, saprocantharophily, in *Duguetia cadaverica* (Annonaceae): A stinkhorn (Phallales) flower mimic. *Flora (Morphology – Distribution – Functional Ecology of Plants)*, **207**: 522–529.

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