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Revision of the *Therates tuberosus* group (Coleoptera: Cicindelidae)

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Revision of the *Therates tuberosus* group (Coleoptera: Cicindelidae)

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Abstract. The known species of the *tuberosus* group of the genus *Therates* Latreille (Coleoptera: Cicindelidae) are redescribed. *Therates rugosoangustoides* Wiesner and Anichtchenko, **new species**, is described from northern Vietnam while *T. horni* Wiesner, 1988, **new status**, and *T. pseudotuberosus* Wiesner, 1988, **new status**, are elevated to species rank. Identification keys for the twelve groups of the genus *Therates* and for the eight species of the *tuberosus* group are provided. **Lectotypes are designated** for *Therates tuberosus* Fleutiaux, 1893, *Therates angustatus* Horn, 1902, *Therates crebrepunctatus* Horn, 1923, and *Therates rugosoangustus* Horn, 1929, to stabilize their nomenclature to single specimens.

Key words. Taxonomy, *Therates*, Oriental Region.

ZooBank registration. urn:lsid:zoobank.org:pub:3981DFFF-0DDF-4BCA-97FB-73F3E329EB0B

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Introduction

Since the revision of the genus *Therates* Latreille, 1816 (Coleoptera: Cicindelidae) (Wiesner 1988), the identification of species within the *tuberosus* group has remained problematic. This has necessitated a re-examination of both type status and additional available specimens. Remarkably, almost all species of this group—except *Therates rugosoangustoides* Wiesner and Anichtchenko**, new species**—are known from only single individuals in collections. This scarcity hampers any meaningful assessment of intraspecific variation, especially when contrasted with the closely related *chennelli* group, whose representatives are generally more abundant.

It has become clear that neither the coloration of the basal antennal segment (scape) nor that of the maxillae provides reliable characters for distinguishing species or for separating the *chennelli* and *tuberosus* groups. At present, the only usable morphological criteria for separating these two groups are the color of the metatibiae and the shape of the labrum. Whether these groups should continue to be treated as distinct will ultimately depend on the outcome of future molecular analyses.

A new, provisional identification key to all *Therates* groups is presented below, along with a key to the known species of the *tuberosus* group. This includes illustrations, concise diagnoses, and the description of one new species.

Materials and Methods

All measurements were made with an ocular–micrometer on stereomicroscope Motic SMZ 171 as follows:

TL total body length without labrum (from anterior margin of clypeus to the elytral apex along the suture);
HW width of head (in widest place);

LL length of labrum with apical teeth (along the midline);
LW width of labrum (in the widest place);
PL length of pronotum (along the midline);
PW width of pronotum (in the widest place);
EL length of elytra (from the base of scutellum to the apex along the suture);
EW width of the left elytron (in the widest place);
AL length of aedeagus (from base to apex).

Four indices of body proportions were calculated: LW/LL, PW/PL, EL/EW, and AL/EW.

Photos were taken with a Canon EOS 6D digital camera and Canon MP-E 65mm macro lens, using a StackShot macro rail system and Helicon Focus software, and subsequently edited in Photoshop CC 2019. High-resolution images of species and additional material are available at the "Carabidae of the World" web project (Anichtchenko 2025).

The label data of the type specimens are reported in order from pinhead to pinpoint in quotations marks with label sides divided by a single slash and separate labels indicated by a double slash. White label color and rectangular shape, however, were not explicitly noted. All remaining pertinent variants were recorded within brackets. If words on the labels were in all caps, they were rendered in lowercase.

Species mentioned here are deposited in:
BMNH British Museum for Natural History, London, Great Britain;
CKGC Christian Kerkering collection, Emsdetten, Germany;
DUBC Daugavpils University Beetle collection, Ilgas, Latvia;
JWCM Jürgen Wiesner Collection, Meine, Germany (part of ZSM);
NHMB Naturhistorisches Museum, Basel, Switzerland;
NHMW Naturhistorisches Museum, Vienna, Austria;
MNHN Muséum National d'Histoire Naturelle, Paris, France;
RSCM Riccardo Sciaky collection, Milano, Italy (part of ZSM);
SDEI Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany;
ZSM Zoologische Staatssammlung, München, Germany.

Results

Key to the *Therates* species groups (based on Wiesner 1988)

1. Fourth metatarsomere lacking setigerous bottom, instead with rigid and erected bristles distally .... ***spectabilis* group**
— Fourth metatarsomere with setigerous bottom........ **2**

2(1). Clypeus with two erected setae **3**
— Clypeus glabrous **4**

3(2). Frons entirely curvate........ ***festivus* group**
— Frons geniculate in front .... ***labiatus* group**

4(2). Elytra containing single apical hump only........ ***cribratus* group**
— Elytra with more than one hump **5**

5(4). Elytra with basal, central and apical hump .... ***batesii* group**
— Elytra with basal and apical hump only........ **6**

6(5). Labrum with basal tooth **9**
— Labrum lacking basal tooth........ **7**

7(6). Elytra with bright central band, oriented laterally at its anterior end .... ***obliquus* group**
— Elytra with bright central dot or transverse rectangular central band........ **8**

8(7). Metatibiae unicolored, rarely bicolored in females; labrum mostly as wide as long, sometimes slightly longer than wide .... ***chennelli* group**

— Metatibiae bicolored in both sexes; labrum mostly longer than wide . . . . ***tuberosus* group**

9(6). Elytra with bright central band, oriented laterally at its anterior end . . . . ***obliquus* group**
— Maculation of elytra not as above **10**

10(9). Basal three metatarsomeres cylindrically enlarged . . . . ***hennigi* group**
— Metatarsi not as above **11**

11(10). Elytral apex with a long, drawn-out sutural spine, or with a sharp, elongate triangular sutural tooth . . . . ***spinnipennis* group**
— Elytral apex without a long, drawn-out sutural tooth or spine **12**

12(11). Pronotum broad, more strongly constricted posteriorly than anteriorly, usually wider than long . . . . ***fasciatus* group**
— Pronotum slender, more strongly constricted anteriorly than posteriorly, or nearly equally constricted at both ends, usually longer than wide . . . . ***coeruleus* group**

Therates group "*tuberosus*"

Therates group "*tuberosus*": Wiesner 1988: 29; 1992: 91; 2020: 94.

Redescription. *Size*: TL = 7.7–11.2 mm. Body narrow cylindrical. *Head*: HW/PW = 1.4–1.8; shining black, smooth, glabrous, with one orbital pore point in front next to the eye; orbital plates separated from the vertex by a strong furrow. Mandibles of males yellowish, teeth darker marginally; mandibles of females completely brown, at most with a light basal spot. Labrum longer than wide (with the exception of *T. horni* Wiesner, 1988), black with a testaceous spot in variable extension, with six apical teeth, one lateral tooth, and five–eight setae. Maxillary palpi brownish black (with the exception of *T. rugosoangustoides* **new species**), apical segment of labial palpi brownish black, remainder testaceous. Antennae extending posteriorly in males no further than just behind the shoulders, shorter in the females, mostly brownish or black, scape ochre above and black on underside or completely black.

Pronotum square or longer than wide, smooth, glabrous, shining black (with the exception of *T. rugosoangustoides* **new species**), constricted in front and at back, more in the front than in the back; transverse furrows strong; median and lateral lines nearly obsolete; episternae smooth, mostly black and glabrous. *Elytra*: elongate, about twice as long as wide, with basal and apical humps; coarsely punctate, punctation usually fading or absent in apical third. Apex with distinct lateral and sutural corners, in most species slightly recurved or straight between corners. Maculation pattern typically including a humeral marking (often lunule or triangular dot), sometimes with a basal dot, and a separate central marking; colors testaceous to ochre; scutellum and epipleurae usually dark brown to black. *Venter*: Black. Pro- and mesocoxae, and trochanters testaceous. Femora ochre to brown. Pro- and mesotibiae, and pro- and mesotarsi brownish to blackish. Metatibiae testaceous, basal half blackish. Metatarsomeres testaceous, apical segment brownish to blackish. Male tarsomeres have one to three anterior tarsi with bristle sole, and tarsomere three and two slightly expanded. *Aedeagus*: AL = 1.7–2.6 mm, compact, slightly curved, apex slightly elongated with differently shaped apex.

Provisional key to the species of the *tuberosus* group

1. Elytra with central dot or band **2**
— Elytra missing central dot or band **7**

2(1). Elytra with central band, extending gently in an arched fashion outward and posteriorly from the middle suture, TL 8.1–8.9 mm (Myanmar) . . . . ***T. crebrepunctatus* Horn, 1923**
— Elytra with roundish central dot or horizontal central band **3**

3(2). Yellowish humeral dot of elytra connected to a humeral lunule that reaches the middle suture or is connected to a basal dot **4**
— Yellowish humeral dot usually narrow and extended along the lateral suture; basal dot, if present, then short **6**

4(3). Elytra with a narrow central band, TL 9.2–9.5 mm (Vietnam) . . . . ***T. rugosoangustus* Horn, 1929**
— Elytra with a broad central band or a large central dot **5**

5(4). Pronotum completely or partially brown; vertex behind the center with a shallow and curved transverse furrow; large body size, TL 8.2–10.9 mm (Vietnam) .... ***T. rugosoangustoides*** **Wiesner and Anichtchenko, sp. nov.**

— Pronotum black; vertex behind the center without furrow; small body size, TL 7.7 mm (Myanmar) ... . ***T. horni*** **Wiesner, 1988**

6(3). Ground color of elytra black; central dot ochre, TL 8.3–11.2 mm (Vietnam, China) .... ***T. angustatus*** **Horn, 1902**

— Ground color of elytra black with blue luster; central dot yellowish, TL 8.9–10.0 mm (China) .... ***T. klapperichi*** **Mandl, 1955**

7(1). Elytra with small humeral dot; basal half of elytra moderately punctate; fourth meta-tarsomere black, TL 8.3–10.0 mm (Vietnam) .... ***T. pseudotuberosus*** **Wiesner, 1988**

— Elytra with enlarged humeral dot and short basal dot near scutellum; basal half of elytra strongly rugoso-punctate; fourth meta-tarsomere yellow, TL 9.5 mm (Laos) .... ***T. tuberosus*** **Fleutiaux, 1893**

Therates rugosoangustoides Wiesner and Anichtchenko, new species

(Fig. 3)

Type locality. "Vietnam, Hà Giang town environment, Sông Lô Riv".

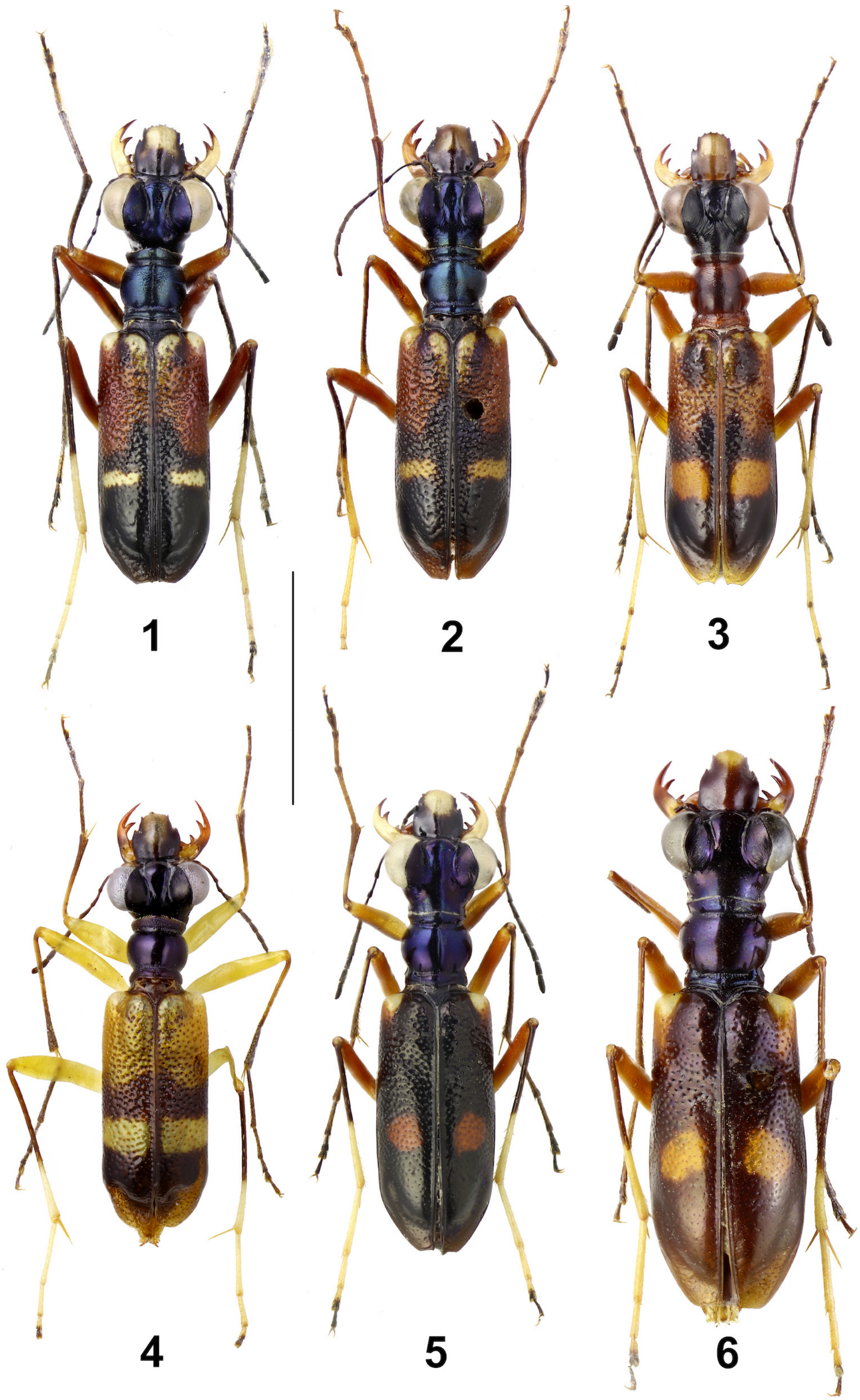
Type specimens. Holotype male in JWCM: "Hà Giang town environment / Sông Lô Riv. – Hà Giang Pr. / VIETNAM / leg. V. Dang 06/2023 // HOLOTYPE / *Therates* / *rugosoangustoides* sp. nov. / ded. Wiesner & Anichtchenko 2025". Paratypes: 1 female in JWCM, 3 males, 5 females in CKGC, ditto. 1 male in JWCM, ditto, "05/2022". 1 male, 1 female in DUBC, ditto, "06/2024". 1 male in RSCM "Vietnam / Ha Giang / V.2024". All paratypes: "PARATYPE / *Therates* / *rugosoangustoides* sp. nov. / ded. Wiesner & Anichtchenko 2025 [printed, red]".

Etymology. This species' name is based on its resemblance to the species *Therates rugosoangustus* Horn, 1929.

Differential diagnosis. *Therates rugosoangustoides* **new species** is distinguished from the other species in this group by a combination of entirely or partially red pronotum, ochre humeral lunule with testaceous shoulder spot, connected with ochre basal dot, and isolated broad transverse central band.

Description. *Size*: TL = 8.2–10.9 mm (mean = 9.4 mm, n = 13). *Head*: HW/PW = 1.6–1.8, (mean = 1.64, n = 13), vertex behind the center with a shallow and curved transverse furrow, area behind the eyes with some shallow furrows. Labrum LW/LL = 0.8–1.0 (mean = 0.89, n = 13), black marginal, basal and apical, with a testaceous spot in variable extension (Fig. 13–15). Labial and maxillary palpi testaceous, tip of the terminal segment black in some specimens. Antennae slender, strongly expanded towards the apex in males, only slightly in females, extending posteriorly behind the shoulders of the elytra in the males, shorter in the females; scape with a single apical setum, antennomeres two to five glabrous, antennomeres six to eleven finely and evenly pubescent; scape yellowish above, black on underside, antennomeres two to eleven black, antennomeres six to nine light brown in the males. *Pronotum*: Longer than wide, PW/PL = 0.8–0.9 (mean = 0.87, n = 13), shining chestnut brown, proepisternum chestnut brown, meso- and metepisternum black. *Elytra*: EL/EW = 4.2–5.2 (mean = 4.65, n = 13), black, coarsely punctate, but absent in the apical third. Apex with lateral and sutural corner, slightly recurved between. Maculation (Fig. 33–35) composed of humeral lunule, basal dot, central dot and a more or less lightened elytral apex; the brown humeral lunule has a testaceous shoulder spot and is in contact with the marginal suture along almost its entire length, connected to the basal dot at its front and rear ends and does not reach the central dot; the brown basal dot extends as a band from the scutellum along the middle suture to the beginning of the apical part of the humeral lunule; the central dot is ochre colored, broad, approximately band-shaped, and does not contact marginal and middle suture. *Venter*: Basal tarsomere of mesotarsi testaceous, blackish ringed at tip; metatarsomeres testaceous, blackish ringed at tip. *Aedeagus*: AL = 2.4–2.6 mm (mean = 2,44 mm, n = 6), AL/EL = 0.43, compact, slightly curved, apex slightly elongated and rounded in a semicircle (Fig. 52, 53).

Distribution. Vietnam (Hà Giang).



Figures 1–6. Habitus, bar = 5 mm. **1, 2)** *T. rugosoangustus.* **1)** Male, Vietnam (CKGC). **2)** Lectotype, female (SDEI). **3)** *T. rugosoangustoides* **new species**, holotype, male (JWCM). **4)** *T. horni*, holotype, female (BMNH). **5, 6)** *T. angustatus.* **5)** Male, Vietnam (CKGC). **6)** Lectotype, female (SDEI).

Therates rugosoangustus Horn, 1929

(Fig. 1, 2)

Therates rugoso-angustus Horn 1929: 19, 20.
Therates rugosoangustus: Döbler 1973: 407; Cassola 1985: 512.
Therates rugosoangustatus (incorrect spelling): Wiesner 1988: 31, 84, Fig. 36, 89, Fig. 112, 104, Fig. 414; 1992: 91; Wiesner et al. 2017: 39, 83, Fig. 109, 120, Fig. 304; Wiesner 2020: 94.

Type locality. "Tonkin, Chapa".

Type specimens. Lectotype female (**designated here**) in SDEI: "TONKIN / Chapa / 1. VII. 1917 / JEANVOINE [partly handwritten] // Type / W. Horn // Syntypus [printed, red] // rugosoan- / gustus / mihi [handwritten, yellow] // Coll. W. Horn / DEI Eberswalde // SDEI Coleoptera / # 302090 // rugosoangust~~at~~us / W. Horn / det. Wiesner 86 // LECTOTYPUS / *Therates* / *rugosoangustus* / W. Horn, 1929 / ded. Wiesner & Anichtchenko, 2025 [printed, red]". No other syntypes are known.

Other material examined. 1 male in DUBC: "Yên Bái, Viêt Nam, 6.2022". 1 male in CKGC: "Thák Ba Lake surroundings / Yen Bái Province / Vietnam / leg. V. Dang 06/2024".

Differential diagnosis. *Therates rugosoangustus* is distinguished from the other species in this group by a combination of black pronotum, ochre humeral lunule with testaceous shoulder spot, testaceous basal dot, and small transverse central band.

Redescription. *Size*: TL = 9.2–9.5 mm (mean = 9.4 mm, n = 2). *Head*: HW/PW = 1.5–1.7 (mean = 1.6, n = 2), shining black with bluegreen luster, vertex behind the center with a shallow and curved transverse furrow, some shallow furrows in the area behind the eyes and on the frons between the eyes. Labrum LW/LL = 0.92 (n = 2), black, with a large two lobed testaceous spot between apex and base (Fig. 16, 17). Antennae slender, slightly enlarged towards the apex, extending posteriorly to the shoulders of the elytra; scape ochre above, black on underside, antennomeres two to eleven black. *Pronotum*: Nearly square, PW/PL = 0.9–1.0 (mean = 0.95, n = 2), shining black with bluegreen luster, middle section with fine transverse wrinkles. *Elytra*: EL/EW = 4.6 (n = 2), black, coarsely punctate, but absent in the apical third. Apex with lateral and sutural corner, straight between. Maculation (Fig. 36, 37) composed of humeral lunule, basal dot, and central dot; the brown humeral lunule has a testaceous shoulder spot and is in contact with the marginal suture along almost its entire length, connected to the testaceous basal spot at its rear end and does not reach the central dot; the central dot is testaceous, narrow, band-shaped, and does not contact marginal and middle suture. *Aedeagus*: (Fig. 54) AL = 2.16 mm (n = 1), AL/EL = 0.35, compact, slightly curved, apex slightly elongated and terminated in a rounded tip.

Distribution. Vietnam (Lao Cai, Yen Bai).

Remarks. The species name was erroneously cited as '*rugosoangustatus*' by Wiesner (1988) and repeated in this form in subsequent publications (Wiesner 1992, 2020; Wiesner et al. 2017). The mistake came to light during the present study upon examination of the type labels and the original description. The report from Vinh Phuc (Wiesner et al. 2017: 39) is a misidentification. It is actually *T. vinphucensis* Wiesner, 2024. The same is the case with the specimen reported from Ha Giang (Wiesner et al. 2024: 3), which is *T. rugosoangustoides* **new species**.

Therates horni Wiesner, 1988, new status

(Fig. 4)

Therates crebrepunctatus horni Wiesner 1988: 31, 89, Fig. 113, 105, Fig. 415; 1992: 91; 2020: 94.

Type locality. "Birmah / Ruby Mes (Ober-Birma, Namtu-Gebiet)".

Type specimens. Holotype (by monotypy) female in BMNH: "Birmah / Ruby Mes // 15809 // Doherty // Fry Coll. / 1905–100. // Therates crebre- / punctata W.H. / var? / Dr. W. Horn det.1936 [partly handwritten] // Determined by / Döbler / Therates / chenelli, var? [partly handwritten] // HOLOTYPUS [printed, red] // crebrepunctatus / horni Wiesner / det. Wiesner 86".

Differential diagnosis. *Therates horni* is distinguished from the other species in this group by a combination of light ochre humeral lunule with testaceous shoulder spot and testaceous basal dot, connected to each other and forming a continuous band along the length of the basal third of the elytra, and isolated broad transverse, testaceous central band, reaching the middle suture.

Redescription. *Size*: TL = 7.7 mm. Male unknown, holotype female probably teneral. *Head*: HW/PW = 1.64, orbital plates separated from the vertex by a strong furrow. Labrum (Fig. 18) as long as wide, LW/LL = 1.0, black, with a large testaceous spot between apex and base. Antennae slender, antennomere 5 widened, subsequent antennae of similar width, extending posteriorly before the shoulders of the elytra; scape testaceous above, dark brown on underside, antennomeres two to eleven dark brown. *Pronotum*: Square, PW/PL = 1.0. *Elytra*: EL/EW = 4.2 (black, coarsely punctate, shallower in the apical third. Apex rounded, with sutural corner. Maculation (Fig. 38) composed of light ochre humeral lunule with testaceous shoulder spot and testaceous basal dot, connected to each other and forming a continuous band along the length of the basal third of the elytra, and isolated broad transverse, testaceous central band, reaching the middle suture. Epipleurae testaceous.

Distribution. Myanmar (Shan State).

Remarks. *Therates horni* was described as a subspecies of *T. crebrepunctatus*. However, the shape of the light elytra markings are so different from the latter, that it is elevated to species level here. Wiesner (1988: 31) mistakenly listed SDEI as the depository of the type specimen of *T. horni*, which is in fact located in the BMNH collection.

Therates crebrepunctatus Horn, 1923

(Fig. 8)

Therates crebrepunctatus Horn 1923a: 215, 216.

Therates erinys crebrepunctatus: Horn 1923b: 317, 318.

Therates crebrepunctatus: Horn 1926: 114; Döbler 1973: 370; Naviaux 1991: 231, Fig. 37–38, 232; Probst and Wiesner 1994: 101b; Cassola and Klicha 2002: 39; Naviaux and Pinratana 2004: 64, 65, Fig. 5–6, 126, Fig. 5.

Therates crebrepunctatus crebrepunctatus: Wiesner 1988: 31–32, 84, Fig. 37, 89, Fig. 114, 95, Fig. 259, 98, Fig. 321, 105, Fig. 416; 1992: 91; Wiesner 2020: 94.

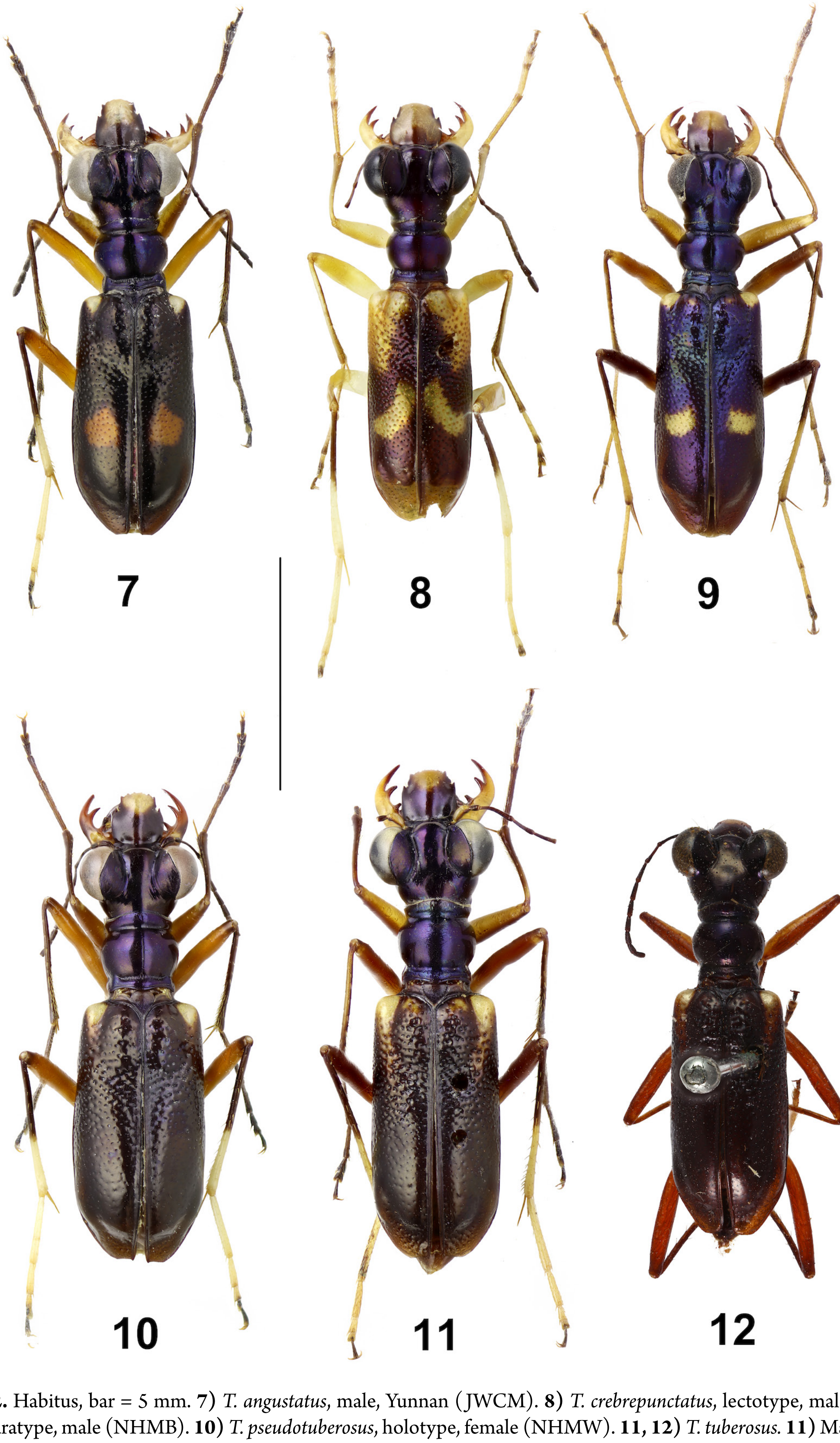
Type locality. “Birma superior, Namtu”.

Type specimens. Lectotype male (**designated here**) in SDEI: “Namtu-Ge- / biet. V 1905 / Ober Birma [handwritten] // Type! / coll. W Horn // Syntypus [printed, red] // crebrepuncta- / tus / mihi [handwritten, yellow] // Coll. W. Horn / DEI Eberswalde // crebrepunc- / tatus Horn [handwritten, yellow] // SDEI Coleoptera / # 302066 // crebrepunctatus / s. str. W. Horn / det. Wiesner 86 // LECTOTYPUS / *Therates* / *crebrepunctatus* / W. Horn, 1923 / ded. Wiesner & Anichtchenko, 2025 [printed, red]”. No other syntypes are known.

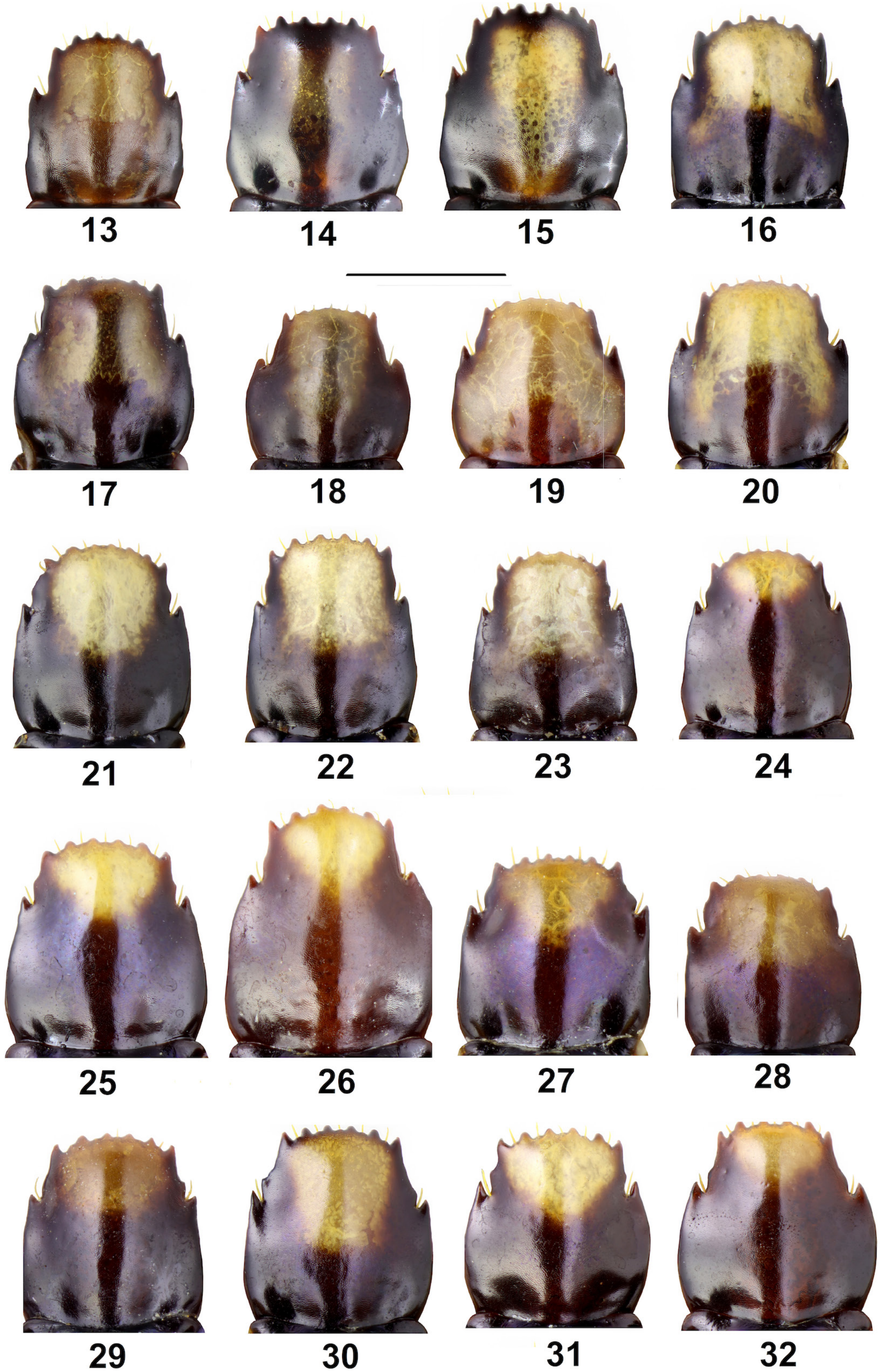
Other material examined. 1 female in BMNH: “W. Thailand: 300m, / Thung Yai Wildlife / Sanctuary, / 15°28’N – 98°48’E // Tak Province / Umphang District / Song Bae Stream / 18–27.iv.1988 // Evergreen / rain forest / M. J. D. Brendell / B. M. 1988 – 183 // Malaise / Trap // Therates / crebrepunctatus / s. str. W. Horn / det. J. Wiesner 1989 [partly handwritten]”.

Differential diagnosis. *Therates crebrepunctatus* is distinguished from the other species in this group by the testaceous central band, extending gently in an arched fashion outward and posteriorly from the middle suture.

Redescription. *Size*: TL = 8.1–8.9 mm (mean = 8.5 mm, n = 2), lectotype male probably teneral. *Head*: HW/PW = 1.5–1.6 (mean = 1.58, n = 2), shining black with blue luster, vertex behind the center with a shallow and curved transverse furrow. Labrum long, LW/LL = 0.9–1.0 (mean = 0.95, n = 2), blackish brown laterally and at base, with a large bilobed testaceous area in the center, with seven setae (Fig. 19, 20). Antennae slender, slightly enlarged towards the apex in the males, less enlarged in the females, extending posteriorly behind the shoulders of the elytra in the male, shorter in the female; scape yellowish above, black on underside, antennomeres two to eleven black. *Pronotum*: Square, PW/PL = 1.0 (n = 2), shining black with blue luster. *Elytra*: EL/EW = 4.3–4.8 (mean = 4.53, n = 2), brownish black, coarsely punctate, shallow in the apical third. Apex with lateral corner and short pointed sutural corner, slightly recurved between. Maculation (Fig. 39, 40) composed of humeral lunule, basal dot, and central dot; the ochre humeral lunule has a testaceous shoulder spot and is in contact with the testaceous basal dot; the central dot forms a testaceous band, extending gently in an arched fashion outward and posteriorly



Figures 7–12. Habitus, bar = 5 mm. **7)** *T. angustatus*, male, Yunnan (JWCM). **8)** *T. crebrepunctatus*, lectotype, male (SDEI). **9)** *T. klapperichi*, paratype, male (NHMB). **10)** *T. pseudotuberosus*, holotype, female (NHMW). **11, 12)** *T. tuberosus.* **11)** Male (SDEI). **12)** Lectotype, male (MNHN), photo by Christophe Rivier (MNHN).



Figures 13–32. Labrum, bar = 1 mm. **13–15)** *T. rugosoangustoides* **sp. nov. 13)** Holotype, male (JWCM). **14)** Paratype, female (JWCM). **15)** Paratype, female (CKGC). **16, 17)** *T. rugosoangustus.* **16)** Male, Vietnam (CKGC). **17)** Lectotype, female (SDEI). **18)** *T. horni*, holotype, female (BMNH). **19, 20)** *T. crebrepunctatus.* **19)** Lectotype, male (SDEI). **20)** Female, W Thailand (MBNH). **21–26)** *T. angustatus.* **21, 22)** Male, Vietnam (CKGC). **23)** Male, Yunnan (JWCM). **24)** Paralectotype, female (SDEI). **25)** Female, N Vietnam (NHMW). **26)** Lectotype, female (SDEI). **27)** *T. tuberosus,* male (SDEI). **28, 29)** *T. klapperichi.* **28)** Paratype, male (NHMB). **29)** Holotype, female (NHMB). **30–32)** *T. pseudotuberosus.* **30)** Male, Vietnam (ZSM). **31)** Holotype, female (NHMW). **32)** Female, N Vietnam (NHMW).

from the middle suture. *Aedeagus*: (Fig. 55) AL = 1.72 mm (n = 1), EL/AL = 0.35, compact, slightly curved, apex slightly elongated to a point.

Distribution. Myanmar (Shan State), Thailand (Tak).

Therates angustatus Horn, 1902

(Fig. 5–7)

Therates angustatus Horn 1902: 72, 73; Horn 1910: 194; 1926: 114; Döbler 1973: 357; Wiesner 1988: 30, 84, Fig. 34, 89, Fig. 110, 95, Fig. 255; 1992: 91; Wiesner et al. 2017: 39, 82, Fig. 107, 120, Fig. 302; Wiesner 2020: 94. Wiesner et al. 2024: 3, 4. Fig. 1.

Type locality. "Tonkin, Montes Mouson".

Type specimens. Lectotype female (**designated here**) in SDEI: "Tonkin / Montes Mouson / April, Mai 2–3000' / H. Fruhstorfer // Syntypus [printed, red] // Type! / Dr. W Horn // angustatus / mihi [handwritten, yellow] // Coll. W. Horn / DEI Eberswalde // angustatus / s. str. W. Horn / det. Wiesner 86 // LECTOTYPUS / *Therates* / *angustatus* / W. Horn, 1902 / ded. Wiesner, 2025 [printed, red]".

Paralectotype female (**designated here**) in SDEI: "Tonkin / Montes Mouson / April, Mai 2–3000' / H. Fruhstorfer // Syntypus [printed, red] // Type! / Dr. W Horn // Coll. W. Horn / DEI Eberswalde // angustatus / Horn, nov. ssp. [handwritten, yellow] // angustatus / s. str. W. Horn / det. Wiesner 86 // SDEI Coleoptera / # 302050 // Paralectotypus / *Therates* / *angustatus* / W. Horn, 1902 / ded. Wiesner & Anichtchenko, 2025 [printed, red]".

Other material examined. 1 female in NHMW: "N VIET NAM (Tonkin) / pr. Hoang Lien Son / SA PA 11.–15. v. 1990 / P. Pacholátko leg.". 2 males in CKGC: "Thák Ba Lake surroundings / Yen Bái Province / VIETNAM / leg. V. Dang 08/2023". 1 male in JWCM: "CHINA: Yunnan/Honghe / Qibaofeng, 23°4'4.2"N / 103°23'47"E, 1350 m / 17. VI. 2018, EKL ? / leg. L. Z. Meng (QBF?8)". 1 male in DUBC: "Yên Bái, Viêt Nam, 6.2022".

Differential diagnosis. *Therates angustatus* is distinguished from the other species in this group by a combination of black elytral ground color, extended humeral dot, missing basal dot, and ochre colored central dot.

Redescription. *Size*: TL = 8.3–11.2 mm (mean = 9.6 mm, n = 6). *Head*: HW/PW = 1.4–1.6 (mean = 1.46, n = 6), vertex behind the center with a very shallow and curved transverse furrow. Labrum longer than wide, LW/LL = 0.8–0.9 (mean = 0.85, n = 6), blackish brown, with a testaceous spot apically, with six to seven apical teeth, and seven to eight setae (Fig. 21–26). Antennae slender, slightly enlarged towards the apex in the males, less enlarged in the females, extending posteriorly to the shoulders of the elytra in the males, shorter in the females; scape yellowish above, black on underside in males, completely black in the females, antennomeres two to eleven black. *Pronotum*: A little longer than wide, PW/PL = 1.0 (mean = 0.98, n = 6). *Elytra*: EL/EW = 4.0–4.6 (mean = 4.32, n = 6), shiny black, coarsely punctate, punctures reduced towards the apex. Apex with blunt lateral and short pointed sutural corner, barely recurved between. Maculation (Fig. 43–48) composed of a testaceous, triangular humeral dot, which extends diagonally backward in a narrow ochre color (without this extension in one male from Yunnan), and a large, roundish, and ochre colored central dot. *Aedeagus*: AL = 1.8–2.0 mm (mean = 1.95 mm, n = 3), AL/EL = 0.35, compact, slightly curved, apex elongated and pointed (Fig. 57–59).

Distribution. Vietnam (Lao Cai, Lang Son, Yen Bai), China (Yunnan).

Remarks. The single male specimen from Yunnan differs from other specimens of *T. tuberosus* from Vietnam by its smaller size and the uniformly colored, non-enlarged humeral dot. The aedeagus, however, shows no differences. Until additional material from Yunnan becomes available, the status of this specimen remains unresolved.

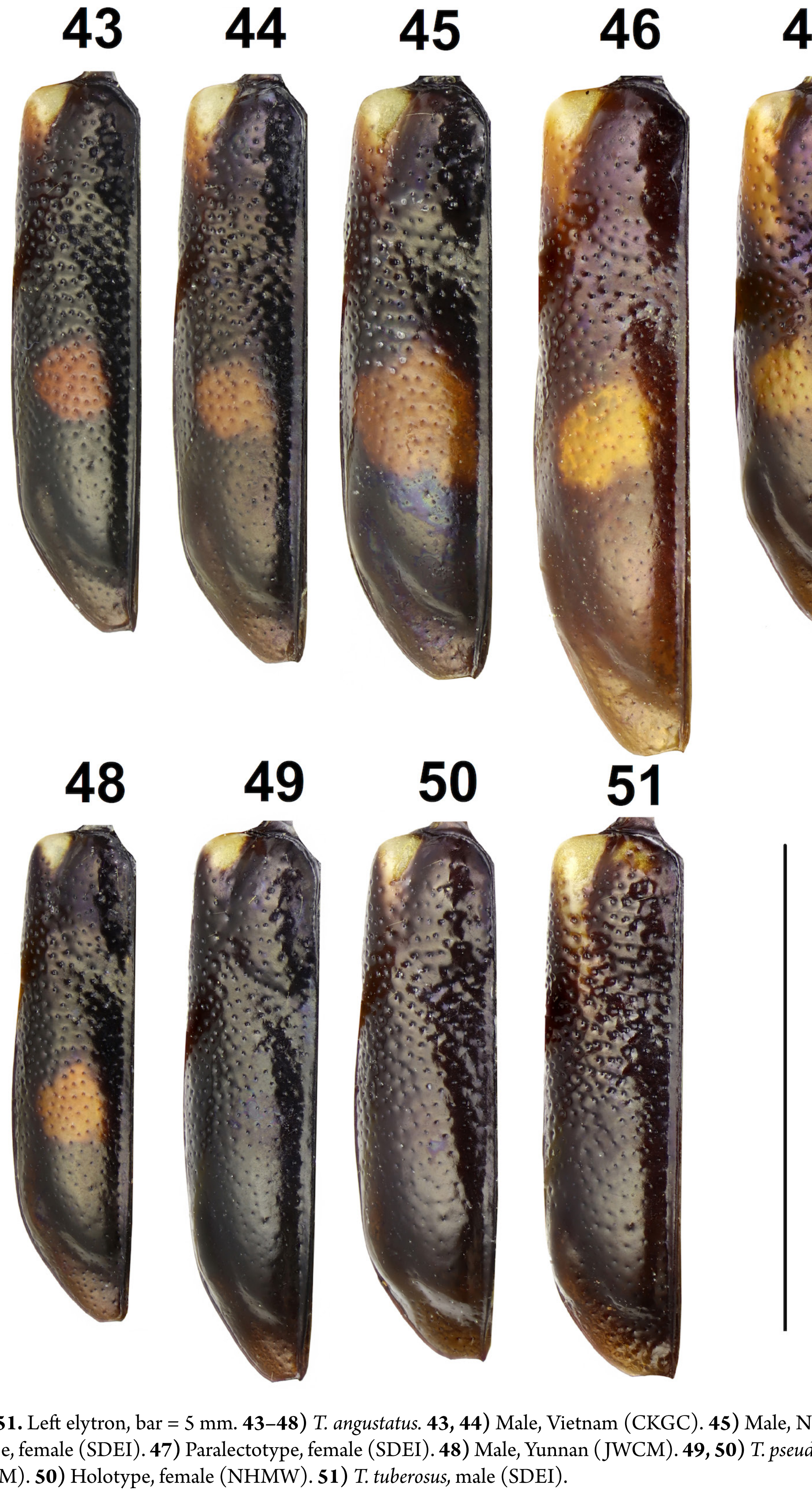
Therates klapperichi Mandl, 1955

(Fig. 9)

Therates klapperichi Mandl 1955: 335, 336; Wiesner 1988: 29, 84, Fig. 33, 89, Fig. 108, 95, Fig. 254, 104, Fig. 411; 1992: 91; Shook and Wiesner 2006: 20; Wu 2011: 31; Putchkov and Matalin 2017: 245; Wiesner 2020: 94; Wang et al. 2024: 139.

Type locality. "Kuatun, Fukien".

Figures 33–42. Left elytron, bar = 5 mm. **33–35)** *T. rugosoangustoides* **sp. nov.** **33)** Paratype, female (JWCM). **34)** Holotype, male (JWCM). **35)** Paratype, female (CKGC). **36, 37)** *T. rugosoangustus.* **36)** Male, Vietnam (CKGC). **37)** Lectotype, female (SDEI). **38)** *T. horni*, holotype, female (BMNH). **39, 40)** *T. crebrepunctatus.* **39)** Female, W Thailand (BMNH). **40)** Lectotype, male (SDEI). **41, 42)** *T. klapperichi.* **41)** Paratype, male (NHMB). **42)** Holotype, female (NHMB).



Figures 43–51. Left elytron, bar = 5 mm. **43–48)** *T. angustatus.* **43, 44)** Male, Vietnam (CKGC). **45)** Male, N Vietnam (NHMW). **46)** Lectotype, female (SDEI). **47)** Paralectotype, female (SDEI). **48)** Male, Yunnan (JWCM). **49, 50)** *T. pseudotuberosus.* **49)** Male, Vietnam (ZSM). **50)** Holotype, female (NHMW). **51)** *T. tuberosus,* male (SDEI).

Type specimens. Holotype female in NHMB: “Kuatun, Fukien / China 10. 5. 46 / (Tschung sen.) // Type Therates / Klapperichi m. /Ing. K. Mandl [partly handwritten, red] // klapperichi / Mandl / det. Wiesner 86”.

Paratype male in NHMB: “Kuatun, Fukien / China 28. 7. 46 / (Tschung sen.) // Para-Type Therates / Klapperichi m. [partly handwritten, red] // Ing. K. Mandl [grey] // Coll. G. / Frey NMB [blue]”.

Other material examined. 1 female in NHMW: “CHINA Jiangxi W / Jinggang Shan / Ciping env. / 2–14. vi. 1994”.

Differential diagnosis. *Therates klapperichi* is distinguished from the other species of this group by a combination of blue-violet elytral ground color, isolated humeral dot, tiny or extinguished basal dot, and testaceous central dot.

Redescription. *Size*: TL = 8.9–10.0 mm (mean = 9.5 mm, n = 3). *Head*: HW/PW = 1.4–1.5 (mean = 1.47, n = 3), shining blackish blue, vertex behind the center with a very shallow and curved transverse furrow, basal end of the orbital plates and area behind the eyes with some shallow furrows. Labrum longer than wide, LW/LL = 0.9 (mean = 0.9, n = 3), blackish brown, with a testaceous spot apically, with seven setae (Fig. 28, 29). Antennae slender, very slightly enlarged towards the apex, extending posteriorly just behind the shoulders of the elytra in the males, shorter in the females; scape yellowish above, black on underside in males, completely black in the females, antennomeres two to eleven black. *Pronotum*: Slightly longer than wide, PW/PL = 1.0–1.1 (mean = 1.01, n = 3), shining blackish blue-green. *Elytra*: EL/EW = 4.6–5.3 (mean = 4.88, n = 3), shiny blue violet, coarsely punctate, punctures reduced towards the apex. Apex with short pointed lateral and sutural corner, not recurved between, the interval is unnotched or bears one or two very minute teeth. Maculation (Fig. 41, 42) composed of an isolated, testaceous, triangular humeral dot, a very small ochre basal dot in the male, and a transverse roundish, testaceous central dot. *Aedeagus*: AL = 2.12 mm (n = 1), AL/EL = 0.37, compact, slightly curved, apex elongated and terminated in a rounded tip (Fig. 60).

Distribution. China: Fujian, Jiangxi.

Therates pseudotuberosus Wiesner, 1988, new status

(Fig. 10)

Therates angustatus pseudotuberosus Wiesner 1988: 30, 89, Fig. 109; Wiesner 1992: 91; Matalin and Wiesner 2016: 12, 13; Wiesner et al. 2017: 39, 82, Fig. 108, 120, Fig. 303; Wiesner 2020: 94.

Type locality. “N. Vietnam, Tam Dao”.

Type specimens. Holotype female in NHMW: “N-VIETNAM Tam-Dao / Prov. Vinh phu / leg. Kuban, 2.11.6. 1985 // Therates / angustatus / W. Horn / J. Probst det. 1985 [partly handwritten] // HOLOTYPUS [printed, red] // angustatus / pseudotuberosus / Wiesner det. 86”.

Other material examined. 1 male in SDEI: “Tonkin / Montes Mouson / April, Mai 2–3000’ / H. Fruhstorfer // Coll. W. Horn / DEI Eberswalde // angustatus ssp. / pseudotuberosus / Wiesner [handwritten, yellow] // Therates / angustatus pseudotuberosus / Wiesner, 1988 / det. J. Wiesner 2016”. 1 male in JWCM: “Vietnam, Tam dao / 27.5.–2.6.1986 / Vinh phu prov. / Jan Horák lgt.”. 1 male in JWCM: “Vietnam, Tam dao / 27.5.–2.6.1986 / Vinh phu prov. / Jan Horák lgt.”. 2 males in ZSM: “Vietnam, Tam dao / 27.5.–2.6.1986 / Vinh phu prov. / lgt. J. Rybníček”. 1 female in NHMW: “N Vietnam / Kuk Phyong / S. Murzin / 27. iv. 91”.

Differential diagnosis. *Therates pseudotuberosus* is distinguished from the other species of this group by a combination of black elytral ground color, isolated humeral dot, and missing basal and central dot.

Redescription. *Size*: TL = 8.3–10.0 mm (mean = 9.2 mm, n = 6). *Head*: HW/PW = 1.4–1.5 (mean = 1.47, n = 6), vertex behind the center with a very shallow and curved transverse furrow and some short shallow furrows at the basal end of the orbital plates. Labrum longer than wide, LW/LL = 0.9–1.0 (mean = 0.91, n = 6), blackish brown, with a testaceous spot apically, with seven setae (Fig. 30–32). Antennae slender, enlarged towards the apex in the males, less enlarged in the females, extending posteriorly to the shoulders of the elytra in the males, shorter in the females; scape with a single apical setum, antennomeres two to five glabrous, antennomeres six to eleven finely and evenly pubescent; scape yellowish above, black on underside in males, completely black in the females, antennomeres two to eleven black. *Pronotum*: Square, PW/PL = 1.0 (mean = 0.98, n = 6), short, shallow transverse wrinkles along the middle line. *Elytra*: EL/EW = 3.9–4.4 (mean = 4.13, n = 6), shiny black, coarsely punctate, extinguishing towards the apex. Apex with blunt lateral and short pointed sutural corner, barely recurved between. Maculation (Fig. 49, 50) composed of an isolated testaceous, triangular humeral dot. *Aedeagus*: AL = 2.0–2.1 mm (mean = 2.03 mm, n = 6), AL/EL = 0.37, compact, slightly curved, apex slightly elongated and terminating in a point (Fig. 61).

Distribution. Vietnam (Lam Dong, Vinh Phuc, Ninh Binh).

Remarks. *Therates pseudotuberosus* was described as a subspecies of *T. angustatus*. However, the shape of the aedeagi and the shape of the light elytra markings are so different from both *T. angustatus* and *T. tuberosus* that *T. pseudotuberosus* is elevated to species level here.

Therates tuberosus **Fleutiaux, 1893**

(Fig. 11, 12)

Therates tuberosus Fleutiaux 1893: 497, 498; Horn 1910: 194; 1926: 114; Wiesner 1988: 30, 31, 84, Fig. 35, 89, Fig. 111, 95, Fig. 256, 98, Fig. 320, 104, Fig. 413; 1992: 91; Wiesner and Geiser 2016: 87; Wiesner 2020: 94.

Type locality. "Lakhon (Siam)".

Type specimens. Lectotype male (**designated here**) in MNHN: "Mus. / Paris / dupl. [round] // MUSEUM PARIS / COLL. E. FLEUTIAUX / 1919 // Lakhon / Laos / Harmand [handwritten] // TYPE [printed, red] // tuberosus / Fleut. type / Lakhon / Siam Laos / Dr. Harmand [handwritten] // LECTOTYPUS / *Therates* / *tuberosus* / Fleutiaux, 1893 / ded. Wiesner & / Anichtchenko, 2025 [printed, red]". No other syntypes are known.

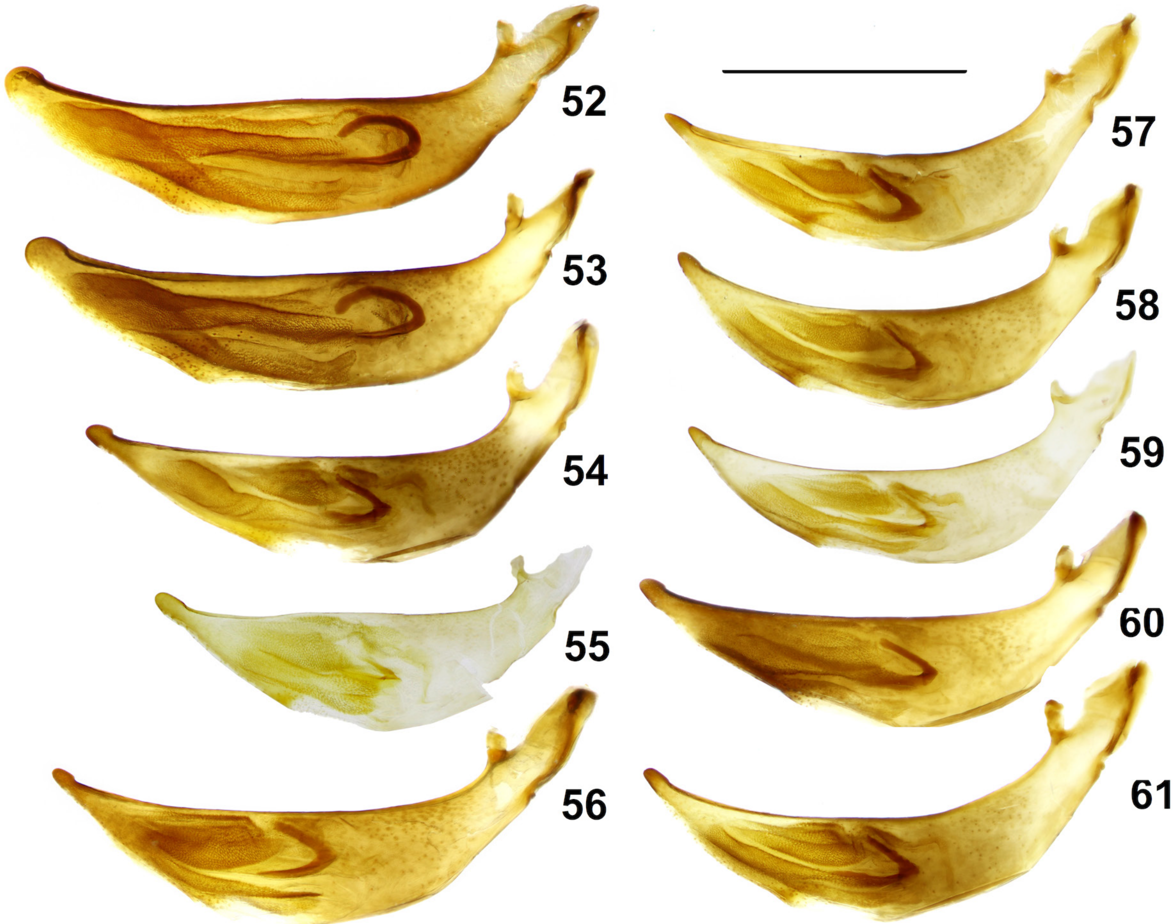
Other material examined. 1 male in SDEI: "MUSEUM PARIS / LAKHON / HARMAND 1878 // 43 / 78 [round, handwritten, yellow] // tuberosus / Flt. [handwritten, yellow] // tuberosus / Fleut. [handwritten, yellow] // Coll. W. Horn / DEI Eberswalde // tuberosus / Fleut. / det. Wiesner 86".

Differential diagnosis. *Therates tuberosus* is distinguished from the other species of this group by a combination of black elytral ground color, basal dot, enlarged humeral dot, and missing central dot.

Redescription. *Size*: TL = 9.5 mm (n = 1). *Head*: HW/PW = 1.58 (n = 1), vertex behind the center with a shallow and curved transverse furrow. Labrum a little longer than wide, LW/LL = 0.94 (n = 1), blackish brown, with an ochre-colored triangular spot apically, with seven setae (Fig. 27). Antennae slender (only two antennomeres on the left and five on the right are intact on the specimen); scape with a single apical setum, antennomeres two to five glabrous; scape yellowish above, black on underside, antennomeres two to five black. *Pronotum*: Longer than wide, PW/PL = 0.93 (n = 1), short, shallow transverse wrinkles along the middle line. *Elytra*: EL/EW = 4.21 (n = 1), shiny black, coarsely punctate, extinguishing towards the apex. Apex with blunt lateral and short pointed sutural corner, barely recurved between. Maculation (Fig. 51) composed of a testaceous, triangular humeral dot, which extends diagonally backward in a narrow ochre color, and and a small, fuzzy, ochre-colored basal dot. *Aedeagus*: AL = 2.28 mm (n = 1), EL/AL = 0.39, compact, slightly curved, apex slightly elongated and ending in an elongated knob (Fig. 56).

Distribution. Laos (Khammuane).

Remarks. For the geographical location of the Lakhon site (see Wiesner and Geiser 2016: 62): "A problem remains with the handling of the historical locality "Lakhon". According to Geiser and Nagel (2013), Jules Harmand's collecting locality "Montagnes de Lakhon" is situated in today's Khammuane Province of Laos. However, the town called "Lakhon" corresponds to today's Nakhon Phanom in Thailand, on the opposite side of the Mekong river. In his travel report, Harmand (1880) mentions collecting insects within the "Montagnes de Lakhon", but not in the vicinity of the town. Therefore, we assume that the tiger beetle specimens labelled simply as "Lakhon" from Harmand's material originate from Khammuane in Laos, rather than from Thailand."



Figures 52–61. Left lateral view of aedeagus, bar = 1 mm. **52, 53)** *T. rugosoangustoides* **sp. nov**. **52)** Paratype (CKGC). **53)** Holotype (JWCM). **54)** *T. rugosoangustus,* male, Vietnam (CKGC). **55)** *T. crebrepunctatus,* lectotype (SDEI). **56)** *T. tuberosus* (SDEI). **57–59)** *T. angustatus.* **57, 58)** Vietnam (CKGC). **59)** Yunnan (JWCM). **60)** *T. klapperichi,* paratype (NHMB). **61)** *T. pseudotuberosus,* Vietnam (ZSM).

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