Onychium., 16(3):81-99
ISSN: 2974-6949 (online)
1824-2669 (printed)

Published 15 November 2023
www.nuovogruppoentomologicotoscano.it

Tiger Beetles collected in Vietnam by Prof. Dr. Michio Hori (Coleoptera: Cicindelidae)

Jürgen WIESNER[1] & Vu Van LIEN[2]

[1]Dresdener Ring 11, D-38444 Wolfsburg, Germany - E-mail: juergen.wiesner@wolfsburg.de
[2]The Vietnam National Museum of Nature, 18 Hoang Quoc Viet, Cau Giay, Ha Noi, Vietnam
E-mail: vulien@gmail.com

Abstract. *Therates osaoi* sp. n., and *Therates miyagawai* sp. n. are described, and a key to all *Therates* species of the *chennelli* group is given. *Cosmodela horii* sp. n. close to *Cosmodela separata* (Fleutiaux, 1893) is described. The subgenus *Cicindela* (*Pseudoverticina*) Cassola, 2011 is raised to genus rank. The species *mourzinei* Werner & Naviaux, 2004, and *antoni* Cassola & Probst, 1996 are transferred from *Cylindera* (*Verticina)* Rivalier, 1961 to *Pseudoverticina*. The species *Pseudoverticina horii* sp. n. close to *Pseudoverticina antennalis* Cassola, 2011 is described. The subgenus *Cylindera (Matalinia)* subgen. nov. is created for the species *elegantissima* (Horn, 1892) and *neervoorti* (Horn, 1913). The subgenus *Cylindera (Horiia)* subgen. nov. is created for the species *glabra* (Bogenberger, 1988). In subgenus *Cylindera* (*Verticina)* Rivalier, 1961 remain the species *versicolor* (Macleay, 1825) and *dayaka* Matalin, 2002.

Tóm tắt. *Các loài cánh cứng họ Hổ trùng (Coleoptera: Cicindelidae) ở Việt Nam thu thập bởi GS.TS. Michio Hori.* Các loài hổ trùng mới cho khoa học, *Therates osaoi* sp. n. và *Therates miyagawai* sp. n., được mô tả, và khóa định loại đến tất cả các loài của nhóm *chennelli* thuộc giống *Therates* được trình bày. Loài mới *Cosmodela horii* sp. n. gần với loài *Cosmodela separata* (Fleutiaux, 1893) được mô tả. Phân giống *Cicindela* (*Pseudoverticina*) Cassola, 2011 được nâng lên cấp giống. Loài *mourzinei* Werner & Naviaux, 2004 và *antoni* Cassola & Probst, 1996 được chuyển từ *Cylindera* (*Verticina)* Rivalier, 1961 sang *Pseudoverticina.* Loài *Pseudoverticina horii* sp. n. gần với loài *Pseudoverticina antennalis* Cassola, 2011 được mô tả. Phân giống *Cylindera (Matalinia)* subgen. nov. được tạo ra cho loài *elegantissima* (Horn, 1892) và *neervoorti* (Horn, 1913). Phân giống *Cylindera (Horiia)* subgen. nov. được tạo ra cho loài *glabra* (Bogenberger, 1988). Trong phân giống *Cylindera* (*Verticina)* Rivalier, 1961 vẫn là loài *versicolor* (Macleay, 1825) và *dayaka* Matalin, 2002.

Riassunto. *Cicindelidi raccolti in Vietnam dal Prof. Dr. Michio Hori (Coleoptera: Cicindelidae).* Vengono descritti *Therates osaoi* sp. n. e *Therates miyagawai* sp. n., e viene fornita una chiave per tutte le specie di *Therates* del gruppo *chennelli.* Viene descritta *Cosmodela horii* sp. n. vicina a *Cosmodela separata* (Fletiaux, 1893). Il sottogenere *Cicindela (Pseudoverticina)* Cassola, 2011 viene elevato al rango di genere. Le specie *mourzinei* Werner & Naviaux, 2004, e *antoni* Cassola & Probst, 1996 vengono trasferite da *Cylindera* (*Verticina* Rivalier, 1961) a *Pseudoverticina*. Viene descritta la specie *Pseudoverticina horii* sp. n. vicina a *Pseudoverticina antennalis* Cassola, 2011. Viene creato il sottogenere *Cylindera (Matalinia)* subgen. nov. per le specie *elegantissima* (Horn, 1892) e *neervoorti* (Horn, 1913). Viene creato il sottogenere *Cylindera (Horiia)* subgen. nov. per la specie *glabra* (Bogenberger, 1988). Le specie *versicolor* (Macleay, 1825) e *dayaka* Matalin, 2002 rimangono nel sottogenere *Cylindera (Verticina*) Rivalier, 1961.

Key words. *Cosmodela*, *Therates*, *Pseudoverticina*, *Verticina*, *Matalinia*, *Horiia,* taxonomy, new species, Vietnam, Oriental Region.

Introduction

For several years Michio Hori has been traveling Vietnam and researching the beetle fauna of the country and especially the family Cicindelidae. The first author has now received several interesting specimens collected recently by Michio Hori and representing four species new to science. These and other results are presented below.

Materials and Methods

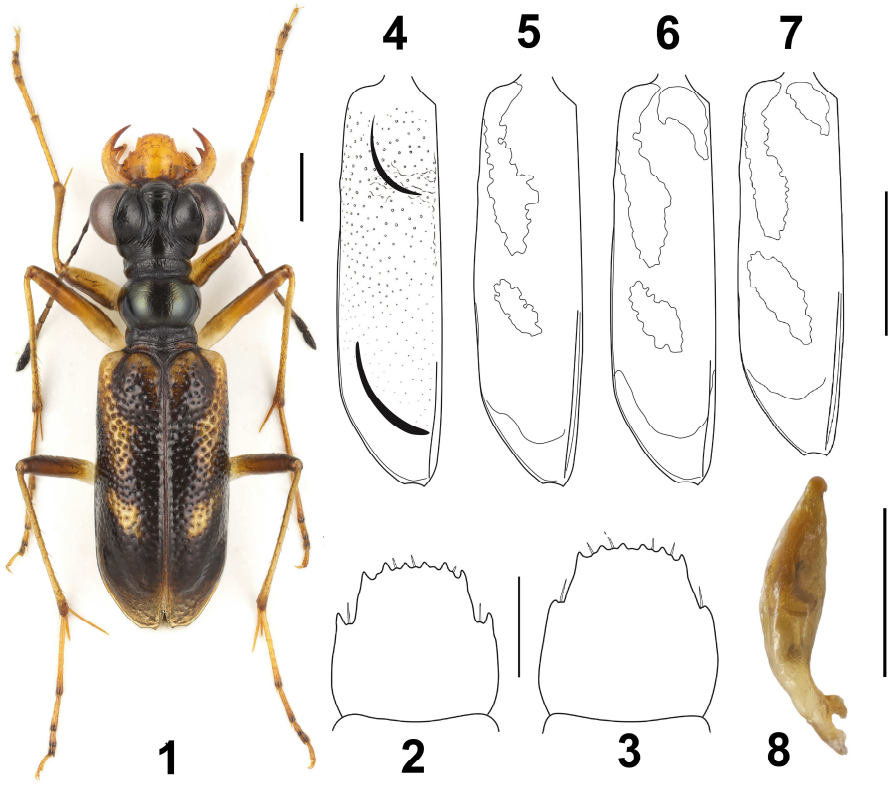
All measurements were made using a stereomicroscope Motic SMZ 171. Measurements of total body length were made from the front of the clypeus to apex of elytra. The other measurements were taken at respective maxima, i.e., greatest width of head, labrum, pronotum, elytron, and aedeagus. The label data of type specimens are reported 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 are reported within brackets.

Specimens mentioned here are deposited in the following collections:
JWGC Jürgen Wiesner Collection, Wolfsburg, Germany,
MHWJ Michio Hori Collection, Wakayama, Japan,
OMNH Osaka Museum of Natural History, Osaka, Japan,
VNMN Vietnam National Museum of Nature, Hanoi, Vietnam.

Results

Therates osaoi **sp. n.** (Fig. 1)

Examined material. Holotype male, "Lũng Cú, 1650 m alt., / Dông Văn, Hà Giang, / VIETNAM / June 11-16, 2023 / Michio HORI leg. // HOLOTYPE / *Therates* / *osaoi* / design. Wiesner & Lien 2023 [printed, red]" (OMNH). 1 paratype female, same label date and "PARATYPE / *Therates* / *osaoi* / design. Wiesner & Lien 2023 [printed, red]" (OMNH). 1 paratype male, 1 paratype female, same label data (each in VNMN, JWGC and MHWJ).
Diagnosis. The new species is distinguished from the other members of the *chennelli* group by a combination of the following features: humeral lunule diverging away from marginal suture, central dot acutely angled outwards toward the front and forming a slender ellipse, labrum yellow, metaepisternum black.
Etymology. This new species is cordially dedicated to Osao Hori, son of Prof. Dr. Michio Hori, who assisted him to find this species.
Description. Size: Total length (without labrum) 6.3–7.4 mm, (mean = 6.9, n = 8). Head: Shining greenish black. Ratio of width of head to elytra = 1.1 on average. Mandibles yellowish, teeth brownish marginally. Labrum (male Fig. 2, female Fig. 3) as wide as long, ratio of width to length = 1.0 on average, yellowish, with six apical teeth, one lateral tooth on each side and seven setae in between. Labial and maxillary palpi yellowish. Antennae lanceolate, extending posteriorly behind elytral shoulders in male, somewhat shorter in the females; scape yellowish above, black on underside, with a single apical bristle; antennomeres two to four shiny black and glabrous; antennomeres 5 to 11 finely and evenly pubescent and brownish or black in females; antennomeres 5 to 9 brownish in males and two distal segments black and obviously enlarged. Clypeus glabrous. Frons smooth, with a transverse furrow in the posterior part of the orbital plates. Thorax: Pronotum shining greenish black, as long as wide, ratio of width to length = 1.0 on average, barely more constricted in front than at back, transverse furrows strong, middle line and lateral lines nearly obsolete, middle line with several transverse short branches. Elytra: Longer than wide, ratio of width to length = 2.0 on average, shining brownish black, with basal and apical humps, strongly punctate in front, shallower in the apical half (Fig. 4). Apex transparent brown, with angular lateral corner and a sutural corner, slightly recurved between. Maculation comprised of a long and slender yellow humeral lunule, a short brownish basal dot which is extended a little to the middle suture, and central dot, which is acutely angled outwards toward the front, forming a slender ellipse (Fig. 5-7). Ventral aspect: Venter black. Legs yellowish, femora, tibiae and tarsomeres darker distally. Aedeagus: (Fig. 8) curved, with a deducted and rounded tip, total length 1.6 mm.
Distribution. Vietnam (Ha Giang).



Figures 1-8. *Therates osaoi* sp. n. All scales = 1 mm, unless otherwise mentioned. **1)** Habitus, holotype male. **2-3.** Labrum, scale = 0.5 mm. **2)** Holotype male. **3)** Paratype female. **4)** Punctures of elytra, holotype male. **5-7.** Maculae of elytra. **5)** Paratype male. **6)** Holotype male. **7)** Paratype female. **8)** Left lateral view of aedeagus, holotype.

***Therates miyagawai* sp. n.** (Fig. 9)

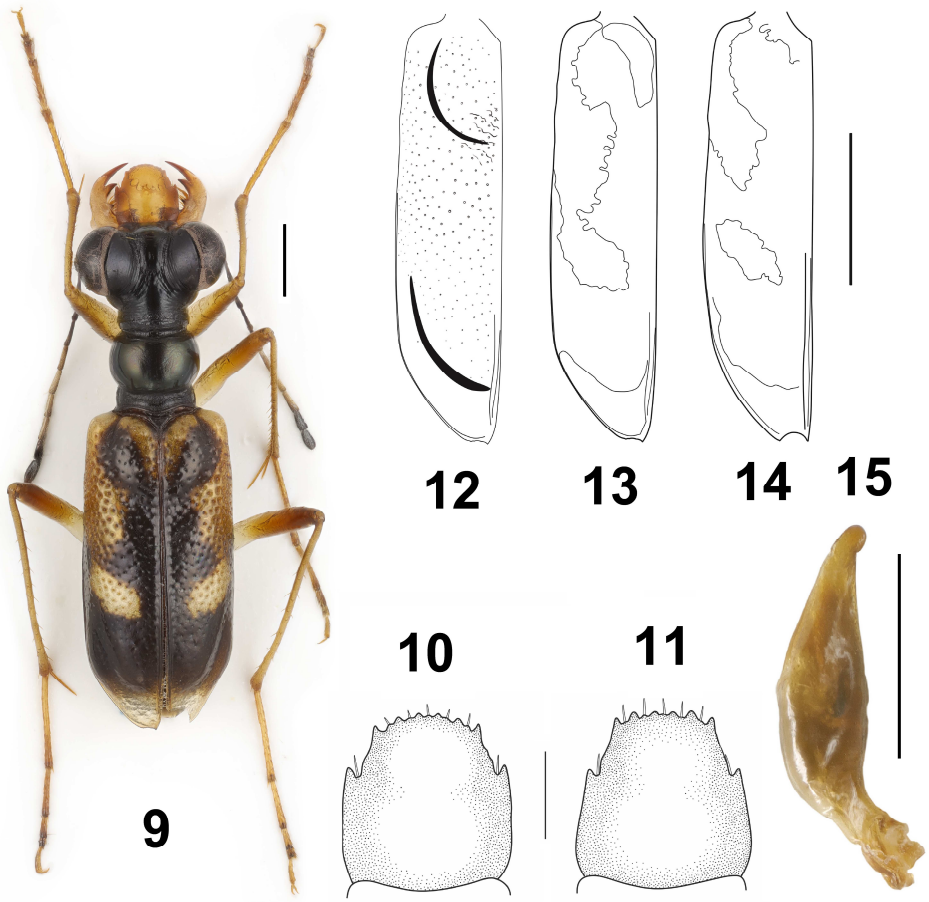
Examined material. Holotype male, "Lũng Cú, 1650 m alt., / Dông Văn, Hà Giang, / VIETNAM / June 11-16, 2023 / Michio HORI leg. // HOLOTYPE / *Therates* / *miyagawai* / design. Wiesner & Lien 2023 [printed, red]" (OMNH). 1 paratype male, 1 paratype female, same label data and "PARATYPE / *Therates* / *miyagawai* / design. Wiesner & Lien 2023 [printed, red]" (each in JWGC and MHWJ).

Diagnosis. The new species is distinguished from the other members of the *chennelli* group by a combination of the following features: humeral lunule not diverging away from marginal suture, central dot acutely angled outwards toward the front, labrum dark at outer margin, metaepisternum black, distal two antennomeres of male obviously extended.

Etymology. This new species is cordially dedicated to Mr. Takashi Miyagawa, the team leader of the squad to Ha Giang of Asian Insects Research Society in 2023.

Description. Size: Total length (without labrum) 7.5–8.0 mm, (mean = 7.7, n = 5). Head: Shining black. Ratio of width of head to elytra = 1.1 on average. Mandibles yellowish, teeth brownish marginally. Labrum (male Fig. 10, female Fig. 11) a little longer than wide, ratio of width to length = 0.9 on average, blackish laterally, yellowish in the center, with six apical teeth, one lateral tooth on each side and seven setae in between. Labial and maxillary palpi yellowish. Antennae lanceolate, extending posteriorly behind elytral shoulders in male, somewhat shorter in the females; scape

yellowish above, black on underside, with a single apical bristle; antennomeres two to four shiny black and glabrous; antennomeres 5 to 11 finely and evenly pubescent and black in females; antennomeres 5 to 9 brownish in males and two distal segments black and obviously enlarged. Clypeus glabrous. Frons smooth, with a transverse furrow in the posterior part of the orbital plates. Thorax: Pronotum shining black, as long as wide, ratio of width to length = 1.0 on average, barely more constricted in front than at back, transverse furrows strong, middle line and lateral lines nearly obsolete, Elytra: Longer than wide, ratio of width to length = 2.0 on average, shining black, with basal and apical humps, distinctly punctate in front, shallower in the apical third, extinct near apex (Fig. 12). Apex from apical hump to sutural corner transparent yellowish, with angular lateral corner and a sutural corner, slightly recurved between. Maculation comprised of a long and broad brownish humeral lunule not diverging away from marginal suture, in one specimen connected withn the basal dot, a bronish basal dot, and a yellowish central dot that is acutely angled outwards toward the front, forming a slender ellipse (Fig. 13, 14). Ventral aspect: Venter black. Legs yellowish, femora, tibiae and tarsomeres darker distally. Aedeagus: (Fig. 15) straight, with knobbed tip, total length 1.9 mm.
Distribution. Vietnam (Ha Giang).



Figures 9-15. *Therates miyagawai* sp. n. All scales = 1 mm, unless otherwise mentioned. **9)** Habitus, holotype male. **10, 11.** Labrum, scale = 0.5 mm. **10)** Holotype male. **11)** Paratype female. **12)** Punctures of elytra, holotype male. **13, 14.** Maculae of elytra. **13)** Holotype male. **14)** Paratype female. **15)** Left lateral view of aedeagus, holotype.

Provisional key to the members of *Therates chennelli* group

The key given by WIESNER (2013a: 5–9) is adapted and extended with the seven species which have been described since 2013 and the two new species of this paper.

1. Elytra lacking humeral dot and lunule; ground color of elytra metallic greenish black; body length 8.0–8.6 mm; China..... ***Th. tanjuanjieae*** Wiesner & Bi, 2014
– Elytra with humeral dot or lunule; ground color of elytra brownish black **2**

2(1). Ventral aspect completely pale; metepisternum yellow to reddish brown. **3**
– Ventral aspect partly to almost dark; metepisternum black. **8**

3(2). Elytral maculation including the middle suture from base to apex; body length 6.4 mm; Thailand..... ***Th. rogeri*** Probst & Wiesner, 1994
– Elytral maculation not as above..... **4**

4(3). Pronotum brownish..... **5**
– Pronotum black..... **6**

5(4). Male with distal two antennomeres obviously elongated; body length 6.2–7.4 mm; Vietnam. ..... ***Th. clavicornis*** Horn, 1902
– Male without distal antennomeres elongated; body length 6.4–6.6 mm; Laos..... ..... ***Th. ottomerkli*** Wiesner, 1999

6(4). Central dot forming a narrow band; body length 6.3–7.7 mm; India. ***Th. dohertyi*** Horn, 1905
– Central dot not as above..... **7**

7(6). Male with two antennomeres obviously extended; body length 7.5–8.2 mm; Vietnam. .... ***Th. caobangensis*** Wiesner, 2023
– Male without distal extended antennomeres. **62**

8(2). Frons mostly reddish..... **9**
– Frons mostly black..... **10**

9(8). Elytral punctures isolated; body length 5.7–6.2 mm; India..... ***Th. waagenorum*** Horn, 1900
– Elytral punctures connected in short rows; body length 6.6–8.0 mm; Thailand. .... ***Th. khaoyaii*** Wiesner, 2013

10(8). Elytral maculae variably connected throughout..... **11**
– Elytral maculae isolated, or at most humeral lunule and basal dot connected at base and/or humeral lunule connected with central dot. **23**

11(10). Labrum entirely bright yellow. **13**
– Labrum dark at outer margin. **12**

12(11). Labrum with complete broad black outer margin; body length 6.0–7.0 mm; Myanmar, Thailand..... ***Th. nigromarginalis*** Probst & Wiesner, 1994
– Labrum with incomplete blackish outer margin from lateral tooth up to base; body length 6.2–8.1 mm; India..... ***Th. sausai*** Sawada & Wiesner, 1997

13(11). Dark wedge-shaped recession between humeral lunule and central dot absent or small..... **14**
– Dark wedge-shaped recession between humeral lunule and central dot obvious and extends from marginal suture to center..... **18**

14(13). Ventrites black or with narrow yellow lateral margin; body length 6.8–7.5 mm; Malaysia, Vietnam. ..... ***Th. confluens*** Wiesner, 1988
– Ventrites with broad and distinctive lateral yellow margins. **15**

15(14). Basal hump without black spot..... **17**
– Basal hump with black spot..... **16**

16(15). Humeral lunule and central dot not extending to the middle suture; body length 7.3–8.2 mm; Laos. ..... ***Th. safraneki*** Wiesner, 2013
– Humeral lunule and central dot extending to the middle suture; body length 6.3–8.3 mm; Laos, China. ..... ***Th. pseudoconfluens*** Sawada & Wiesner, 1999

17(15). Apical dot extended forward medially; body length 6.3–8.0 mm; Thailand, Laos, Vietnam. ..... ***Th. haucki*** Moravec & Wiesner, 2001
– Apical dot not extended forward medially; body length 5.8–7.6 mm; Laos. ..... ***Th. pacholatkoi*** Sawada & Wiesner, 2004

18(13). Posterior margin of central dot angled gradually outwards toward the front. **20**
– Posterior margin of central dot nearly right-angled to elytral edge. **19**

19(18). Humeral lunule and central dot almost completely connected; body length 7.5–8.5 mm; Myanmar. ..... ***Th. chennelli*** Bates, 1878
– Humeral lunule and central dot almost isolated from each other; body length 7.2–9.1 mm; Myanmar, Thailand, Laos, Vietnam. ..... ***Th. concinnus*** Gestro, 1888

20(18). Central dot acutely angled outwards toward the front. **21**
– Central dot not as above; aedeagus with roundish tip. **22**

21(20). Ventrites with narrow yellowish lateral margin; aedeagus with club-shaped tip; body length 6.5–7.6 mm; Thailand. ..... ***Th. similis*** Probst & Wiesner, 1994
– Ventrites with broad yellowish lateral margin; aedeagus with evenly pointed tip; body length 6.8–8.2 mm; Thailand. ..... ***Th. rihai*** Moravec & Wiesner, 2001

22(20) Elytral maculation yellowish; body length 7.0–8.7 mm; Thailand, Malaysia. ..... ***Th. pseudochenelli pseudochenelli*** Probst & Wiesner, 1994
– Elytral maculation red brown; body length 7.5–8.6 mm; Thailand. ..... ***Th. pseudochenelli rufus*** Probst & Wiesner, 1994

23(10) Humeral lunule near the marginal suture in almost its entire length. **24**
– Humeral lunule over its length diverging away from marginal suture. **31**

24(23) Humeral lunule short, not extended onto disk. **25**
– Humeral lunule long, extended onto disk; body length 7.5–8.0 mm; Vietnam. ..... ***Th. miyagawai*** **sp. n.**

25(23). Central dot subsquare or trapezoidal. **26**
– Central dot not as above. **29**

26(25). Antennae short, male with distal two antennomeres obviously enlarged; body length 8.0–11.2 mm; Vietnam. ..... ***Th. tonkinensis*** Horn, 1902
– Antennae longer, male without distal two antennomeres enlarged. **27**

27(26). Labrum dark at outer margin; body length 6.5–7.5 mm; Laos. ..... ***Th. phongsalyensis*** Sawada & Wiesner, 2004
– Labrum uniformly pale. **28**

28(27). Labrum with six apical teeth; body size smaller; body length 8.2–8.7 mm; Laos. ..... ***Th. pseudorugifer pseudorugifer*** Sawada & Wiesner, 1999
– Labrum with five apical teeth; body size larger; body length 9.5 mm; China. ..... ***Th. pseudorugifer pentalabiodentatus*** Matalin, 2001

29(25). Labrum dark at outer margin. **30**
– Labrum uniformly pale; body length 7.4 mm; Laos. ..... ***Th. circumscriptus*** Moravec & Wiesner, 1999

30(29). Male with distal two antennomeres obviously elongated; body size usually less than 8 mm; body length 6.7–8.2 mm; Vietnam. ***Th. rugifer*** Horn, 1902
– Male without distal two antennomeres elongated; body size usually greater than 8 mm; body length 8.0–9.2 mm; Laos. ***Th. namthacolus*** Sawada & Wiesner, 1999

31(23). Central dot subsquare or a trapezoidal band. **32**
– Central dot more or less roundish, not forming a band. **36**

32(31). Labrum uniformly yellow. **33**
– Labrum dark at outer margin; body length 7.8 mm; India. ***Th. arunachalcolus*** Sawada & Wiesner, 2006

33(32). Humeral lunule slender; body length 6.9–8.2 mm; China. ***Th. montaneus*** Werner, 1992
– Humeral lunule broad. **34**

34(33). Yellow color of elytral apex reaches the apical humps; body length 7.7–8.2 mm; Nepal, India. ***Th. nepalensis*** Probst & Wiesner, 1994
– Yellow apical dot does not reach the apical humps. **35**

35(34). Humeral lunule long, tongue like and enlarged towards central dot; body length 8.2–9.6 mm; Laos. ***Th. bannapecolus*** Sawada & Wiesner, 1999
– Humeral lunule shorter and uniform in width throughout; body length 9.0 mm; Thailand. ***Th. major*** Probst & Wiesner, 1994

36(31). Central dot acutely angled outwards toward the front. **37**
– Central dot not as above. **47**

37(36). Elytral apex with a yellow dot. **44**
– Elytral apex with no yellow dot. **38**

38(37). Labrum uniformly pale. **40**
– Labrum dark at outer margin. **39**

39(38). Ventrites black to margins; body length 6.7–7.6 mm; Vietnam. ***Th. schuelei*** Wiesner, 2013
– Ventrites with brownish margins; body length 4.8–6.7 mm; India. ***Th. ingridae*** Sawada & Wiesner, 2006

40(38). Male with antennae short, reaching elytral shoulders **58**
– Male with antennae longer, reaching behind elytral shoulders. **41**

41(40). Apex of elytra black. **42**
– Apex of elytra transparent brownish or yellowish. **43**

42(41). Elytra without basal dot; body length 7.0–7.4 mm; Laos. ***Th. apicenigrus*** Sawada & Wiesner, 1999
– Elytra with basal dot; body length 6.9–7.5 mm; Laos. ***Th. moraveci*** Sawada & Wiesner, 1999

43(41). Central dot horizontal; body length 6.8–7.1 mm; Laos. ***Th. dembickyi*** Sawada & Wiesner, 2002
– Central dot acutely angled outwards toward the front. **63**

44(37). Humeral lunule short. **45**
– Humeral lunule long, nearly reaching the central dot. **46**

45(44). Labrum uniformly yellowish; body length 7.3–8.8 mm; Laos, Vietnam. ***Th. probsti*** Wiesner, 1988
– Labrum brownish laterally **59**

46(44). Ventrites black to margins **61**

– Ventrites with yellowish margins **57**

47(36). Humeral lunule long, connected with the central dot or nearly reaching it. **48**
– Humeral lunule shorter. **51**

48(47). Humeral lunule broad and strongly extended onto disk. **49**
– Humeral lunule narrow and barely extending onto disk. **50**

49(48). Light color of elytral apex reaching but not extending onto apical humps; body length 6.7–8.4 mm; Thailand, Malaysia. ..... ***Th. kraatzi*** Horn, 1900
– Light color of elytral apex covering apical humps; body length 7.2–8.2 mm; India. ..... ***Th. annandalei*** Horn, 1908

50(48). Apex of elytra broadly yellow; body length 6.1–7.8 mm; Laos. ..... ***Th. apiceflavus*** Sawada & Wiesner, 1999
– Apex of elytra yellow only at a small area near the suture; body length 5.8–7.7 mm; Vietnam. ..... ***Th. topali*** Mandl, 1972

51(47). Elytral apex black with large and bright apical dot. **52**
– Elytra with small, yellow apical dot at suture or apex transparent dark brown. **53**

52(51). Central elytral dot broad; male without distal two antennomeres elongated; body length 6.4–9.1 mm; Laos. ..... ***Th. laotiensis*** Sawada & Wiesner, 1999
– Central elytral dot slender; male with distal two antennomeres obviously elongated; body length 7.3–8.6 mm; Myanmar. ..... ***Th. myanmarensis*** Wiesner, 1999

53(51). Basal elytral dot longish and located near middle suture. **54**
– Basal elytral dot subsquare roundish and located besides the scutellum. **56**

54(53). Basal elytral dot broad; male with distal two antennomeres obviously elongated; body length 8.2–9.2 mm; Vietnam. ..... ***Th. pearsoni*** Wiesner, 2013
– Basal elytral dot narrow, male without distal two antennomeres elongated. **55**

55(54). Central elytral dot broad; body length 7.2–8.7 mm; Thailand. ..... ***Th. pseudoprobsti*** Probst & Wiesner, 1994
– Central elytral dot slender; body length 5.8–7.3 mm; Myanmar. ..... ***Th. miyamai*** Sawada & Wiesner, 2000

56(53). Central elytral dot subsquare; aedeagus with long pointed tip, knobbed apically; body length 6.7–9.1 mm; India. ..... ***Th. jendeki*** Sawada & Wiesner, 1997
– Central dot acutely angled inwards toward the suture; aedeagus with thick tip; body length 6.3–8.7 mm; Vietnam. ..... ***Th. vietnamensis*** Wiesner, 1988

57(46). Margins of labrum brownish at base; body length 6.5–7.5 mm; Laos. ..... ***Th. csorbai*** Wiesner, 1999
– Labrum yellowish all over; body length 5.9–7.8 mm; China. ..... ***Th. turnai*** Wiesner, 2015

58(40). Humeral lunule short and narrow; body length 5.7–6.9 mm; Laos. ..... ***Th. bannokcolus*** Sawada & Wiesner, 1999
– Humeral lunule long and broad; body length 7.9–8.0 mm; China. ..... ***Th. guangdongensis*** Wiesner, 2016

59(45) Total length larger than 7.9 mm; basal dot three-quarters as long as the humeral lunule; body length 8.0–8.7 mm; Vietnam. ..... ***Th. paulae*** Wiesner, 2016
– Total length smaller than 7.9 mm; basal dot half as long as the humeral lunule. **60**

60(59). Antennae shorter, extending posteriorly to elytral shoulders in females; dark lateral margins of labrum broad.; body length 6.5–7.7 mm; Vietnam. ..... ***Th. aligii*** Wiesner, 2016

– Antennae longer, extending posteriorly behind elytral shoulders in females; dark lateral margins of labrum small.; body length 6.9–7.5 mm; Laos..***Th. sigridgeissleri*** Wiesner, 2013

61(46). Basal dot half as long as the humeral lunule; metatibiae yellowish, somewhat darkened distally; body length 7.5–8.4 mm; Vietnam..... ***Th. baolocensis*** Wiesner, 1996
– Basal dot one-quarter as long as the humeral lunule; metatibiae yellowish, blackish at base; body length 7.1–7.4 mm; Vietnam.....***Th. lamdongensis*** Wiesner & Anichtchenko, 2018

62(7). Distance between elytral apical hump and lateral tooth short; aedeagus short, less prominent; body length 5.8–7.5 mm; Laos. .....***Th. nagaii*** Sawada & Wiesner, 2000
– Distance between elytral apical hump and lateral tooth long; aedeagus long and prominent; body length 6.5–7.4 mm; Myanmar.....***Th. murzini*** Wiesner, 1999

63(43). Central dot forms a slender ellipse; body length 6.3–7.4 mm; Vietnam. .....***Th. osaoi*** **sp. n.**
– Central dot roundish; body length 5.4–7.2 mm; Laos, Vietnam. ..... ***Th. gestroi*** Horn, 1900

Cosmodela horii **sp. n.** (Fig. 17)

Examined material. Holotype male, “Song Lo River, 454 m alt., / Cán Tý, Hà Giang, / VIETNAM / June 11, 2023 / Michio HORI leg. // HOLOTYPE / *Cosmodela* / *horii* / design. Wiesner & Lien 2023 [printed, red]” (OMNH). 1 paratype female, “Cat Cat Village, 1344m / Sapa, Lao Cai Province, / VIETNAM / May 20-23, 2012 / Michio HORI leg. [printed, white, with yellow boarder] //“PARATYPE / *Cosmodela* / *horii* / design. Wiesner & Lien 2023 [printed, red]” (OMNH). 1 paratype male, 1 paratype female, same label data (VNMN). 4 paratype males, 4 paratype females, same label data (JWGC). 4 paratype males, 11 paratype females, same label data (MHWJ). 1 paratype male, “Xin Chai, 1500m alt., / Sapa, Lao Cai Province, / VIETNAM / 3 May 2009 / Michio HORI leg.”, same type label (MHWJ). 1 paratype male, “Phia Oac Mt. National / Reserve, 1250 m alt., / Kao Vang Prov., VIETNAM / June 16-18, 2018 / Michio HORI leg.”, same type label (MHWJ). 1 paratype males, 1 paratype female, “Song Lo River, 454 m alt., / Cán Tý, Hà Giang, / VIETNAM / June 11, 2023 / Michio HORI leg.”, same type label (MHWJ). 1 paratype male, “CHINA, Yunnan, / 7.2004, leg. Ying, / Baodingshan, Baoshan”, same type label (JWGC). 1 paratype female, “N Vietnam, Lao Cai, / Hoang Lien NP, Cat Cat, / 15.v.2015, 1253m, / N22°19.276’ E103°49.603, leg. R. Gerstmeier [printed, yellow]“, same type label (JWGC). 1 paratype female, “N.E.Laos / Sam Neua Mt. Pan / June 2012“, same type label (MHWJ). 1 paratype female, “Cat Cat Village 1300m alt. / Sapa, Lao Cai Province, / VIETNAM / 4 Jun. -10 Jul. 2009 / Vu Van Lien leg.”, same type label (MHWJ). 1 paratype female, “Caobang / N. VIETNAM / July 2001 [printed, white, with yellow boarder]”, same type label (JWGC).

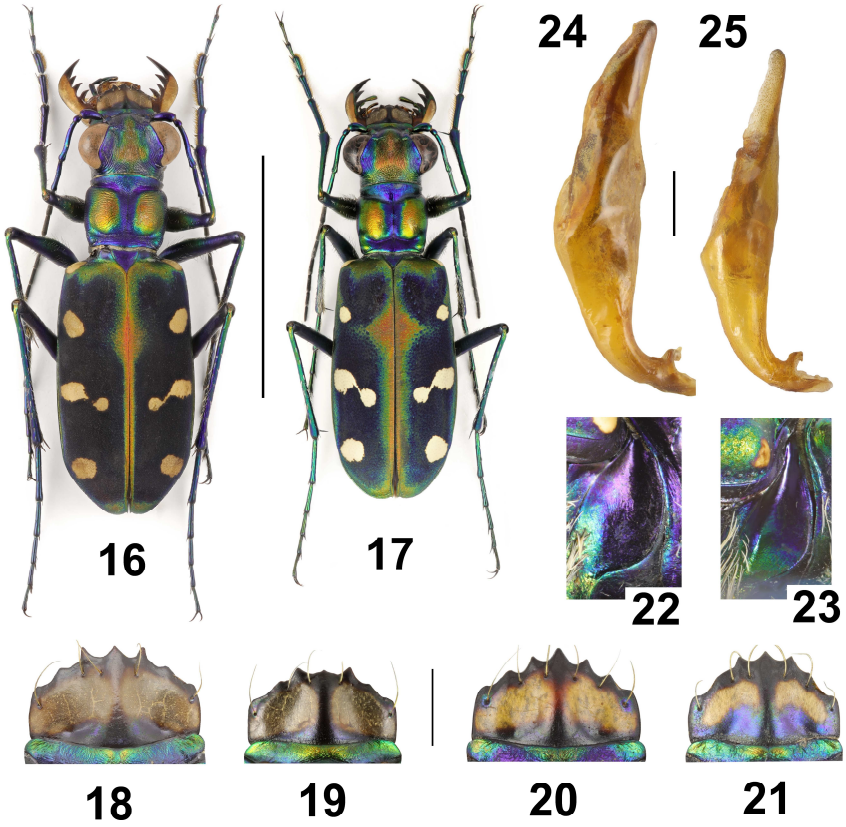
Diagnosis. The new species is distinguished from *Cosmodela separata* (Fleutiaux, 1893) (Fig. 16, 18, 19) by the following features. The aedeagus of *separata* (total length 5.6 mm (Fig. 24) is not as slender. The coupling sulcus of *separata* forms a short, shallow longitudinal depression in the center (Fig. 22). *C. separata* is slightly larger (16.1–17.9 mm, mean 16.9 mm) and is distributed in eastern China (Anhui, Fujian, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shanghai, Shanxi, Zhejiang).

Etymology. This new species is cordially dedicated to its discoverer, Prof. Dr. Michio Hori.

Description. Size: Total length (without labrum) 13.4–16.6 mm, (mean = 15.9, n = 37). Head: Glabrous except for four sensitive, supraorbital setae, distinctly furrowed; ratio of width of head to elytra = 1.4 on average; clypeus, frons, orbital plates and genae blue violet, an area between the orbital plates up to the base and two areas behind the orbital plates towards the base are green and coppery. Mandibles black, laterally pale; this stripe is shorter in females than in males. Labrum (male Fig. 20, female Fig. 21) wider than long, ratio of width to length = 1.7 on average; with a longitudinal keel in the middle, with five apical teeth, the middle three of which are extended anteriorly, black or blue violet marginally, on the keel and at the base, and six to eight setae or setigerous punctures un between. Labial and maxillary palpi metallic greenish black. Antennae filiform, extending posteriorly behind elytral shoulders; scape with a single apical setum, antennomeres two to four glabrous; antennomeres one to four shiny black or blue violet; antennomeres 5 to 11 finely and evenly pubescent and brownish black. Thorax: Pronotum as long as wide, ratio of width to length = 1.0 on

average; glabrous, constricted in front and at back, transverse furrows strong, middle line distinct, lateral lines very fine; blue violett, between the two furrows shiny green, coppery or red; proepisternum blue violett, covered with white setae. Mesepisternum glabrous, blue violett, female with a long furrow at the back lateral margin (Fig. 23). Scutellum bluish black. Elytra: Longer than wide, ratio of width to length = 1.8 on average; dull, black, fringed green or red-coppery; middle suture likewise, fringe in anterior third expanded toward middle, fringe at the shoulder contacting the lower humeral dot; elytra apex finely serrate, with short sutural spine. Pale elytral pattern comprised of 5 roundish dots, a small or tiny shoulder dot, a small lower humeral dot, a little larger marginal dot, a smaller central dot, and a larger apical dot; marginal and central dots are in most specimens connected by a thin line. Epipleura black or blue. Ventral aspect: Venter blue or green, mesepimeron, metepisternum, mesothoracic coxa, lateral part of metasternum and lateralpart of abdominal segments 1 to 4 or 5 covered with white setae. Legs dark blue with bright green and blue reflections. Aedeagus: (Fig. 25) the upper back side rises in a continuous curve to the top, then descends slightly to the step in the last third of the aedeagus, behind which it goes in a short, horizontal line to a beak-like bend up to the rounded apical end; the lower part goes almost horizontally to the apical end, slightly curved in the center, total length 5.4 mm.

Distribution. Laos: Houaphan; Vietnam: Bac Kan, Cao Bang, Ha Giang, Lao Cai; China: Yunnan.



Figures 16-25. All scales = 1 mm, unless otherwise mentioned. **16, 17.** Habitus male, scale = 10 mm. **16)** *Cosmodela separata*. **17)** *Cosmodela horii* sp. n. **18-21.** Labrum. **18)** *Cosmodela separata* male. **19)** *Cosmodela separata* female. **20)** *Cosmodela horii* sp. n. male. **21)** *Cosmodela horii* sp. n. female. **24, 25.** Left lateral view of aedeagus. **24)** *Cosmodela separata*. **25)** *Cosmodela horii* sp. n. **22, 23.** Coupling sulcus of female mesepisternum. **22)** *Cosmodela separata*. **23)** *Cosmodela horii* sp. n.

Pseudoverticina Cassola, 2011, **stat. nov.**

Citations. CASSOLA, 2011: 208; WIESNER, 2020: 210.
Type species. *C. antennalis* Cassola.
Remarks. CASSOLA (2011: 208-210) described the species *antennalis*, whose similarity to *Verticina* Rivalier, 1961 he recognized, but which he did not want to put in *Verticina*, subgenus of *Cylindera* Westwood, 1831, because of the absence of the rolled flagellum. He created the subgenus *Pseudoverticina* Cassola, 2011 for *antennalis*, which he put in the genus *Cicindela* Linné, 1758, because the inner sac of the aedeagus shows certain similarities with the species of that genus. He did not consider that all *Cicindela* species of the Oriental region have five marginal teeth on the labrum and that in all *Cicindela* species the proepisternum is more or less hairy. The labrum of his *Pseudoverticina antennalis* has 3 marginal teeth, and its proepisternum, is completely glabrous. For these reasons we elevate *Pseudoverticina* to genus rank. Which other genera are phylogenetically closest to the genus cannot be deduced from the morphology of the aedeagus inner sac alone. Because of the glabrous proepisternum of *Pseudoverticina* it is not assigned near the genus *Cicindela* Linné, 1758, of which some species have a similar inner sac. It thus remains, for the time being, near the genus *Cylindera*.
WIESNER (2020: 274) included the species *versicolor* (Macleay, 1825), *dayaka* Matalin, 2002, *mourzinei* Werner and Naviaux, 2004, *antoni* Cassola and Probst, 1996, *neervoorti* (W. Horn, 1913), *elegantissima* (Horn, 1892), and *glabra* (Bogenberger, 1988) within the genus *Verticina*. However, the aedeagus inner sac of these species has not previously been examined. We have now done so for all but *neervorti* and *dayaka* with the following results:
Cylindera (*Verticina*) *antoni* and *Cylindera* (*Verticina*) *mourzinei* like *Pseudoverticina antennalis*, do not possess a rolled flagellum in the inner sac of the aedeagus and have a three-dentaded labrum and glabrous proepisternum. They are thus moved to *Pseudoverticina*. Additionally another new *Pseudoverticina* species is described, collected by Michio Hori.

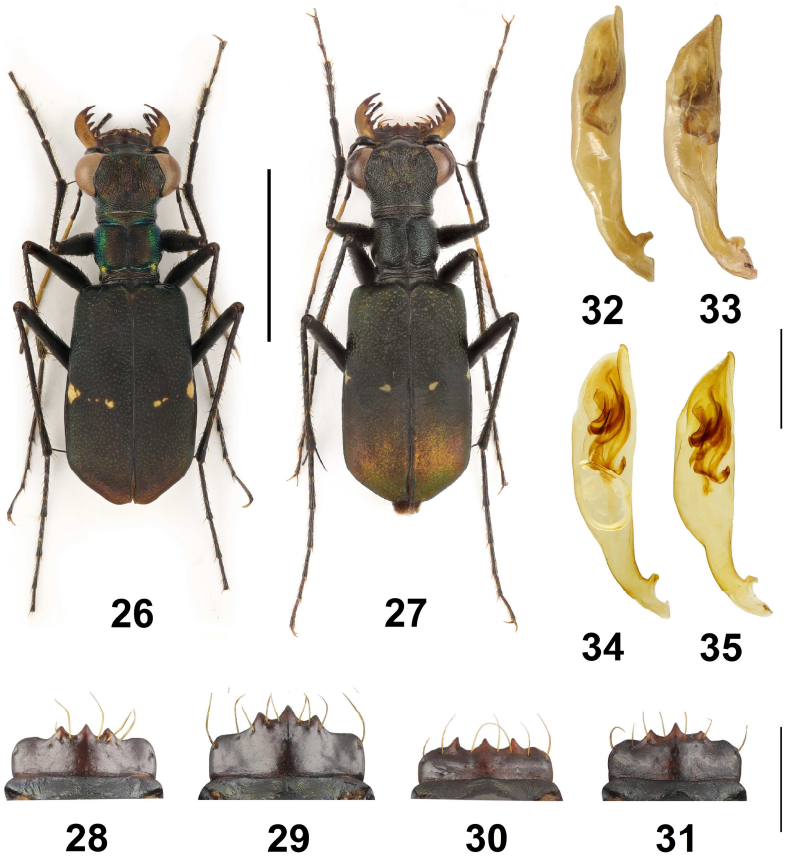
Pseudoverticina antennalis (Cassola, 2011) (Fig. 26, 28, 29, 32, 34)

Citations. *Cicindela* (*Pseudoverticina*) *antennalis*: CASSOLA, 2011: 208, 209, 210, figs 1, 2; WIESNER *et al.,* 2017: 48, figs. 130, 185, 322; WIESNER, 2020: 210.
Distribution. Vietnam (Cao Bang).

***Pseudoverticina horii* sp. n.** (Fig. 27)

Examined material. Holotype male, "Lũng Cú, 1650 m alt., / Dông Văn, Hà Giang, / VIETNAM / June 11-16, 2023 / Michio HORI leg. // HOLOTYPE / *Pseudoverticina* / *horii* / design. Wiesner & Lien 2023 [printed, red]" (OMNH). 1 paratype female, same label date and "PARATYPE / *Pseudoverticina* / *horii* / design. Wiesner & Lien 2023 [printed, red]" (OMNH). 1 paratype male, 1 paratype female, same label data (VNMN). 6 paratype males, 2 paratype females, same label data (JWGC). 10 paratype males, 2 paratype females, same label data (MHWJ). 1 paratype male, 1 paratype female, "Lung Cu 1600 m, Dong Van, / Ha Giang, / VIETNAM / Jun. 5, 2019 / T. MIYAGAWA leg.", same type label (MHWJ).
Diagnosis. The new species is distinguished from *P. antennalis* by the greenish or brassy color of the elytral apex and the shape of the aedeagus, which shows an extended tip apically (Fig. 32).
Etymology. This new species is cordially dedicated to its discoverer, Prof. Dr. Michio Hori.
Description. Size: Total length (without labrum) 9.5–10.8 mm, (mean = 10.1, n = 26). Head: Black, glabrous except for four sensitive, supraorbital setae, distinctly furrowed longitudinal between eyes, striae becoming transverse and wavy behind on neck, with a nearly extinct transverse furrow near the base of the orbital plates; genae shallowly furrowed; ratio of width of head to elytra = 1.2 on average. Mandibles testaceous, darkened in some specimens, teeth brownish or darkened marginally. Labrum blackish brown, teeth lighter (male Fig. 30, female Fig. 31), very short, ratio of width to length = 2.7 on average, with three acute teeth in the middle, lateral edge rounded, eight setae or setigerous punctures in between. Labial and maxillary palpi black. Antennae filiform, extending posteriorly behind the first third of the elytra; scape with a single apical bristle, antennomeres two to four

glabrous; antennomeres one to four brownish black or black, antennomeres 5 to 11 finely and evenly pubescent, antennomeres 5 to 9 yellowish. antennomeres 10 and 11 brownish black or black. Thorax: Pronotum black, as long as wide, ratio of width to length = 1.0 on average, glabrous, rounded at sides, convex on disc, transversely and slightly wrinkled irregularly on disc, front and hind collars striated transversally; proepisterna black, smooth and glabrous. Mesepisternum glabrous, black, female with a longitudinal furrow in the middle and a pit in its center. Scutellum black. Elytra: Longer than wide, ratio of width to length = 1.7 on average; dull, black, basal two thirds, especially towards the margin, with green reflections, covered with micro spots, the apical third of shiny brass or green color; elytra apex with tiny sutural spine. Pale elytral pattern comprised of a small triangular marginal dot and a small roundish central dot. Epipleura black. Ventral aspect: Venter black, a cluster of white hairs on the apical margin of the metepisternum, venter otherwise glabrous. Legs black, with several spiniform setae on all segments. Aedeagus: (Fig. 33, 35) short, suddenly inflated dorsally after base, ending into a blunt point apically which is followed on both sides by wing-like margins, total length 2.5 mm.
Distribution. Vietnam (Ha Giang).



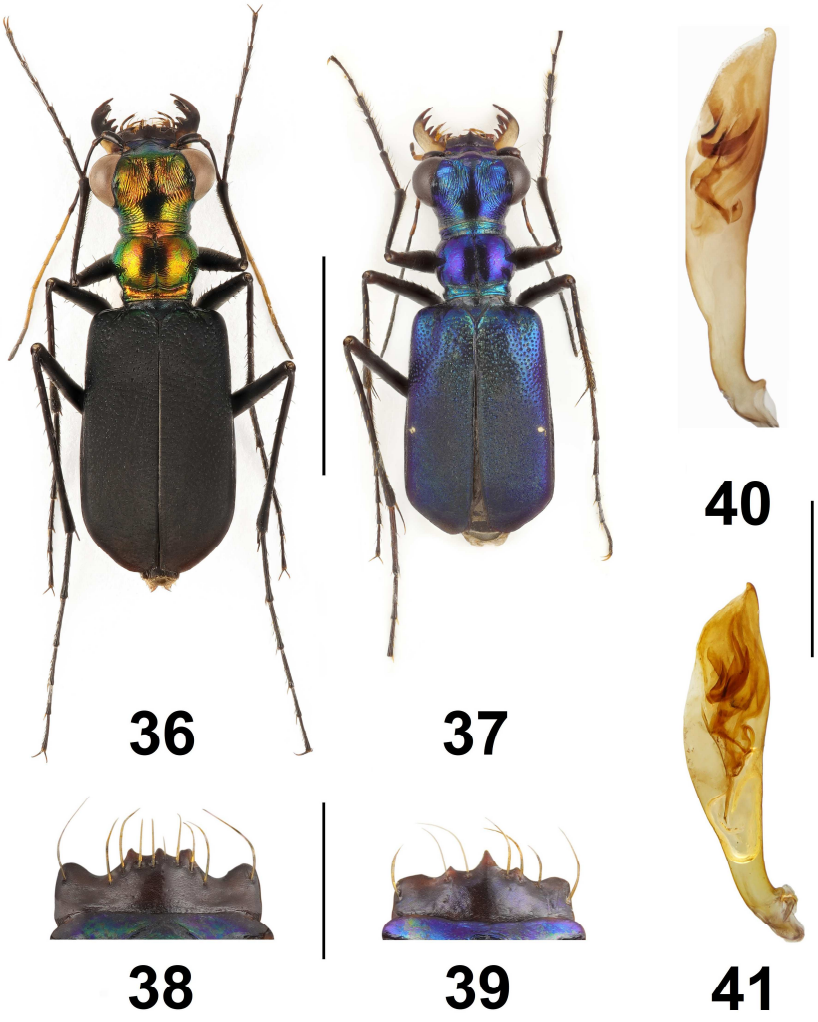
Figures 26-35. All scales = 1 mm, unless otherwise mentioned. **26, 27.** Habitus male, scale = 5 mm. **26)** *Pseudoverticina antennalis*. **27)** *Pseudoverticina horii* sp. n. **28-31.** Labrum. **28)** *Pseudoverticina antennalis* male. **29)** *Pseudoverticina antennalis* female. **30)** *Pseudoverticina horii* sp. n. male. **31)** *Pseudoverticina horii* sp. n. female. **32, 33.** Left lateral view of aedeagus. **32)** *Pseudoverticina antennalis*. **33)** *Pseudoverticina horii* sp. n. **34, 35.** Left lateral view of aedeagus inner sac. **34)** *Pseudoverticina antennalis*. **35)** *Pseudoverticina horii* sp. n.

Peudoverticina antoni (Cassola and Probst, 1996) **comb. nov.** (Fig. 36, 38, 40)

Citations. *Cylindera* (*Verticina*) *antoni*: CASSOLA & PROBST, 1996: 14, 15. fig. 1. SAWADA & WIESNER, 2002: 90; WIESNER & GEISER, 2016: 101; WIESNER et al., 2017: 60, figs 153, 344; WIESNER , 2020: 275.
Distribution. Vietnam (Lao Cai), Laos (Borikhamxay).

Pseudoverticina mourzinei (Werner and Naviaux, 2004) **comb. nov.** (Fig. 37, 39, 41)

Citations. *Cylindera* (*Verticina*) *mourzinei*: WERNER & NAVIAUX, 2004: 61, 62, figs. 1-3; WIESNER, 2020: 275.
Distribution. Myanmar (Putao).



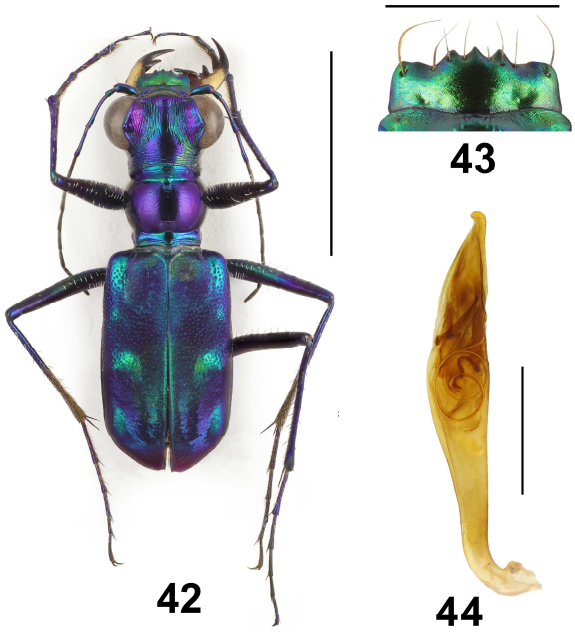
Figures 36-41. All scales = 1 mm, unless otherwise mentioned. **36, 37.** Habitus, scale = 5 mm. **36)** *Peudoverticina antoni* female. **37)** *Pseudoverticina mourzinei* paratype male. **38, 39.** Labrum. **38)** *Peudoverticina antoni* female. **39)** *Pseudoverticina mourzinei* paratype male. **40, 41.** Left lateral view of aedeagus inner sac. **40)** *Peudoverticina antoni* (photo by Andrey Matalin). **41)** *Pseudoverticina mourzinei* paratype.

Genus *Cylindera* Westwood, 1831, **subgenus *Verticina*** Rivalier, 1961

Citations. RIVALIER, 1961: 140, 1963: 47; WIESNER, 1992: 186, 2020: 274.
Type species. *C. versicolor* Macleay.
Remarks. RIVALIER described *Verticina* (1961: 140) as follows: "This small Malay group comprises just two glabrous members, remarkable for their metallic-brilliant hue, polished head and pronotum, and the pronounced angle between forehead and vertex. The elytral pattern is absent or very reduced." He placed *Cicindela versicolor* Macleay, 1825 and *Cicindela elegantissima* Horn, 1892 into this subgenus of the genus *Cylindera*. WIESNER (1992: 186) added the species *Cicindela glabra* Bogenberger, 1988 and *Cicindela neervoorti* Horn, 1913. The latter was tentatively placed in *Verticina* as only the holotype male exists, and it was not dissected for study of genitalia. The species of the subgenus *Verticina* have a metallic labrum with three marginal teeth.
The species *versicolor* and its recently described sister *dayaka* Matalin, 2002 have this metallic three dentate labrum, while *elegantissima*, *glabra* and *neervoorti* have a pale and unidentate labrum. All of them have the rolled flagellum in the inner sac of the aedeagus. Therefore the latter three have to be placed in subgenera outsinde of *Verticina*, but still in the Genus *Cylindera*.

Cylindera* (*Verticina*) *versicolor (Macleay, 1825) (Fig. 42, 43, 44)

Citations. *Cicindela versicolor*: MACLEAY, 1825: 11; FLEUTIAUX, 1892: 39; HORN, 1908a: 31, fig. 84, 1915: 286, 1926: 164, 1932: 3, 1938: plate 48, fig. 27.
Cylindera (*Thopeutica*) *versicolor*: SCHILDER, 1953: 547.
Cylindera (*Verticina*) *versicolor*: RIVALIER, 1961: 140; STORK, 1986: 9; WIESNER, 1986: 42, 43. figs. 192, 207, 222, 223, 262, 304; NAVIAUX, 1987: 79, figs. 10-12; 1991: 256, figs. 147-149; WIESNER , 1992: 186, 1998: 373; SAWADA & WIESNER, 2003: 49; NAVIAUX & PINRATANA, 2004: 88, plate 14, figs 1-3, plate 47, fig 6, plate 61, fig. 1; CASSOLA, 2006: 28; WIESNER, 2007: 114; CASSOLA, 2009: 222; WIESNER, 2013b: 109, 2016c: 161; DAMKEN *et al.*, 2017: 5, 6; WIESNER, 2020: 274, 275.



Figures 42-44. All scales = 1 mm, unless otherwise mentioned. *Cylindera* (*Verticina*) *versicolor* **42)** Habitus, male. scale = 5 mm. **43)** Labrum, male. 4**4)** Left lateral view of aedeagus inner sac

Distribution. Thailand (Trang), Malaysia (Sarawak: Kuching, Quop, Bidi, Matang; Sabah: Samawang, Bettotan; Malacca: Kelantan, Pahang, Negeri Sembilan, Johor), Singapore, Indonesia (Jawa; Sumatra: Aceh, Sumatra utara, Sumatra barat, Bengkulu, Sumatra selatan, Lampung), Brunei (Temburong).

Cylindera* (*Verticina*) *dayaka Matalin, 2002

Citations. *Cylindera* (*Verticina*) *dayaka*: MATALIN, 2002: 139-142, figs.; WIESNER, 2020: 275.
Distribution. Malaysia (Sabah).

Subgenus *Matalinia* nov.

Remarks. For the species of the genus *Cylindera* Westwood, 1831, whose labri have only one marginal tooth and six marginal setae, the subgenus *Matalinia* is established. Type species is *V. elegantissima* (Horn, 1892).
Etymology. The new subgenus is dedicated to the world-famous tiger beetle specialist Andrey Matalin, Moscow.

Cylindera* (*Matalinia*) *elegantissima (Horn, 1892) **comb nov.** (Fig. 45, 47, 49)

Citations. *Cicindela elegantissima*: HORN, 1892: 77, 78; FLEUTIAUX, 1892: 44; HORN, 1915: 287, 1926: 164, 1927: 123, 1938: plate 48, fig 28.
Cylindera (*Thopeutica*) *elegantissima*: SCHILDER, 1953: 546.
Cylindera (*Verticina*) *elegantissima*: RIVALIER, 1961: 140; WIESNER, 1986: 43, 44, figs. 193, 194, 195, 208, 224, 225, 263; WIESNER, 1992: 186, 2020: 275.
Distribution. Indonesia (Sumatra: Aceh, Sumatra utara, Sumatra barat, Bengkulu).

Cylindera* (*Matalinia*) *neervoorti (Horn, 1913) **comb nov.**

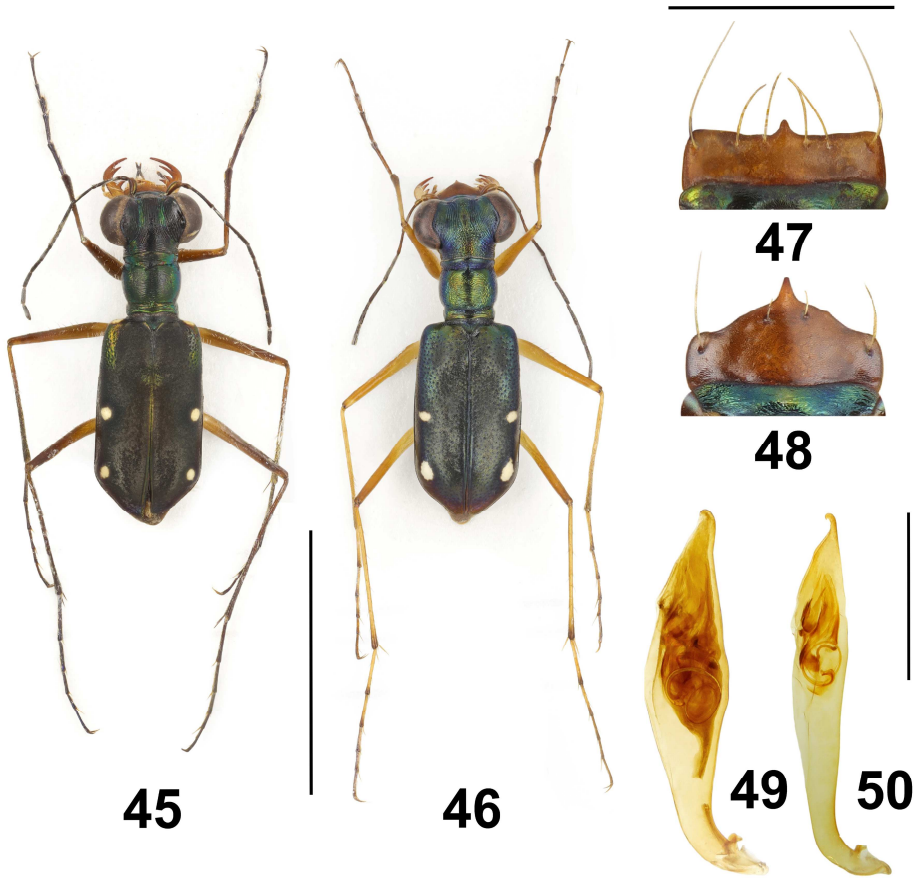
Citations. *Cicindela Neervoorti*: HORN, 1913: 27, 1915: 288.
Cicindela neervoorti: HORN, 1926: 166, 1938: T. 49, f. 18.
Cylindera (*Thopeutica*) *neervoorti*: SCHILDER, 1953: 547.
Cylindera (*Verticina*) *neervoorti*: WIESNER, 1992: 186, 2020: 275.
Distribution. Indonesia (Sumatra, Bengkulu: Engano Isl.).
Remarks. This species was tentatively placed in *Verticina* by WIESNER (1992: 186). Only the holotype male exists. Its aedeagus was not examined. As noted above, the assignment to genus and subgenus remains tentative.

Subgenus *Horiia* nov.

Remarks. For the species of the genus *Cylindera* Westwood, 1831, whose labri have only one marginal tooth and four marginal setae, the subgenus *Horiia* is established. Type species is *V. glabra* (Bogenberger, 1988).
Etymology. The new subgenus is cordially dedicated to Prof. Dr. Michio Hori.

Cylindera* (*Horiia*) *glabra (Bogenberger, 1988) **comb nov.** (Fig. 46, 48, 50)

Citations. *Cicindela* (*Cylindera*) *glabra*: BOGENBERGER, 1988: 111-113, figs. 3, 4.
Cylindera (*Verticina*) *glabra*: WIESNER, 1992: 186; CABRAS *et al.*, 2016: 196; WIESNER, 2020: 275.
Distribution. Philippines (Palawan: Port Barton).



Figures 45-50. All scales = 1 mm, unless otherwise mentioned. **45-46.** Habitus, scale = 5 mm. **45)** *Cylindera* (*Matalinia*) *elegantissima* male. **46)** *Cylindera* (*Horiia*) *glabra* male. **47-48.** Labrum. **47)** *Cylindera* (*Matalinia*) *elegantissima* male. **48)** *Cylindera* (*Horiia*) *glabra* male. **49-50.** Left lateral view of aedeagus inner sac. **49)** *Cylindera* (*Matalinia*) *elegantissima*. **50)** *Cylindera* (*Horiia*) *glabra.*

Acknowledgements

The authors are indebted to Prof. Dr. Michio Hori (Wakayama, Japan) for providing the beetles for study, Peter Schüle (Herrenberg, Germany) for the pictures, Dr. Andrey Matalin for the photo of the aedeagus of *Pseudoverticina antoni*, and to Prof. David L. Pearson (Tempe, Arizona, USA) for revising the English text. The authors owe special thanks to the Vietnam National Museum of Nature, Vietnam Academy of Science and Technology, Vietnam, who gives the research permission and the permission for export of insect specimens of this work. We also express our appreciation to the museum and the Asian Insects Research Society, Japan, without whose fruitful cooperation traveling Vietnam and researching the beetle fauna of the country in 2023 would not have been possible.

References

BATES H. W., 1878. Description of twenty-five new species of Cicindelidae. *Cistula Entomologica,* 2: 329-336.

BOGENBERGER J. M., 1988. Two new species of tiger beetles from Palawan (Coleoptera, Cicindelidae). *Mitteilungen der Münchner Entomologischen Gesellschaft,* 78: 109-114.

CABRAS A. A., CABIGAS E. & WIESNER J., 2016. Updated Checklist of Tiger Beetles in the Philippines (Coleoptera, Carabidae, Cicindelinae). 131th Contribution towards the knowledge of Cicindelinae. *Lambillionea,* 116 (3): 188-201.

CASSOLA F., 2006. Studies of tiger beetles. 163. New records from Singapore (Coleoptera: Cicindelidae). *Bulletin de l'Institut Royal des Sciences naturelles de Belgíque, Entomologie,* 76: 25-29.

CASSOLA F., 2009. Studies of Tiger Beetles. 182. Collecting notes from Sarawak, Malaysia, with description of a new species of *Cylindera* of the subgenus *Leptinomera* (Coleoptera Cicindelidae). *Tropical Zoology,* 22 (2): 219-235.

CASSOLA F., 2011. Studies of tiger beetles. 199. A new surprising species from Northern Vietnam, belonging to the Holarctic genus *Cicindela* Linneus, 1758 (Coleoptera, Cicindelidae). *Lambillionea,* 111 (3): 208-210.

CASSOLA F. & PROBST J., 1996. A new *Cylindera* species (subgenus *Verticina* Rivalier) from north-Western Vietnam (Coleoptera*:* Cicindelidae). *Schwanfelder Coleopterologische Mitteilungen,* 24: 13-17.

DAMKEN C., WIESNER J. & WAHAB R. A., 2017. Notes on the tiger beetles (Coleoptera: Carabidae: Cicindelinae) of Brunei Darussalam, 137. Contribution towards the knowledge of Cicindelinae. *Insecta Mundi* 0552: 1-15.

FLEUTIAUX, E., 1892. Catalogue systematique des Cicindelidae. *Liege,* 1-186.

FLEUTIAUX, E. 1893: Remarques sur quelques Cicindelidae et descriptions d'especes nouvelles. *Annales de Societe Entomologique de France*,62: 483-502.

GESTRO, R. 1888: Coleotteri di Birmania. *Annali del Museo Civico di Storia Naturale di Genova,* 6 (2): 105-125.

HORN W., 1892. Fünf Dekaden neuer Cicindeleten. *Deutsche Entomologische Zeitschrift*, (1): 65-92.

HORN W., 1900. De novis Cicindelidarum speciebus. *Deutsche Entomologische Zeitschrift,* (1): 193-212.

HORN W., 1902. Neue Cicindeliden gesammelt von Fruhstorfer in Tonkin 1900. *Deutsche Entomologische Zeitschrift,* (1): 65-75.

HORN W., 1905. 5 neue Cicindeliden-Arten. *Stettiner Entomologische Zeitung*, 66: 276-282.

HORN W., 1908a. Cicindelinae. In: WYTSMAN, P., *Genera Insectorum*, 82: 1-104.

HORN W., 1908b. Six new Cicindelinae from the oriental region. *Records of the Indian Museum,* 2: 409-412.

HORN W., 1913. 50 neue Cicindelinae. *Archiv für Naturgeschichte*, A11: 1-33.

HORN W., 1915. Cicindelinae. In: Wytsman, P., *Genera Insectorum*, 82: 209-487, T. 16-23.

HORN W., 1926. Carabidae*,* Cicindelinae. In: JUNK, W. & SCHENKLING, S., *Coleopterorum Catalogus*, pars 86: 1-345.

HORN W., 1927. Fauna sumatrensis, (Beitrag Nr. 44), Cicindelidae (Col.). *Supplementa Entomologica,* 15: 122-124.

HORN W., 1932. Cicindelidae. *Resultats Scient. du Voyage aux Indes Orientale Neerlandaises,* 4, 4, (1): 3-4.

HORN W., 1938. 2000 Zeichnungen von Cicindelinae. *Entomologische Beihefte aus Berlin-Dahlem,* 5: 1-71, 90 Tafeln.

MACLEAY A., 1825. Annulosa Javanica, *London,* ed. I., 9-12.MANDL, K. 1972. Bausteine zur Kenntnis der Familie Cicindelidae. Beschreibung neuer Formen und Bemerkungen zu bekannten Formen. *Zeitschrift der Arbeitsgemeinschaft österreichischer Entomologen,* 24: 102-110.

MANDL K., 1972. Bausteine zur Kenntnis der Familie Cicindelidae. Beschreibung neuer Formen und Bemerkungen zu bekannten Formen. *Zeitschrift der Arbeitsgemeinschaft österreichischer Entomologen,* 24: 102-110.

MATALIN, A. V. 2001: Tiger-beetles of the genus *Therates* Latreille, 1817 in the collection of Zoological Institute, St. Petersburg (Coleoptera: Carabidae: Cicindelinae). *Zoosystematica Rossica,* 9 (2): 387-389.

MATALIN A. V., 2002. A new species of *Cylindera*, subgenus *Verticina* from northern Borneo (Coleoptera: Carabidae: Cicindelinae). *Entomological Problems,* 32 (2): 139-142.

MORAVEC J. & WIESNER J., 1999. Ein neuer *Therates* von Laos (Coleoptera. Cicindelidae), 58. Beitrag zur Kenntnis der Cicindelidae. *Entomologische Zeitschrift,* 109: 173-174.

MORAVEC J. & WIESNER J., 2001. Description of new species of the genera *Pronyssa* Bates, 1874, and *Therates* Latreille, 1817, with notes on others (Coleoptera. Cicindelidae). 76th contribution towards the knowledge of Cicindelidae. *Entomologische Zeitschrift,* 111: 226-228.

NAVIAUX R., 1987. Sur quelques Cicindelinae de la presqu'ile de Malacca (Coleoptera*,* Cicindelidae). *Revue Scientifique du Bourbonnais*, 67-83.

NAVIAUX R. ,1991. Les Cicindèles de Thailande, étude faunistique (Coleoptera Cicindelidae). *Bulletin mensuel de la Société linnéenne de Lyon,* 60 (7): 209-288.

NAVIAUX R. & PINRATANA A., 2004. The tiger beetles of Thailand (Coleoptera*,* Cicindelidae). *Sunpriting, Brothers of St. Gabriel in Thailand,* 1-177.

PROBST J. & WIESNER J., 1994a. *Therates nepalensis*, eine neue Art aus Nepal (Coleoptera. Cicindelidae) (34. Beitrag zur Kenntnis der Cicindelidae). *Entomologische Zeitschrift,* 104: 30-32.

PROBST J. & WIESNER J., 1994b. Über Sandlaufkäfer der Gattung *Therates* aus Thailand (Coleoptera. Cicindelidae) (35. Beitrag zur Kenntnis der Cicindelidae). *Entomologische Zeitschrift*,104: 92-102.

RIVALIER E., 1961. Demembrement du genre *Cicindela* L. (Suite) (1). IV. Faune indomalaise. *Revue francaise d'Entomologie,* 28 (3): 121-149.

RIVALIER E., 1963. Demembrement du genre *Cicindela* L. (fin). V. Faune australienne. (Et liste recapitulative des genres et sous-genres proposes pour la faune mondiale). *Revue francaise d'Entomologie,* 30 (1): 30-48.

SAWADA H. & WIESNER J., 1997. Beitrag zur Kenntnis der Cicindelidae von Meghalaya (Nordost-Indien) und Bemerkungen zu Therates (Coleoptera), 46. Beitrag zur Kenntnis der Cicindelidae. *Entomologische Zeitschrift,* 107: 73-86.

SAWADA H. & WIESNER J., 1999a. Beitrag zur Kenntnis der Cicindelidae (Col.) von Laos (Coleoptera. Cicindelidae), 55. Beitrag zur Kenntnis der Cicindelidae. *Entomologische Zeitschrift,*109: 27-43.

SAWADA H. & WIESNER J., 1999b. Weiterer Beitrag zur Kenntnis der Cicindelidae von Laos (Coleoptera). *Entomologische Zeitschrift,* 109: 296-312.

SAWADA H. & WIESNER J., 2000a. New records of tiger beetles collected in Laos, 66. Contribution towards the knowledge of Cicindelidae (Coleoptera. Cicindelidae). *Entomological Revue of Japan,* 55: 59-68.

SAWADA H. & WIESNER J., 2000b. Tiger beetles of Myanmar collected by Mr. Shinjii Nagai and his fellow workers (Coleoptera. Cicindelidae), 72. Contribution towards the knowledge of Cicindelidae. *Entomological Revue of Japan,* 55: 95-110.

SAWADA H. & WIESNER J., 2002. Further new records of tiger beetles collected in Laos (Coleoptera: Cicindelidae), 79. Contribution towards the knowledge of Cicindelidae. *Entomological Revue of Japan,* 57 (1): 65-99.

SAWADA H. & WIESNER J., 2003. New Records of Tiger Beetle Species from Peninsular Malaysia (Coleoptera: Cicindelidae), 82. Contribution towards the knowledge of Cicindelidae. *Entomological Revue of Japan,* 58 (1): 47-52.

SAWADA, H. & WIESNER,J., 2004. Enumeration of the tiger beetles from Laos with descriptions of three new species (Coleoptera. Cicindelidae), 87. Contribution towards the knowledge of Cicindelidae. *Entomological Revue of Japan,* 59: 255-274.

SAWADA H. & WIESNER J., 2006. Records of tiger beetles collected in North India II (Coleoptera. Cicindelidae), 97. Contribution towards the knowledge of Cicindelidae. *Entomologische Zeitschrift,* 116: 127-134.

SCHILDER F. A., 1953. Studien zur Evolution von *Cicindela*. *Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg,* 3 (2): 539-576.

STORK N. E., 1986. An annotated checklist of the Carabidae (including Cicindelinae, Rhysodinae and Paussinae) recorded from Borneo. *Occasional Papers on Systematic Entomology,* 2: 1-24.

WERNER K., 1992. Vier neue Sandlaufkäfer-Arten aus der Orientalischen Region (Coleoptera. Cicindelidae). *Entomologische Zeitschrift,* 102: 394-404.

WERNER K. & NAVIAUX R., 2004. *Cylindera* (*Verticina*) *mourzinei*, new species from Burma (Coleoptera, Cicindelidae). *Revue francaise d'Entomologie,* N. S. 26 (2): 61-62.

WIESNER J., 1986. Die Cicindelidae von Sumatra, 9. Beitrag zur Kenntnis der Cicindelidae (Coleoptera, Cicindelidae). *Mitteilungen der Münchner Entomologischen Gesellschaft,* 76: 5-66.

WIESNER J., 1988. Die Gattung *Therates* Latr. und ihre Arten, 15. Beitrag zur Kenntnis der Cicindelidae (Coleoptera). *Mitteilungen der Münchner Entomologischen Gesellschaft,* 78: 5-107.

WIESNER J., 1992. Verzeichnis der Sandlaufkäfer der Welt, Checklist of the Tiger Beetles of the World, 27. Beitrag zur Kenntnis der Cicindelidae. *Verlag Erna Bauer, Keltern*, 1-364.

WIESNER J., 1996. Neues über *Therates* aus Indien und Vietnam (Coleoptera. Cicindelidae) (44. Beitrag zur Kenntnis der Cicindelidae). *Entomologische Zeitschrift,* 106: 504-508.

WIESNER J., 1998. Beitrag zur Kenntnis der Sandlaufkäfer von Brunei (Coleoptera: Cicindelidae) (52. Beitrag zur Kenntnis der Cicindelidae). *Entomologische Zeitschrift,* 108 (9): 372-376.

WIESNER J., 1999. Ergebnisse einer Sammelreise von O. Merkl und G. Csorba nach Laos (Cicindelidae, Coleoptera) (62. Beitrag zur Kenntnis der Cicindelidae). *Entomologische Zeitschrift,* 109: 320-324.

WIESNER J., 2007. New records of tiger beetle species from the Malaysian Peninsular (II) (Coleoptera: Cicindelidae). 99. Contribution towards the knowledge of Cicindelidae. *Mitteilungen des Internationalen Entomologischen Vereins,* 32 (3/4): 111-116.

WIESNER J., 2013a: The *chennelli* group of the Genus *Therates* Latreille (Coleoptera: Cicindelidae) 114. Contribution towards the knowledge of Cicindelidae. *Insecta Mundi,* 0315: 1-86.

WIESNER J., 2013b. New Records of Tiger Beetle Species from the Malaysian Peninsular (III) (Coleoptera: Cicindelidae), 116th Contribution towards the knowledge of Cicindelidae. *Mitteilungen des Internationalen Entomologischen Vereins,* 38 (3/4): 107-114.

WIESNER J., 2015: A new *Therates* species from China (Coleoptera: Carabidae: Cicindelinae). 121. Contribution towards the knowledge of Cicindelinae. *Mitteilungen des Internationalen Entomologischen Vereins,* 40 (1/2): 43-47.

WIESNER J., 2016a: A new tiger beetle species from China (Coleoptera: Carabidae: Cicindelinae). 129th Contribution towards the knowledge of Cicindelinae. *Entomologische Zeitschrift,* 126 (3): 131-132.

WIESNER J., 2016b: Two new tiger beetle species from Vietnam (Coleoptera: Carabidae: Cicindelinae). 130th Contribution towards the knowledge of Cicindelinae. *Entomologische Zeitschrift* 126 (3): 133-136.

WIESNER J., 2016c. New records of tiger beetle species from the Malaysian Peninsular (IV). 127th Contribution towards the knowledge of Cicindelinae. *Mitteilungen des Internationalen Entomologischen Vereins,* 40 (3/4): 157-164.

WIESNER J., 2020. Checklist of the Tiger Beetles of the World, 2nd Edition. *winterwork, Borsdorf,* 1-540.

WIESNER J., 2023. A new species of *Therates* Latreille, 1817 and new records of further tiger beetles (Coleoptera: Cicindelidae) from Vietnam. *Zeitschrift der Arbeitsgemeinschaft Österreichischer Entomologen,* 75: 1-7.

WIESNER J. & ANICHTCHENKO A. 2018. *Therates lamdongensis* sp. n., a new tiger beetle species from Vietnam (Coleoptera: Cicindelidae). *Entomologische Zeitschrift,* 128 (4): 217-218.

WIESNER J., BANDINELLI A. & MATALIN A. V., 2017. Notes on the tiger beetles (Coleoptera: Carabidae: Cicindelinae) of Vietnam. 135. Contribution towards the knowledge of Cicindelinae. *Insecta Mundi,* 0589: 1-131.

WIESNER J. & BI W., 2014. Taxonomical notes on some species of *Therates* Latreille, 1817 from Xizang, China (Coleoptera: Cicindelidae). 119. Contribution towards the knowledge of Cicindelidae. *Entomologische Zeitschrift,* 124 (4): 233-236.

WIESNER J. & GEISER M. 2016. Faunistic survey of the tiger beetles (Coleoptera, Carabidae, Cicindelinae) of Laos. 126. Contribution towards the knowledge of Cicindelinae. *Entomologica Basiliensia et Collectionis Frey,* 35: 61-117.

Received: 20 September 2023
Accepted: 04 October 2023