ACADEMIA JOURNAL OF BIOLOGY 2026, 48(2): 1–14
DOI: 10.15625/2615-9023/23951

THE CENTIPEDES OF THE UNIQUE DRY DIPTEROCARPUS MARITIME FORESTS OF BINH CHAU - PHUOC BUU NATURE RESERVE, VIETNAM

Son X. Le[1], Hung-Anh Le[2,3,*], Anh D. Nguyen[2,3]

[1]Joint Vietnam - Russia Tropical Science and Technology Research Centre, 63 Nguyen Van Huyen, Ha Noi, Vietnam
[2]Institute of Biology, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Ha Noi, Vietnam
[3]Graduate University of Science and Technology, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Ha Noi, Vietnam

Received 21 January 2026; accepted 14 May 2026

ABSTRACT

The Binh Chau - Phuoc Buu Nature Reserve has a predominantly flat terrain, interspersed with low hills, sand dunes, and coastal lakes, which creates a diverse range of animal, plant species, and landscapes. The field surveys conducted in March and July 2024 recorded 10 species of large centipedes, including *Alluropus calcaratus*, *Asanada brevicornis*, *Cryptops (Cryptops) spinipes*, *Emostigmus rubripes platycephalus*, *Otostigmus astenus*, *Otostigmus multidens*, *Otostigmus politus*, *Scolopendra dehaani*, *Scolopendra morsitans*, and *Scolopendra subspinipes*. Among them, nine species are new records for the fauna of Binh Chau - Phuoc Buu, and one species (*Scolopendra morsitans*) had been recorded previously. This paper provides a species list of large centipedes, information on the specimens, diagnostic characteristics of the species, and their distribution in Vietnam as well as globally.

Keywords: Scolopendromorph, taxon, biodiversity, taxonomy, distribution, Southeast Vietnam.

Citation: Son X. Le, Hung-Anh Le, Anh D. Nguyen, 2026. The centipedes of the unique dry dipterocarpus maritime forests of Binh Chau - Phuoc Buu Nature Reserve, Vietnam. *Academia Journal of Biology*, 48(2): 1–14. https://doi.org/10.15625/2615-9023/23951

[*]*Corresponding author email*: lehunganh@gmail.com

INTRODUCTION

The Binh Chau - Phuoc Buu Nature Reserve (Ba Ria - Vung Tau province) is located in the southern region of Vietnam, within the administrative boundaries of the communes of Bung Rieng, Bong Trang, Phuoc Thuan, and the town of Phuoc Buu in Xuyen Moc district. This is a coastal protected forest with a flat terrain, where the highest point reaches an elevation of 126 meters (Fig. 1). The total forest area is 10,880.33 hectares, of which the strictly protected area covers 10,366.18 hectares, while the non-forest area spans 514.15 hectares (Board of Binh Chau - Phuoc Buu Nature Reserve, 2020).

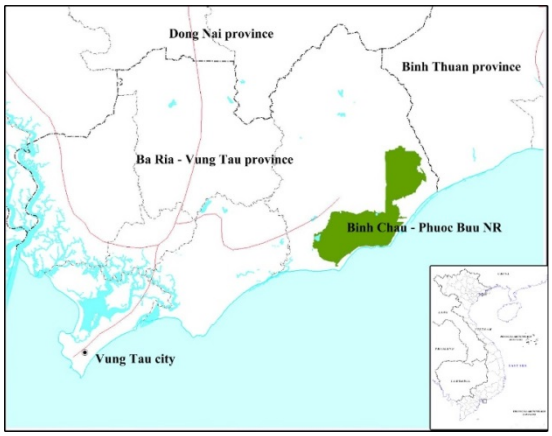

Figure 1. Location of Binh Chau - Phuoc Buu NR, southern Vietnam

The plant species composition in the Binh Chau - Phuoc Buu Nature Reserve belongs to the Malaysia - Indonesia and Myanmar floristic regions, with 750 species across 500 genera and 123 families, of which 43 species are listed as endangered and rare. Survey results on animal fauna indicate that the nature reserve is home to 58 mammal species, 99 amphibian and reptile species, and 199 bird species, of which 47 species are listed as endangered and rare (Board of Binh Chau - Phuoc Buu Nature Reserve, 2020). No data is available regarding invertebrates in general, and centipedes in particular.

As of 2025, a total of four centipede species have been recorded in Ba Ria - Vung Tau, of which three species have been recorded in the Con Dao islands, including *Asanada brevicornis*, *Otostigmus multidens*, and *Scolopendra dehaani*. Only one species, *Scolopendra morsitans* has been recorded in the Binh Chau - Phuoc Buu NR (Tran et al., 2013; Vu et al., 2020, 2022). The paper will provide additional information on the species composition of large centipedes in the terrestrial area of Ba Ria - Vung Tau province.

Abbreviations: a.s.l.-above sea level, col.-collector, LBS-leg-bearing segment(s), m-meter(s), NR-Natural Reserve, NP-National Park, spm(s)-specimen(s).

MATERIALS AND METHODS

A total of 82 specimens were collected during two field surveys in March and July 2024. The collected specimens were kept in separate test tubes and preserved in a solution of 80–85% alcohol. Each specimen was fully labeled with information including sample code, coordinates, habitat, collection date, and collector. All specimens are currently kept at the Vietnam-Russia Tropical Center (VRTC), Vietnam.

The sampling methods used are standard methods in soil fauna research, including quadrant digging (50 × 50 × 20 cm), soil sieving (using a sieve with a 1 cm mesh size), pitfall traps (using plastic cups with a capacity of 500 mL containing a 4% formalin solution), and random sampling along survey transects (hand sampling).

The morphological characteristics were described according to the studies of Attems (1930), Bonato (2010), and Schileyko (2020). The specimens were observed and described using an Olympus SZ61 microscope connected to an Olympus SC180 camera for specimen photography. Field images were captured using a Canon 70D digital camera with a 100 mm macro lens. The images were processed using Helicon and Photoshop CC 20xx software.

Species identification was based on the identification keys of Schileyko (2007), Siriwut et al. (2016), Vu Thi Ha et al. (2020), and Schileyko et al. (2020).

RESULTS

Taxonomic part

Family Cryptopidae Kohlrausch, 1881

Genus *Cryptops* Leach, 1815

1. *Cryptops (Cryptops) spinipes* Pocock, 1891 (Figs. 2A–F)

MATERIAL. 01 spm. 01 specimen (VRTC.BC-PB.83), 10.51198°N, 107.50244°E, 126 m a.s.l, bamboo forest, 9 March 2024, col. Le Xuan Son.

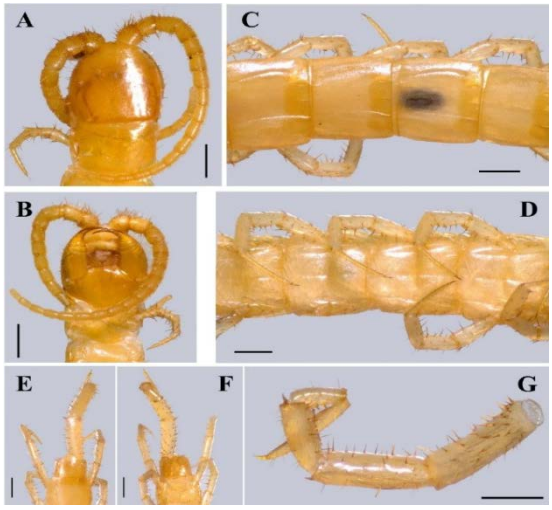

Figure 2. Cryptops (Cryptops) spinipes Pocock, 1891; A head, antenna and tergite 1; B head, antenna, forcipular segment, and sternites 1–2; C tergites 8–11; D Sternites 8–11; E last tergites and ultimate leg, dorsally, F last sternites and ultimate leg, ventrally; G Ultimate leg, ventrally. Scale bar: 1 mm

DIAGNOSIS. Body with 21 LBS. Antennae with 17 articles, three sparsely setae basal ones (Figs. 2A, B). Eyes and basal plates absent (Fig. 2A). Tooth plate without teeth, only with obscure margination; forcipular tarsungulae long and reaching each other when closed (Fig. 2B). Tergites with incomplete paramedian sutures; tergite one with a trasverse suture (Figs. 2C, E). Sternites smooth with a learly defined cross-shaped grooves (Fig. 2D). Coxopleuron process without apical spines (Figs. 2F). Ultimate legs without saw-teeth on tibia (Fig. 2G).

PREVIOUS RECORDS FROM VIETNAM. Dien Bien (Muong Nhe NR), Lao Cai (Hoang Lien NP), Cao Bang (Phia Oac-Phia Den NP), Hai Phong (Cat Ba NP), Dong Nai (Cat Tien NP) (Le et al., 2021, 2022; Nguyen et al., 2019; Schileyko, 2007; Tran et al., 2013).

DISTRIBUTION. New Zealand; Australia; Papua New Guinea; Fiji island; Salomon islands (Tran et al., 2013).

REMARKS. Schileyko (2007) reported that some specimens with 4 basal antennomeres with sparse long setae, but in this study, all specimens showed only 3 basal antennomeres with sparse long setae. The size of the specimens is consistent with the descriptions by Chao et al. (2003) and Schileyko (2007).

Family Scolopendridae Leach, 1814

Genus *Alluropus* Silvestri, 1911

2. *Alluropus calcaratus* (Pocock, 1891) (Figs. 3A–H)

MATERIAL. 03 spms. 03 specimens (IEBR.VT2016.1; IEBR.VT2016.2; IEBR.VT2016.3), 10.62583°N, 107.44694°E, 47 m a.s.l, residential area, 25 October 2016, col. Nguyen D. Anh.

DIAGNOSIS. Body with 21 LBS. 7th body with spiracles; the spiracles oval (Fig. 3C), Antennae with 21 articles, three basal ones glabrous (Figs. 3A, B). Cephalic smoorh, 4 ocelli present (Fig. 3A). Tooth-plate high, with 4 teeth on each side (Fig. 3B); forcipular trochanteroprefemur with three teeth. Tergites with incomplete margination from tergite 12(13), tergite 21st complete, and paramedian sutures on tergites 3–19 (Figs. 3D, F). Sternites with paramedian sutures from 3(4)–20 (Fig. 3EG). Coxopleural process long with 1 apical, 2 subapical and 1 lateral spines, without a dorsal spine (Fig. 3G). Legs 1–3 with 1 tibial spur; prefemoral spines of ultimate leg with 4 ventro-lateral, 2 ventro-median, 4 median and 2 dorsal-median spines, prefemoral process very short with 3-5 spines (Fig. 3H).

PREVIOUS RECORDS FROM VIETNAM. Ha Nam (Phu Ly) (Tran et al., 2013).

DISTRIBUTION. Indonesia, Thailand, Laos, Campuchia (Siriwut et al., 2018).

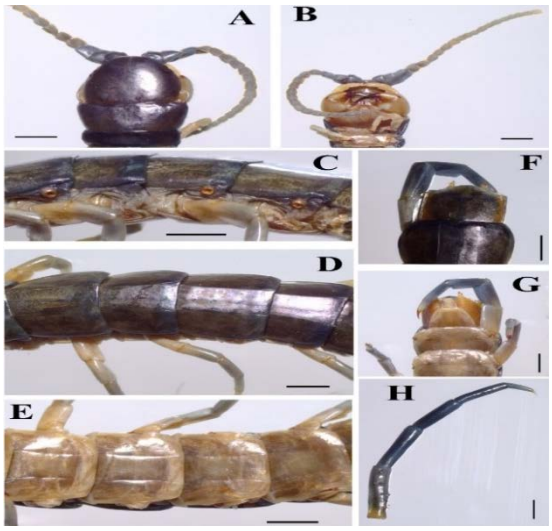

Figure 3. Alluropus calcaratus (Pocock, 1891); A head, antenna and tergites 1–2; B head, antenna, forcipular segment and sternites 1–2; C LBS 3–6, laterally; D tergites 8–11; E sternites 8–11; F last tergites; G last sternites and coxopleuron; H ultimate leg, ventrally. Scale bar: 1 mm

REMARKS. This is a lesser-known species in Vietnam. *A. calcaratus* is only known from two specimens collected in Phu Ly (Ha Nam), described by Attems (1930) with name *A. demangei* (Attems, 1930). However, in 2018, Siriwut et al. confirmed that *A. demangei* is a synonym of *A. calcaratus* based on morphological and molecular data (Siriwut et al., 2018).

Genus *Asanada* Meinert, 1886

3. *Asanada brevicornis* Meinert, 1886 (Figs. 4A–G)

MATERIAL. 03 spms. 02 spms (VRTC.BC-PB.91; VRTC.BC-PB.92), 10.50502°N, 107.50817°E, 49 m a.s.l, broadleaf forest, 18 July 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.102), 10.50264°N, 107.50817°E, 15 m a.s.l, broadleaf forest, 18 July 2024, col. Le X. Son.

DIAGNOSIS. Body with 21 LBS. 7th body without spiracles; the spiracles triangle (Fig. 4D). Antennae with 17 articles, five basal ones glabrous, the segments of the antennae are very short (Figs. 4A, B). Cephalic smoorh, 4 ocelli present (Fig. 4A). Tooth-plate high, with 3 sharp teeth on each side (Fig. 4B). Tergites without margination, but complete paramedian sutures on tergites from 3–20 (Figs. 4A, F). Sternites smooth with complete paramedian sutures (Figs. 4E, G). Coxopleural process very short, without pores and apical spines (Fig. 4E). Ultimate legs smooth, big, the segments short, on the ventral prefemur without spines (Fig. 4C).

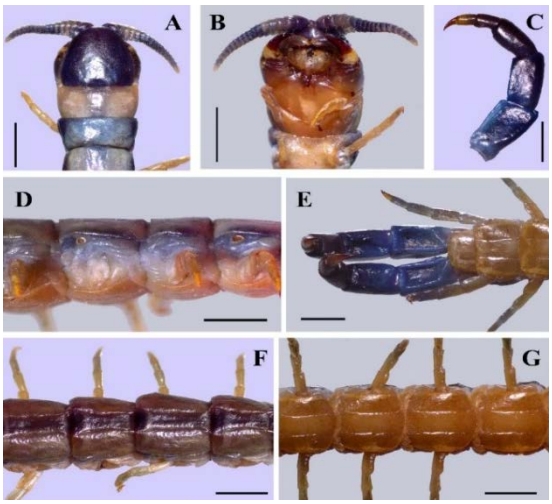

Figure 4. Asanada brevicornis Meinert, 1886; A head, antenna and tergites 1–3, dorsally; B head, antenna, forcipular segment and sternites 1–2, ventrally; C Ultimate leg, ventrally; D LBS 3–6, laterally; E last sternites and ultimate legs, ventrally; F tergites 7–10; G sternites 12–15. Scale bar: 1 mm

PREVIOUS RECORDS FROM VIETNAM. Gia Lai - Kon Tum (Pleiku), Ba Ria - Vung Tau (Con Dao island), Kien Giang (Tho Chu island) (Tran et al., 2013).

DISTRIBUTION. India, China, Myanmar, Papua New Guinea (Tran et al., 2013).

REMARKS. Schileyko (1995) based his detailed description of this species in Vietnam on an adult specimen and suspected the presence of spurs on the tarsus of all leg pairs (except the last pair). However, the original description by Attems (1930) does not

mention these spines. In this study, upon examining all the collected specimens, we was found that there were no spines on the tarsus of the locomotory legs.

Genus *Ethmostigmus* Newport, 1845

4. *Emostigmus rubripes platycephalus* (Newport, 1845) (Figs. 5A–H)

MATERIAL. 30 spms. 01 spm (VRTC.BC-PB.01), 10.54430°N, 107.48666°E, 52 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.07), 10.54429°N, 107.48671°E, 51 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son; 05 spms (VRTC.BC-PB.08; VRTC.BC-PB.15; VRTC.BC-PB.16; VRTC.BC-PB.17; VRTC.BC-PB.18), 10.54294°N, 107.48748°E, 51 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.22), 10.54777°N, 107.48857°E, 56 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 02 spms (VRTC.BC-PB.23; VRTC.BC-PB.24), 10.5462°N, 107.48804°E, 60 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 02 spms (VRTC.BC-PB.25; VRTC.BC-PB.26), 10.54294°N, 107.48748°E, 51 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.29), 10.54281°N, 107.4878°E, 62 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.32), 10.54379°N, 107.48631°E, 68m, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.36), 10.62345°N, 107.54094°E, 37 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.40), 10,61991°N, 107.53966°E, 54 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.42), 10.54384°N, 107.48337°E, 67 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.43), 10.54307°N, 107.4821°E, 65 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 02 spms (VRTC.BC-PB.45; VRTC.BC-PB.45.1), 10.54685°N, 107.48278°E, 60 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.53), 10.54418°N, 107.48167°E, 61 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.54), 10.54391°N, 107.48190°E, 61 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.56), 10.54307°N, 107.4821°E, 65 m a.s.l, broadleaf fores, 7-8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.57), 10.54278°N, 107.48241°E, 61 m a.s.l, broadleaf fores, 7–8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.59), 10.54208°N, 107.48193°E, 60m, broadleaf fores, 7–8 March 2024, col. Le X. Son; 05 spms (VRTC.BC-PB.93; VRTC.BC-PB.104; VRTC.BC-PB.106; VRTC.BC-PB.111; VRTC.BC-PB.112), 10.54430°N, 107.48670, 50 m a.s.l, broadleaf forest, 18 July 2024, col. Le X. Son & Do T. Thinh.

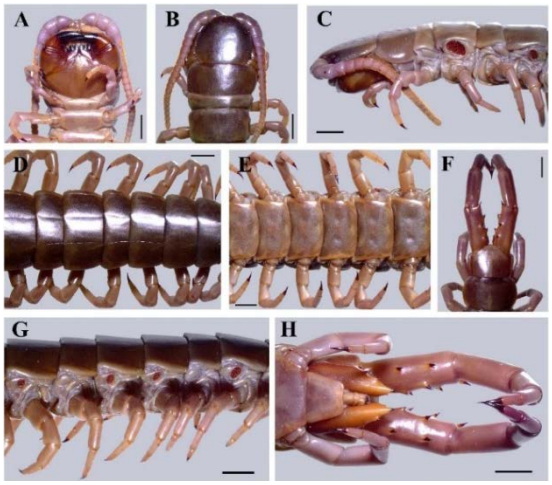

Figure 5. Emostigmus rubripes platycephalus (Newport, 1845); A head, antenna forcipular segment, and sternites 1–3; B head, antenna, and tergites 1–3; C head, antenna, and LBS 1–5, laterally; D tergites 6–12; E sternites 6–11; F last tergites and ultimate legs, dorsally; G LBS 5–10, laterally; last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 2 mm

DIAGNOSIS. Body with 21 LBS. 7th body with spiracles; the spiracles oval, 3rd spiracles is significantly larger than the other

spiracles (Figs. 5C, D). Antennae with 20 articles, four basal ones glabrous, the segments of the antennae are short (Figs. 5A, B). Cephalic smoorh with 4 ocelli (Fig. 5B). Tooth-plate high, with 4 sharp teeth on each side, the teeth are long and clearly divided (Fig. 5A). Forcipular trochanteroprefemur without tubercles (median tooth) (Fig. 5A). Tergites with incomplete margination and complete paramedian sutures (Figs. 5D, G). Sternites smooth and without paramedian sutures (Figs. 5E, H). Coxopleural process very long with 2 apical spines and 4–5 dorsal spines (Fig 5H). The ultimate legs are smooth and large, with short segments; on the ventral prefemur, there are several large spines, all of similar size. (Figs. 5F, H).

PREVIOUS RECORDS FROM VIETNAM. Quang Binh (Dong Hoi); Dong Nai (Vinh Cuu, Ma Da); Soc Trang, Khanh Hoa (Truong Sa Archipelago) (Tran et al., 2013).

DISTRIBUTION. Papua New Guinea, Sri Lanka, Laos, Cambodia, Indonesia, Philippines (Tran et al., 2013).

REMARKS. The specimens in this study showed that morphological characteristics fit with Kraeplin's description (1903). However, a minor difference is that all the tergites are flat, and no wide longitudinal grooves were observed on the sternites, as mentioned by Kraeplin.

Genus *Otostigmus* Porat, 1876

5. *Otostigmus astenus* (Kohlrausch, 1878) (Figs. 6A–E)

MATERIAL. 05 spms. 01 spm **(**VRTC.BC-PB.88), 10.50852^{o}N, 107.50053^{o}E, 67 m a.s.l, mixed broadleaf and bamboo forest, 18 July 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.101), 10.51319^{o}N, 107.50290^{o}E, 72 m a.s.l, mixed broadleaf and bamboo forest, 18 July 2024, col. Le X. Son. 03 spms (VRTC.BC-PB.103; VRTC.BC-PB.105; VRTC.BC-PB.110), 10.50852^{o}N, 107.50053^{o}E, 67 m a.s.l, mixed broadleaf and bamboo forest, 19 July 2024, col. Le X. Son & Do T. Thinh.

DIAGNOSIS. Body with 21 LBS. 7th body without spiracles; the spiracles oval. Antennae with 21 articles, two basal ones glabrous (Figs. 6A, B). Cephalic smoorh with 4 ocelli (Fig. 6A). Tooth-plate high, with 4 sharp teeth on each side; forcipular trochanteroprefemur with long tubercles (Fig. 6B). Tergites with incomplete margination (near complete) and complete paramedian sutures (Fig. 6C). The sternites are smooth, with short paramedian sutures at the anterior (about 1/2 to 1/3 of the length of the sternites) (Fig. 6D). Coxopleural process with 3 apical spines and 1–2 dorsal spines. The ultimate legs are smooth and thin, with prefemoral spines of ultimate leg with 2 ventro-lateral, 1(2) ventro-median, 1(2) median and 0 dorsal-median spines (Fig. 6E).

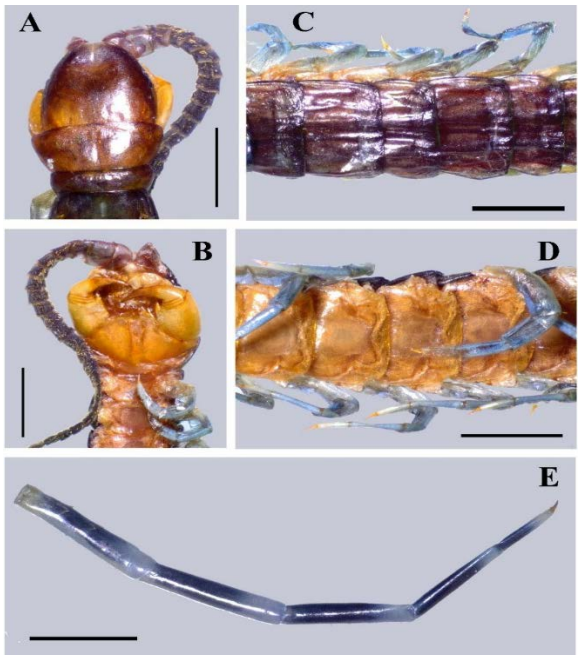

Figure 6. Otostigmus astenus (Kohlrausch, 1878); A head, antenna and tergites 1–3; B head, antenna, forcipular segment and sternites 1–2; C tergites 7–11; D sternites 7–11; E Ultimate leg, ventrally. Scale bar: 1 mm

PREVIOUS RECORDS FROM VIETNAM. Hai Phong (Cat Ba NP), Hoa Binh (Thuong Tien NR), Son La (Xuan Nha NR, Ta Xua NR), Vinh Phuc, Ha Noi (Ba Vi NP), Gia Lai (Kon Ka Kinh NP), Kon Tum (Thach Nham forest), Dong Nai (Cat Tien

NP) (Schileyko, 2007; Tran et al., 2013; Le et al., 2017, 2018, 2022; Nguyen et al., 2019; Vu et al., 2020).

DISTRIBUTION. India, Nepal, Cambodia, Indonesia, Taiwan, Fiji, USA (Hawai), Tonga, Papua New Guinea, Australia (Tran et al., 2013; Vu et al., 2020).

REMARKS. Attems (1938) described *Otostigmus astenus* from Cambodia with two nearly complete paramedian sutures. However, Schileyko (1995), upon examining specimens from Vietnam, did not observe this characteristic and suggested that the specimens belonged to the species *Otostigmus moluccanus*. Lewis (2000, 2002) suspected that the specimens in Schileyko's study were immature individuals of *Otostigmus astenus*. Then, Schileyko (2007) re-examined the specimens and agreed with Lewis, but he did not fully confirm this due to the limited number of specimens. The specimens in this study also confirm that *O. astenus* has incomplete paramedian sutures on the sternite, with a length ranging from 1/2 to 2/3 of the sternite.

6. *Otostigmus multidens* Haase, 1887 (Figs. 7A–G)

MATERIAL. 18 spms: 01 spm **(**VRTC.BC-PB.05), 10.54413°N, 107.49715°E, 60 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son & Nguyen D. Hung; 02 spms (VRTC.BC-PB.10; VRTC.BC-PB.11), 10.54777°N, 107.48857°E, 52 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.12), 10.54507°N, 107.48803°E, 56 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.13), 10.5467°N, 107.48875°E, 46 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 1 spm (VRTC.BC-PB.14), 10.54281°N, 107.48780°E, 62 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.19), 10.54277°N, 107.48737°E, 60 m a.s.l, broadleaf forest, 7 March 2024, col. Nguye D. Hung; 01 spm (VRTC.BC-PB.21), 10.54290°N, 107.48695°E, 58 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.34), 10.54430°N, 107.48666°E, 52 m a.s.l, broadleaf forest, 7 March 2024, col. Nguyem D. Hung; 01 spm (VRTC.BC-PB.46), 10.62406°N, 107.53918°E, 34 m a.s.l, broadleaf forest, col. Le X. Son; 01 spm (VRTC.BC-PB.47), 10.62699°N, 107.53923°E, 40 m, broadleaf forest, 8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.49), 10.62703°N, 107.54002°E, 38 m a.s.l, broadleaf forest, 8 March 2024, col. Nguyen D. Hung; 3 spms (VRTC.BC-PB.50; VRTC.BC-PB.51; VRTC.BC-PB.52), 10.54451°N, 107.48082°E, 62 m a.s.l, broadleaf forest, col. Le X. Son; 3 spms (VRTC.BC-PB.60; VRTC.BC-PB.63; VRTC.BC-PB.107), 10.51225°N, 107.50261°E, 120 m a.s.l, mixed broadleaf and bamboo forest, 19 July 2024, col. Le X. Son & Do T. Thinh.

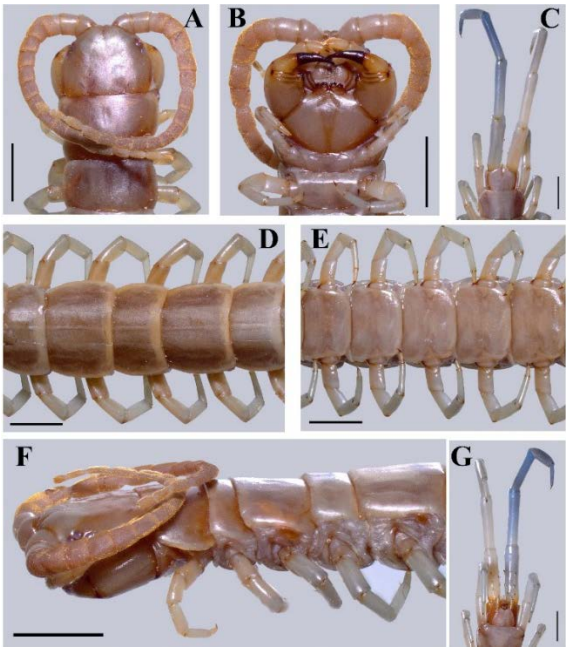

Figure 7. Otostigmus multidens Haase, 1887; A head, antenna, and tergites 1–3; B head, antenna forcipular segment, and sternites 1–2; C last tergites and ultimate legs, dorsally; D tergites 4–8; E sternites 6–11; F head, antenna, and LBS 1–5, laterally; G last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 2 mm

DIAGNOSIS. Body with 21 LBS. 7th body without spiracles; the spiracles oval

(Fig. 7F). Antennae with 19 articles, two and one-third basal ones glabrous (Figs. 7A, B, F). Cephalic smoorh with 4 ocelli (Figs. 7A, F). Tooth plate with 6–7 teeth on each side, with the teeth divided into two groups: the outer group has 3 teeth, and the inner group has 3(4) teeth (Fig. 7B). Tergites with incomplete margination, complete paramedian sutures, and a longitudinal median keel (Fig. 7D). The sternites are smooth without sutures (Fig. 7E). Coxopleural process with 2 apical, 1 apical and 1 lateral spines (Fig. 7G). The ultimate legs are smooth and thin, prefemoral spines of ultimate leg with 2 ventro-lateral, 1(2) ventro-median, 2(3) median (Fig. 7G).

PREVIOUS RECORDS IN VIETNAM. Dien Bien (Muong Nhe NR), Son La (Xuan Nha NR), Hoa Binh (Mai Chau); Cao Bang (Phia Oac-Phia Den NP), Ha Noi (Ba Vi NP); Hai Phong (Cat Ba NP); Nghe An (Pu Mat NP), Ha Tinh (Vu Quang NP); Da Nang (Ba Na), Khanh Hoa (Nha Trang); Gia Lai (An Khe, Buon Luoi); Lam Dong (Da Lat); Dong Nai (Ma Da, Cat Tien NP); Ba Ria - Vung Tau (Hang Bai Khang Island), Kien Giang (Phu Quoc NP) (Attems, 1938; Schileyko, 2007; Nguyen et al., 2019; Le et al., 2021, 2022).

DISTRIBUTION. Papua New Guinea (Tran et al., 2013).

REMARKS. The study specimens are consistent with the descriptions of Lewis (2014) and Vu et al. (2020). This species has a very wide distribution in Vietnam.

7. *Otostigmus politus* Karsch, 1881
(Figs. 8A–F)

MATERIAL. 01 spm. 01 spm (VRTC.BC-PB.06), 10.54620°N, 107.48804°E, 64 m a.s.l, broadleaf forest, 7 March 2024, col. Nguyen D. Hung.

DIAGNOSIS. Body with 21 LBS. 7th body without spiracles; the spiracles oval. Antennae with 18 articles, three basal ones glabrous (Figs. 8A, B). Cephalic rough, resembling many tiny cells, with four ocelli (Fig. 8A). Tooth plate with 4 teeth on each side (Fig. 8B). Tergites and sternites resembling many tiny cells (like cephalic) with incomplete margination on tergites and complete paramedian sutures on both (Figs. 8C, D). Coxopleural process with 2 apical, 1 apical and 1 lateral spines (Figs. 8E, F). The ultimate legs smooth and thin, with prefemoral spines on the ultimate leg arranged in three rows, each containing 2 to 3 similar spines (Figs. 8E, F).

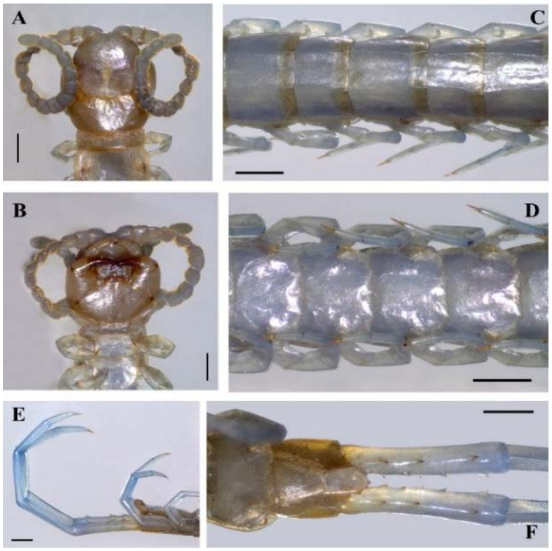

Figure 8. Otostigmus politus Karsch, 1881; A head, antenna, and tergites 1–3; B head, antenna forcipular segment, and sternites 1–3; C last tergites and ultimate legs, dorsally; D tergites 4–8; E sternites 6–11; F head, antenna, and LBS 1–5, laterally; G last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 0.5 mm

PREVIOUS RECORDS IN VIETNAM. Son La (Xuan Nha NR), Lao Cai (Hoang Lien NP), Vinh Phuc (Tam Dao NP), Kon Tum (Thach Nham forest) (Le et al., 2017; Nguyen et al., 2019; Vu et al., 2020).

DISTRIBUTION. China, Myanmar, Campuchia, Korea (Tran et al., 2013; Vu et al., 2020).

REMARKS. The morphological characteristics of the specimens in this study are fully consistent with the description of Schileyko (1995), Lewis (2003), and Vu et al. (2020). According to Schileyko, *Otostigmus*

politus has a range of 17–19 antenna segments, while Vu et al. reported 17 segments. However, the specimens in this study show 18 segments on the antenna. Additionally, the paramedian suturea start from the third (or fourth) tergites and sternites, but from 2nd in Vu et al. (2020).

Genus *Scolopendra* Linnaeus, 1758

8. *Scolopendra dehaani* Brandt, 1840 (Figs. 9A–G)

MATERIAL. 09 spms. 01 spm (VRTC.BC-PB.03), 10.54564°N, 107.48763°E, 55 m a.s.l, broadleaf forest, 7 March 2024, col. Nguyen D. Hung; 01 spm (VRTC.BC-PB.30), 10.54322°N, 107.48698°E, 42 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.31), 10.54414°N, 107.48726°E, 55 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.55), 10.54391°N, 107.48190°E, 61 m a.s.l, broadleaf forest, 8 March 2024, col. Le X. Son; 01 spm (VRTC.BC-PB.58), 10.54208°N, 107.48193°E, 60 m a.s.l, broadleaf forest, 8 March 2024, col. Le X. Son; 04 spms (VRTC.BC-PB.87; VRTC.BC-PB.94; VRTC.BC-PB.95; VRTC.BC-PB.96), 10.54430°N, 107,48670, 50 m a.s.l, broadleaf forest, 18 July 2024, col. Le X. Son & Do T. Thinh.

DIAGNOSIS: Body with 21 LBS. 7th body without spiracles; the spiracles triangle. Antennae with 18 articles, six basal ones glabrous (Figs. 9A, B). Cephalic densely punctate with 4 ocelli, the posterior of cephalic slightly concave (Fig. 9A). Tooth-plate with 5–6 short teeth each side (Fig. 9B). Tergites with margination, and complete, thin paramedian sutures (Figs. 9C, F). Sternites smooth with complete paramedian sutures (Fig. 9D). Coxopleural process round and short, with two apical spines, and without dorsal or lateral spines. (Figs. 9E, G). Ultimate legs smooth, thin and the ventral prefemur without spines (Fig. 9G).

PREVIOUS RECORDS IN VIETNAM. Dien Bien (Muong Nhe NR), Son La (Xuan Nha NR), Cao Bang (Phia Oac-Phia Den NP), Quang Binh (Hon Gai; Ha Long); Nghe An (Vinh); Dak Lak (Ban Me Thuot); Gia Lai (Kon Chu Rang NR), Kon Tum; Ba Ria - Vung Tau (Con Dao NP), Kien Giang (Phu Quoc NP) (Lewis, 2014; Siriwut et al., 2018; Le et al., 2018, 2021).

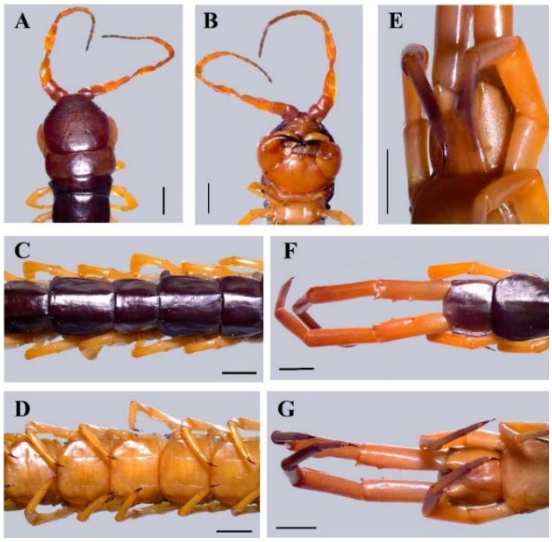

Figure 9. Scolopendra dehaani Brandt, 1840; A head, antenna, and tergites 1–3; B head, antenna forcipular segment, and sternites 1–2; C tergites 4–8; D sternites 4–8; E last sternite and coxopleuron; F last tergites and ultimate legs, dorsally; G last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 2 mm

DISTRIBUTION. Mexico, India, Bangladesh, Sri Lanka, China, Japan, Taiwan, Myanmar, Malaysia, Indonesia, Philippines, Singapore, Thailand, Laos (Schileyko, 2007; Le et al., 2021).

REMARKS. The specimens in this study are consistent with the description by Siriwut et al. (2016). However, there are some minor differences, specifically: incomplete margination from segment 6 (only complete at tergite 21), whereas Siriwut et al.'s description indicates complete margination from tergite 7. Moreover, the specimens described by Siriwut et al. have two subapical spines on the coxopleuron, but our specimen does not have any spines. Additionally, Siriwut reported three morphological forms of *S. dehaani* in Southeast Asia (see Siriwut et al., 2016). In

the specimens of this study, only one morphological form is present: complete paramedian sutures on tergites and sternites.

9. *Scolopendra morsitans* Linnaeus, 1758 (Figs. 10A–F)

MATERIAL. 06 spms: 01 spm (VRTC.BC-PB.04), 10.5462°N, 107.48802°E, 64 m a.s.l, broadleaf forest, 7 March 2024, col. Nguyen Duc Hung; 03 spms (VRTC.BC-PB.37; VRTC.BC-PB.38; VRTC.BC-PB.41), 10,61991°N, 107,53967°E, 54 m a.s.l, residential area, 8 March 2024, col. Nguyen Duc Hung; 01 spm (VRTC.BC-PB.39), 10.62178°N, 107.54094°E, 60 m a.s.l, residential area, 8 March 2024, col. Nguyen Duc Hung; 01 spm (VRTC.BC-PB.68), 10,51023°N, 107,50437°E, 89 m a.s.l, broadleaf forest, 9 March 2024, col. Nguyen Duc Hung.

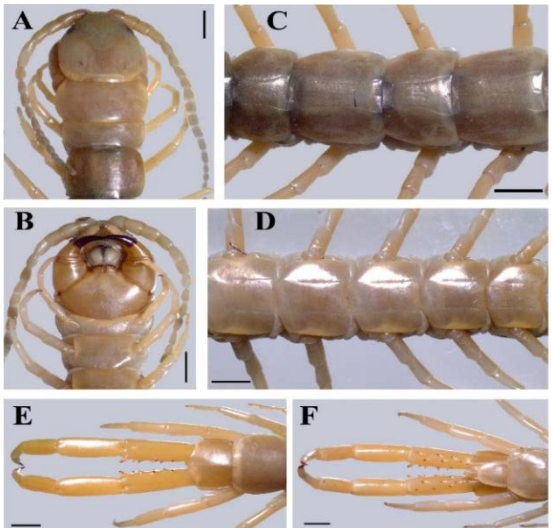

Figure 10. Scolopendra morsitans Linnaeus, 1758; A head, antenna, and tergites 1–3; B head, antenna forcipular segment, and sternites 1–2; C tergites 4–7; D sternites 4–8; E last tergites and ultimate legs, dorsally; F last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 1 mm

DIAGNOSIS. Body with 21 LBS. 7th body without spiracles; the spiracles triangle. Antennae with 18 articles, five basal ones glabrous (Figs. 10A, B). Cephalic nearly triangular shape, with many small puncta and 4 ocelli, the posterior of cephalic straight (Fig. 10A). Tooth-plate with 5-6 short teeth each side (Fig. 10B). Tergites with complete paramedian sutures, but without margination; last tergite with complete median suture (Figs. 10A, C, E). Sternites smooth with complete paramedian sutures (Fig. 10D). Coxopleural short, with two apical, one subapical, 0(1) lateral and 0 dorsal spines. (Figs. 10F). Ultimate legs smooth, with prefemoral spines on the ultimate leg arranged in four rows, each containing 2 to 4 similar spines (Fig. 10F).

PREVIOUS RECORDS IN VIETNAM. Ha Giang; Quang Ninh (Bai Tu Long), Nghe An (Vinh), Thua Thien Hue (Hai Van), Dak Lak, Ninh Thuan (Phan Rang); Lam Dong (Da Lat), Ninh Thuan (Nui Chua NP), Khanh Hoa (Dong Trang, Cau Da, Ninh Hoa, Ba Ngoi, Truong Sa Archipelago), Ba Ria-Vung Tau (Binh Chau); Tay Ninh (Tan Bien); Ca Mau (Tran et al., 2013; Le et al., 2021, 2022, 2024).

DISTRIBUTION. West Africa, Australia, South Pacific, India, Thailand, Laos, Cambodia, Myanmar, Malaysia, Singapore, Indonesia, Philippines, Brunei, China, Taiwan and Japan (Tran et al., 2013; Siriwut et al., 2016).

REMARKS. Compared to the descriptions by Siriwut et al. (2016), the specimens in this study are consistent; however, there are some minor differences, such as the lateral margin starting from tergite 10 (compared to tergite 14 in Siriwut et al.), and the number of apical spines on the last femur, which are 2–3 (compared to 4–5). *S. morsitans* is commonly found in plains or lowland areas of Vietnam (Tran et al., 2013; Le et al., 2022).

10. *Scolopendra subspinipes* Leach, 1816 (Figs. 11A–G)

MATERIAL. 04 spms. 01 spm (VRTC.BC-PB.02), 10.54280°N, 107.48758°E, 65 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.09), 10.54281°N, 107.48780°E, 62 m a.s.l, broadleaf forest, 7 March 2024, col.

Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.27), 10.54275°N, 107.48639°E, 60 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son & Nguyen D. Hung; 01 spm (VRTC.BC-PB.28), 10.54309°N, 107.48714°E, 45 m a.s.l, broadleaf forest, 7 March 2024, col. Le X. Son & Nguyen D. Hung.

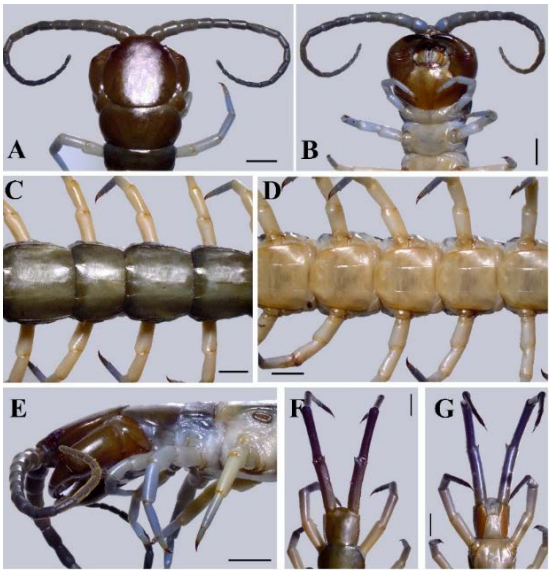

Figure 11. *Scolopendra subspinipes* Leach, 1816; A head, antenna, and tergites 1–2; B head, antenna forcipular segment, and sternites 1–3; C tergites 4–7; D sternites 4–8; E head, antenna, and LBS 1–3, laterally; F last tergites and ultimate legs, dorsally; G last sternites, coxopleuron, and ultimate legs, ventrally. Scale bar: 2 mm

DIAGNOSIS. Body thin, with 21 LBS. 7th body without spiracles; the spiracles triangle (Fig. 11E). Antennae with 18–19 articles, six basal ones glabrous (Figs. 11A, B). Cephalic nearly round, with many small puncta and 4 ocelli (Fig. 11A). Tooth-plate with 6–7 short teeth each side (Fig. 11B). Tergites with incomplete marginatons and complete paramedian sutures; First tergite nearly twice as wide as second tergite; last tergite without median suture (Figs. 11A, C, F). Sternites smooth with complete paramedian sutures (Figs. 11D, G). Coxopleural only one apical spine, without subapical, lateral and dorsal spines. (Fig. 10F). Ultimate legs smooth and very thin, with a length-to-width ratio of the prefemoral segment approximately 5:1; prefemoral spines bearing 1–2 ventral spines (Fig. 11G).

PREVIOUS RECORDS IN VIETNAM. Dien Bien (Muong Nhe NR), Son La (Xuan Nha NR), Lao Cai (Sa Pa), Cao Bang (Phia Oac-Phia Den NP); Vinh Phuc (Tam Dao NP); Ha Noi; Hai Phong (Cat Ba NP); Nghe An (Pu Mat NP, Pu Hoat NR), Quang Binh (Minh Hoa; Dong Hoi); Thua Thien Hue (Hue City); Da Nang (Ba Na Mts); Dak Lak (Chu Yang Sin); Gia Lai (Kon Ka Kinh NP, Kon Chu Rang NR), Kon Tum (Thach Nham forest), Khanh Hoa, Kien Giang (Phu Quoc NP), (Hon Ba NR); Dong Nai (Cat Tien NP) (Tran et al., 2013; Le et al., 2017, 2018, 2021, 2022; Nguyen et al., 2019).

DISTRIBUTION. Laos, Myanmar, Malaysia, Singapore, Indonesia, Philippines, Papua New Guinea, Sri Lanka, China, Taiwan, Japan, Korea, Colombia, Bermuda, Dominica, South Africa, Jamaica, Madagascar, Rodrigues, Mauritius, Seychelles, Comoros, Pacific Islands, United Kingdom, Caribbean Sea, Central and South America (Tran et al., 2013; Siriwut et al., 2016).

REMARKS. All the specimens in this study show that the coxopleuron has only one apical spine, whereas, according to Attems (1930) and Siriwut et al. (2016), there are typically two apical spines (rarely one or three spines). Additionally, Siriwut noted that in specimens from Vietnam, the lateral margin starts from tergite 14–15. However, we observed that this margin often begins earlier, from tergite 3 (or 4).

Key to scolopendromorph species in Binh Chau - Phuoc Buu Nature Reserve

1. 7th body segment with spiracles……..…..…2

7th body segment without spiracles……..……3

2. The body segment short (ratio of tergites length to its width about 1:3); terminal legs with big spines; forcipular trochanteroprefemur without tooth……*Ethmostigmus rubripes platycephalus*

The body segment normal; terminal legs with rows of small spines; forcipular trochanteroprefemur with three teeth; sternites with complete paramedian suture…… …..……..……..……*Alluropus calcaratus*

3. Ocelli present; tooth-plate with many small teeth; legs glabrous……...…….……4

Ocelli present; tooth-plate without teeth; legs with many setae…*Cryptops (Cryptops) spinipes*

4. Spiracles triangular….....5

Spiracles oval……...……8

5. Antenna segments short; ultimate legs stout with short segments, lacking spines on prefemur; coxopleuron without pores……...……*Asanada brevicornis*

Antenna segments long; ultimate legs long and prefemur with many spines; coxopleuron with pores…….Giống *Scolopendra* 6

6. Ultimate leg prefemur with many rows of numerous small; last tergite with median suture……*Scolopendra morsitans*

Ultimate leg prefemur with a few enlarged spines in rows, last tergite without median suture……..……..7

7. Prefemur of ultimate leg without ventral spines……..……*Scolopendra dehaani*

Prefemur of ultimate leg with 1–2 ventral spines……..……*Scolopendra subspinipes*

8. Antenna with 19–21 segments, 2–2.5 basal antennomeres glabrous…….……....10

Antenna with 18 segments, 3 basal antennomeres glabrous..……..…….……..*O. politus*

9. Each tooth-plate with more than 5 teeth; Coxopleuron with 3–4 spines….....*O. multidens*

Each tooth-plate with 4 teeth; Coxopleuron with 5–7 spines……...……..*O. astenus*

DISCUSSION

The two field surveys were conducted in March and July 2024. The results recorded 10 species of large millipedes in Binh Chau - Phuoc Buu Nature Reserve, of which 9 species are new records for the fauna of Binh Chau - Phuoc Buu (*Scolopendra morsitans* had been previously recorded). Scolopendridae has 9 species, and the family Cryptopidae has only 1 species. Similar to the large centipede faunas in neighboring areas to the study site, such as Thach Nham forest, Nui Chua NP, and Gia Lai (Le et al., 2017, 2018, 2024), species from the family Scolopendridae dominate overwhelmingly, with the genera *Otostigmus* and *Scolopendra* being the most dominant, each comprising three species. The research results have also provided additional data, contributing to further clarifying the overall picture of biodiversity in Binh Chau - Phuoc Buu NR in particular, and the mainland of Ba Ria - Vung Tau in general.

However, due to the short field sampling period, which focused on only two time points (March and July), it is possible that we have overlooked some small-sized species of the genus *Cryptops*, such as *Cryptops (Cryptops) doriae* and *Cryptops (Paracryptops) indicus*, as these are two species with wide distributions in Vietnam and have been recorded in neighboring areas such as Dong Nai, the Central Highlands, and Ninh Thuan,... (Tran et al., 2013; Le et al., 2024), or the species *Rhysida longipes*, which is concentrated in lowland, coastal, and island areas (Tran et al., 2013; Le et al., 2022). Therefore, the diversity of large centipede species is likely to be even greater than what we have recorded here.

The study also recorded a significant abundance of *Ethmostimus rubripes*

platycephalus, which is an interesting discovery, as this species is relatively little known in Vietnam. In our study in Nui Chua, we recorded its distribution at elevations above 900 m, but only 2 specimens were collected (Le et al., 2024). In contrast, in this study, we recorded 30 specimens of this species. This may suggest that *Ethmostimus rubripes platycephalus* is more ecologically suited to lower-elevation or coastal areas, a result also noted in Schileyko (2007), which recorded its distribution in Quang Binh, Dong Nai, and Soc Trang.

Acknowledgements: The work of Le Xuan Son was financially supported by the Joint Vietnam - Russia Tropical Science and Technology Research Center under the project ST.D1.02/2024. This research was also supported by the project KHCBSS.02/23–25 and ĐL0000.01/26–28 from the Vietnam Academy of Science and Technology.

REFERENCES

Attems C., 1930. (Myriapoda 2: Scolopendromorpha). W. de Gruyter, Berlin. https://doi.org/10.1515/9783112373002 (in German).

Attems C., 1938. (The myriopods collected by Dr. C. Dawydoff in French Indochina). Editions du Museum, Paris. (in French).

Board of Binh Chau-Phuoc Buu Nature Reserve, 2020. The Sustainable Forest Management Plan for Binh Chau-Phuoc Buu Nature Reserve, 2020–2030. Department of Agriculture and Rural Development of Ba Ria - Vung Tau Province, 138 p. (in Vietnamese).

Chao J. L., Chang H. W., 2003. The scolopendromorph centipedes (Chilopoda) of Taiwan. *African Invertebrates*, 44(1): 1–11.

Kraepelin K., 1903. Revision of the Scolopendrids: with 160 illustrations in the text. L. Gräfe & Sillem, Hamburg. (in German).

Le X. S., Do T. T., Nguyen H. T., Tran T. T. B., 2024. Diversity and distribution of large centipedes (Chilopoda: Scolopendromorpha) in Nui Chua National Park, Vietnam. *Journal of Threatened Taxa*, 16(8): 25742–25747. https://doi.org/10.11609/jott.9089.16.8.25742-25747

Le X. S., Ngo T. D., Nguyen D. A., Nguyen D. H., 2022. The Myriapod fauna (Chilopoda, Diplopoda) of the Truong Sa (Spratly) archipelago, Vietnam. *Academia Journal of Biology*, 44(4): 77–100. https://doi.org/10.15625/2615-9023/17621

Le X. S., Nguyen H. T., Do T. T., Tran T. T. B., 2022. Species diversity and distribution of large centipedes (Chilopoda: Scolopendromorpha) from the biosphere reserve of the western Nghe An Province, Vietnam. *Journal of Threatened Taxa*, 14(8): 21710–21714. https://doi.org/10.11609/jott.7964.14.8.21710-21714

Le X. S., Tran T. T. B., Nguyen D. H., 2022. Specipes diversity of the large centipedes (Chilopoda: Scolopendromorpha) in the Muong Nhe Natural Reserve, Dien Bien province. *Journal of tropical Science and Technology*, (30): 36–45. https://doi.org/10.58334/vrtc.jtst.n30.04

Le X. S., Vu T. H., 2018. Preliminary data on species composition and distribution of the Scolopendromorph centipedes (Chilopoda: Scolopendromorpha) in Kon Ka Kinh National park and Kon Chu Rang Nature reserve, Gia Lai province. *VNU Journal of Science: Natural Sciences and Technology*, 34(4): 16–20.

Le Xuan Son, Nguyen Duc Anh, Vu Thi Ha, Nguyen Duc Hung, Tran Thi Thanh Binh, 2017. The large centipedes (Chilopoda: Scolopendromorpha) in the Thach Nham forest, Kon Tum province. *Science and Technology Journal of Agriculture of Rural Development*, (13): 84–89. (in Vietnamese).

Lewis J. G. E., 2000. Variation in three centipede species of the genus *Otostigmus* and its bearing on species discrimination (Chilopoda; Scolopendromorpha; Scolopendridae). *Journal of Natural*

History, 1(3): 433–448. https://doi.org/10.1080/002229300299552

Lewis J. G. E., 2002. A re-examination of 11 species of *Otostigmus* from the Indo-Australian region described by RV Chamberlin based on type specimens in the collection of the Museum of Comparative Zoology, Harvard (Chilopoda; Scolopendromorpha; Scolopendridae. *Journal of natural History*, 36(14): 1687–1706. https://doi.org/10.1080/00222930110067944

Lewis J. G. E., 2003. On the identity of the various taxa that have been assigned to *Otostigmus (O.) politus* Karsch, 1881 and forms related thereto (Chilopoda: Scolopendromorpha). *Arthropoda Selecta*, 12(3–4): 193–206.

Lewis J. G. E., 2014. A review of the *Orientalis* group of the *Otostigmus* subgenus *Otostigmus* Porat, 1876 (Chilopoda: Scolopendromorpha: Scolopendridae). *Zootaxa*, 3889(3): 388–413. https://doi.org/10.11646/zootaxa.3889.3.3

Nguyen D. H., Le X. S., Dang Q. T. C., Tran T. T. B., Nguyen T. T. H., 2019. Diversity of centipedes (Chilopoda: Scolopendromorpha and Scutigeromorpha) in Xuan Nha Nature Reserve, Son La province, Vietnam. *Can Tho University Journal of Science*, 11(3): 75–82. https://doi.org/10.22144/ctu.jen.2019.041

Nguyen Duc Hung, Do Duc Quan, Tran Thi Thanh Binh, Vu Thi Ha, Nguyen Duc Anh, Le Xuan Son, 2019. Data on species composition and distribution of centipedes (Chilopada: scolopendromorph, scutigeromorpha) in Hoang Lien national park, Vietnam. *HNUE Journal of Science*, 64(10A): 82–89. (in Vietnamese).

Schileyko A. A., Vahtera V., Edgecombe G. D., 2020. An overview of the extant genera and subgenera of the order Scolopendromorpha (Chilopoda): a new identification key and updated diagnoses. *Zootaxa*, 4825(1): 1–64. https://doi.org/10.11646/zootaxa.4825.1.1

Schileyko A. A., 1995. The Scolopendromorph centipedes of Vietnam (Chilopoda Scolopendromorpha). Part 2. *Arthropoda Selecta*, 4(2): 73–87.

Schileyko A. A., 2007. The scolopendromorph centipedes (Chilopoda) of Vietnam, with contributions to the faunas of Cambodia and Laos. Part 3. *Arthropoda Selecta*, 16(2): 71–95.

Siriwut W., Edgecombe G. D., Sutcharit C., Tongkerd P., Panha S., 2016. A taxonomic review of the centipede genus *Scolopendra* Linnaeus, 1758 (Scolopendromorpha, Scolopendridae) in mainland Southeast Asia, with description of a new species from Laos. *ZooKeys*, 590(2): 1–124.

Siriwut W., Edgecombe G. D., Sutjarit J., Tongkerd P., Panha S., 2018. Systematic revision and phylogenetic reassessment of the centipede genera Rhysida Wood, 1862 and Alluropus Silvestri, 1912 (Chilopoda: Scolopendromorpha) in Southeast Asia, with further discussion of the subfamily Otostigminae. Invertebrate Systematics, 32(5): 1005–1049. https://doi.org/10.1071/IS17081

Tran T. T. B., Le X. S. & Nguyen A. D., 2013. An annotated checklist of centipedes (Chilopoda) of Vietnam. *Zootaxa*, 3722(2): 219–244.

Vu T. H., Eguchi K., Le X. S., Nguyen D. A., Nguyen T. T. A., 2022. A new species and a new record of the genus *Otostigmus* Porat, 1876 (Chilopoda: Scolopendromorpha: Scolopendridae) in Vietnam. *Zootaxa*, 5129(1): 60–76. https://doi.org/10.11646/zootaxa.5129.1.3