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# FIRST RECORD OF *SCOLOPENDRA PINGUIS* POCOCK, 1891 (CHILOPODA, SCOLOPENDROMORPHA, SCOLOPENDRIDAE) FROM VIETNAM

**L. X. Son[1,2,*)], N. A. Poyarkov[2,3)], N. T. Nam[1)], D. T. Thinh[2)], T. T. T. Binh[4)], V. V. Lien[5)]**

1) *VNU University of Sciences, Vietnam National University, 334 Nguyen Trai, Thanh Xuan District, Hanoi, Vietnam. *Corresponding author. E-mail: lesonenv86@gmail.com*
2) *Joint Vietnam-Russia Tropical Science and Technology Research Center, 63 Nguyen Van Huyen Rd, Cau Giay District, Hanoi, Vietnam.*
3) *Biological Faculty, Lomonosov Moscow State University, Moscow, Leninskiye Gory 1/12, 119234, Russia.*
4) *Faculty of Biology, Hanoi National University of Education, 136, Xuan Thuy Str., Caugiay District, Hanoi, Vietnam.*
5) *Vietnam National Museum of Nature, VAST, 18 Hoang Quoc Viet, Cau Giay, Hanoi, Vietnam.*

**Summary**. The centipede species *Scolopendra pinguis* Pocock, 1891 is recorded from Vietnam (Phong Nha - Ke Bang National Park, Quang Binh Province) for the first time. The collected specimens are described and illustrated. An updated map of *S. pinguis* distribution in Southeast Asia is also proved.
**Key words**: centipedes, biodiversity, fauna, new record, Southeast Asia.

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**Резюме**. Сколопендра *Scolopendra pinguis* Pocock, 1891 впервые приводится для фауны Вьетнама (национальный парк Фонгня-Кебанг, провинция Куангбинь). Собранные экземпляры описаны и иллюстрированы. Также дана карта распространения *S. pinguis* в Юго-Восточной Азии.

## INTRODUCTION

The centipede fauna of Vietnam so far includes 78 recorded species belonging to 26 genera, 13 families and four orders (Tran *et al.*, 2013; Tran *et al.,* 2019; Vu *et al.,* 2022; Tsukamoto *et al.*, 2022; Le *et al.*, 2023). Among them, the family Scolopendridae is the most diverse with 26 species recorded for the country, including the two new species and two new country records reported recently (Vu *et al.*, 2022; Le *et al.*, 2023).

Within the family Scolopendridae, to date eight species of the genus *Scolopendra* have been recorded from Vietnam including *S. calcarata* Porat, 1876, *S. gracillima sternostriata*

Schileyko, 1995; *S. mirabilis* (Porat, 1876); *S. morsitans* Linnaeus, 1758; *S. subspinipes* Leach, 1815; *S. dawydoffi* (Kronmüller, 2012); *S. dehaani* (Kronmüller, 2012) and *S. cataracta* Siriwut et al., 2016 (Schileyko, 2007; Kronmüller, 2012; Siriwut *et al.*, 2016). During our recent field survey in Phong Nha - Ke Bang National Park (hereafter, NP), Quang Binh Province, central Vietnam, we collected seven centipede specimens which were identified as *Scolopendra pinguis* Pocock, 1891 based on morphological examination. This represents a range extension and the first country record of this species for Vietnam; below we provide the information on the collected specimens.

## MATERIAL AND METHODS

Specimens were collected by hand in leaf litter, then fixed and preserved in 70-80% ethanol. All specimens were deposited in the Joint Vietnam-Russia Tropical Science and Technology Research Center (VRTC) and Vietnam National Museum of Nature (VNMN) in Hanoi, Vietnam.

Life specimen and habitat photos were taken using Canon EOS 7D digital camera. Preserved specimens were examined, described and measured under Olympus SZ61 binocular microscope; the photos were taken using Olympus SC180 camera. The software HeliconFocus 7.0 was used for processing of the photos. The terminology for external morphology of centipedes follows Bonato *et al*. (2010).

## NEW RECORD

### Order Scolopendromorpha

### Family Scolopendridae

### Subfamily Scolopendrinae Kraepelin, 1903

### Genus *Scolopendra* Linnaeus, 1758

***Scolopendra pinguis* Pocock, 1891**

Figs 1, 2

*Scolopendra pinguis* Pocock, 1891: 411; Kraepelin, 1903: 249; Attems, 1930: 27; Siriwut *et al.,* 2016: 87.

MATERIAL EXAMINED. **Vietnam**: Quang Binh Province: Phong Nha - Ke Bang National Park, bamboo forest, 16–17.V. 2022, 2 specimens (VRTC. PN-KB.055: 17.38897° N, 106.20917° E, 585 m; VRTC.PN-KB.096: 17.35084° N, 106.20579° E; 551 m), coll. Le Xuan Son; same locality but polydominant evergreen limestone forest, 18.V. 2022, 5 specimens (VRTC.PN-KB.098: 17.41680° N, 106.22165° E; 545 m; VRTC.PN-KB.104: 17.41632° N, 106.22327° E, 624 m; VRTC.PN-KB.105: 17.41658° N, 106.22305° E, 647 m; VRTC.PN-KB.114: 17.41657° N, 106.22536° E,.680 m; VRTC.PN-KB.115: 17.41657° N, 106.22536° E, 680 m), coll. Le Xuan Son.

DESCRIPTION. Morphology of the specimen VRTC.PN-KB.098 is presented in Figs. 1, 2. Average body length 5.5 cm (maximum to 6.5 cm). Antenna with 17 segments, basal segments 3–3.5, glabrous dorsally, following segments densely covered by minute setae. Antenna length reaches to 3rd body segment (Fig. 2A,C,D). Cephalic plate nearly rounded with sparsely scattered small punctae; near its margins with sparsely scattered short setae, marginate laterally with margination absent posteriorly, cephalic basal plate absent (Fig 2C).

Fig. 1. *Scolopendra pinguis* in life (VRTC.PN-KB.098). Photograph by Le Xuan Son.

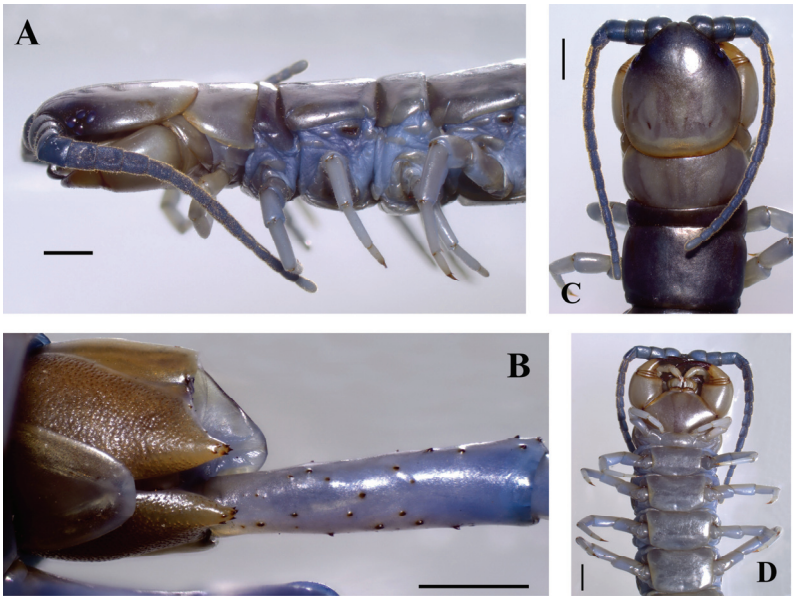


Fig. 2. *Scolopendra pinguis* Pocock, 1891 (VRTC.PN-KB.098). (A) head + LBS 1–5, in lateral aspect; (B) LBS 21–23 and ultimate legs in ventral aspect; (C) head + LBS 1–3 in dorsal aspect; (D) head, forcipular segment and LBS 1-5 in ventral aspect. Scale bar = 1 mm. Photographs by Le Xuan Son.


Fig. 3. Distribution of *Scolopendra pinguis* Pocock, 1891. Circles – previously reported localities (from Kraepelin, 1903; Attem, 1930; and Siriwut, 2016); triangle – the newly reported locality in Phong Nha – Ke Bang NP, Quang Binh Province, Vietnam. Map source: http://maps.vietbando.com

Four big ocelli, nearly equal in size (Fig 2A). The median suture on the top of cephalic plate short, indistinct, the posterior border overlaps tergite 1. In preservation, cephalic plate dark blue on anterior part, yellowish on posterior part and T1 (Fig 1).

Forcipular segment (Fig 2D), coxosternite, trochanteroprefemora and the basal part of tarsungulae coarsely and sparsely punctate; coxosternite without median suture. Tooth-plates slightly wider than long or nearly subequal, with 5(6) indistinct teeth, the distance between the tooth-plates wide; each tooth-plate with straight, transverse basal suture. Forcipular trochanteroprefemoral process bearing short denticles in two groups, one apical and 2–3 inner denticles, the latter being indistinct, position of denticles higher than tooth-plates (Fig 2D). Maxillae with sparse short setae and segment 2 of second maxillary telopodite with spur; chitin-line usually very short.

Tergites with very small punctae; lateral margination incomplete from T10(14) to T20 and complete on T21; paramedian sutures complete from T3 to 20, without short median sulcus on anterior and posterior; last tergite sub-quadrangular and convex posteriorly. Tergites 6(13)–18(19) with median depression long. Sternite surface smooth (with few small punctae), lacking any median sulci. Sternites rectangular, last sternite triangular. Sternite 3–18 with incomplete paramedian suture (10-15% of its width), lacking depression. Coxopleuron densely covered by pores (except the apical part), coxopleural process with 3–4 apical, 1–3 subapical, 1–2 lateral and 0–1 dorsal spine(s) (Fig 2B).

Locomotory legs usually bearing small setae and thicker on the tibia and tarsus; legs 1–19(20) with tarsal spur. Ultimate legs thin and moderately long, the ratio of lengths of prefemur, femur, tibia, tarsus 1 and tarsus 2 as follows: 3.9:3.0:2.8:1.6:1; ratio of length and width of prefemur 3.9:1. Prefemur with numerous iregular ventral spines (usually with 6–8VL, 0 VM, 3M, 3–4DM; prefemoral process short with 2–3 spines; tibia and tarsus glabrous or sparsely setose.

DISTRIBUTION. The presently known distribution of *Scolopendra pinguis* is shown in Fig. 3. This species was first described by Pocock (1891) from Kayah-Karen Mountains in Burma, now Myanmar. This species was further redescribed by Kraepelin (1903) and Attem (1930) based on specimens collected from Myanmar and Indonesia. Siriwut (2016) recorded this species in Thailand (Kanchanaburi, Mae Hong Son, Chiang Mai, Phayao, Chiyaphume and Loei provinces), Laos (Bo Kaew, Luang Prabang, Vientiane, and Houaphan provinces) and Indonesia (Batavia, Buitenzorg [now Bogor], Java). In this study we report on the occurrence of *Scolopendra pinguis* in limestone forests of central Vietnam (Quang Binh Province), what represents the first country record for Vietnam as well as the easternmost known locality of this species (Fig 3).


Fig. 4. Natural habitat of *Scolopendra pinguis* Pocock, 1891 in Phong Nha – Ke Bang National Park, Quang Binh Province, Vietnam. (A) Mixed polydominant limestone evergreen forest; (B) bamboo forest. Photographs by Le Xuan Son.

HABITAT. Wide distribution of *Scolopendra pinguis* across the limestone landscapes of northern Indochina in Laos and northern Thailand (Fig. 3) suggests that this species might be associated with karstic habitats. In Phong Nha – Ke Bang NP we collected the specimens of *S. pinguis* from several locations within the mixed polydominant limestone evergreen forest (Fig. 4A), including areas dominated by bamboo (Fig. 4B). The areas where *S. pinguis* occurs are characterized by comparatively steep sloping, high humidity, and thick leaf litter (Fig. 4).

## DISCUSSION

The first country record of *Scolopendra pinguis* in Vietnam brings the total number of *Scolopendra* species known for the country to nine, and for the family Scolopendridae to 27. Siriwut (2016) demonstrated that *S. pinguis* has four color variatons; our specimens from Vietnam in coloration resemble those described from Thailand and northern and central Laos (Fig. 1), i.e. “dichromatic, cephalic plate dark blue on anterior part, yellowish on posterior part and T1” (Siriwut, 2016). This is not surprising as the limestone massifs of central Vietnam are

connected to the karstic areas of central and eastern Laos. According to Siriwut (2016), *S. pinguis* is characterized by having glabrous 4 basal antennal segments and smooth tergites; however the specimens from Vietnam have 3–3.5 basal antennal segments, agreeing with the earlier descriptions of this species by Kraeplin (1903) and Attem (1930); also tergites of the Vietnamese specimens bear small puncta. In addition, the specimens from Vietnam differ in having the lateral marginations starting from T10 (or T14), however, according to Siriwut (2016) the lateral marginations start from T16–T18, while the specimens described by Kraeplin (1903) and Attems (1930) showed these marginations only from T20 and T21. This morphological variation suggests that further studies are needed to assess the taxonomic value of these differences, as well as the status of different populations of *S. pinguis* across its range in Southeast Asia.

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