

Centipedes...Venomous soil fauna

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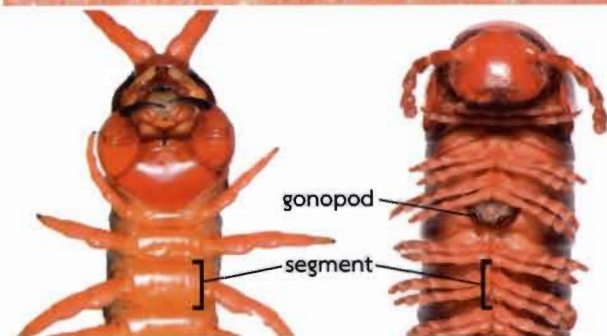
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Introduction

“Centipedes” are invertebrates adapted for life in diverse ecosystems, including modified anthropogenic areas. Centipedes are arthropods belonging to the class Chilopoda of the subphylum Myriapoda, in the same phylum with millipedes (Diplopoda), Symphyla, Pauropoda, as well as spiders and scorpions (Arachnida), shrimps and crabs (Crustacea), and insects (Insecta). Centipedes differ from millipedes in various characters: for example, they have one pair of legs on each body segment whereas millipedes have two pairs on each segment. Centipedes move rapidly, much faster than millipedes. Moreover, many millipedes exhibit curling of the body when disturbed, a behaviour that is less common in centipedes.



All centipedes are carnivores or scavengers, mostly hunting at night. By day most centipedes hide in dark, humid crevices or other small shelters, e.g. under dead leaves and logs or rock crevices. Each walking leg can move freely together with the flexible bodies. This makes centipedes quick and able to change directions rapidly. Even fast locomotion in the water is possible by keeping all walking legs against the lateral sides of the body and then undulating like a snake. Such movements in both terrestrial and aquatic habitats are factors related to wider geographic distributions for centipedes than usually found in millipedes.

Top Common house centipede *Scolopendra dehaani*, often found with dense populations in Thailand. **Lower left** The important features of centipedes that differ from millipedes are forcipules and a single pair of walking legs per segment. **Lower right** Mouth parts of millipedes, two pairs of leg per segment, and gonopods.

General features of centipedes

The centipede head is usually quite flat (it is domed only in Scutigermorpha) and contains a pair of antennae at the anterior margin. Close to the antennal base in scolopendrid centipedes is a cluster of four light receptors called “ocelli”, which are in fact the eyes. One group, Scutigermorpha, has a pair of compound eyes as in insects. Adult bodies have varying numbers of legs, from 15-191 pairs, and each leg has a sharp spine at its distal tip. Feeding is facilitated by the first three pairs of appendages. These consist of two pairs of maxillae and a pair of modified legs known as forcipules that are a specialization of centipedes and not found in other arthropods. The forcipules are modifications of the first pair of legs, forming a pincer-like appendage that is always located on the underside of the head. The forcipules are not true mouthparts, although they are used in the capture of prey

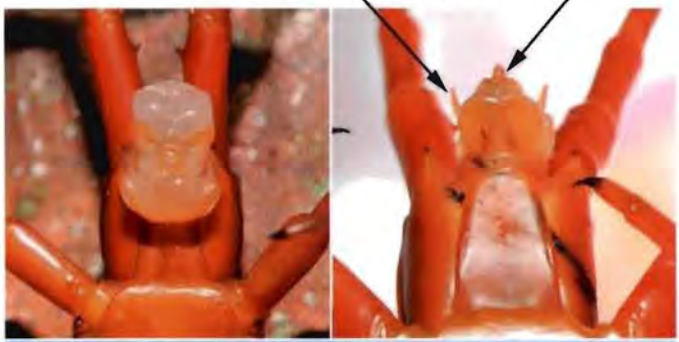
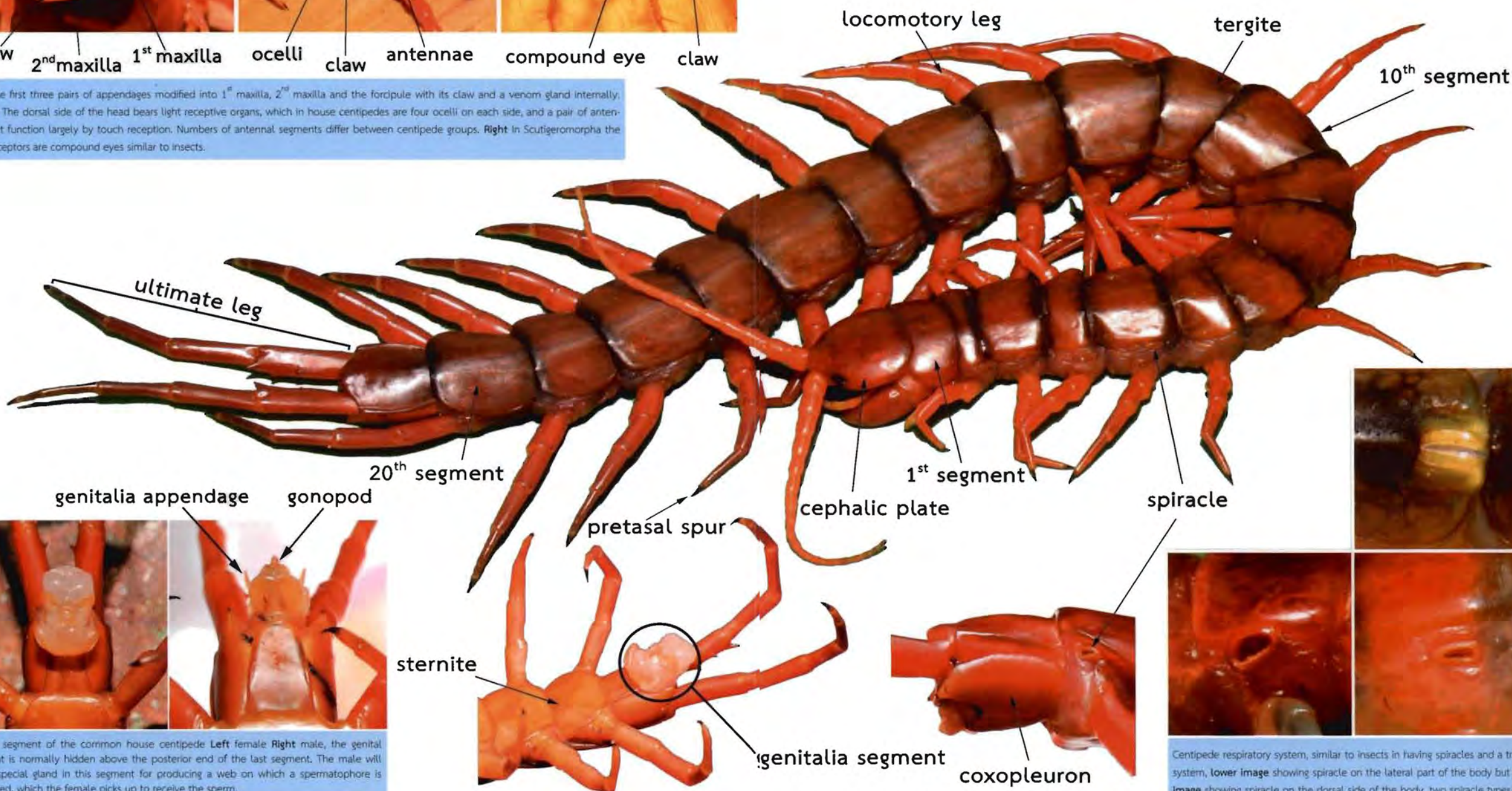


claw 2nd maxilla 1st maxilla ocelli claw antennae compound eye claw

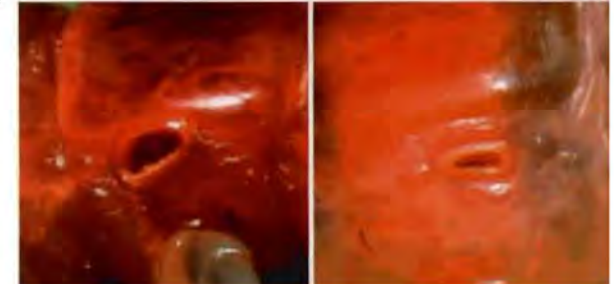
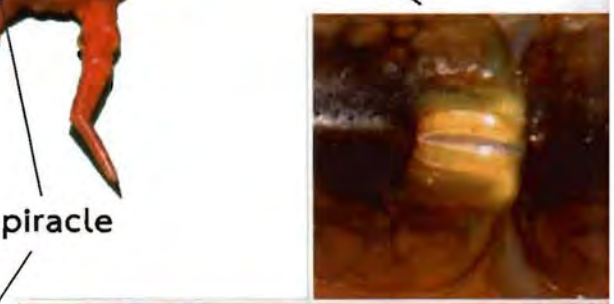


Forcipule characters of different centipede genera **Left to Right** *Scolopendra*, *Strigopristes* and *Cryptops*. The different claw characters may have specific relationships to hunting behaviour, e.g. the hairy claw of the blind *Cryptops* may assist in the accurate recognition of prey position.

Left The first three pairs of appendages modified into 1st maxilla, 2nd maxilla and the forcipule with its claw and a venom gland internally. **Middle** The dorsal side of the head bears light receptive organs, which in house centipedes are four ocelli on each side, and a pair of antennae that function largely by touch reception. Numbers of antennal segments differ between centipede groups. **Right** In Scutigermorpha the light receptors are compound eyes similar to insects.



Genital segment of the common house centipede **Left** female **Right** male, the genital segment is normally hidden above the posterior end of the last segment. The male will use a special gland in this segment for producing a web on which a spermatophore is deposited, which the female picks up to receive the sperm.



Centipede respiratory system, similar to insects in having spiracles and a tracheal system, **lower image** showing spiracle on the lateral part of the body but **upper image** showing spiracle on the dorsal side of the body, two spiracle types **Lower Left** round or oval shape **Lower Right** triangular shape, inside are tracheal tubes used for transfer of oxygen to the body's tissues.

items and injecting venom. Venom glands run through a tube almost to the tip of each forcipule. The exoskeleton of the body is composed of a substance called chitin, as in shrimp carapaces. Some centipedes have beautiful and varied body colouration, including fire-red, ruby-purple or emerald-green. In most centipedes an opening on the lateral side of each body segment called a spiracle leads to tracheal system for gas exchange; in Scutigermorpha, however, the spiracle is an unpaired opening on the dorsal side of the body. Centipedes have transparent purple respiratory pigments or blood.

In some groups, the males and females both have specialized appendages called gonopods, which are on a genital segment at the posterior end of the body. The genital structures are soft tissues, which is quite different from the hard structures of other arthropods such as millipedes. Normally the genital segment is hidden above the posterior segment which makes it difficult to discriminate the sex of centipedes only by observing the external parts of the body.

Biology of centipedes

Centipedes play an important role in ecosystems by functioning as predators and scavengers in the food web. Some centipedes can hunt large animals such as snakes, bats, and some small mammals, and when prey is scarce centipedes may consume dead animals and or even other centipedes. Centipedes moult once or more a year in order to increase in size and, in some groups, to add body segments. During the breeding season (about April to September), it is easier to find centipedes than during other periods.

Centipedes have courtship behavior involving the male pursuing the female and enticing her come to a breeding area. The male then deposits a spermatophore on a web which is produced by a spinning structure at the posterior end of his body. The female will then collect the spermatophore and place it in a genital opening at the posterior end of her body. She will keep it for several months until finding an optimal area for egg laying, when fertilization takes place. Some groups of centipedes perform brooding behaviour by the female, in which she lays eggs in the soil or in dead logs by making a round hole called a brood chamber. She will lay about 15-70 eggs, and will care for the eggs by curling the body to surround the eggs. This behaviour may last more than a month.

Lower images: brooding behaviour of some house centipedes. The female will care the brood for several weeks **A** *Otostrongylus spinosus* **B** post-embryonic hatchlings **C** adolescent almost ready to leave the brood **D** Tiger centipede *Scolopendra morsitans* curling the body twice for protecting hatchlings, a character found only in *Scolopendra*.

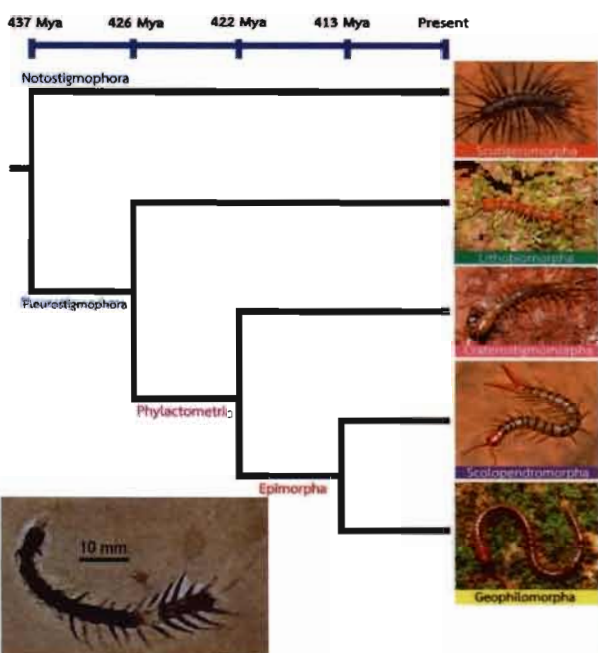


Upper: *Scolopendra dehaani* moults once a year to grow and expel external parasites. **Lower:** *S. dehaani* hunting on a snail-eating snake *Pareas carinatus*. With their effective venom, centipedes can hunt on big and fast animals.



Species diversity and evolution of centipedes

Centipedes are distributed worldwide, but especially in the humid tropical and some temperate regions. They are unreported only in the polar regions. Experts estimate species diversity of about 8,000 species, but only 3,300 species have been named so far. The most commonly encountered and reported centipedes in Thailand are the order Scolopendromorpha (called “house centipedes” in Thailand), of which about 680 species have been reported worldwide. This centipede group dominates because of their large size and varied relationships with humans. The giant centipede *Scolopendra gigantea* Linnaeus, 1758, found in South American forests, is the world’s largest species, reaching more than 30 centimeters in length.



There are two common Southeast Asian centipedes, the common house centipede *Scolopendra dehaani* Brandt, 1840 and the tiger centipede *Scolopendra morsitans* Linnaeus, 1758. However, from literature surveys, there are 67 species representing 29 genera and 4 families of house centipedes. The diversity is quite congruent with geographic structure and the still healthy conditions of nature in this area, making centipedes able to adapt to habitats, although some species may be extinct from the wild. Recently, the discovery of the Similan purple centipede *Sterropristes violaceus* Muadsub and Panha, 2012 confirmed the presence of new, endemic species in natural habitats.

Upper Evolutionary chart of centipedes, with divergences estimated by molecular dating (Muriene et al. 2010). Lower left A fossil house centipede from the Early Cretaceous (Shear and Edgecombe 2010).

Centipedes are ancient creatures that have preserved their body structure relatively unchanged compared with their ancestors over hundreds of million years. They are thus commonly thought of as living fossils, as observed from fossils dating to various geological periods or embedded in amber, these species being similar to living forms. Paleontological evidence demonstrates that the first centipedes had already appeared by the Silurian Period, about 420 million years ago, and molecular clock techniques estimate that they are even older. Traditionally, embryological data were used to divide centipedes into two groups: in Anamorpha, pairs of legs are added between moults until the adult segment number is reached, and in

Epimorpha, all pairs of legs are formed in the embryonic stages, and offspring do not add any more legs between moults.

Centipedes and humans

Although centipedes are venomous, they also play a role in human daily life in various ways, as witnessed in many countries such as China and Thailand. People use them as food as well as for local medicine for export because of beliefs that they may cure various symptoms such as malnutrition. Moreover, it is confirmed that centipedes have been linked to the customs of local tribes such as the Mon or the northern tribe, who make centipede flags in various traditions. These flags are believed to give prosperity and protection from all kinds of disasters. Centipedes also appear in the local folklore of the Mon, in which they describe and compare centipede behaviour with the community rules in the past.



Upper left The Mon tribe with a centipede flag, used in special traditions in Thailand*. Upper Right In Sekong town in Laos, centipedes are used to make medicine. Lower left *Scolopendra* used for food in Beijing, China**. Lower Right Centipede symbol on a local medicinal product, Thailand. (*<http://wikimoon.com>, **www.pinterest.com)

Centipedes are the well known as venomous animals. There are numerous reports of centipede bites, the distinct symptoms of the wound being much pain, severe swelling and inflammation. Some victims may have allergies to the venom that can cause side effects such as difficulty in breathing, high blood pressure including shock condition or unconsciousness. First aid after a centipede bite should start by cleaning the

wound, the anti-inflammatory drug for pain are needed in some case of centipede bite then bringing the victim to hospital. It is unlikely to be fatal because the injected venom is of low quantity. Centipede venom divides into 3 main groups, which like snake venoms are neurotoxins, myotoxins and haemotoxins. Venoms are produced from venom glands located in the base of the forcipules. Venoms consist of proteins and enzymes that cause inflammation and inhibit nerve impulses which make victims paralyzed or kill them. Based on these venom properties, people are now thinking about applying them for medical and pharmaceutical purposes, including environmentally-friendly insecticide production.



A Centipede specimens in Vienna Natural History Museum **B** Centipede specimens collected about 90 years ago from Thailand by H. Hillman **C** E. Haase, centipede taxonomist and former Curator of the Royal Museum during the reign of King Rama V (King Chulalongkorn). **D** C. Attems, researcher on Southeast Asian centipedes **E** Specimens of house centipedes collected by B. Degerbol from Phu Krading in 1958, now deposited at the Natural History Museum in Denmark.

Vietnam and described the new genus *Tokinodentus* as well as three new species. These studies confirmed that centipede species in Southeast Asia, including Thailand, are quite diverse. However there are not many experts and information about these animals is still sparse, as a result of which taxonomic works are still far from complete and need further investigation. Although centipedes can be hazardous to humans because of their bite, they play important roles in ecosystems. People are now beginning to use their venoms for constructing new scientific knowledge as well as exploring sustainable medical and agricultural benefits of the venom.

Centipede taxonomy

Centipede taxonomy began with Carolus Linnaeus classifying 9 centipede species in his “Systema Naturae”. In 1814, arthropod classification was arranged to include centipedes as a distinct group for the first time by W. E. Leach. Now centipedes are classified in the class Chilopoda. The history of study of Southeast Asian centipedes, including those of Thailand, can be divided into two periods. Publications from 1887-1953 led to several centipede species being recorded from the region. Notably, in 1887 E. Haase studied and compiled centipede species of the entire Indo-Australian region. Later in 1899-1929, S. S. Flower and H. Hillman gathered specimens collected from Thailand and the Malay Peninsula, and between 1907 and 1953 C. Attems reviewed and described several species from these areas.

From 1970, centipede taxonomy in Thailand was still investigated by foreign researchers. For example, during 1981-1986 E. H. Eason reported seven species of Lithobiomorpha from Thailand, and A. A. Schileyko studied Scolopendromorpha in

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Centipedes of Thailand

Order Scutiggeromorpha

The primitive group of extant centipedes, body shaped rather similar to arachnids. Adult maximum length (including legs) up to 15 cm, with 15 segments. Compound eye. Forcipule well developed. Antennae and legs slender and long, usually twice body length. The distal end of legs (tarsus) consists of a continuous series of tiny bead-like articles. Spiracle present on the dorso-medial part of tergites. No brooding behaviour. **Distribution:** In limestone caves and rotten wood.



Theruopoda longicornis 1 cm



Lithobiomorphs

5 mm

Order Lithobiomorpha

Small-bodied centipedes in tropical Asia. Flattened body with reddish brown cephalic plate and segments. A cluster of ocelli present on lateral part of cephalic plate. Conical antennal articles. Adult with 15 segments, tergites alternate in length, with short tergites largely concealed under long tergites, but sternites of even length. Spiracle present on lateral part of segments with long tergites. No brooding behaviour. **Distribution:** Soil surface, decaying wood and under leaf litter.



Order Geophilomorpha

Cephalic plate and body segments light yellow or reddish brown. Rectangular or triangular cephalic plate, with conical antennae. Ocelli absent. A spiracle present on lateral side of all but last trunk segments. Number of body segments variable in adults, from 27-191 segments. Last segment flattened triangular or rounded. **Distribution:** Only 3 genera have been reported from Thailand; *Balophilus* Cook 1896, *Geophilus* Leach, 1814 and *Mecistocephalus* Newport, 1843



Geophilomorpha

10 mm



Rhysida calcarata

10 mm

Order Scolopendromorpha

The common large centipede group in Southeast Asia, mostly aggressive. Variable shape of forcipular segment. Highly variable colouration, depending on species and geographical populations. Cephalic plate flattened with or without four ocelli on each side. Body segments robust and flexible, with 21-23 segments (39 or 43 in one Neotropical species). Ultimate legs long and slender, modified in some species for sound production or with spines on distal part used for defense. **Distribution:** throughout Thailand



genus *Cryptops*

Blind centipedes in the family Cryptopidae. Forcipular segment without tooth plates. Body covered by fine setae. Hook-like ultimate legs, with saw-like row of small teeth on ventral part. In Thailand, only one species has been reported.

Cryptops doriae Pocock, 1891

Small species in Southeast Asian mainland. Body colour yellow or reddish brown. Body length 1-4 cm. Antennae moderate long, body covered with fine setae, last tergite enlarged. Sternites with transverse sulcus. Saw-teeth present on femur, tibia and tarsus 2 of ultimate legs. Distribution: soil surface, leaf litter and deciduous forest.



Cryptops doriae

10 mm

genus *Alluropus*

Medium-sized centipedes, a distal projection of the ultimate leg prefemur and flattened shape of tarsus 2 used as diagnostic characters (probably occurring in adult males). Only one species has been recognized.

Alluropus demangei Silvestri, 1912

Dark blue centipede, with yellow legs. Long antennae. Body length 2-6 cm. Tergite 21 convex posteriorly. Sternite with complete paramedian suture. Ultimate leg with blue bands. In male, ultimate leg prefemur with long distal projection, tarsus 2 flattened and ventral part of prefemur with 4-7 spines. Distribution: reported for first time from Vietnam. In Thailand, this species lives in the Central and Northeast regions.



Alluropus demangei

10 mm

genus *Asanada*

Small centipedes, living closely with termite mounds. Plump body shape. Blackish, triangular cephalic plate. Short antennae. Ultimate legs robust and thick, distal part with serrated claw. Currently, 13 species have been reported worldwide but only one species in Thailand.

Asanada brevicornis Meinert, 1886

Cephalic plate, first tergite and basal part of ultimate leg blackish, the rest yellow with dark blue bands on the medial part. Some populations reddish. Body length 3-5 cm. Small, triangular cephalic plate, with short antennae. Ultimate leg robust, flattened, thick, without prefemoral spine (s) on ventral side. Claw of ultimate legs with row of small serrations. Distribution: deciduous forest, termite mounds.



Asanada brevicornis

5 mm

genus *Cormocephalus*

Medium-sized centipedes, the diagnostic character being a small triangular sclerite at both posterolateral corners of cephalic plate, with paramedian sutures extending to middle part of cephalic plate. The genus comprises 100 nominal taxa worldwide but only one species in Thailand.

Cormocephalus dentipes Pocock, 1891

Blackish centipede. Cephalic plate with paramedian sutures on posterior half. Moderate long antennae. Body length 3-6 cm. Legs yellowish with light blue bands. Ultimate legs robust, with coarse granules in male. Distribution: agricultural areas in the southern part of Thailand close to Malaysian border. Sympatric distribution with other scolopendromorphs such as *Rhysida* and *Otostigmus*.



Cormocephalus dentipes

10 mm

Northeast Thailand
 14. 11. 1958
 No. 117 24-V
 BIRDS (LAWSON)
 BIRDS (LAWSON)

Ethmostigmus
PLATYCEPHALUS (Newp.)
 1121



20 mm

Ethmostigmus rubripes platycephalus

genus *Ethmostigmus*

Rare centipede group in Thailand. Forcipular segment robust, with enlarged tooth plates and absence of trochanteroprefemoral process. Segment 7 with pair of spiracles. Only one species has been reported in Thailand.

***Ethmostigmus rubripes platycephalus* Newport, 1845**

Flattened cephalic plate, with cylindrical antennal articles. Forcipular segment with robust tooth plates. Body length up to 13 cm. Pair of spiracles occur on both segments 7 and 8. Tergites convex posteriorly, without suture. Ultimate legs elongate but robust, with 4-6 spines on ventral part. **Distribution:** unknown status in Thai fauna, only museum collection reported to specimens collected in Thailand in 1958.

genus *Otostigmus*

This centipede group exhibits variable size, highly diverse in tropical zone. Nine pairs of oval spiracles, segment 7 without spiracle. Ultimate leg slender and elongate, with bright colouration in some species. Several species found in sympatric distribution. To date, six species are recorded in Thailand.

***Otostigmus aculeatus* Haase, 1887**

Blackish colouration on cephalic plate and segments, some populations reddish brown. Conical antennal articles. Body length 3-6 cm. Tergites smooth, without keels; last tergite convex posteriorly with or without median suture. Ultimate leg long and slender, with 10-15 spines arranged as 3 rows on ventral side of prefemur. **Distribution:** commonly distributed in northeastern and eastern coast of Thailand.



Otostigmus aculeatus

10 mm

***Otostigmus multidens* Haase, 1887**

Cephalic plate, first and last tergites reddish brown, rest of body dark blue, including antennal articles. Body length 3-7 cm. Last tergite convex posteriorly, with median suture. All legs bright blue. Ultimate leg slender and elongate, with 7-8 spines on ventral side of prefemur. **Distribution:** Urban areas and some deciduous forest throughout Thailand.



Otostigmus multidens

10 mm



***Otostigmus rugulosus* Porat, 1876**

Cephalic plate and body segment reddish. Antennal articles reddish or orange colour. Body length 3-9 cm. First three body segments without keels, the rest with 5-7 keels. Last tergite convex posteriorly, with median suture. Legs with light yellow and blue pigmented bands. Ultimate legs slender, 7-10 spines on ventral side of prefemur. **Distribution:** one of the dominant centipede species in Thailand, especially in urban areas.



Otostigmus rugulosus

10 mm



Otostigmus scaber Porat, 1876

Cephalic plate, first three and last segment bright orange, the rest dark blue or reddish brown. Body length 4-9 cm. Conical antennal articles. Surface of tergites with 7-9 keels. Last tergite convex posteriorly. Sternites with paramedian suture. Legs of variable colouration, orange or blue. Ultimate leg long and slender, with 4-7 spines on ventral side of prefemur. **Distribution:** urban habitats, deciduous forest throughout Thailand except western and central parts.



Otostigmus spinosus Porat, 1876

All segments reddish brown. Conical antennal articles. Forcipular segments light yellow. Body length 8-9 cm. Tergite surfaces smooth. Last tergite convex posteriorly, with or without median suture or depression. Legs dark blue or reddish brown. Leg 20 with acute spine on dorso-distal part of prefemur. Ultimate legs long and slender, with 7-8 spines on ventral part. In adult male, tarsus 2 of ultimate leg with depigmented projection on distal part. **Distribution:** urban habitat and deciduous forests of Thailand except western and central parts.



Otostigmus trisulcatus Verhoeff, 1937

Light yellow species, with blue pigmented bands on first three and two last segments. Segments with double dark blue bands in parallel along latero-median part. Body length 5-6 cm. Conical antennal articles. Tergite surfaces without keels. Last tergite convex posteriorly. Sternites with complete paramedian sutures and median suture. Legs mostly yellowish. Ultimate legs, with 9-10 spines on ventral side of prefemur. **Distribution:** rare in natural habitats throughout Thailand except central and eastern parts.



genus Rhysida

Medium-sized centipedes, quite similar to *Otostigmus*. 10 pairs of spiracles, spiracle present on segment 7. This genus usually found distributed sympatrically with other scolopendromorph genera. To date, three species have been reported throughout Thailand.

Rhysida calcarata Pocock, 1981

Reddish brown centipede, forcipular segment pale yellowish. Body length 3-7 cm. Blue cylindrical antennal articles. Tergite surfaces without keel. Last tergite convex posteriorly. Sternites with complete paramedian sutures. Legs yellowish with blue pigmented bands. Ultimate legs robust, with square section, 7-10 spines on ventral side of prefemur. **Distribution:** throughout Thailand except southern part.



Rhysida calcarata

10 mm

Rhysida immarginata (Porat, 1876)

Shiny black centipede, body reddish brown in some populations from Northeast. Body length 5-10 cm. Orange cylindrical antennal articles. Tergite surfaces without keels. Last tergite convex posteriorly. Sternites with complete paramedian sutures. All leg yellowish. Ultimate legs with 2-4 spines on ventral side of prefemur. **Distribution:** two populations in Thailand; south and north. Sympatric distribution with other scolopendromorph centipedes.



Rhysida immarginata

10 mm

Rhysida longipes (Newport, 1845)

First two and last two segments reddish brown or orange. Antenna articles pale blue. Greenish brown tergites, without keels. Size 4-8 cm. Tergite surfaces without keels. Last tergite convex posteriorly. Sternites with complete paramedian sutures. Yellow legs, blue in distal part. Ultimate legs slender and long, 6-8 spines on ventral side or prefemur. **Distribution:** widespread species in tropical regions. In Thailand, populations concentrated in central part.



Rhysida longipes

10 mm



genus *Scolopendra*

Gigantic centipedes, living closely with humans. Aggressive animals with painful venom. 9 pairs of triangular spiracle. All segments robust. Moderate or long ultimate legs, with claw. In Thailand, 4 recorded species, distributed in all habitats.

Scolopendra subspinipes Leach, 1814

Cephalic plate and segments reddish orange or blackish. Long antennae. Body length up to 15 cm. Tergite surfaces without keels. Last tergite convex posteriorly. Sternites with complete paramedian sutures. Ultimate legs long and slender, 2-3 spines on ventral part. **Distribution:** true distribution range is unknown (probably, in northeastern Thailand).



Scolopendra subspinipes

20 mm



Scolopendra pinguis

20 mm

Scolopendra pinguis Pocock, 1897

Shiny black *Scolopendra* species. Cephalic plate and first segment black, some populations in Northeast with cephalic plate mostly yellow, its anterior part black. Long antennae with conical articles. Body length up to 12 cm. Tergite surfaces without keels. Last tergite convex and acute posteriorly. Dark blue or yellow legs. Ultimate legs moderate long and slender, 10-15 spines on ventral side of prefemur. **Distribution:** Species first reported from Myanmar. In Thailand, this species distributed along mountain ranges in western and northern regions.



Scolopendra morsitans Linnaeus, 1758

Highly aggressive *Scolopendra* species, venom glands producing neurotoxins. Yellowish or brown body with dark bands on distal parts of segment. Cephalic plate and last segment tangerine coloured, some populations black. Long, conical antennal articles. Body length up to 15 cm. Tergite surfaces without keels. Last tergite slightly convex, with shallow median suture. All legs yellowish. Ultimate legs moderate long and robust, 9-15 spines in 3 rows on ventral part. In male, dorsal edge of prefemur, femur, tibia and tarsus 2 of ultimate legs margined. **Distribution:** all parts of Thailand.



Scolopendra morsitans

20 mm

Scolopendra dehaani Brandt, 1840

Largest *Scolopendra* species in Southeast Asia, with myotoxin properties in its venom. Body segments reddish brown, dark band on distal part of segments in some populations. Cephalic plate flattened with long conical antennal articles. Body length up to 25 cm. Tergite surfaces without keels. Last tergite usually convex posteriorly. Colouration pattern of legs differing between regional populations. Ultimate legs long and slender, ventral side of prefemur without spines. During growth and development periods, body colour highly variable. **Distribution:** first reported from Java,

Indonesia. In all habitats throughout Thailand, usually hiding in urban area.



Scolopendra dehaani

20 mm



genus *Sterropristes*

One of the rare and endemic centipede genera. All parts of body purplish. Antenna moderate long, with bead shaped articles. Forcipule bearing a row of saw teeth. Oval spiracle. Only three species globally, all in Southeast Asia.

Sterropristes violaceus Muadsub and Panha, 2012

A new, rare centipede species from Thailand, discovered under Her Royal Highness Princess Maha Chakri Sirindhorn project. Purplish colour in all parts of body. Antenna moderate long. Continuous beaded antenna; basal and distal articles light purple. Body length 3-4 cm. Tergite surfaces without keels. Last tergite convex posteriorly, without suture. Sternites with complete paramedian sutures. Ultimate leg flattened, without spines on ventral side of prefemur. Distal part of legs with acute spine. **Distribution:** reported for first time from Similan Islands, Phang Nga province. Some small populations also found in other neighboring islands in the Andaman Sea.



Sterropristes violaceus

10 mm

