

A Checklist and Local Names Designation for Thai Scorpions (Scorpiones)

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Abstract

The checklist of the Thai scorpions is provided with their local names in Thai. The list comprises 42 species of scorpions belonging to five families: Buthidae Koch, 1837; Chaerilidae Pocock, 1893; Hormuridae Laurie, 1896; Scorpionidae Latreille, 1802; and Scorpiopidae Kraepelin, 1905. The genus *Scorpiops* Peters, 1861 is represented by the highest number of species, with 22 species, while the three with the lowest number of species are *Javanimetrus* Couzijn, 1978; *Isometrus* Ehrenberg, 1828; and *Thaicharmus* Kovařík, 1995, each consisting of only one species at present. The subdivision map of Thailand and photographs of scorpions representing their own genera are also provided.

Keywords

Arachnology, Buthidae, Chaerilidae, Hormuridae, Scorpionidae, Scorpiopidae

Introduction

Scorpions are arthropods belonging to the class Arachnida, order Scorpiones. Their prevalent characteristics are elongated chelae and a metasoma with the telson serving as the sting at the apex. The most recent report documents over 2,200 described species in worldwide (Di *et al.*, 2024), with several species discovered in Thailand. Kovařík's work provided a checklist of Thai scorpions, describing 13 species along with two vague species belonging to four families (Kovařík, 1995). There has been no other updated checklist in Thailand since

then. According to our investigation, we aimed to update the latest checklist of Thai scorpions by reviewing literature that studied or mentioned scorpions in Thailand. As a result, 42 species belonging to five families are listed in the latest version of the checklist based on literature with 30 additional species from Kovařík's version (1995).

The envenomation caused by scorpions has become a serious medical problem in tropical countries (Theakston *et al.*, 2003). Their venom mainly affects sodium-potassium ion channels (Possani *et al.*, 2000). The study case of scorpion stings in Thailand appeared very scarcely known, although there possibly were over a hundred thousand victims per year (Uawonggul *et al.*, 2006). Upon further investigation for this study, we discovered that the common names which were remarkably well-known even on the official Thai website were only listed two names as "แมงป้องข้าน (Maeng Pong Ban)" and "แมงป้องข้าง (Maeng Pong Chang)".

We assume that the former problem is caused by the scientific names of scorpions were unknown and far exceed the number of current local names, so people are unable to accurately inform the doctor correctly about exact species they were stung by. Thus, we are considering giving the local names of the unrecognized scorpions with the assistance of groups of people who are interested in this living entity. With these names, we wish to increase awareness about the arachnological biodiversity in Thailand.

Materials and Methods

This study mainly focuses on creating a checklist of The scorpions documented in Thailand based on existing literature. The taxonomic classification in this study is based on Prendini's work (Prendini, 2011). The localities mentioned in all publications were organized into six subdivisions of the country (Figure 1) following Martin and Ritchie (2020). The map was generated using simplemappr (Shorthouse, 2010), as depicted by the following acronyms: N – Northern Thailand; NE – Northerneast Thailand; W – Western Thailand; E – Eastern Thailand; C – Central Thailand; S – Southern Thailand; and TS – Tropicopolitan species, appeared to conceivably occur in all subdivisions of Thailand. The meaning of "erroneous" is mislabeled for the type locality of type specimen.

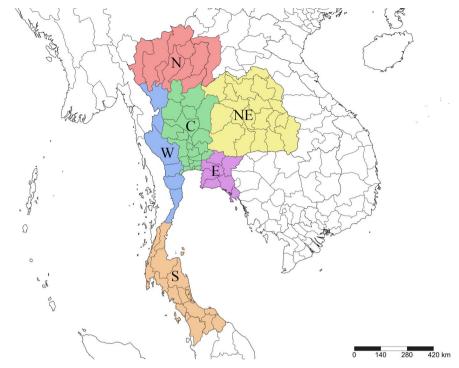


Figure 1. Six subdivisions of Thailand.

To create new local names, we considered popularizing names among various communities, including scorpion keepers, arachnologists, taxonomists, general biologists, medical personnel, or even normal citizens interested in the study. Additionally, the challenge of species-level identification makes it difficult for victims or ordinary people to provide precise ethnopharmacological reports. For this reason, we also include local common names at the generic level.

Results and Discussion

There are five families, nine genera, and 42 species of Thai scorpions in the current list. The update of former reported species either *Reddyanus vittatus* (Pocock, 1900), *Reddyanus petrzelkai* (Kovařík, 2003), *Liocheles nigripes* (Pocock, 1897), *Scorpiops longimanus* (Pocock, 1893), *Heterometrus petersii* (Thorell, 1876), *Heterometrus longimanus* (Herbst, 1800) or a synonym of *Lychas mucronatus* (Fabricius, 1798) (*L. kotao* Lourenço, 2020) are briefly explained at the end of this section.

The result shows that genus *Scorpiops* Peters, 1861 had the highest species number which consisted of 22 species, while the three lowermost were *Javanimetrus* Couzijn, 1978; *Isometrus* Ehrenberg, 1828; and *Thaicharmus* Kovařík, 1995 which consisted of only one species each. The other details of the results are given below.

Checklist of species found in Thailand

Order Scorpiones Koch, 1850 Suboerder Neoscorpionina Thorell and Lindström, 1885 Infraorder Orthosternina Pocock, 1911

Family Buthidae Koch, 1837

Genus Isometrus Ehrenberg, 1828 แมงป้องหางยาว (Figure 2A)

1. Isometrus maculatus (DeGeer, 1778)

Thai name: แมงป่องหางยาวลายจด

Type locality: Surinam and Peniylvanie [= Suriname and the state of Pennsylvania in

the USA, according to original description (DeGeer, 1778)].

Distribution in Thailand: Appeared to conceivably occur in all subdivisions (TS).

Distribution outside Thailand: Cosmopolitan (almost around the world).

References: Vachon (1972); Koch (1997); Kovařík (2003).

Genus Lychas Koch, 1845 แมงป่องบ้าน/ทวยมัน/แมงงอด (Figure 2B)

2. Lychas chanthaburiensis Ythier and Lourenço, 2022

Thai name: แมงป่องบ้านเหลืองจันทบูร

Type locality: Thailand, Chanthaburi Province.

Distribution in Thailand: Only known from the type locality (E).

Distribution outside Thailand: None. **Reference:** Ythier and Lourenço (2022).

3. Lychas krali Kovařík, 1995

Thai name: แมงป่องบ้านลายกระ

Type locality: Thailand, Tak Province.

Distribution in Thailand: Occurred along the Thanon Thong Chai Range (N, W).

Distribution outside Thailand: None. **References:** Kovařík (1995); Kovařík (1997).

4. Lychas mucronatus (Fabricius, 1798)

Thai name: แมงป่องบ้านธรรมดา

Type locality: "India orientali" [= East India].

Distribution in Thailand: Appeared to conceivably occur in all subdivisions (TS).

Distribution outside Thailand: Cambodia, China, Indonesia, Laos, Malaysia, Myanmar,

the Philippines, Vietnam, India? (see in the type locality section).

References: Di et al. (2011); Ythier and Lourenço (2022).

5. Lychas scutilus Koch, 1845

Thai name: แมงป่องบ้านหางยาว

Type locality: "Ostindien, die Insel Bintang" [= Indonesia, Bintang].

Distribution in Thailand: Appeared to conceivably occur in all subdivisions (**TS**). **Distribution outside Thailand:** Australia (Coco Islands), China, India, Myanmar,

Malaysia, and Indonesia.

References: Koch (1845); Ythier and Lourenço (2022).

Genus Reddyanus Vachon, 1972 แมงป่องต้นไม้ (Figure 2C)

6. Reddyanus schwotti Kovařík and Šťáhlavský, 2019

Thai name: แมงป่องต้นไม้ขอยาว

Type locality: Thailand, Sa Kaeo Province.

Distribution in Thailand: Sa Kaeo Province (E) and Surat Thani Province (S).

Distribution outside Thailand: Cambodia. **Reference:** Kovařík and Šťáhlavský (2019).

7. Reddyanus neradi (Kovařík, 2013)

Thai name: แมงป่องต้นไม้ขอสั้น

Type locality: Thailand, Chanthaburi Province.

Distribution in Thailand: Only known from the type locality (E).

Distribution outside Thailand: None. **Reference:** Kovařík and Šťáhlavský (2019).

Genus Thaicharmus Kovařík, 1995 แมงป่องจิ๋วสยาม (Figure 2D)

8. Thaicharmus mahunkai Kovařík, 1995

Thai name: แมงป่องจิ๋วสยามสีตาลไหม้

Type locality: Thailand, Phetchaburi province.

Distribution in Thailand: Occurred in Western Thailand and also possibly in Central

Thailand (C?, E).

Distribution outside Thailand: None.

Reference: Kovařík (1995).



Figure 2. Genera of Scorpion in Thailand: A – *Isometrus* (Buthidae), แมงป้องหางยาว; **B** – *Lychas* (Buthidae), แมงป้องน้าน; **C** – *Reddyanus* (Buthidae), แมงป้องน้านี้; **D** – *Thaicharmus* (Buthidae), แมงป้องน้าสะหม; **E** – *Chaerilus* (Chaerilidae), แมงป้องน้าสะหม; **F** – *Liocheles* (Hormuridae), แมงป้องน้ำลึกไม้; **G** – *Heterometrus* (Scorpionidae), แมงป้องข้าง **H** – *Javanimetrus* (Scorpionidae), แมงป้องข้างกับแบบ; **I** – *Scorpiops* (Scorpiopidae), แมงป้องน้ำลึก

Family Chaerilidae Pocock, 1893

Genus Chaerilus Simon, 1877 แมงป่องแคระ (Figure 2E)

9. Chaerilus cimrmani Kovařík, 2012

Thai name: แมงป่องแคระนิ้วสั้น

Type locality: Thailand, Phetchaburi Province.

Distribution in Thailand: Occurred in the Tenasserim Range (W, S).

Distribution outside Thailand: None.

References: Kovařík (2012); Kovařík et al. (2018a).

10. Chaerilus kautti Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องแคระก้ามเรียว

Type locality: Thailand, Prachuap Khiri Khan Province.

Distribution in Thailand: Only known from the type locality (W).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020b).

11. Chaerilus neradorum Kovařík, Lowe and Šťáhlavský, 2018

Thai name: แมงป่องแคระเกาะสมุย

Type locality: Thailand, Surat Thani Province, Samui Island. **Distribution in Thailand:** Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2018a).

12. Chaerilus stockmannorum Kovařík, Lowe and Šťáhlavský, 2018

Thai name: แมงป่องแคระเปรต

Type locality: Thailand, Trang Province.

Distribution in Thailand: Generally occurred in Southern Thailand (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2018a).

13. Chaerilus thai Lourenço, Sun and Zhu, 2010

Thai name: แมงป่องแคระป่าบาลา

Type locality: Thailand, Narathiwat Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Lourenço *et al.* (2010).

Family Hormuridae Laurie, 1896

Genus Liocheles Sundevall, 1833 แมงป่องเปลือกไม้ (Figure 2F)

14. Liocheles australasiae (Fabricius, 1775)

Thai name: แมงป่องเปลือกไม้ก้ามแบน

Type locality: in insulis Oceani pacifi [= An Island in the Pacific Ocean].

Distribution in Thailand: Appeared to conceivably occur in all subdivisions (**TS**). **Distribution outside Thailand:** China, Korea, India, Myanmar, Cambodia, Laos, Vietnam,

the Philippines, Malaysia, Indonesia, Polynesia, Micronesia, and Australia.

References: Koch (1997); Kovařík (1995); Kovařík et al. (2018b).

Family Scorpionidae Latreille, 1802

Genus Heterometrus Ehrenberg, 1828 แมงป่องช้าง/แมงเจา (Figure 2G)

15. Heterometrus cimrmani Kovařík, 2004

Thai name: แมงป่องช้างปักษ์ใต้

Type locality: Thailand, Trang Province.

Distribution in Thailand: Mostly distributed below Nakhon Si Thammarat Province

(S).

Distribution outside Thailand: Malaysia (Langkawi Island).

Reference: Kovařík (2004); Kawai et al. (2023).

16. Heterometrus laoticus Couzijn, 1981

Thai name: แมงป่องช้างลาว

Type locality: Laos.

Distribution in Thailand: Widely distributed in the upper part of Thailand (N, NE, W,

C).

Distribution outside Thailand: Laos.

Reference: Kawai et al. (2023).

17. Heterometrus minotaurus Plíšková, Kovařík, Košulič and Šťáhlavský, 2016

Thai name: แมงป่องช้างก้ามยาว

Type locality: Thailand, Surat Thani Provinve.

Distribution in Thailand: Possibly occurred in the upper Tenasserim Range (W?, S).

Distribution outside Thailand: None.

References: Plíšková et al. (2016); Kawai et al. (2023).

18. Heterometrus silenus (Simon, 1884)

Thai name: แมงป่องช้างเวียดนาม

Type locality: The Philippines, Mindanao Island (erroneous).

Distribution in Thailand: Currently occurrs in the Eastern part of Thailand (NE, E).

Distribution outside Thailand: Cambodia and Vietnam.

Reference: Kawai et al. (2023).

19. Heterometrus spinifer (Ehrenberg, 1828)

Thai name: แมงป่องซ้างมลายู
Type locality: India (erroneous).

Distribution in Thailand: Solely limited around the Thai-Malaysian border (**S**). **Distribution outside Thailand:** Malaysia (Peninsular Malaysia and Tioman Island).

Reference: Kawai et al. (2023).

Genus Javanimetrus Couzijn, 1978 แมงป่องช้างก้ามแบน (Figure 2H)

20. Javanimetrus cyaneus (Koch, 1836)

Thai name: แมงป่องช้างก้ามแบน

Type locality: Indonesia, Java Island.

Distribution in Thailand: Only reported from Satun Province (S).

Distribution outside Thailand: Indonesia (Java, Sumatra), the Philippines (Laguna).

Reference: Prendini and Loria (2020).

Family Scorpiopidae Kraepelin, 1905

Genus Scorpiops Peters, 1861 แมงป่องผา (Figure 2I)

21. Scorpiops anthracinus (Simon, 1887)

Thai name: แมงป่องผาทวาย

Type locality: Myanmar, Tavoy (Kovařík, 2013).

Distribution in Thailand: Only known from Phetchaburi Province (W).

Distribution outside Thailand: Myanmar.

Reference: Kovařík et al. (2020a).

22. Scorpiops bastawadei Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาหางขาวสตูล

Type locality: Thailand, Satun Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

23. Scorpiops birulai Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาชุมพร

Type locality: Thailand, Chumphon Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

24. Scorpiops binghamii Pocock, 1893

Thai name: แมงป่องผาตะนาวศรี

Type locality: Central Tenasserim [= Myanmar].

Distribution in Thailand: Mae Hong Son Province (N).

Distribution outside Thailand: Myanmar.

References: Pocock (1893); Kovařík (1995); Lourenço and Ythier (2022).

25. Scorpiops chiangmai (Lourenço, 2019)

Thai name: แมงป่องผาเชียงใหม่

Type locality: Thailand, Chiang Mai Province.

Distribution in Thailand: Only known from type locality (N).

Distribution outside Thailand: None.

References: Lourenço (2019); Kovařík et al. (2020a).

26. Scorpiops citadelle (Kovařík, 2013)

Thai name: แมงป่องผาหางขาวสุราษฎร์

Type locality: Thailand, Surat Thani Province.

Distribution in Thailand: Occurred in the Tenasserim Range (W, S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2013b).

27. Scorpiops dii Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาแม่กำปอง

Type locality: Thailand, Chiang Mai Province.

Distribution in Thailand: Only known from the type locality (N).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

28. Scorpiops dunlopi Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาเล็กเมืองพังงา

Type locality: Thailand, Phang-nga Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

29. Scorpiops farkaci Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาเขาภาคเหนือ

Type locality: Thailand, Mae Hong Son Province.

Distribution in Thailand: Occurred in few provinces of Northern Thailand (N).

Distribution outside Thailand: Vietnam.

References: Kovařík et al. (2020a); Lourenço and Ythier (2022).

30. Scorpiops grandjeani (Vachon, 1974)

Thai name: แมงป้องผาหางขาวมะละกา

Type locality: Malaysia.

Distribution in Thailand: Only known from Trang Province (S).

Distribution outside Thailand: Malaysia.

Reference: Kovařík et al. (2020a).

31. Scorpiops kautti Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผานครศรี

Type locality: Thailand, Nakhon Si Thammarat Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

32. Scorpiops krabiensis Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผากระบี่

Type locality: Thailand, Krabi Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

33. Scorpiops neradi (Kovařík, Plíškova and Šťáhlavský, 2013)

Thai name: แมงป่องผาเล็กแก่งกรุง

Type locality: Thailand, Surat Thani Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2013a).

34. *Scorpiops orioni* (Kovařík, Košulič, Šťáhlavský, Plíškova, Dongkhamfu and Wongprom, 2015)

Thai name: แมงป่องผาดอยอินท์

Type locality: Thailand, Chiang Mai Province.

Distribution in Thailand: Only known from the type locality (N).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2015).

35. Scorpiops phatoensis Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาเล็กพะโต๊ะ

Type locality: Thailand, Chumphon Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

36. Scorpiops prasiti Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาปางมะผ้า

Type locality: Thailand, Mae Hong Son Province.

Distribution in Thailand: Only known from the type locality (N).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

37. Scorpiops problematicus (Kovařík, 2000)

Thai name: แมงป่องผาเจ้าปัญหา

Type locality: Thailand, Chiang Mai Province.

Distribution in Thailand: Only known from the type locality (N).

Distribution outside Thailand: None.

Reference: Kovařík (2000); Kovařík et al. (2020a).

38. Scorpiops scheibeae Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาหางแฉกขนอม

Type locality: Thailand, Nakhon Si Thammarat Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

39. Scorpiops schumacheri Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาเล็กเมืองตรัง

Type locality: Thailand, Trang Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

40. Scorpiops sherwoodae Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาหางขาวพังงา

Type locality: Thailand, Phang-nga Province.

Distribution in Thailand: Only known from the type locality (S).

Distribution outside Thailand: None. **Reference:** Kovařík *et al.* (2020a).

41. Scorpiops thailandus Kovařík, Lowe, Stockmann and Šťáhlavský, 2020

Thai name: แมงป่องผาเขาภาคกลาง

Type locality: Thailand, Nakhon Nayok Province.

Distribution in Thailand: Mostly distributed in Central Thailand, occurred in parts of

Northeastern Thailand (NE, C). **Distribution outside Thailand:** None. **Reference:** Kovařík *et al.* (2020a).

42. Scorpiops wongpromi (Kovařík, Soleglad and Košulič, 2013)

Thai name: แมงป่องผาวงษ์พรม

Type locality: Thailand, Ubon Ratchathani Province.

Distribution in Thailand: Only known from the type locality (NE).

Distribution outside Thailand: Laos. **Reference:** Kovařík *et al.* (2013b).

Erroneous or dubious records in Thailand

The presence of *Reddyanus vittatus* and *Liocheles nigripes* by Kovařík (1995) has not been substantiated by any specimen from Thailand up to the date of publication. Therefore, these two species are considered to not be included in the current list.

Reddyanus petrzelkai was initially erected as Isometrus (Reddyanus) petrzelkai, with its distributional range spanning from Vietnam through Thailand (Kovařík, 2003). Subsequently, partial specimens were re-described as new species in Kovařík and Šťáhlavský (2019). Consequently, the reported distributions beside its type locality in Vietnam became inaccurate, resulting in the representation of the genus Reddyanus in Thailand with only two species, as shown in the list provided by this study.

Scorpiops longimanus was previously documented in Thailand by Kovařík (1995). However, subsequent studies by Kovařík et al. (2013b; 2020a) demonstrated that the individuals of genus Scorpiops were restricted to a limited area around their type localities. Malsawmdawngliana et al. (2021) reported its presence in India and Bangladesh, resulting in doubt of its recorded occurrence in Thailand.

Heterometrus longimanus was once prevalent throughout Southeast Asia, including Thailand, but its distribution was later restricted to the Sundaic region (Kovařík, 2004). Prendini and Loria (2020) confirmed the presence of this species in India (Andaman Island), Malaysia,

Singapore, Indonesia, and the Philippines. They also noted that in the Mergui Archipelago, Myanmar, the species was *Heterometrus laevigatus* (Thorell, 1876) which has been reclassified as *H. minotaurus* and *H. cimrmani* (Kawai *et al.*, 2023). In conclusion, *H. longimanus* no longer occurs in Thailand.

Heterometrus petersii was previously documented in Vietnam, Laos, Thailand, Cambodia, Malaysia, and the Philippines (Kovařík, 2004). However, many of these reports of distribution were found to be incorrect due to the misidentification (Prendini and Loria, 2020). The Indochinese specimens in Kovařík's work (2004) was re-identified as *H. silenus* by Kawai *et al.* (2023). So, the status of *H. petersii* in Thailand has been eliminated.

Lychas kotao was described by Lourenço (2020) from Ko Tao Islands, Surat Thani Province based on only the female holotype. Kovařík (2023) proposed this species as a junior synonym of Lychas mucronatus because it was likely to be just an intraspecific variation of Lychas mucronatus.

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