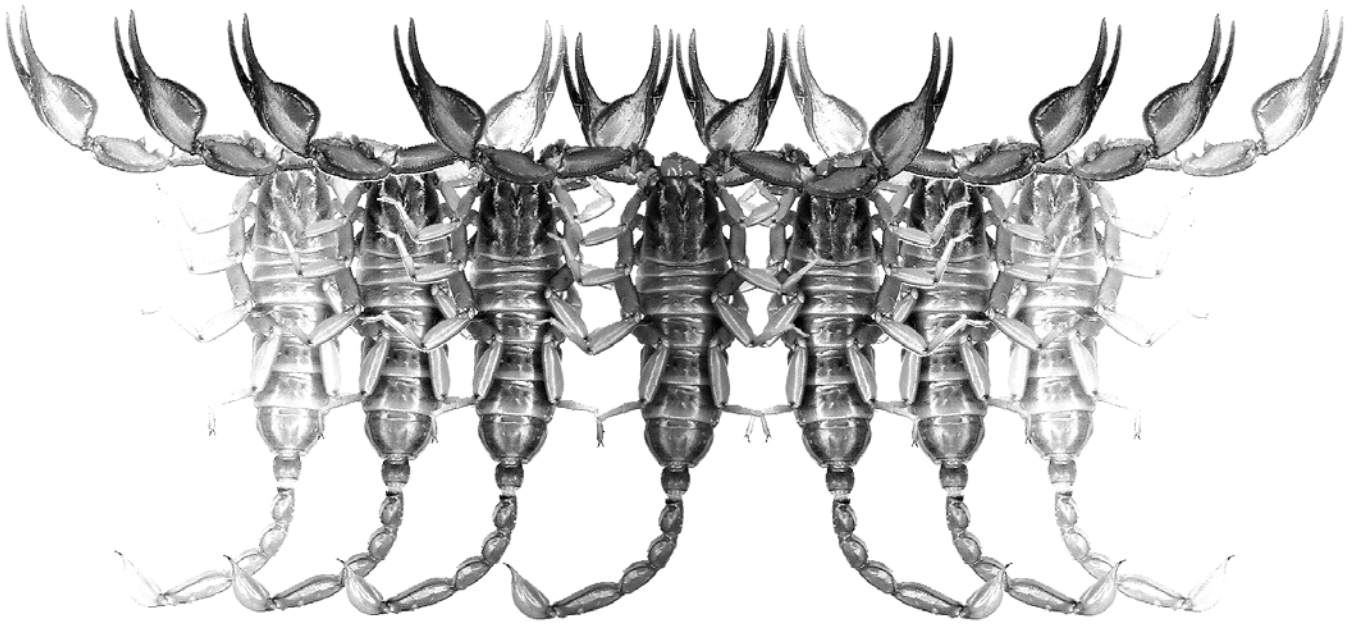


Euscorpius

Occasional Publications in Scorpiology



***Euscorpiops thaomischi* sp. n. from Vietnam
and a Key to Species of the Genus (Scorpiones:
Euscorpiidae: Scorpipinae)**

František Kovařík

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Occasional Publications in Scorpiology

EDITOR: Victor Fet, Marshall University, 'fet@marshall.edu'

ASSOCIATE EDITOR: Michael E. Soleglad, 'soleglad@la.znet.com'

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Derivatio Nominis

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- **CAS**, California Academy of Sciences, San Francisco, USA
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- **MCZ**, Museum of Comparative Zoology, Cambridge, Massachusetts, USA
- **MNHN**, Museum National d'Histoire Naturelle, Paris, France
- **NMW**, Naturhistorisches Museum Wien, Vienna, Austria
- **BMNH**, British Museum of Natural History, London, England, UK
- **MZUC**, Museo Zoologico "La Specola" dell'Universita de Firenze, Florence, Italy
- **ZISP**, Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
- **WAM**, Western Australian Museum, Perth, Australia
- **NTNU**, Norwegian University of Science and Technology, Trondheim, Norway
- **OUMNH**, Oxford University Museum of Natural History, Oxford, UK
- **NEV**, Library Netherlands Entomological Society, Amsterdam, Netherlands

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Euscorpiops thaomischi sp. n. from Vietnam and a key to species of the genus (Scorpiones: Euscorpiidae: Scorpipinae)

František KOVAŘÍK

P. O. Box 27, CZ - 145 01 Praha 45, Czech Republic, www.kovarex.com/scorpio

Summary

Euscorpiops thaomischi sp. n. from Vietnam is described and compared with other species of the genus *Euscorpiops* Vachon, 1980. A key to the species of *Euscorpiops* is provided. In *Euscorpiops thaomischi* sp. n. external trichobothria on the patella number 18 (5 *eb*, 2 *esb*, 2 *em*, 4 *est*, 5 *et*) and ventral trichobothria on the patella number 11 or 12. Pedipalp fingers of both sexes are flexed without sexual dimorphism.

Introduction

Euscorpiops was described as a subgenus of *Scorpiops* by Vachon (1980: 155) who distinguished it from *Scorpiops* s.str. based on the number of external trichobothria on the pedipalp patella ("tibia"), 17 in *Scorpiops* and 18–20 in *Euscorpiops*. Stockwell (1992) elevated Scorpipsinae to family status, based on unpublished PhD dissertation (Stockwell, 1989); in the latter, he also treated *Euscorpiops* as a genus. It was formally elevated to genus rank by Lourenço (1998) and used by other authors (Kovářík, 1998; Fet, 2000). Vachon (1980) also described *Scorpiops* (*Euscorpiops*) *lindbergi* Vachon, 1980, whose different morphology and closeness to species placed in *Scorpiops* has led me to synonymize *Euscorpiops* with *Scorpiops* (see Kovářík, 2000: 164). At that time, I also synonymized *S. kraepelini* Lourenço, 1998 with *S. lindbergi* Vachon, 1980 and pointed out the position of trichobothrium *Eb*₃ in relation to species groups (see Kovářík, 2000: 166). Soleglad & Sissom (2001) revised the family Euscorpiidae, in which they placed the subfamily Scorpipinae, and formally upheld the genus status for *Euscorpiops*. This was, however, done on the basis of position of chelal trichobothrium *Eb*₃ (Fig. 8 and Soleglad & Sissom, 2001: 52, figs. 114, 115) rather than on the number of trichobothria on the patella.

The largest number of species in this genus, eight of the total of 20, has been reported from China. Unfortunately, the describers have presumed all the species to be endemic to China and have not compared them to even those present in the nearby areas of India and Myanmar. In this paper I attempt, to key all *Euscorpiops* species according to published mor-

phological characters and regardless of their known geographic distribution. For that reason, I group *E. montanus* (Karsch, 1879) from India and Pakistan with *E. shidian* Zhu et al., 2005 from China (Yunnan), and *E. longimanus* (Pocock, 1893) from Bangladesh, India and Myanmar with *E. yangi* Zhu et al., 2007 from China (Yunnan). The mutual relationship of these two pairs of species and the validity of the two named Chinese species are not discussed, because I have not had an opportunity to examine any specimens of the latter two species.

Systematics

Euscorpiops Vachon, 1980

(Figs. 1–22)

Scorpiops Kraepelin, 1899: 179 (in part); Sissom, 1990: 114 (in part); Kovářík, 2000: 164 (in part); Kovářík, 2001: 85 (in part).

Scorpiops (*Euscorpiops*) Vachon, 1980: 155 (in part); Tikader & Bastawade, 1983: 452 (in part); Bastawade, 1997: 104 (in part).

Euscorpiops: Stockwell, 1989: 120 (in part; unpublished); Kovářík, 1998: 141 (in part); Lourenço, 1998: 246 (in part); Fet, 2000: 488 (in part); Soleglad & Sissom, 2001: 93; Kovářík, 2004: 13, 17; Kovářík, 2005: 1; Qi et al., 2005: 14; Kovářík, 2009: 32.

Type species: *Scorpiops asthenurus* Pocock, 1900

DIAGNOSIS. Ventral edge of cheliceral movable finger with 5–7 denticles. Three pairs of lateral eyes and 17–21



Figures 1–6: *Euscorpiops thaomischii* sp. n. 1–3. Male paratype, dorsal and ventral views, and chela external. 4–6. Female allotype, dorsal and ventral views, and chela external.

external trichobothria on pedipalp patella. Ventral surface of patella bears 6–18 trichobothria. Ventral surface of manus bears 4 trichobothria, of which V_4 is always situated on ventral aspect of chela. Trichobothrium *Eb3* on external surface of chela is located between trichobothria *Dt* and *Est*.

***Euscorpions thaomischii* Kovařík, sp. n.**

(Figs. 1–22)

TYPE LOCALITY AND TYPE REPOSITORY. Vietnam, Lao Cai Province, Bac Ha District, Thong Phep Bung village, 22°32'18"N 104°16'24"W, 3200 ft (Figs. 13–15); author's collection (FKCP).

TYPE MATERIAL. Vietnam, Northern, Lao Cai Province, Bac Ha District, Thong Phep Bung village, 22°32'18"N 104°16'24"W, 3200 ft., 6♂ (holotype and paratypes) 13♀ (allotype and paratypes) 8 juveniles (paratypes), VI.2012, leg. Michael Misch (FKCP).

ETYMOLOGY. The species name is a combination of names of Thao Ho and Michael Misch, two scorpion workers who together discovered the specimens.

DIAGNOSIS. Total length 42–62 mm. Base color uniformly reddish black. Pectinal teeth number 7–9 in males and 6–8 in females. External trichobothria on patella number 18 (5 *eb*, 2 *esh*, 2 *em*, 4 *est*, 5 *et*); ventral trichobothria on patella number 11 or 12. Chela length to width ratio = 3.3–3.5. Sexual dimorphism in shape of pedipalp fingers not readily apparent, fingers flexed identically in both sexes. First metasomal segment wider than long. External surface of chela densely covered by minute granules.

DESCRIPTION. Total length 42–62 mm. The base color is uniformly reddish black. For habitus see Figs. 1–2 and 4–5. Sexual dimorphism minor, in shape of pedipalp fingers not readily apparent, fingers are flexed identically in both sexes (Figs. 3 and 6). The male has relatively larger pectines.

MESOSOMA AND CARAPACE. The mesosoma is granulated, with one median carina, and the seventh sternite bears four inconspicuous carinae which may be absent. The entire carapace is granulated, without carinae. The anterior margin of the carapace is markedly depressed in the middle. Pectinal teeth number 7–9 in males (1x7, 10x8, 1x9) and 6–8 in females (4x6, 19x7, 3x8).

METASOMA AND TELSON. The metasoma is finely granulated, with sparse, relatively large granules. More such granules are on dorsal surface of the first metasomal segment. The first segment bears 10 carinae, the second segment bears eight or 10 carinae, the third and

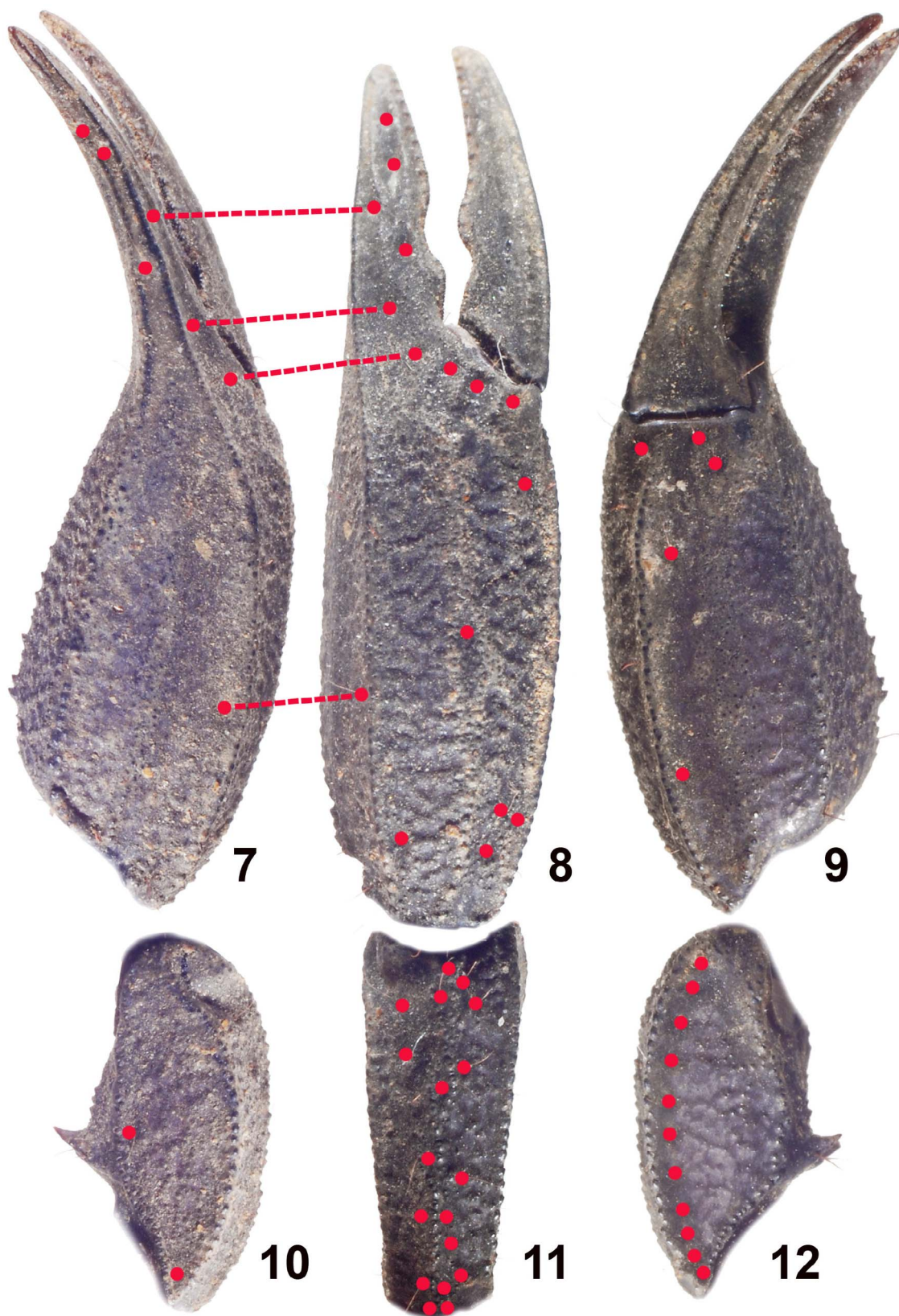
fourth segments bear eight carinae, and the fifth segment bears seven carinae, all composed of granules some of which are pointed. The dorsolateral carinae of the third and fourth segments posteriorly terminate in a pronounced tooth. The telson is elongate, with minute granules.

PEDIPALPS. For position and distribution of trichobothria on the patella of pedipalps see Figs. 7–12. External trichobothria on the patella number 18 (5 *eb*, 2 *esh*, 2 *em*, 4 *est*, 5 *et*) (Fig. 11), and ventral trichobothria on the patella number 11 (Fig. 12) or rarely 12 (two females only). The femur is granulated and has five granulose carinae, and the patella has five carinae with pronounced internal double tubercles. The manus dorsally bears fine rounded granules, which in the central part form a longitudinal carina. The external surface of the chela is densely covered by minute granules. The movable fingers bear straight double rows of granules with internal and external granules. The pedipalp fingers are flexed identically in both sexes. The flexures of the movable and the fixed fingers alternate perfectly, so the fingers close without any gap.

MEASUREMENTS IN MM: Total length of male holotype 45; carapace length 7.8, width 8.1; metasoma and telson length 26; first metasomal segment length 2.6, width 3.0; second metasomal segment length 2.7, width 2.6; third metasomal segment length 3.0, width 2.3; fourth metasomal segment length 3.7, width 2.2; fifth metasomal segment length 6.4, width 2.2; telson length 7.6; pedipalp femur length 8.1, width 2.9; pedipalp patella length 7.0, width 3.2; chela length 16.3; manus width 4.7; movable finger length 8.2.

Total length of female allotype 53; carapace length 8.8, width 9.7; metasoma and telson length 26.8; first metasomal segment length 2.6, width 3.2; second metasomal segment length 2.8, width 2.9; third metasomal segment length 3.0, width 2.7; fourth metasomal segment length 3.8, width 2.4; fifth metasomal segment length 6.7, width 2.4; telson length 7.9; pedipalp femur length 8.4, width 3.3; pedipalp patella length 7.6, width 3.6; chela length 17.6; manus width 5.2; movable finger length 9.0.

AFFINITIES. The described features distinguish *Euscorpions thaomischii* sp. n. from all other species of the genus. They are recounted in the key below. *Euscorpions thaomischii* sp. n. is closest to *E. kubani*, *E. astherus* and *E. validus*. The former two differ in sexual dimorphism, males having the pedipalp fingers flexed and females having them nearly straight (Figs. 19 and 20). The Chinese *E. validus* has the pedipalp fingers flexed in both sexes, but in contrast to *E. thaomischii* sp. n. they are flexed strongly in males and only weakly in females (see figs. 21–28 in Di et al., 2010: 18).



Figures. 7–12: *Euscorpiops thaomischii* sp. n., female allotype, trichobothrial pattern. 7. Chela dorsal. 8. Chela external. 9. Chela ventral. 10. Patella dorsal. 11. Patella external. 12. Patella ventral.



Figures 13–16: Type locality of *Euscorpiops thaomischi* sp. n. The types were found in rock fissures shown in 13 and 14. Photos Michael Misch.

Key to the species of *Euscorpiops* Vachon, 1980

1. External trichobothria on patella number 17..... 2
– External trichobothria on patella number 18–21 (Fig. 11)..... 5
2. Ventral trichobothria on patella number 7–10. 3
– Ventral trichobothria on patella number 11–18.....
..... *E. montanus* (Karsch, 1879) (India, Pakistan) and *E. shidian* Zhu et al., 2005 (China: Yunnan)
3. Ventral trichobothria on patella number 7
... *E. bhutanensis* (Tikader & Bastawade 1983) (Bhutan)
– Ventral trichobothria on patella number 8–10. 4
4. Ventral trichobothria on patella number 8–9.
..... *E. karschi* Lourenço et al., 2005 (China: Tibet)
– Ventral trichobothria on patella number 10.....
..... *E. vachoni* Zhu et al., 2005 (China: Yunnan)
5. External trichobothria on patella number 20–21 (5 *eb*, 2 *esb*, 2 *em*, 6 *est*, 5–6 *et*).
..... *E. binghamii* (Pocock, 1893) (Myanmar, Thailand)
– External trichobothria on patella number 18–19. 6
6. *est* trichobothria on patella number 4 (Fig. 11). 7
– *est* trichobothria on patella number 5. 16
7. Chela length to width ratio lower than 2.75 8
– Chela length to width ratio higher than 2.9 9
8. Ventral trichobothria on patella number 9.
..... *E. sejnai* (Kovářík, 2000) (Vietnam)
– Ventral trichobothria on patella number 10–11.
..... *E. puerensis* Di et al., 2010 (China: Yunnan)
9. Chela length to width ratio of adult female higher than 4
..... *E. kaftani* (Kovářík, 1993) (Vietnam)
– Chela length to width ratio of adults of both sexes lower than 3.8. 10
10. Male pedipalp fingers flexed (Figs. 17–19). 12
– Male pedipalp fingers nearly or entirely straight, may be slightly undulate (Fig. 21). 11
11. *eb* trichobothria on patella number 5.
..... *E. longimanus* (Pocock, 1893) (Bangladesh, India, Myanmar) and *E. yangi* Zhu et al., 2007 (China: Yunnan)
– *eb* trichobothria on patella number 6.
..... *E. xui* Sun et Zhu, 2010 (China: Yunnan)
12. External surface of chela densely covered by minute granules (Figs. 18–22). Ventral trichobothria on patella number 9–11, very rarely 12. 13
– External surface of chela smooth, with less than 40 big rounded granules most of which form a medial carina

(Fig. 17). Ventral trichobothria on patella number 12
..... *E. beccaloniae* Kovářík, 2005 (Myanmar)

13. Sexual dimorphism expressed in shape of pedipalp fingers (Figs. 19 and 20). 14
– Sexual dimorphism not readily apparent, fingers flexed identically in both sexes (Figs. 3 and 6).
..... *E. thaomischi* sp. n. (Vietnam)

14. Pedipalp fingers in male flexed, in female nearly straight (very slightly undulate) (Figs. 19 and 20). 15
– Pedipalp fingers flexed in both sexes but strongly in males and only weakly in females.
..... *E. validus* Di et al., 2010 (China: Yunnan)

15. Ventral trichobothria on patella number 8 or 9. Pectinal teeth number 5 or 6.
..... *E. asthenurus* (Pocock, 1900) (Bhutan, India, Myanmar)
– Ventral trichobothria on patella number 10, rarely 9. Pectinal teeth number 7 or 8.
..... *E. kubani* Kovářík, 2004 (northern Laos)

16. Ventral trichobothria on patella number 11–13 17
– Ventral trichobothria on patella number 7–9 18

17. Ventral trichobothria on patella number 12–13. Chela length to manus width ratio higher than 4
..... *E. kaftani* (Kovářík, 1993) (Vietnam)
– Ventral trichobothria on patella number 11. Chela length to manus width ratio lower than 3.5
..... *E. problematicus* (Kovářík, 2000) (Thailand)

18. Ventral trichobothria on patella number 9.
..... *E. novaki* Kovářík, 2005 (China: Tibet)
– Ventral trichobothria on patella number 7.
..... *E. kamengensis* Bastawade, 2006 (India: Arunachal Pradesh)

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Figures 17–22: Chela external of *Euscorpriops* species. **17.** *E. beccaloniae* Kovařík, 2005, male holotype. **18.** *E. kubani* Kovařík, 2004, male paratype. **19–20.** *E. asthenurus* (Pocock, 1900), India, Meghalaya State, Nong Poh env., FKCP (author's collection). **19.** Male. **20.** Female. **21–22.** *E. longimanus* (Pocock, 1893), India, Assam State, 50 km E of Tezpur, 1800 m a.s.l., FKCP. **21.** Male. **22.** Female.

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