Three New Species of the Genera *Euscorpiops* Vachon, 1980 and *Scorpiops* Peters, 1861 from Asia (Scorpiones: Euscorpiidae, Scorpiopinae)

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Derivatio Nominis

The name Euscorpius Thorell, 1876 refers to the most common genus of scorpions in the Mediterranean region and southern Europe (family Euscorpiidae).

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- FMNH, Field Museum of Natural History, Chicago, USA
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- 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’Università 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

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Summary

*Euscorpiops beccaloniae* **sp. n.** from Myanmar, *E. novaki** **sp. n.** from Tibet, and *Scorpiops demisi** **sp. n.** from India are described and compared with other species of these and related genera. A key to the species of the *Euscorpiops* is provided. In *Euscorpiops beccaloniae** **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 12. Pedipalp fingers in the male are flexed, female is unknown. In *E. novaki** **sp. n.** external trichobothria on the patella number 19 (5 *eb*, 2 *esb*, 2 *em*, 5 *est*, 5 *et*) and ventral trichobothria on the patella number 9. Pedipalp fingers in the male are flexed, female is unknown. In *Scorpiops demisi** **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 14 and 15.

Abbreviations

List of depositories: BMNH, Natural History Museum, London, United Kingdom; FKCP, Personal collection of František Kovařík, Prague, Czech Republic.

Systematics

**Euscorpiops** **Vachon, 1980**

(Figs. 1–8, 10–11, 13–16, Table 1)


**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 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*. Telson vesicle/aceuleus junction with annular ring.

**Comments.** *Euscorpiops* was described by Vachon (1980: 155) as a subgenus, and was elevated to the genus level by Lourenço (1998). Vachon (1980) distinguished *Euscorpiops* from *Scorpiops* on the number of external trichobothria on the patella, 17 in *Scorpiops*, and 18–20 in *Euscorpiops*. 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 Kovařík, 2000: 164). At that time, I also synonymized *S. kraepelini* Lourenço, 1998 with *S. lindbergi* Vachon, 1980 and pointed out the position of trichobothrium *Eb₃* in relation to species groups (see Kovařík, 2000: 166).

Soleglad & Sissom (2001) revised the family Euscorpiidae, in which they placed the subfamily Scorpiopinae and revived the genus *Euscorpiops*, but did so on the basis of position of trichobothrium *Eb₁* (Figs. 2 and 12 and Soleglad & Sissom, 2001: 52, figs. 114, 115) rather than on the number of trichobothria on the patella. It caused the transfer of *Euscorpiops lindbergi* (Vachon, 1980) (= *Scorpiops kraepelini* Lourenço, 1998) to
DESCRIPTION: The adult male holotype is 58 mm long. Measurements of the carapace, telson, segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. The base color is uniformly reddish black. For habitus see Figs. 13 and 14.

MESOSOMA AND CARAPACE: The mesosoma is granulated, with one median carina, and the seventh segment ventrally bears four inconspicuous carinae. The entire carapace is granulated, without carinae. Pectinal teeth number 8 and 9.

METASOMA AND TELSON: The metasoma is smooth, with only sparse granules. The first segment bears 10 carinae, the second through 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, exhibiting an annular ring at the vesicle/aculeus juncture.

PEDIPALPS: For position and distribution of trichobothria on the patella of pedipalps see Figs. 7 and 10. External trichobothria on patella number 18 (5 eb, 2 esb, 2 em, 4 est, 5 et) (Fig. 7), and ventral trichobothria on the patella number 12 (Fig. 10). The femur is granulated and has six 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 movable fingers bear straight double rows of granules with internal and external granules. The male pedipalp fingers (Fig. 2) are flexed.

AFFINITIES. The described features distinguish Euscorpiops beccaloniae sp. n., from all other species of the genus. They are recounted in the key below.

Euscorpiops beccaloniae sp. n. (Figs. 7, 10, 13–14, Table 1)

TYPE LOCALITY AND TYPE REPOSITORY. Myanmar (Burma), Kachin Hills, Mali Hka Valley, 3000 ft. (BMNH).

TYPE MATERIAL. Myanmar (Burma), Kachin Hills, Mali Hka Valley, 3000 ft., 7.XII.1930, 1♂ (holotype), leg. F. Kingdon Ward, BMNH. No other material.

ETYMOLOGY: Named after Janet Beccaloni, curator at the Natural History Museum, London, in appreciation of her kind help.

DIAGNOSIS. Adult male holotype 58 mm long. Base color uniformly reddish black. Pectinal teeth number 8 and 9. External trichobothria on patella number 18 (5 eb, 2 esb, 2 em, 4 est, 5 et); ventral trichobothria on patella number 12. Chela length to width ratio = 3.3. Male pedipalp fingers flexed. Female unknown.

Table 1: Measurements (in millimeters) of holotype specimens.

<table>
<thead>
<tr>
<th>Euscorpiops beccaloniae sp. n.</th>
<th>Euscorpiops novaki sp. n.</th>
<th>Scorpiops demisi sp. n.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male holotype</strong></td>
<td><strong>Female holotype</strong></td>
<td><strong>Male holotype</strong></td>
</tr>
<tr>
<td>Total length</td>
<td>58.0</td>
<td>47.0</td>
</tr>
<tr>
<td>Carapace length</td>
<td>9.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Carapace width</td>
<td>9.2</td>
<td>8.0</td>
</tr>
<tr>
<td>Metasoma length</td>
<td>29.7</td>
<td>25.7</td>
</tr>
<tr>
<td>Metasoma width</td>
<td>3.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Patella length</td>
<td>3.1</td>
<td>3.2</td>
</tr>
<tr>
<td>Patella width</td>
<td>3.2</td>
<td>2.4</td>
</tr>
<tr>
<td>Femur length</td>
<td>3.3</td>
<td>2.9</td>
</tr>
<tr>
<td>Femur width</td>
<td>3.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Pedipalp femur length</td>
<td>9.5</td>
<td>8.9</td>
</tr>
<tr>
<td>Pedipalp femur width</td>
<td>3.5</td>
<td>2.9</td>
</tr>
<tr>
<td>Patella length</td>
<td>8.2</td>
<td>7.9</td>
</tr>
<tr>
<td>Patella width</td>
<td>3.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Chela length</td>
<td>17.5</td>
<td>16.2</td>
</tr>
<tr>
<td>Chela width</td>
<td>5.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Finger mov. Length</td>
<td>8.8</td>
<td>8.0</td>
</tr>
<tr>
<td>Pectinal teeth</td>
<td>8.9</td>
<td>8.8</td>
</tr>
</tbody>
</table>

Euscorpiops novaki sp. n. (Figs. 8, 11, 15–16, Table 1)

TYPE LOCALITY AND TYPE REPOSITORY. China, Tibet, Bomi env. 29°52' N, 95°45'E, ca 3000 m; author's collection (FKCP).

TYPE MATERIAL. China, Tibet, Bomi env. 29°52' N, 95°45'E, ca 3000 m, 1988, 1♂ (holotype), leg. P. Rojek, FKCP. No other material.

Scorpiops and, vice versa, of S. montanus Karsch, 1879 to Euscorpiops.
Figure 13: *Euscorpiops beccaloniae* sp. n., male holotype, dorsal aspect.

Figure 14: *Euscorpiops beccaloniae* sp. n., male holotype, ventral aspect.
ETYMOLOGY: Named after Jindřich Novák, chief editor of the Akva Tera Forum magazine and my friend.

DIAGNOSIS. Adult male holotype 47 mm long. Base color uniformly reddish brown. Pectinal teeth number 8. External trichobothria on patella number 19 (5 eb, 2 esb, 2 em, 5 est, 5 et); ventral trichobothria on patella number 9. Chela length to width ratio = 3.6. Male pedipalp fingers flexed. Female unknown.

DESCRIPTION: The adult male holotype is 47 mm long. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. The base color is uniformly reddish brown. For habitus see Figs. 15 and 16.

MESOSOMA AND CARAPACE: The mesosoma is densely granulated, with one median carina, and the seventh segment ventrally bears four granulate carinae. The entire carapace is granulated, without carinae. Pectinal teeth number 8.

METASOMA AND TELSON: The metasoma is sparsely granulated. The first segment is missing, the second through 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, smooth, with several granules, vesicle/aceules juncture with annular ring.

PEDIPALPS: For position and distribution of trichobothria on the patella of pedipalps see Figs. 8 and 11. External trichobothria on the patella number 19 (5 eb, 2 esb, 2 em, 5 est, 5 et) (Fig. 8), and ventral trichobothria on the patella number 9 (Fig. 9). The femur is granulated, has six 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 movable fingers bear straight double rows of granules with internal and external granules. The male pedipalp fingers (Fig. 2) are flexed.

AFFINITIES. The described features distinguish Euscorpiops novaki sp. n. from all other species of the genus. They are recounted in the key below.

Euscorpiops novaki sp. n. is closest to E. kubani, E. longimanus and E. beccaloniae sp. n. E. longimanus has the pedipalp fingers nearly straight in both sexes (Kovařík, 2000: 173, fig. 39), whereas in the male of E. novaki sp. n. they are flexed (the female is unknown). Whereas E. beccaloniae sp. n. has 12 ventral trichobothria on the patella of pedipalps, E. novaki sp. n. has only 9. E. kubani differs from E. novaki sp. n. in the position and number of external trichobothria on the patella - E. kubani has 6 eb, 2 esb, 2 em, 4 est, and 5 et (Fig. 5), whereas E. novaki sp. n. has 5 eb, 2 esb, 2 em, 5 est, and 5 et (Fig. 8). E. novaki sp. n. is the first species of the genus found in Tibet.

Key to the species of Euscorpiops

1. External trichobothria on patella number 17 .......... 2
   - External trichobothria on patella number 18–21 (Fig. 3) ................................................. 3

2. Ventral trichobothria on patella number 7 ..............
   ..... E. bhutanensis (Tikader & Bastawade, 1983)
   - Ventral trichobothria on patella number 12–18 ...
   ............ E. montanus (Karsch, 1879)

3. External trichobothria on patella number 20–21 (5 eb, 2 esb, 2 em, 6 est, 5–6 et) .................................
   ............ E. binghamii (Pocock, 1893)
   - External trichobothria on patella number 18–19 .... 4

4. est trichobothria on patella number 4 (Fig. 5 and 7) .......................... 5
   - est trichobothria on patella number 5 (Fig. 8) ....... 9

5. Chela length to width ratio 2.75 ..........................
   ............ E. sejnai (Kovařík, 2000)
   - Chela length to width ratio higher than 3 ............. 6

6. Male pedipalp fingers flexed (Fig. 2.) ............. 7
   - Male pedipalp fingers straight (fig. 39 in Kovařík, 2000: 173) ............ E. longimanus (Pocock, 1893)

7. Ventral trichobothria on patella number 8–10 ....... 8
   - Ventral trichobothria on patella number 12 .........
   ............ E. beccaloniae sp. n.

8. Ventral trichobothria on patella number 8 or 9. Pectinal teeth number 5 or 6. Bhutan and India.
   ............ E. asthenurus (Pocock, 1900)
   - Ventral trichobothria on patella number 10, rarely 9.
   Pectinal teeth number 7 or 8. Northern Laos. .........
   ............ E. kubani Kovařík, 2004

9. Ventral trichobothria on patella number 11–13 ..... 10
   - Ventral trichobothria on patella number 9 .............
   ............ E. novaki sp. n.

10. Ventral trichobothria on patella number 13. Chela length to width ratio higher than 4 ........................
   ............ E. kaftani (Kovařík, 1993)
   - Ventral trichobothria on patella number 11. Chela length to width ratio lower than 3.5 ........................
   ............ E. problematicus (Kovařík, 2000)
Figure 15: *Euscorpiops novaki* sp. n., male holotype, dorsal aspect.

Figure 16: *Euscorpiops novaki* sp. n., male holotype, ventral aspect.
Scorpiops Peters, 1861
(Figs. 9, 12, 17–18, Table 1)


Type species: Scorpiops hardwickei (Gervais, 1843)

Diagnosis. Ventral edge of cheliceral movable finger with 5–7 denticles. Three pairs of lateral eyes and 17–19 external trichobothria on patella of pedipalps. Ventral surface of patella bears 6–15 trichobothria. Ventral surface of manus bears 3 or 4 trichobothria, of which Vₕ, if not absent, is always situated on ventral aspect of chela. Trichobothrium Eb₂ on external surface of chela is located between trichobothria Db and Dr.

Scorpiops demisi sp. n.
(Figs. 9, 12, 17–18, Table 1)

Type locality and type repository. India, Himachal Pradesh, Kasumti env., 5000 ft.; author’s collection (FKCP).

Type material. India, Himachal Pradesh, Kasumti env., 5000 ft, 1988, 1♀ (holotype), leg. P. Rojek, FKCP. No other material.

Etymology. Named after René Demis, my friend and insect breeder.

Diagnosis. Adult female holotype 41 mm long. Base color uniformly reddish brown, fingers black, legs and telson yellowish brown. Pectinal teeth number 7. External trichobothria on patella number 18 (5 Eb, 2 esb, 2 em, 4 est, 5 et); ventral trichobothria on patella number 14 and 15. Chela length to width ratio = 3.6.

Description: The adult female holotype is 41.2 mm long. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1. The base color is uniformly reddish brown, fingers are black, legs and telson are yellowish brown. For habitus see Figs. 17 and 18.

Mesosoma and carapace: The mesosoma bears several granules and primarily in the hind portion one median carina; the seventh segment is ventrally smooth, without carinae. The entire carapace bears sparse minute granules and lacks carinae. Pectinal teeth number 7.

Metasoma and telson: The metasoma is smooth, with only sparse granules. The first segment bears 10 carinae, the second through fourth segments bear eight carinae, and the fifth segment bears seven carinae, all composed of granules some of which are pointed. The ventral carina of the fifth segment posteriorly forks to form the letter Y. The dorsolateral carinae of the third and fourth segments posteriorly terminate in a pronounced tooth. The telson is elongate, smooth, with minute granules.

Pedipalps: For position and distribution of trichobothria on the patella of pedipalps see Figs. 9 and 12. External trichobothria on the patella number 18 (5 Eb, 2 esb, 2 em, 4 est, 5 et) (Fig. 9), and ventral trichobothria on the patella number 14 and 15. The femur is granulated, has six 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 movable fingers bear straight double rows of granules with internal and external granules. The female pedipalp fingers (Fig. 12) are neither straight nor flexed but undulate (the male is unknown).

Affinities. The described features distinguish Scorpiops demisi sp. n. from all other species of the genus.

In the shape of the chela and the pronounced tooth that terminates dorsolateral carina of the third and fourth metasomal segments, Scorpiops demisi sp. n. resembles Alloscorpiops Vachon, 1980, which however has 10–12 ventral trichobothria on the manus (Scorpiops has only 3 or 4), and Neoscorpiops Vachon, 1980, which however has trichobothrium Eb₂ on the external surface of the chela always situated between trichobothria Dt and Db (Fig. 30 in Kovářík, 2000: 165).

Within Scorpiops, the new species is comparable only with S. lindbergi Vachon, 1980 (= S. kraepelini Lourenço, 1998) from Afghanistan and Pakistan, because these are the only species of the genus that have the numbers of external trichobothria on the patella other than 17 (18 in S. demisi sp. n. and 18 or 19 in S. lindbergi). However, S. lindbergi has only 10–12 ventral trichobothria on the patella, whereas S. demisi sp. n. 14 and 15, which is the highest number in the entire genus.

References

Figure 17: *Scorpiops demisi* sp. n., female holotype, dorsal aspect.

Figure 18: *Scorpiops demisi* sp. n., female holotype, ventral aspect.


PETERS, W. 1861. Über eine neue Eintheilung der Skorpionen und über die von ihm in Mossambique gesammelten Arten von Skorpionen. Monats-


