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# A review of *Eotrechus* Kirkaldy (Hemiptera: Heteroptera: Gerridae) of Thailand with descriptions of three new species

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## Abstract

Three new species of *Eotrechus* Kirkaldy were collected from vertical rock surfaces of waterfalls in northern and central Thailand. *Eotrechus siamensis* **sp. n.** was collected at Doi Inthanon and Doi Suthep National Parks in Chiang Mai Province, northern Thailand. *Eotrechus elongatus* **sp. n.** and *Eotrechus romglao* **sp. n.** were collected from waterfalls in Phu Hin Rongkla National Park in Phetchabun Province, central Thailand. These new species are described and illustrated here as is the female of *Eotrechus petraeus* Andersen. In addition, *Eotrechus kalidasa* Kirkaldy was discovered for the first time in Thailand. Finally, diagnostic and distributional information of all known species of this genus in Thailand are given.

**Key words:** *Eotrechus*, new species, Gerridae, Heteroptera, Thailand

## Introduction

Water striders of the genus *Eotrechus* Kirkaldy (Gerridae: Eotrechinae) are generally found in montane areas of Asia from India eastward to China (Andersen 1998). Members of this genus have distinctive morphological structures and behavior among water striders. They are hygropetric, whereas most other gerrids are hydrophilic (Andersen 1982a), and are found on wet rock surfaces of waterfalls, although they may also occur on the ground near water (a behavior unique to the genus). An atypical morphological attribute is the presence of claws inserted apically, like those of terrestrial insects, whereas most other gerrids have anteapical claws. The apical position of the claws in *Eotrechus* was suggested to be a reversed, or pseudoprimitive, adaptation for life in hygropetric habitats (Andersen 1982a). Based on the unique morphology and behavior of this genus, Andersen (1982a) stated that members of this genus represented a remarkable example of evolutionary reversal.

The genus was revised by Andersen (1982a) and seven species were recognized, with one based on a single female specimen (Andersen 1982a). The other six species were distinguished by male characters, but not by female characters (Andersen 1982a). Thus reliable identifications should be based on male specimens, a situation similar to that of other members in the subfamily Eotrechinae (Polhemus & Andersen 1984). Later, a new species of *Eotrechus* from China was described based on a single male specimen (Andersen 1998). More recently, two additional species were described based on male specimens from India, and in both male and female specimens from China (Tran & Zettel 2006); and a third species was described based on male and female specimens from Vietnam (Tran & Yang 2006).

Currently, two species are known from Thailand: *Eotrechus hygropetricus* Andersen and *E. petraeus* Andersen; however, the female of *E. petraeus* is unknown. Here we describe three new species from the Thanon Thong Chai Mountain Range in northern Thailand and Phetchabun Mountain Range in central Thailand;

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in addition, the first record in Thailand of *E. kalidasa* Kirkaldy is reported. Thus this paper brings the number of known species of *Eotrechus* in Thailand to six. Diagnostic and distributional data are also given for *E. hygropetricus* and *E. petraeus*. The Thai fauna contains more known species of *Eotrechus* than does that of any country in which this genus occurs, consistent with the high richness of semiaquatic heteropterans in the country (see Vitheepradit & Sites 2007).

## Material and methods

Morphological terminology in the description largely follows that of Andersen (1982a, 1998), except that we refer to abdominal sternum VIII and genital segment for males separately, rather than refer to both as genital segments (*sensu* Andersen 1982a, 1998), because only abdominal segment IX is a true genital segment in males [VIII and IX in females are genital segments (see Smith 1969)]. Length and width are given as a mean and range for paratypes, and all measurements are given in mm. Length of the body is measured from the anterior margin of the head to the posterior margin of the abdomen. Width of the body is measured across the mesoacetabula. Head width is measured across the eyes. Length of the forewing is measured from the humerus to the apex. Setae on the genital segments of some paratypes were removed so the contours of structures could be seen and compared with the genital segments of holotypes. Small setae and spines were omitted on illustrations of the forelegs of males, and all setae were omitted from the illustrations of the female abdomen and venter of the male abdomen.

The primary types are deposited in the Enns Entomology Museum, University of Missouri-Columbia (UMC). Paratypes will be deposited in the insect collections of the Department of Entomology, Kasetsart University, Bangkok, Thailand; Smithsonian Institution, Washington D.C., USA; and UMC. Photographs of the type localities (Figs. 1, 2), and other localities (identified as L-numbers) in which these species were collected, are available in a Locality Image Database via a link from the internet site of the Enns Entomology Museum, University of Missouri-Columbia. All locality data are from Thailand. Comparative notes are given in the Diagnoses to distinguish these species only from other species known from Thailand, and comparisons with other congeners are given in the Discussions.

## Ecological notes

Most members in this genus in Thailand are local endemics and restricted to certain mountains, except *E. hygropetricus*, which is found in several mountains of the western mountain ranges. Members of this genus were found only at elevations of 568–1380 m and usually with *Onychotrechus* (Gerridae: Eotrechinae) on wet rock surfaces at waterfalls (Figs. 1, 2). However, species of *Eotrechus* seemed to occur closer to the margins of the waterfall than were *Onychotrechus*, where the rocks were dampened by occasional splashing. Moreover, when the insects were pursued, they tended to jump further away from the waterfall to escape.

## Systematics

### *Eotrechus siamensis* sp. n.

Figs. 3–5.

**Descriptions.** WINGLESS MALE. Holotype, body length 7.64; width of head across eyes 1.68; maximum width across mesocetabula 2.36. Paratypes (n = 8), body length 7.30–7.64 (mean = 7.45); width of head across eyes 1.60–1.72 (mean = 1.66); maximum width across mesocetabula 2.28–2.48 (mean = 2.38). Dorsal colora-

tion mainly black with numerous short, gold setae; brownish-yellow markings on lateral and posterior portions of head, medial portions of pro- and mesonotum (Figs. 3a, b). Ventral coloration mainly brown except brownish-yellow head, prosternum, and abdominal sternum VIII; dark brown metasternum and abdominal sternum II; covered with numerous gold setae.

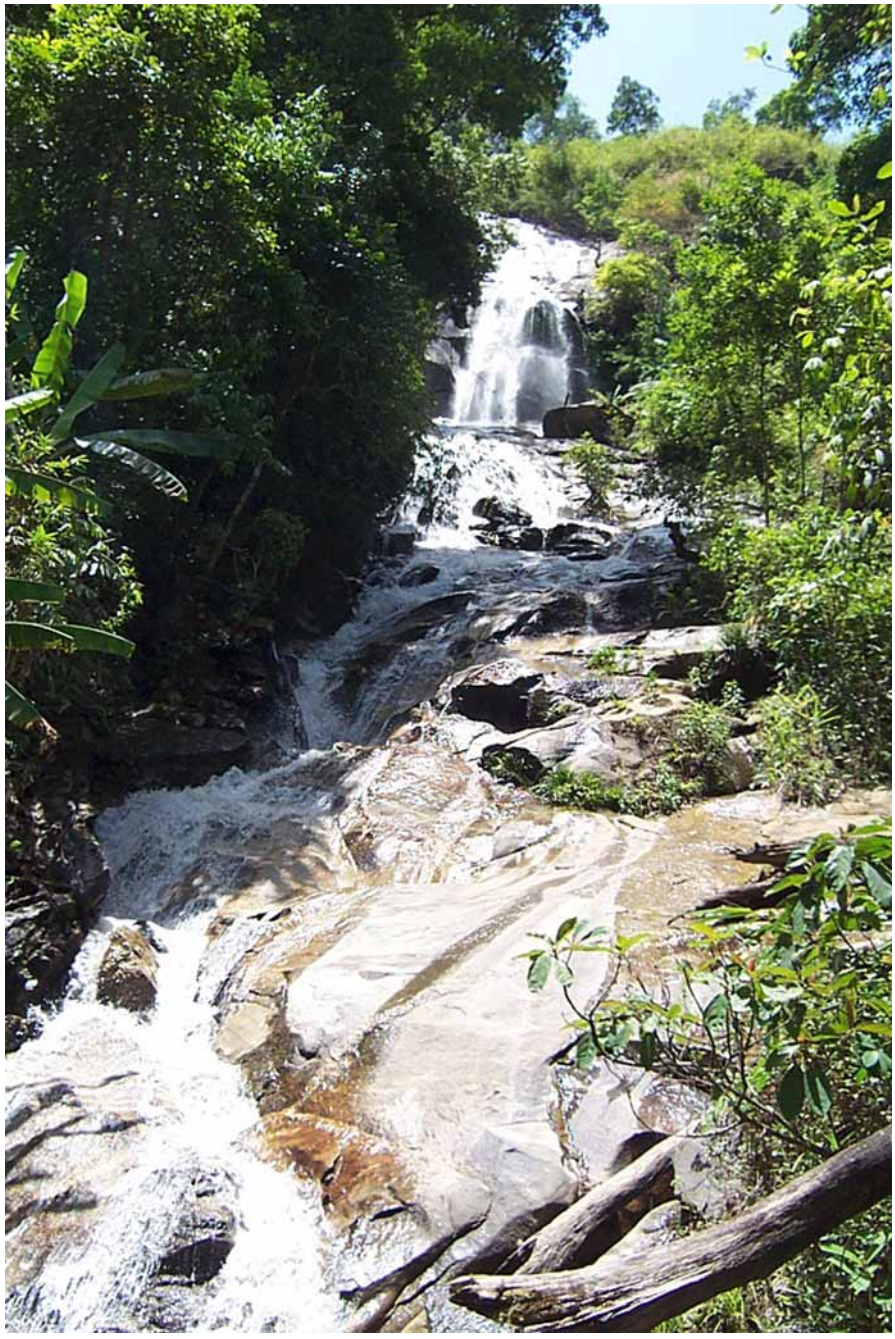

**FIGURE 1.** Type locality of *Eotrechus siamensis* at Pha Dum Waterfall, Doi Inthanon NP.

*Head*. Black with brownish-yellow basal band and lateral markings in front of eyes (Figs. 3a, b); length of head 1.36; antennae slightly shorter than body, dorsally with segment I brown with black proximal and distal tips and 4–6 spines on distal ¼ , segments II–IV dark brown; lengths of segments I–IV = 2.16: 1.56: 1.08: 1.52. Eyes silvery-red, length of eye 0.76, synthlipsis 0.66. Rostrum mainly brownish-yellow, segment IV and midline of segment III black to dark brown, well surpassing procoxae.

*Thorax*. Pronotum shorter than head (1.04: 1.36), with yellowish-brown stripe on midline (Fig. 3a). Mesonotum with broad yellowish-brown stripe on midline expanding laterally in anterior half and forming W-

shaped marking in posterior half. Metanotum black with faint brown medial stripe in posterior half. Pleuron and acetabula mainly black, except propleuron with two brownish-yellow longitudinal stripes (Fig. 3b) and mesopleuron with large brownish-yellow patch ventrally; silvery setae as large patches on pro- and mesoacetabula (viewed best with dry specimen), lateral surface of metacetabulum, ventral half of mesopleuron, and thin longitudinal stripe in dorsal half of mesopleuron. Sterna mainly brown and covered with silvery pubescence. Prosternum mostly yellowish-brown. Meso- and metasterna entirely black, covered with silvery pubescence; mesosternum 3.14x length of metasternum (2.20: 0.70); metasternum depressed medially at posterior margin.

**FIGURE 2.** Type locality of *Eotrechus elongatus* and *Eotrechus romglao* at Romglao Waterfall, Phu Hin Rongkla NP.

*Legs.* Mainly brownish-yellow. Fore femur with brown stripe on anterior margin, moderately incrassate with tubercle 1/4 distance from proximal end, followed by excavation (Fig. 4a); length 5.14x maximum width (2.88: 0.56); ventral surface with 2–4 stout black bristles. Fore tibia brownish-yellow and almost straight except slightly curved distally with long, dark brown setae; inner apical process blunt (Fig. 4a). Fore tarsus dark brown; covered with numerous stout, dark brown setae. Claws stout (length 0.24–0.26). Middle and hind legs with femora brownish-yellow, dark brown on distal ends, thickened proximally (0.30, 0.30), slightly shorter than body length, covered with scattered stout, dark brown spines on inner surface. Tibiae brown; covered with scattered stout, dark brown spines becoming more dense distally. Tarsi dark brown, covered with numerous dark brown spines on inner surface, becoming obsolete distally on tarsomere II. Leg measurements as follows: foreleg, femur = 2.88, tibia = 2.56, tarsomere I = 0.26, tarsomere II = 0.46; middle leg, femur = 7.55, tibia = 6.39, tarsomere I = 0.68, tarsomere II = 0.74; hind leg, femur = 7.47, tibia = 7.14, tarsomere I = 0.72, tarsomere II = 0.76.

*Abdomen.* Tergites I–VII black, shiny medially, covered with short gold setae; tergite I with a faint medial brown marking on anterior 1/4; tergites V–VII with medial brown stripe becoming larger posteriorly; tergite VIII black, covered with long, golden-brown setae. Connexiva mainly brown, black mesally, covered with gold setae. Sterna II–VII length 1.44, sterna II–VI with median brownish-yellow groove becoming slightly narrower posteriorly (Fig. 3c). Sternum VII longer than combined lengths of V and VI (0.42: 0.38); median sublyre-shaped depression; broad, angular notch on posterior margin (Figs. 3c, 4b) with long, brown setae

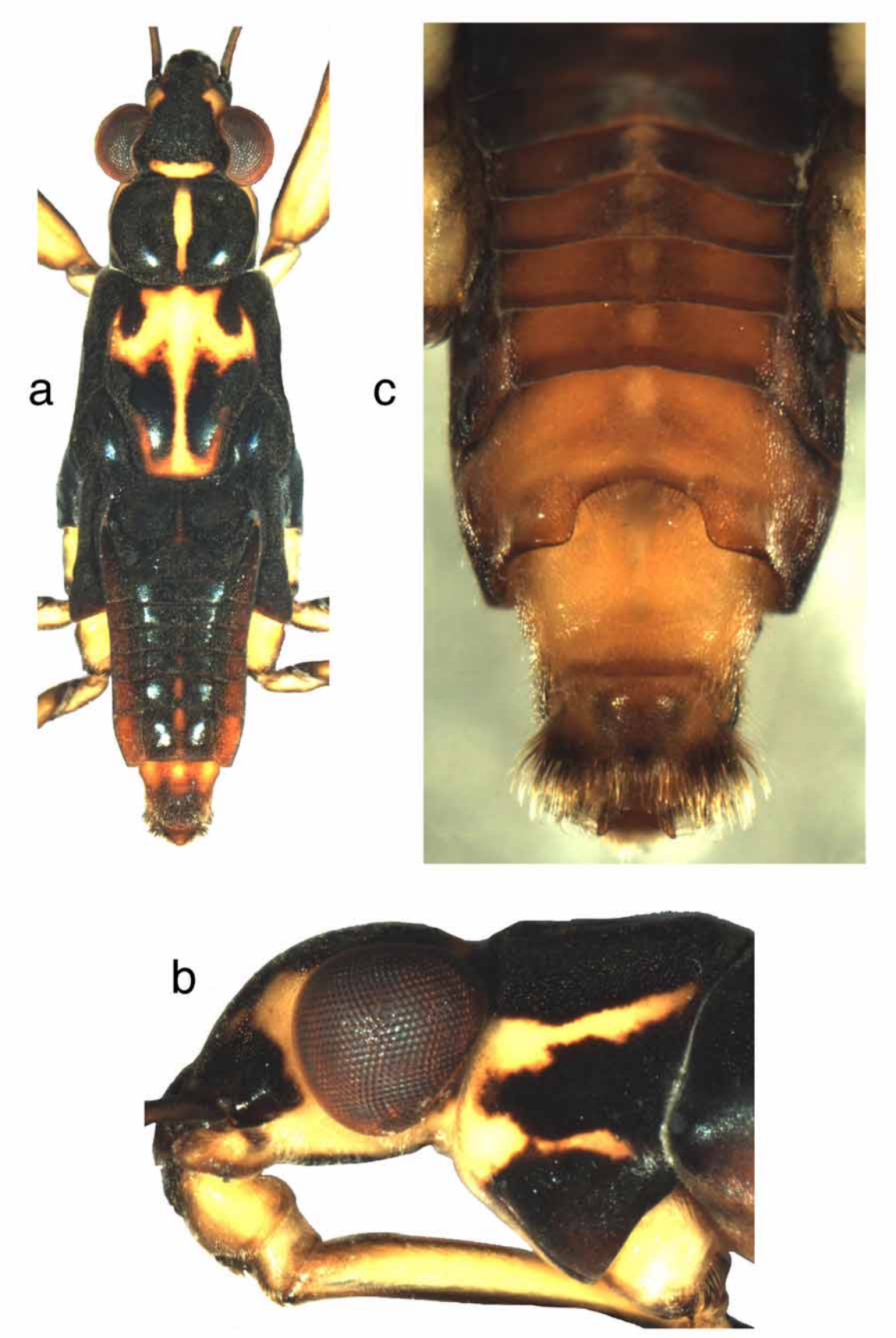


**FIGURE 3.** Holotype of *Eotrechus siamensis*. (a) Dorsal habitus; (b) head and pronotum, lateral view; (c) male abdomen, ventral view.

(Fig. 3c). Sterna VIII and IX (genital segment) relatively large, length 1.28. Sternum VIII depressed medially and along anterior margin, covered with long brown setae posterolaterally, posterior margins convergent, tuberculate medially (Fig. 3c). Pygophore stout, ovate, with bifid tip (Figs. 4b, 5a); covered with long, stout, brown hairs laterally and posteriorly (Figs. 5a, b). Parameres short, stout (Fig. 5a). Proctiger with raised median lobe (lateral view), lateral wings covered with dense patch of long brown hairs laterally (lateral and dorsal views) (Figs. 5c, d).

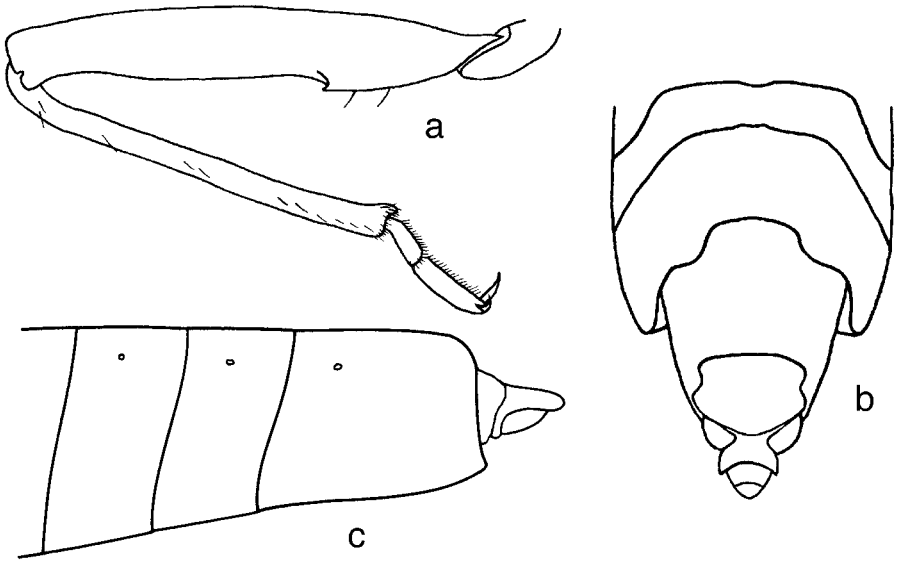


**FIGURE 4.** *Eotrechus siamensis*. (a) left foreleg of male, inner aspect; (b) terminal abdominal segments of male, ventral view; (c) terminal abdominal segments of female, lateral view.

WINGLESS FEMALE. Allotype, length 8.05; width of head across eyes 1.68; width of thorax across mesoacetabula 2.60. Paratypes (n = 6) length, 7.89–8.72 (mean = 8.26); width of head across eyes 1.64–1.80 (mean = 1.70); width of thorax across mesoacetabula 2.44–2.68 (mean = 2.55). Similar to wingless male in general structure and coloration with following exceptions: Ventral coloration mainly yellowish-brown; length of head 1.12; length of eye 0.72; synthlipsis 0.72. Antennal segment lengths: 1.68: 1.36: 0.92: 1.60. Pronotum shorter than head (0.98: 1.12). Mesosternum 2.84x length of metasternum (2.16: 0.76). Fore femur without tubercle, ventral surface with 12 stout, black hairs; length 7.22x maximum width (2.60: 0.36). Middle and hind claws stout (length: 0.20, 0.20). Middle and hind femora thickened basally (width: 0.30, 0.24). Leg measurements as follows: foreleg, femur = 2.60, tibia = 2.24, tarsomere I = 0.18, tarsomere II = 0.54; middle leg, femur = 6.97, tibia = 6.06, tarsomere I = 0.68, tarsomere II = 0.68; hind leg, femur = 7.06, tibia = 6.64, tarsomere I = 0.72, tarsomere II = 0.70. Abdominal sterna II–VII length 2.68, without median groove; sternum VII longer than combined lengths of sterna V and VI (0.98: 0.76), with posterior margin concave. Genital segments (VIII and IX) 0.44, not concealed (lateral view) (Fig. 4c). Proctiger long, with roundly triangular posterior tip (dorsal view).

WINGED MALE (n = 6). Similar to wingless male in general structure and coloration with following exceptions: Ventral surface darker, length 7.64–7.97 (mean = 7.76); width of head across eyes 1.64–1.68 (mean = 1.67); width of thorax across mesoacetabula 2.28–2.44 (mean = 2.37). Pronotal posterior lobe entirely black and shiny medially, with short gold setae. Wings exceeding tip of abdomen, dark smoky-brown, costal margin and veins black; veins and some cells covered with small short gold setae; length of forewing along costal margin 5.89–6.23 (mean = 6.03). Mesopleuron entirely black.

WINGED FEMALE (n = 6). Similar to wingless female in general structure and coloration with the following exceptions: Ventral surface darker, length 8.30–9.13 (mean = 8.81); width of head across eyes 1.60–1.72 (mean = 1.67); width of thorax across mesoacetabula 2.32–2.72 (mean = 2.51). Pronotal posterior lobe

entirely black with short, gold setae. Wings exceeding tip of abdomen; dark smoky-brown; costal margin and veins black; veins and some cells covered with short, gold setae; length of forewing along costal margin 6.06–6.56 (mean = 6.32). Mesopleuron entirely black.

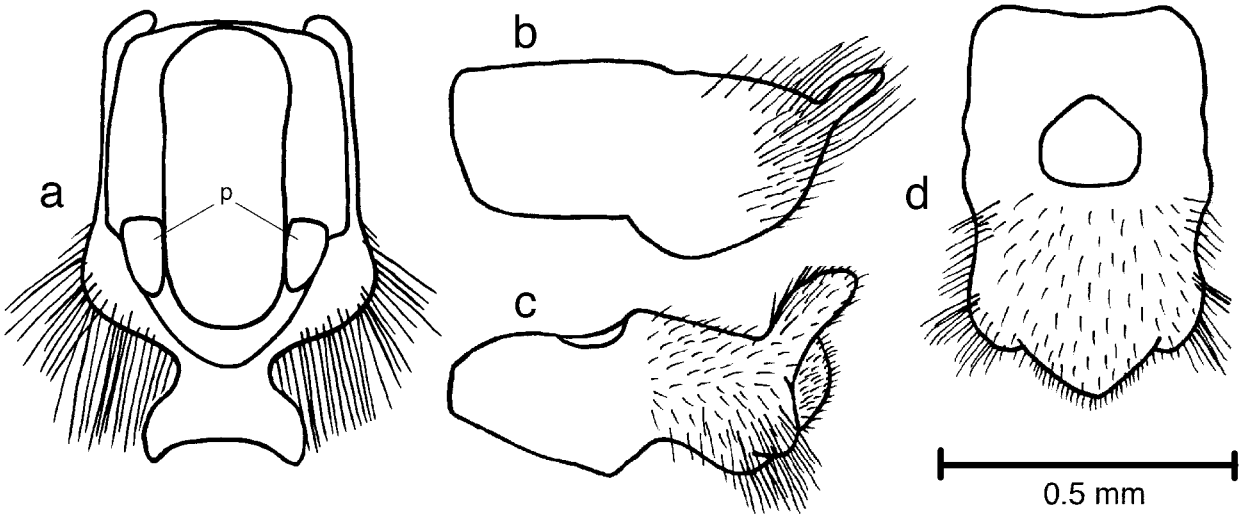


**FIGURE 5.** *Eotrechus siamensis* male. (a) pygophore (p = parameres), dorsal view; (b) pygophore, lateral view; (c) proctiger, lateral view; (d) proctiger, dorsal view.

**Diagnosis.** Males of *E. siamensis* can be distinguished from those of Thai congeners by a stout pygophore with a bifid tip and without posterolateral projections. In contrast, *E. elongatus* has an elongate pygophore with a blunt tip; *E. hygropetricus* has a rounded pygophore; *E. petraeus* and *E. romglao* have a pygophore with a triangular tip; and *E. kalidasa* has a pygophore with elongate posterolateral projections.

Females of *E. siamensis* can be distinguished from those of *E. hygropetricus* by the trochanter of the foreleg without dark spines, whereas the latter species has dark spines. Females of *E. siamensis* can also be distinguished from those of *E. kalidasa* by the mesosternum almost three times longer than the metasternum, whereas in the latter species the mesosternum is less than twice as long as the metasternum (Andersen 1982a). Females of *E. siamensis* can be distinguished from those of the other Thai congeners by the concave posterior margin of sternum VII, whereas the margin is straight in *E. elongatus*, *E. petraeus*, and *E. romglao*.

**Etymology.** This species is named after its country of origin.

**Discussion.** In the only key to species of *Eotrechus* (Andersen 1982a), *E. siamensis* males key to the fourth couplet and females to the eighth couplet. Males of *E. siamensis* and *E. pingae* Andersen from China share a similar pygophore structure, which is produced posteromedially, although the pygophore of *E. siamensis* is acutely bifid whereas that of *E. pingae* is roundly bilobed. The type locality is a pristine waterfall in a well forested area in the northern part of Doi Inthanon, which is the upper part of the Thanon Thong Chai Mountain Range in Chiang Mai Province. More specifically, this species occurred on the near-vertical rock surfaces of waterfalls, which are covered with moss and ferns and a very thin layer of water (Fig. 1). Specimens were also collected from similar habitats on other waterfalls on Doi Inthanon and Doi Suthep. Moreover, both winged and wingless forms were found nearly throughout the year at waterfalls on Doi Inthanon. This species occurred synoptically with *E. hygropetricus* and *E. petraeus* at Huay Sai Luang and Siriphum waterfalls on Doi Inthanon, and Sai Yoi Waterfall on Doi Suthep.

**Material examined.** Holotype, wingless male, and allotype, wingless female: THAILAND: Chiang Mai Prov.: Doi Inthanon NP, Pha Dum Waterfall, 18°36'N 98°31'E, 1379 m, 3-V-2003, UMC and CMU teams, L-499. Paratypes, 2 wingless males, 7 winged males, 3 wingless females, 6 winged females, same data as holotype; 6 wingless males, 3 wingless females, Doi Suthep-Pui NP, Siriphum Waterfall, 18°32'N 98°31'E, 1380 m, 2-VI-2002, UMC and CMU teams, L-317.

**Additional material examined.** THAILAND: Chiang Mai Prov.: 5 winged males, 2 wingless females, 3 winged females, same data as holotype; Doi Inthanon NP, Huay Sai Luang Waterfall, 18°31'N 98°27'E, 1060 m, 20-III-2002, R. W. Sites, A. Vitheepradit, K. Kirawanich, L-311; 1 winged male, 2 winged females, same locality, 4-VI-2002, UMC and CMU teams, L-322; 1 wingless female, same locality, 6-VII-2004, CMU team; 1 wingless male, 1 wingless female, same locality, 11-VIII-2004, CMU team; 2 winged females, same locality, 6-IX-2002, CMU team; 1 wingless female, 1 winged female, 22-X-2002, CMU team; 1 winged male, 1 wingless female, same locality, 14-XI-2002, CMU team; 1 winged male, same locality, 13-I-2003, CMU team; 1 wingless female, same locality, 16-II-2002, CMU team; 2 wingless males, 14-III-2003, CMU team; 1 wingless male, 1 winged male, Doi Suthep-Pui NP, Siriphum Waterfall, 18°32'N 98°31'E, 1380 m, 11-IV-2000, G. W. Courtney; 2 wingless females, 2 winged females, same locality, 2-III-2002, A. Vitheepradit and K. Kirawanich, L-249; 1 winged female, same locality, 2-VI-2002, UMC and CMU teams, L-317; 3 winged females, same locality, 9-V-2002, CMU team, L-401; 1 wingless male, same locality, 8-VI-2002, CMU team; 1 wingless male, 1 wingless female, 10-VIII-2002, CMU team; 1 winged male, 1 winged female, same locality, 14-XI-2002, CMU team; 2 wingless females, same locality, 8-XII-2002, CMU team; 1 winged female, same locality, 13-I-2003, CMU team; 1 winged male, same locality, 16-II-2003, CMU team; 1 winged female, same locality, 14-III-2003, CMU team; 1 wingless female, same locality, 3-IV-2003, UMC and CMU team, L-441; Doi Suthep-Pui NP, Sai Yoi Waterfall, 18°48'N 98°55'E, 1100 m, 8-X-2002, CMU team; 1 winged female, same locality, 13-I-2003, CMU team.

***Eotrechus elongatus* sp. n.**
Figs. 6–8.

**Description.** WINGED MALE. Holotype, body length 8.38; width of head across eyes 1.68; maximum width across mesocetabula 2.48. Paratypes (n = 10), body length 7.97–8.55 (mean = 8.31); width of head across eyes 1.64–1.72 (mean = 1.68); maximum width across mesocetabula 2.36–2.48 (mean = 2.41). Dorsal coloration mainly black with numerous short, gold setae; brownish-yellow markings on lateral and posterior portions of head, medial portion of pro- and mesonotum, anterolateral and medial portions of pronotum (Figs. 6a–c). Ventral coloration mainly brown except brownish-yellow head, prosternum, abdominal sterna VII–VIII; dark brown metasternum and abdominal sterna II–VI; covered with numerous gold setae.

*Head*. Black with brownish-yellow basal band and lateral markings in front of eyes (Figs. 6a, b); length of head 1.12. Antennae dark brown, shorter than body, segment I with 5–6 dark spines on distal 1/6, lengths of segments I–IV = 2.08: 1.80: 1.28: 1.84. Eyes silvery-red, length of eye 0.72, synthlipsis 0.66. Rostrum mainly brownish-yellow, segment IV and midline of segment III black to dark brown, surpassing procoxae.

*Thorax.* Pronotum shorter than head (0.80: 1.12); with yellowish-brown midline stripe and anterolateral markings (Fig. 6a); posterior lobe entirely black, with shiny midline stripe and short, gold setae. Wings exceeding tip of abdomen; dark smoky-brown; costal margin and veins black; veins and some cells covered with short, gold setae; length of forewing along costal margin 6.06. Pleura and acetabula mainly black, except propleuron with two brownish-yellow longitudinal stripes (Fig. 6b); silvery setae as large patches on pro- and mesoacetabula (viewed best with dry specimen), lateral surface of metacetabulum, ventral half of mesopleuron, and thin longitudinal stripe in dorsal half of mesopleuron. Prosternum mostly yellowish-brown. Meso- and metasterna entirely black, covered with silvery pubescence, mesosternum 2.66x length of metasternum (2.08: 0.78).

*Legs.* Mainly brownish-yellow. Fore femur with brown stripe on anterior margin and brown patch on middle of posterior margin; moderately incrassate in proximal 1/4 followed by excavation with proximal hair tuft but no tubercle on ventral margin (Fig. 7a); length 4.96x maximum width (2.96: 0.60); ventral surface with 7–8 stout, black hairs; basal tubercle with patch of small brown bristles. Fore tibia almost straight except slightly

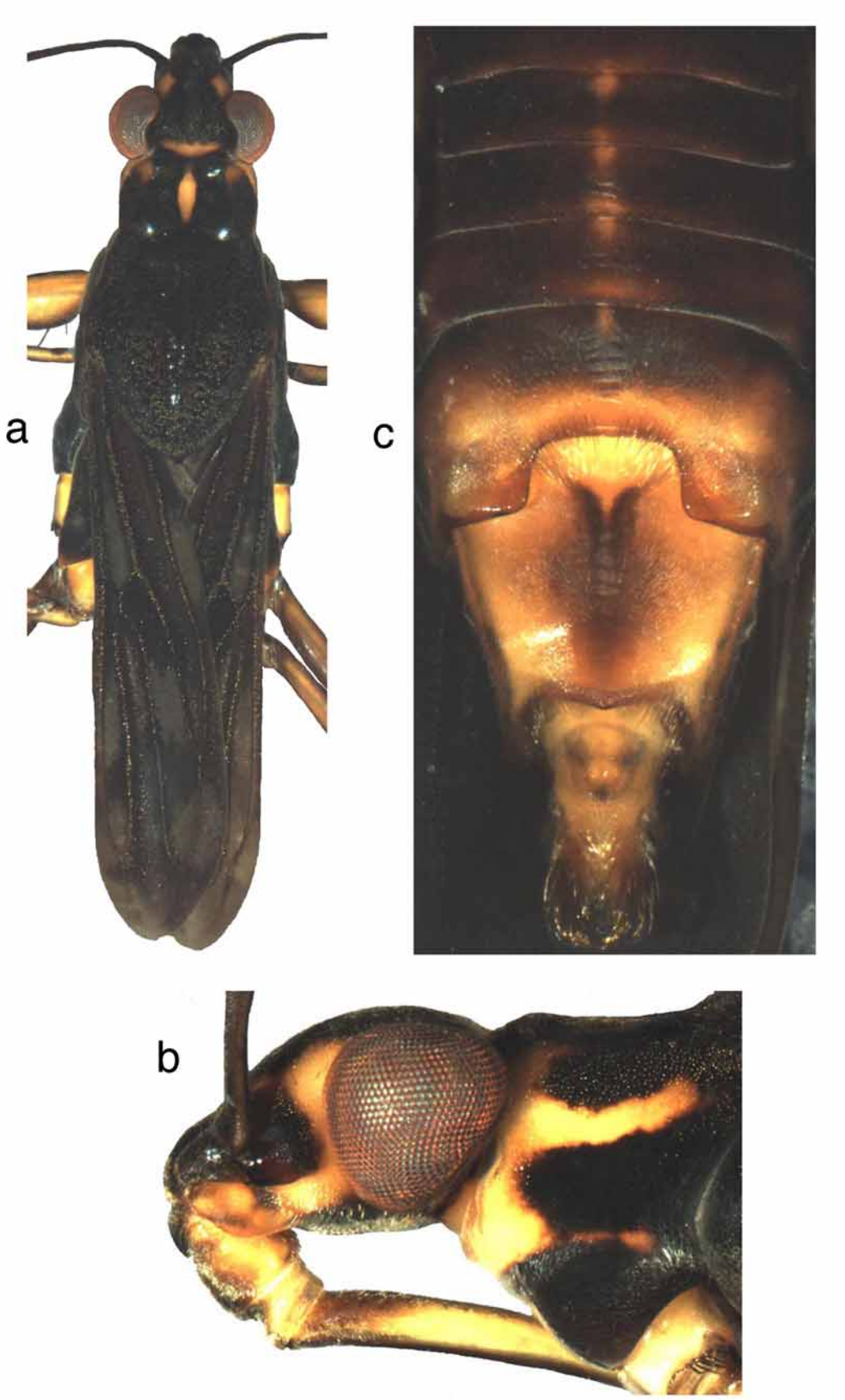


**FIGURE 6.** Holotype of *Eotrechus elongatus*. (a) Dorsal habitus; (b) head and pronotum, lateral view; (c) male abdomen, ventral view.

curved distally with long, stout, dark brown setae; inner apical process blunt. Fore tarsus dark brown, covered with numerous dark brown setae. Claws stout (length 0.24–0.26). Middle and hind legs with femora brown; thickened basally (0.32, 0.28); slightly shorter than body length; covered with scattered, stout, brown spines. Tibiae becoming darker distally, covered with scattered, stout, dark brown spines becoming more dense distally. Tarsi dark brown, covered with numerous dark brown spines on inner surface, becoming obsolete distally on tarsomere II. Leg measurements as follows: foreleg, femur = 2.96, tibia = 2.80, tarsomere I = 0.28, tarsomere II = 0.52; middle leg, femur = 7.80, tibia = 6.97, tarsomere I = 0.56, tarsomere II = 0.62; hind leg, femur = 7.64, tibia = 8.30, tarsomere I = 0.60, tarsomere II = 0.68.

*Abdomen.* Tergites I–VII dark, IV–VII with median faint brown stripe; VIII mostly dark brown and covered with long golden-brown setae. Connexiva entirely dark. Sterna II–VII length 1.72, with median brownish-yellow spots on anterior margin of III and VII. Sternum VII with broad, inverted-U shaped depression; shorter than combined lengths of sterna V and VI (0.46: 0.52), with broad angular notch on posterior margin (Figs. 6c, 7b) with long brown setae (Fig. 6c). Sterna VIII and IX (genital segment) large, length 1.60. Sternum VIII with triangular depression on anterior margin and broad depression in posterior 2/3, with long, golden-brown setae; posterolateral margins convergent, tuberculate medially (Fig. 6c). Pygophore elongate; tuberculate medially; posteriorly produced into an elongate tongue-like shape (Figs. 7b; 8a, b); covered with long, stout, golden-brown setae laterally (Figs. 8a, b). Parameres short, stout (Fig. 8a). Proctiger trilobed with median lobe raised (lateral view, Fig. 8c); tips of lateral wings of proctiger not surpassing tip of median lobe (dorsal view, Fig. 8d); posteroventral surface covered with long, dark brush of hairs; length of hairs about 1/2 length of proctiger (Fig. 8c).

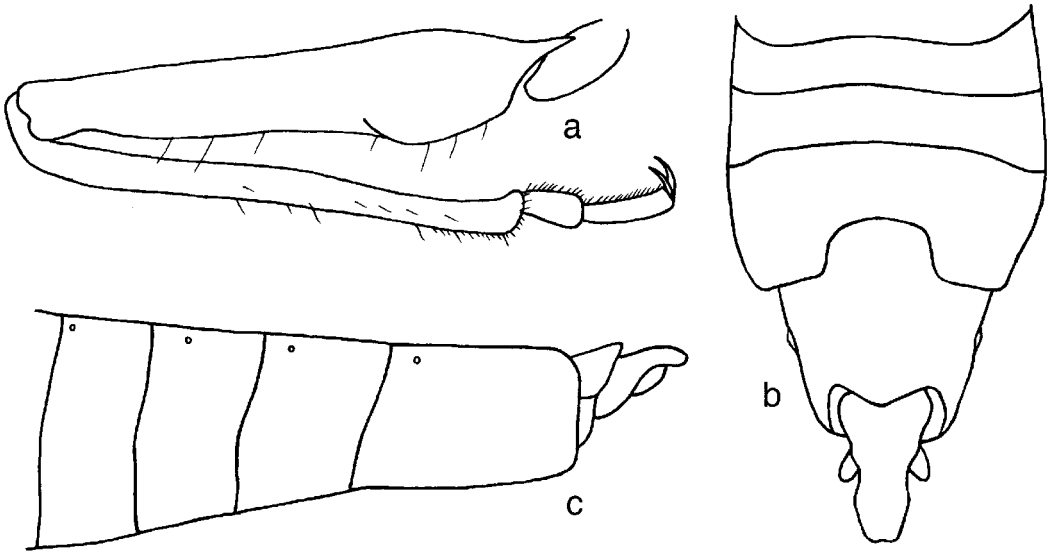


**FIGURE 7.** *Eotrechus elongatus*. (a) left foreleg of male, inner aspect; (b) terminal abdominal segments of male, ventral view; (c) terminal abdominal segments of female, lateral view.

WINGED FEMALE. Allotype, length 9.13; width of head across eyes 1.68; width of thorax across mesoacetabula 2.64. Paratypes (n = 10) length, 8.08–9.13 (mean = 8.96); width of head across eyes 1.68–1.80 (mean = 1.72); width of thorax across mesoacetabula 2.64–2.72 (mean = 2.69). Similar to male in general structure and coloration with the following exceptions: length of head 1.40; length of eye 0.74; synthlipsis 0.66. Antennae with 6–7 dark spines on distal 1/6 of segment I, length of segments: 1.88: 1.68: 1.24: 1.80. Pronotum proportionately shorter with respect to head (0.86: 1.40). Forewing length along costal margin 6.64. Mesosternum 1.83x length of metasternum (2.24: 1.22). Fore femur without proximal tubercle on ventral margin, with 15–18 black stout hairs, length 6.95x maximum width (2.92: 0.42). Middle and hind claws stout (length: 0.20, 0.22). Middle and hind femora thickened basally (width: 0.32, 0.26). Leg measurements as follows: foreleg, femur = 2.92, tibia = 2.48, tarsomere I = 0.28, tarsomere II = 0.52; middle leg, femur = 7.72, tibia = 6.81, tarsomere I = 0.66, tarsomere II = 0.66; hind leg, femur = 7.06, tibia = 8.05, tarsomere I = 0.70,

tarsomere II = 0.66. Mediotergites I–VII with brownish-yellow median stripe. Tergite VIII brown with dark brown spots on posterior tip. Connexiva dark on inner margin. Sterna II–VII length 3.40, with median brownish-yellow spot on anterior margin of II. Sterna IV–VI with brownish-yellow longitudinal stripe. Sternum VII longer than combined lengths of sterna V and VI (1.14: 0.98), with hind margin straight. Genital segments 0.40, not concealed (Fig. 7c). Proctiger long with roundly triangular posterior tip.

WINGLESS MALE. Length 7.89; width of head across eyes 1.64; width of thorax across mesoacetabula 2.28. Similar to winged male in general structure and coloration with the following exceptions: Mesonotum with brownish-yellow midline stripe and broad U-shaped marking along margins in posterior 1/2. Ventral coloration mainly dark brown, except abdominal sterna VII–VIII and genital segment brownish-yellow. Abdominal sterna II–VI with broad, brownish-yellow midline band. Fore femur with 7–9 stout, black hairs. Tergites I–VII with a faint median stripe becoming more pronounced posteriorly.

WINGLESS FEMALE. Unknown.

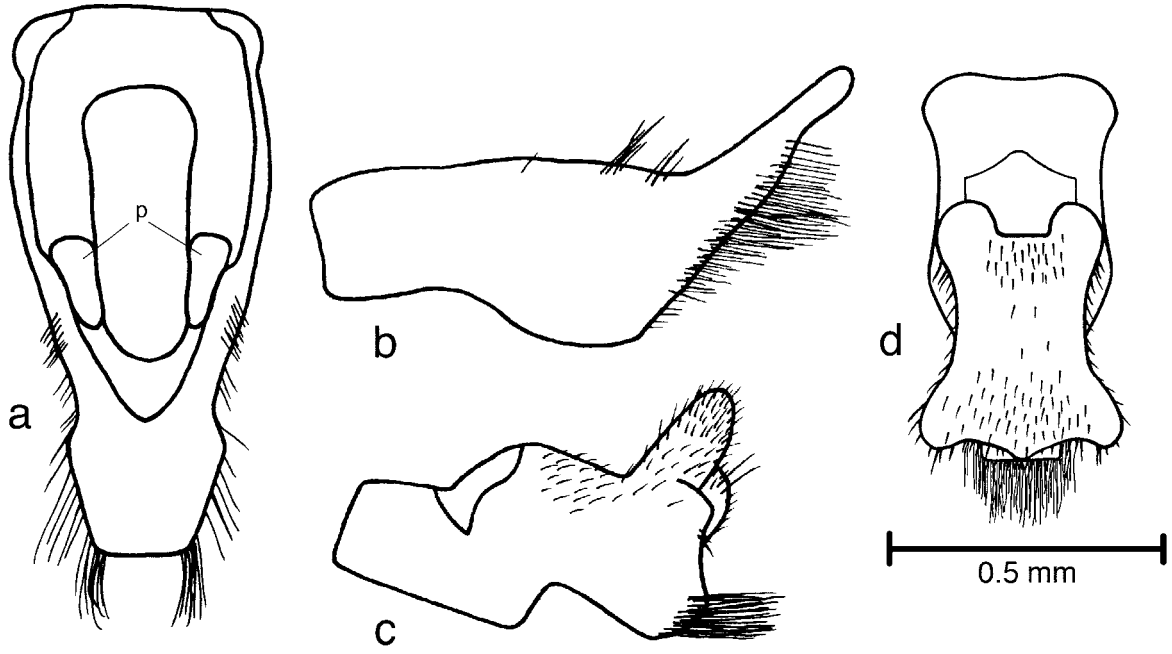


**FIGURE 8.** *Eotrechus elongatus* male. (a) pygophore (p = parameres), dorsal view; (b) pygophore, lateral view; (c) proctiger, lateral view; (d) proctiger, dorsal view.

**Diagnosis.** This species can be recognized by an elongate pygophore with a blunt tip in the males. Males of *E. elongatus* can be distinguished by the angular posterior margin of abdominal sternum VIII, whereas those of Thai congeners have a straight posterior margin. Females of *E. elongatus* can be distinguished from those of *E. hygropetricus* and *E. siamensis* by the straight posterior margin of sternum VII, whereas those of latter species have a concave posterior margin. Females of *E. elongatus* can also be distinguished from those of *E. kalidasa* by the mesosternum being approximately twice as long as the metasternum, whereas in the latter species the mesosternum is less than twice as long as the metasternum (Andersen 1982a). Females of *E. elongatus* can be distinguished from those of *E. petraeus* and *E. romglao* by the ventral side of head being mainly dark brown, whereas those of the latter species have a pair of dark stripes.

**Etymology.** This species is named *elongatus* because the male pygophore is relatively long.

**Discussion.** In the only key to species of *Eotrechus* (Andersen 1982a), *E. elongatus* males key to *E. petraeus*, although the pygophore of *E. elongatus* does not match the supporting illustrations, and females key to *E. hygropetricus*. Males of *E. elongatus* and *E. luaae* Tran & Zettel from China (Tran & Zettel 2006) share similar genitalic structure. They differ in that males of *E. elongatus* have the posterior tip of the lateral wings

of the proctiger not surpassing the central lobe of the proctiger (when viewed dorsally) and reaching only the middle part of the pygophore (when viewed ventrally), whereas males of *E. luaae* have the posterior tip of the lateral wings of the proctiger surpassing the central lobe of the proctiger (when viewed dorsally) and the middle part of the pygophore (when viewed ventrally). The type locality is a waterfall in the northeastern part of Phu Hin Rongkla NP, which is part of the Phetchabun Mountain Range in Phitsanulok Province. More specifically, this new species occurred mainly on the rock surfaces at the sides of the waterfall, which were occasionally splashed by water and covered by moss and vegetation (Fig. 2). This species was also collected from a similar habitat at another waterfall in the northern part of Phu Hin Rongkla NP Specimens of the winged form were found nearly throughout the year at the type locality. This species occurred syntopically with *E. romglao* at Romglao Waterfall in Phu Hin Rongkla NP.

**Material examined.** Holotype, wingless male, and allotype, wingless female: THAILAND: Phitsanulok Prov.: Phu Hin Rongkla NP, Romglao Waterfall, 16°59'N 101°00'E, 1190 m, 6-V-2003, A. Vitheepradit, T. Prommi, M. Ferro, L-507. Paratypes, 10 winged males, 10 winged females, same data as holotype; 1 wingless male, same locality, 23-VIII-2002, CMU team.

**Additional material examined.** THAILAND: Phitsanulok Prov.: Phu Hin Rongkla NP, Romglao Waterfall, 16°59'N 101°00'E, 1190 m, 11-III-2002, 6 winged males, 3 winged females, R. W. Sites, A. Vitheepradit, K. Kirawanich, L-288; 3 winged males, 1 winged female, same locality, 22-IV-2002, CMU team; 1 winged male, same locality, 22-IV-2002, N. Changthong; 1 winged male, same locality, 22-IV-2002, A. Nantakwang; 13 winged males, 12 winged females, same locality, 22-V-2002, CMU team; 1 winged female, same locality, 21-VI-2002, CMU team; 1 winged male, same locality, 23-VIII-2002, CMU team; 1 winged male, 2 winged females, same locality, 28-IX-2002, CMU team; 1 winged male, 1 winged female, same locality, 21-X-2002, CMU team; 3 winged females, same locality, 15-XI-2002, CMU team; 2 winged males, 2 winged females, same locality, 15-XII-2002, CMU team; 2 winged males, 1 winged female, same locality, 17-III-2003, CMU team; 7 winged males, 6 winged females, same locality, 10-IV-2003, CMU team; 2 winged males, 4 winged females, same locality, 4-V-2003, CMU team; 1 winged male, same data as holotype; Loei Prov.: Phu Hin Rongkla NP, Man Daeng Waterfall, tier 5, 16°57'N 101° 03'E, 1250 m, 11-III-2002, G. W. Courtney.

***Eotrechus romglao* sp. n.**
Figs. 9–11.

**Description.** WINGED MALE. Holotype, body length 7.39; width of head across eyes 1.56; maximum width across mesoacetabula 2.08. Paratypes (n = 7), body length 7.22–7.64 (mean = 7.43); width of head across eyes 1.56–1.60 (mean = 1.59); maximum width across mesoacetabula 2.00–2.08 (mean = 2.09). Dorsal coloration mainly black with numerous short, gold setae; brownish-yellow markings on lateral and posterior portions of head and medial and lateral portions of pronotum (Figs. 9a, b). Ventral coloration mainly brown except brownish-yellow head, prosternum, abdominal sternum VIII; dark brown metasternum and abdominal sterna II–VII; covered with numerous gold setae.

*Head*. Black with brownish-yellow markings as basal midline spot, pair of spots between antennal bases, pair of spots in front of eyes (Figs. 9a, b); length of head 1.16. Antennae brown, shorter than body, segment I with 4 spines on distal 1/6, lengths of segments I–IV = 2.08: 2.80: 2.00: 1.96. Eyes silvery-red, length of eye 0.72, synthlipsis 0.52. Rostrum mainly brownish-yellow, segment IV and midline of segment III black to dark brown, surpassing procoxae.

*Thorax.* Pronotum shorter than head (0.68: 1.16) with yellowish-brown elongate markings on midline and laterally behind eyes (Fig. 9a). Pronotal lobe entirely black; with shiny midline stripe and short, gold setae. Wings exceeding tip of abdomen; dark smoky-brown; costal margin and veins black; veins and some cells covered with short, gold setae; length of forewing along costal margin 5.64 (Fig. 9a). Pleura and acetabula

mainly black, except propleuron with two brownish-yellow longitudinal stripes (Fig. 9b); silvery setae as large patches on pro- and mesoacetabula (viewed best with dry specimen), lateral surface of metacetabulum, ventral half of mesopleuron, and a thin longitudinal stripe in dorsal half of mesopleuron. Sterna mainly brown and covered with silvery pubescence, prosternum mostly yellowish-brown, mesosternum 2.78x length of metasternum (2.00: 0.72).

*Legs.* Mainly brownish-yellow. Fore femur with dark tip; brown longitudinal stripe on anterior margin; slightly incrassate with small tubercle near base ventrally (Fig. 10a); length 6.29x maximum width (2.64: 0.42); ventral surface with 6–7 stout, black hairs; basal tubercle with patch of dark setae. Fore tibia with long, dark brown setae; nearly straight except slightly curved distally; inner apical process blunt (Fig. 10a). Fore tarsus dark brown, covered with numerous dark brown setae. Middle, hind claws stout (length 0.18–0.20). Middle, hind legs with femora brownish-yellow with dark tips; thickened basally (width: 0.26, 0.22); slightly shorter than body length; covered with scattered stout, dark-brown setae. Middle and hind tibiae brownish-yellow, covered with scattered stout, brown spines. Middle and hind tarsi dark brown, covered with numerous brown spines. Leg measurements as follows: foreleg, femur = 2.64, tibia = 2.44, tarsomere I = 0.20, tarsomere II = 0.40; middle leg, femur = 6.56, tibia = 6.31, tarsomere I = 0.40, tarsomere II = 0.42; hind leg, femur = 7.06, tibia = 7.22, tarsomere I = 0.38, tarsomere II = 0.40.

*Abdomen.* Tergites I–VII brown with median faint brown stripe, covered with gold setae on anterolateral corners of mediotergites. Tergite VIII brown with dark brown in distal half. Connexiva brown. Sterna II–VII length 2.44, with median brownish-yellow spots on anterior margins. Sternum VII shorter than combined lengths of sterna V and VI (0.38: 0.54), depressed medially and with deep concavity (Figs. 9c, 10b), with long brown setae on posterior margin (Fig. 9c). Sterna VIII and IX (genital segment) relatively large, length 1.04; sternum VIII with long brown setae laterally and posteriorly. Pygophore triangular with narrowly rounded tip; produced laterally into small knobs directed posterodorsad; covered with short, gold hairs laterally and posteriorly (Figs. 10b; 11a, b). Parameres small and blunt (Fig. 11a). Proctiger small, covered with long dark hairs on lateral surface of lateral wings and median lobe (Figs. 11c, d).

WINGED FEMALE. Allotype, length 8.38; width of head across eyes 1.64; width of thorax across mesoacetabula 2.32. Paratypes (n = 10) length, 7.97–8.55 (mean = 8.26); width of head across eyes 1.60–1.68 (mean = 1.64); width of thorax across mesoacetabula 2.16–2.32 (mean = 2.27). Similar to male in general structure and coloration with the following exceptions: Length of head 1.12; length of eye 0.76; synthlipsis 0.60. Antennae with 2–3 dark spines on distal 1/6 of segment I, length of segments: 1.76: 1.52: 1.28: 1.88. Pronotum proportionately shorter than head (0.70: 1.12). Length of forewing along costal margin 5.98. Mesosternum 2.59x length of metasternum (2.12: 0.82). Fore femur without proximal tubercle on ventral margin; with 11–15 stout, black hairs; length 7.88x maximum width (2.68: 0.34). Middle and hind claws stout (length: 0.18, 0.18). Middle and hind femora thickened basally (width: 0.28, 0.24). Leg measurements as follows: foreleg, femur = 2.68, tibia = 2.36, tarsomere I = 0.22, tarsomere II = 0.40; middle leg, femur = 6.64, tibia = 6.14, tarsomere I = 0.42, tarsomere II = 0.44; hind leg, femur = 6.81, tibia = 7.22, tarsomere I = 0.38, tarsomere II = 0.42. Tergite VIII dark brown on posterior margin. Abdominal sterna III–VII length 3.16. Sterna II–VI with median brownish-yellow spot on anterior margin. Sternum VII longer than combined lengths of sterna V and VI (1.00: 0.90), with hind margin straight. Genital segments 0.38, not concealed (Fig. 10c). Proctiger long with a roundly triangular posterior tip.

WINGLESS FORM. Unknown.

**Diagnosis.** Males of *E. romglao* can be distinguished from Thai congeners by the combination of a triangular pygophore with distinct, short, lateral projections. In contrast, *E. elongatus* has an elongate pygophore with a blunt tip, *E. hygropetricus* has a rounded pygophore, *E. kalidasa* has a pygophore with elongate posterolateral projections, *E. petraeus* has a triangular pygophore but without lateral projections, and *E. siamensis* has a stout pygophore with a bifid tip.

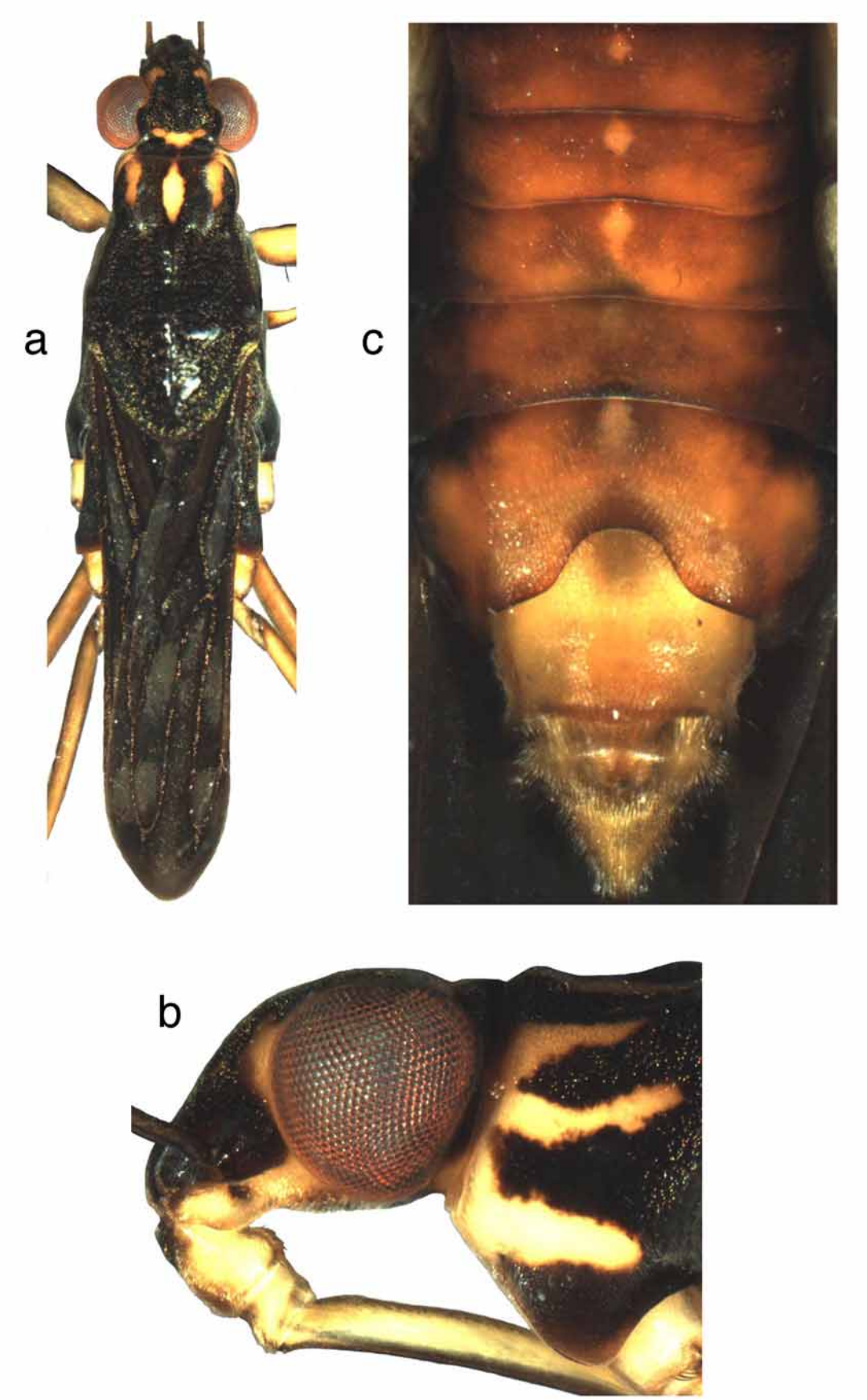


**FIGURE 9.** Holotype of *Eotrechus romglao*. (a) Dorsal habitus; (b) head and pronotum, lateral view; (c) male abdomen, ventral view.

Females of *E. romglao* can be distinguished from those of *E. hygropetricus* and *E. siamensis* by the straight posterior margin of sternum VII, whereas those of latter species have a concave posterior margin. Females of *E. romglao* can be distinguished from those of *E. kalidasa* by the mesosternum almost three times as long as the metasternum, whereas in the latter species the mesosternum is less than twice as long as the metasternum (Andersen 1982a). Females of *E. romglao* can be distinguished from *E. elongatus* by the ventral surface of head with a pair of dark brown stripes whereas in females of the latter species the ventral surface of the head is mainly dark brown. We have been unable to distinguish between females of *E. romglao* and *E. petraeus.*

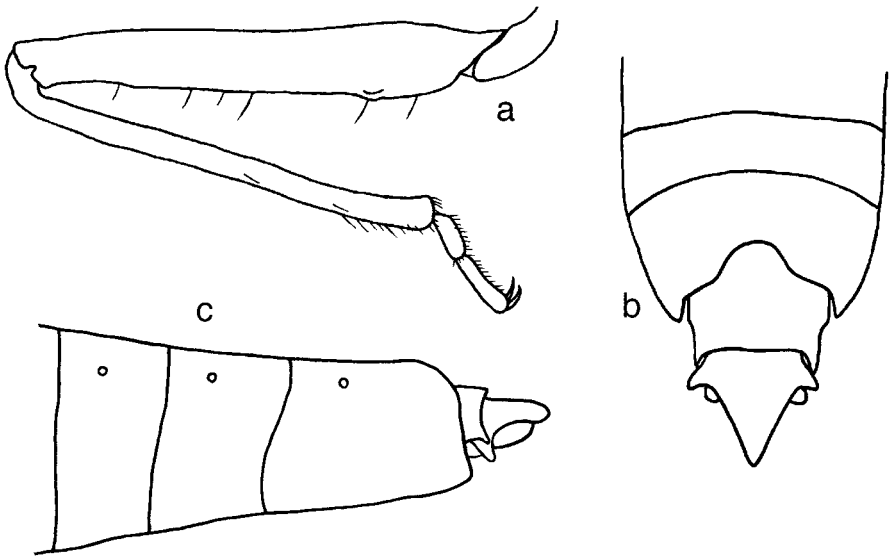


**FIGURE 10.** *Eotrechus romglao*. (a) left foreleg of male, inner aspect; (b) terminal abdominal segments of male, ventral view; (c) terminal abdominal segments of female, lateral view.

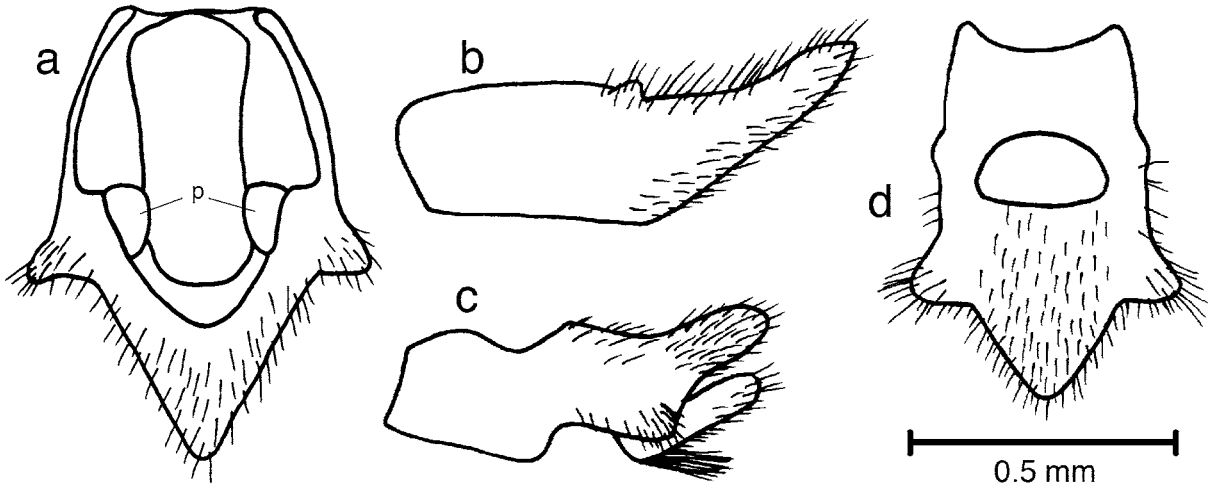


**FIGURE 11.** *Eotrechus romglao* male. (a) pygophore (p = parameres), dorsal view; (b) pygophore, lateral view; (c) proctiger, lateral view; (d) proctiger, dorsal view.

**Etymology.** This species is named after the type locality of Romglao Waterfall in Phu Hin Rongkla NP.

**Discussion.** In the only key to species of *Eotrechus* (Andersen 1982a), *E. romglao* males key to the third couplet and females key to *E. hygropetricus*. The females of *E. romglao* and *E. petraeus* are indistinguishable based on discrete morphological structures, although females of *E. romglao* from Phetchabun Province are more slender and smaller than are females of *E. petraeus* from Chiang Mai Province. The type locality is a

waterfall in the northeastern part of Phu Hin Rongkla NP, which is part of Phetchabun Mountain Range in Phitsanulok Province. More specifically, this new species occurred mainly on near-vertical rock surfaces at the sides of the waterfall, which were covered by moss and vegetation and occasionally splashed by water (Fig. 2). The winged form of this species was collected from late dry season through early rainy season. This species occurred syntopically with *E. elongatus*. It has not been found at any other locality, including other waterfalls in Phu Hin Rongkla NP (i.e., Namtok Huai Kha Mheun, Namtok Mahn Dang, Namtok Palad, and Waterwheel Falls).

**Material examined.** Holotype, winged male, and allotype, winged female: THAILAND: Phitsanulok Prov.: Phu Hin Rongkla NP, Romglao Waterfall, 16°59'N 101°00'E, 1190 m, 6-V-2003, UMC and CMU teams, L-507. Paratypes, 7 winged males, 10 winged females, same data as holotype. 5 winged males, 1 winged females, same locality, 11-III-2002, R. W. Sites, A. Vitheepradit, K. Kirawanich, L-288; 11 winged males, 16 winged females, same locality, 22-IV-2002, CMU team; 1 winged male, 1 winged female, same locality, 22-IV-2002, N. Changthong; 2 winged females, same locality, 22-IV-2002, A. Nantakwang; 1 winged female, same locality, 17-III-2003, CMU team.

**Additional material examined.** 3 winged females, same data as holotype.

***Eotrechus petraeus* Andersen**
Fig. 12.

*Eotrechus petraeus* Andersen 1982a: 15–16.

**Supplemental description.** WINGLESS FEMALE (n = 5). Similar to wingless male in general structure and coloration (see Andersen 1982a) with the following exceptions: Length, 7.64–8.05 (mean = 7.80); width of head across eyes 1.64–1.72 (mean = 1.69); width of thorax across mesoacetabula 2.08–2.36 (mean = 2.27); length of head 1.20; length of eye 0.76; synthlipsis 0.72. Antennae with 4 dark spines on distal 1/6, length of segments: 1.80: 1.68: 1.48: 2.04; Length of pronotum proportionately shorter than head (0.96: 1.20). Mesosternum 2.89x length of metasternum (2.12: 0.76). Fore femur without proximal tubercle on ventral margin; with 11–15 stout, black hairs; length 6.70x maximum width (2.68: 0.40). Middle and hind claws stout (length: 0.16, 0.16). Middle and hind femora thickened basally (width: 0.30, 0.24). Leg measurements as follows: foreleg, femur = 2.68, tibia = 2.48, tarsomere I = 0.32, tarsomere II = 0.44; middle leg, femur = 7.22, tibia = 7.06, tarsomere I = 0.48, tarsomere II = 0.46; hind leg, femur = 7.47, tibia = 8.47, tarsomere I = 0.40, tarsomere II = 0.46. Mediotergites III–VII with brownish-yellow, median longitudinal stripe. Tergite VIII with 2 sublateral dark stripes on basal 2/3. Sterna II–VII length 2.84 without median groove. Sternum VII longer than combined lengths of sterna V and VI (1.00: 0.80), with hind margin straight. Genital segments (VIII and IX) 0.44, not concealed (lateral view, Fig. 12). Proctiger long with triangular posterior tip.

WINGED FEMALE (n = 4). Similar to wingless female in general structure and coloration with the following exceptions: ventral surface darker, length 8.13–8.55 (mean = 8.32). Width of thorax across mesoacetabula 2.20–2.36 (mean = 2.27); width of head across eyes 1.60–1.64 (mean = 1.63). Pronotal lobe entirely black; with shiny midline stripe with short, gold setae. Wings exceeding tip of abdomen; dark smoky-brown; veins and some cells covered with short, gold setae; length of forewing along costal margin 5.81–5.98 (mean = 5.91).

WINGED MALE. Similar to wingless male in general structure and coloration with the following exceptions: Ventral surface slightly darker, length 7.55. Width of thorax across mesoacetabula 2.12; width of head across eyes 1.60. Pronotal lobe entirely black, with shiny midline stripe and short gold setae. Wings exceeding tip of abdomen; dark smoky-brown; veins and some cells covered with short, gold setae; length of forewing along costal margin 6.06.

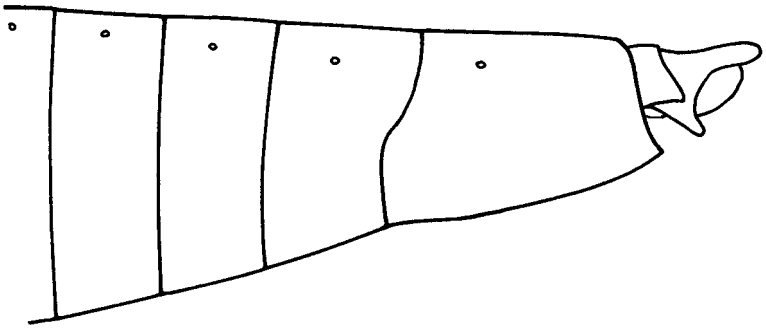

**FIGURE 12.** Terminal abdominal segments of female *Eotrechus petraeus*, lateral view.

**Diagnosis.** Males of *E. petraeus* can be distinguished by the acute posterior tip of the pygophore without lateral projections. In contrast, *E. elongatus* has an elongate pygophore with a blunt tip; *E. hygropetricus* has a rounded pygophore; *E. kalidasa* has a pygophore with elongate posterolateral projections; *E. romglao* has a triangular pygophore with distinct, short, lateral projections; and *E. siamensis* has a stout pygophore with a bifid tip.

Females of *E. petraeus* can be distinguished from those of *E. hygropetricus* and *E. siamensis* by the straight posterior margin of sternum VII, whereas those of latter species have a concave posterior margin. Females of *E. petraeus* can be distinguished from those of *E. kalidasa* by the mesosternum being almost three times longer than the metasternum, whereas in the latter species the mesosternum is less than twice as long as the metasternum (Andersen 1982a). Females of *E. petraeus* can be distinguished from those of *E. elongatus* by the ventral side of head having a pair of dark brown stripes, whereas the latter species has the ventral side of head mainly dark brown. We have been unable to distinguish between females of *E. romglao* and *E. petraeus.*

**Discussion.** In the only key to species of *Eotrechus* (Andersen 1982a), females of *E. petraeus* key to *E. hygropetricus*. This species has been previously reported from Chiang Mai, Thailand (Andersen 1982a). Here we add records from Doi Inthanon and Doi Suthep, Chiang Mai Province. This species occurred syntopically with *E. hygropetricus* and *E. siamensis* at Huay Sai Luang and Siriphum waterfalls in Doi Inthanon NP, and Sai Yoi Waterfall in Doi Suthep-Pui NP. Based on the extensive collecting in Thailand from 1998–2006, this species appears to be a local endemic and restricted to only Doi Inthanon and Doi Suthep in Chiang Mai Province.

**Material examined.** THAILAND: Chiang Mai Prov.: 10 wingless males, 2 wingless females, Doi Inthanon NP, Huay Sai Luang Waterfall, 18°31'N 98°27'E, 1060 m, 20-III-2002, R. W. Sites, A. Vitheepradit, K. Kirawanich, L-311; 1 wingless female, same locality, 4-IV-2002, UMC and CMU teams, L-322; 1 winged female, same locality, 8-V-2002, UMC and CMU teams, L-396; 1 wingless female, same locality, 11-VI-2002, CMU team; 1 winged female, same locality, 11-VIII-2002, CMU team; 1 wingless female, 1 winged female, same locality, 7-XII-2002, CMU team; 1 wingless male, same locality, 16-II-2003, CMU team; 1 wingless female, Doi Inthanon NP, Siriphum Waterfall, 18°32'N 98°31'E, 1380 m, 8-XII-2002, CMU team; 1 winged female, Doi Suthep-Pui NP, Sai Yoi Waterfall, 18°48'N 98°55'E, 1100 m, 24-IX-2002, CMU team; 1 winged male, same locality, 8-X-2002, CMU team; 1 winged male, 1 winged female, same locality, 11-I-2003, CMU team.

### *Eotrechus hygropetricus* Andersen

*Eotrechus hygropetricus* Andersen, 1982a: 16–17.
*Eotrechus hygropetricus*: Andersen, 1998 (supplemental description): 3–4.

**Diagnosis.** This species can be recognized by the unmodified pygophore in the males, whereas Thai congeners have the pygophore modified posteriorly or laterally. Females of *E. hygropetricus* can be distinguished from those of *E. siamensis* by the trochanter of the foreleg having dark spines, whereas the latter species is without dark spines. Females of *E. hygropetricus* can also be distinguished from those of *E. kalidasa* by the mesosternum almost three times longer than the metasternum, whereas in the latter species the mesosternum is less than twice as long as the metasternum (Andersen 1982a). Females of *E. hygropetricus* can be distinguished from those of other Thai congeners by the concave posterior margin of sternum VII, whereas the margin is straight in *E. elongatus* and convex in *E. petraeus* and *E. romglao*.

**Discussion.** This species has been previously recorded from the main road at 2200 m and Huay Sai Luang Waterfall on Doi Inthanon, and a waterfall on Doi Suthep in Chiang Mai Province (Andersen 1982a, 1998). Here we add records from Chiang Mai and Kanchanaburi provinces. This species occurs in the Thanon Thong Chai and Tennaserim mountain ranges in western Thailand; therefore, this species appears to be more widely distributed than are its congeners in Thailand. Moreover, the record from Kanchanaburi is the southernmost known distribution record for this genus. This species occurred syntopically with *E. petraeus* and *E. siamensis* at Huay Sai Luang and Siriphum waterfalls on Doi Inthanon, and Sai Yoi Waterfall on Doi Suthep.

**Material examined.** THAILAND: Chiang Mai Prov.: 5 winged males, 4 winged females, Doi Inthanon NP, Huay Sai Luang Waterfall, 18°31'N 98°27'E, 1060 m, 20-III-2002, R. W. Sites, A. Vitheepradit, K. Kirawanich, L-311; 5 winged males, 5 winged females, same locality, 4-IV-2002, UMC and CMU teams, L-322; 1 winged male, same locality, 6-VII-2002, CMU team; 1 winged female, same locality, 11-VIII-2002, CMU team; 1 winged female, same locality, 22-IX-2002, CMU team; 1 winged female, same locality, 6-X-2002, CMU team; 1 winged female, same locality, 13-I-2003, CMU team; 2 winged females, same locality, 14-III-2003, CMU team; 1 winged female, Doi Inthanon NP, Siriphum Waterfall, 18°32'N 98°31'E, 1380 m, 10-VIII-2002, CMU team; 1 winged male, same locality, 7-XII-2002, CMU team; 3 winged males, 4 winged females, Doi Suthep-Pui NP, immediately below Monthathan Waterfall, 18°49'N 98°55'E, 690 m, 15-III-2002, R. W. Sites and K. Kirawanich, L-296; 13 winged males, 13 winged females, Doi Suthep-Pui NP, Monthathan Waterfall, 18°49'N 98°55'E, 700 m, 8-IV-2002, UMC and CMU team, L-330; 7 winged males, 6 winged females, same locality, 29-III-2003, UMC and CMU team, L-427; 15 winged males, 7 winged females, same locality, 29-IV-2003, A. Vitheepradit, P. Thamsenanupap, M. Ferro, L-489; 12 winged males, 14 winged females, Doi Suthep-Pui NP, Huay Pa Lad Waterfall, 18°48'N 98°54'E, 1250 m, 29-IV-2003, A. Vitheepradit, P. Thamsenanupap, M. Ferro, L-488; 2 winged males, 2 winged females, Doi Suthep-Pui NP, Sai Yoi Waterfall, 18°48'N 98°55'E, 1100 m, 5-IV-2002, UMC and CMU teams, L-326; 1 winged male, same locality, 5-X-2002, CMU team, L-402; 2 winged females, same locality, 14-II-2003, CMU team; Kanchanaburi Prov.: 9 winged males, 15 winged females, Amphur Thong Pha Phum, small waterfall 6.3 km west of Border Police Station at Ban Padsadoo Klang, 14°32'N 98°32'E, 568 m, 10-IV-2002, UMC and CMU teams, L-463.

### *Eotrechus kalidasa* Kirkaldy

*Eotrechus kalidasa* Kirkaldy 1902: 137
*Eotrechus kalidasa*: Andersen, 1982a: 8–9 (supplemental description).
*Eotrechus kalidasa*: Tran and Zettel, 2006b: 46–48 (supplemental description).

**Diagnosis.** This species can be recognized by the elongate posterolateral projections of the pygophore in males, whereas all other known Thai congeners lack these posterolateral projections. Females of *E. kalidasa*

can be recognized by the length of the mesosternum less than twice as long as the metasternum (Andersen 1982a), whereas in all other known Thai congeners the mesosternum is at least twice as long as the metasternum.

**Discussion.** This species was previously known only from India and Myanmar; thus this is the first record of *E. kalidasa* from Thailand and the easternmost record of this species. A single, winged male specimen was collected from a malaise trap set over a small creek in a densely forested area in Phu Hin Rongkla NP. We sampled the creek four times in the last five years, but no specimens of *Eotrechus* were collected. Presumably, the specimen flew into the trap from a nearby unfavorable habitat, as it has been reported that several tropical species of Gerridae disperse throughout the year from unfavorable habitats to new habitats (Fernando 1963, Andersen 1982b).

**Material examined.** THAILAND: Loei Prov.: 1 winged male, Phu Hin Rongkla NP, Man Daeng Noi at trail, 16°57'N 101°03'E, 1600 m, 21-IX- 21-X-2002, CMU team.

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