

NEW RECORDS OF PTECTICUS SPECIES
FROM THAILAND INCLUDING DESCRIPTION OF
A NEW SPECIES (STRATIOMYIDAE, DIPTERA)

ROZKOŠNÝ, R.¹ and COURTNEY, G. W.²

¹*Department of Zoology and Ecology, Faculty of Science, Masaryk University
Kotlářská 2, 611 37 Brno, Czech Republic, e-mail: rozk@sci.muni.cz*

²*Department of Entomology, Iowa State University, Ames, Iowa, USA
e-mail: gwcourt@iastate.edu*

Ptecticus thailandicus sp. n. based on 4 males and 2 females from Thailand is described. An additional five species of the same genus, viz. *Ptecticus aurifer* (WALKER, 1854), *P. cingulatus* LOEW, 1855, *P. kambangensis* DE MEIJERE, 1914, *P. minimus* ROZKOŠNÝ et KOVAC, 1997 and *P. vulpianus* (ENDERLEIN, 1914) are recorded from Thailand for the first time.

Key words: *Ptecticus thailandicus*, new species, new records, Thailand

INTRODUCTION

The knowledge of *Ptecticus* species in Thailand is very poor. Of the 45 known Oriental species (keyed recently by ROZKOŠNÝ & KOVAC 1993), only three were reliably recorded from Thailand: *P. australis* SCHINER, 1868 (Biserat; BRUNETTI 1923), *P. siamensis* ROZKOŠNÝ et KOVAC, 1998 (Pak Chong, Phu Kae) and *P. tricolor* v.d. WULP in DE MEIJERE, 1904 (Muak Lek, Khao Yai; ROZKOŠNÝ & KOVAC 1998). Thus, of the seven species recorded in this paper (including *P. thailandicus* sp. n.), six represent new records for Thailand. This study raises the number of *Ptecticus* species known from Thailand to nine.

MATERIALS AND METHODS

Specimens recorded in this paper were collected during an inventory of stream-inhabiting Diptera of Khao Yai National Park (KYNP). Established in 1962 and covering approximately 2170 km², KYNP is the oldest and one of the largest parks in Thailand. The park includes parts of four provinces, Nakhon Ratchasima, Saraburi, Nakhon Nayok and Prachinburi, and is known for its biotic diversity, especially its vertebrates and vegetation. Much of KYNP consists of a large sandstone plateau dissected by numerous streams and covered by tropical and submontane broad-leaved evergreen forests (GRAY *et al.* 1994). The rich biota partly reflects the park's altitudinal diversity (60–1350 m).

The inventory of KYNP included a variety of collection methods for larval, pupal, and adult Diptera. Specimens were collected primarily by J. PHASUK and K. DAMRAK, Department of Entomology, Kasetsart University, Bangkok. Adult specimens recorded in this paper were collected in Malaise traps set in July 2000 and checked every 2 weeks for one year (through June 2001). Traps were

placed either over the stream or in riparian vegetation within 5 meters of the stream. These streams were located in Nakhon Nayok Province, as follows:

1) Huai Pa Tabak near km 29 (= distance from south entrance of KYNP), 14°19' N, 101°21' E, 505 m. A permanent stream, approximately 2–3.5 m wide, with substrata comprising mostly cobble and coarse gravel. Pa Tabak is in a moderately dense forest, which keeps the stream shaded throughout the year.

2) Huai Tad Tapoo above waterfall, 14°24' N, 101°22' E, 745 m. A permanent stream, approximately 2–3.5 m wide, with substrata comprising mostly fine gravels, silt, and wood. Tad Tapoo is in a moderately dense forest, which keeps the stream shaded throughout the year.

3) small creek 6.2 km up Khao Kheo Road, 14°22' N, 101°24' E, 952 m. A temporary stream (4 months without surface flow) with a maximum width of approximately 2 m. Substrata are mostly cobble, boulders, and coarse gravels, and the riparian zone is well developed, providing dense shading throughout the year.

DESCRIPTION OF A NEW SPECIES

***Ptecticus thailandicus* sp. n.**

(Figs 1–6)

Holotype: ♂, Thailand, Khao Yai National Park, Khao Kheo, 14°22' N, 101°24' E, 952 m, Malaise trap, 9–23 June 2001, J. PHASUK & K. DAMRAK leg., in the collection of the Faculty of Science, Masaryk University, Brno, Czech Republic (FSMU).

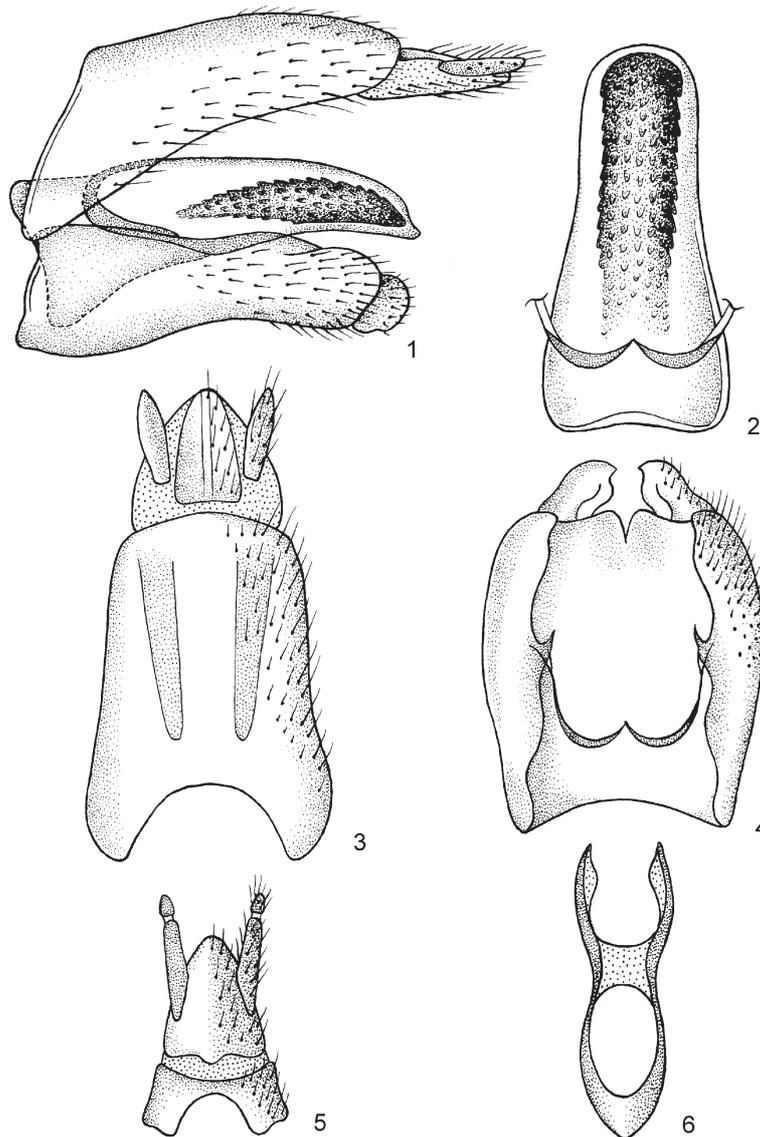
Paratypes: 3 ♂♂ and 2 ♀♀ with the same locality labels but with date 1–17 April 2001. 2 ♂♂ and 1 ♀ in FSMU, and 1 ♂ and 1 ♀ in the National Insect Collection, Entomology and Zoology Division, Department of Agriculture, Chatuchak, Bangkok, Thailand.

Diagnosis: Upper frons and vertex shining black, thorax uniformly ochre yellow, legs predominantly yellow but last two tarsomeres on fore and mid tarsi black as well as hind tibia and greater part of hind basitarsus, rest of hind tarsus snow white. Abdomen yellow with dark transverse patches at anterior margins of tergites 2–5.

Description: ♂. Head semiglobular in lateral view, ocellar triangle distinctly prominent, frontal callus rounded but relatively high in profile, barely lower than width of fore tibia in distal part. Upper frons and vertex shining black, finely punctate, ocellar triangle also black, upper frons gradually tapering towards frontal callus, slightly broader than anterior ocellus just above it. Frontal index (length between frontal callus and anterior ocellus: width just above frontal callus) 4.20–5.75. Occiput completely black. Frontal callus striking whitish yellow, face and antenna ochre yellow, proboscis somewhat paler. Basal antennal segments shining, pedicel with subtriangular and well defined inner projection, flagellar complex about as high as long and transversely cut distally, slightly rhomboid, arista brown. Pubescence of head mostly erect, predominantly yellow, short above antennae, on basal antennal segments and on face, though long and partly brownish on upper frons, ocellar triangle and vertex. Postocular hairs very dense and appressed, yellowish brown.

Thorax uniformly ochre yellow including scutum, scutellum and mediotergite. Thoracic pubescence predominantly yellow, chiefly erect, moderately long and dense on scutum and combined with very short, dense and blackish hairs on prescutellar area and scutellum. Longest pale hairs above fore coxae and on laterotergites, central area of anepisternum extensively bare.

Wing very finely tinged with yellowish brown, costal margin including pterostigma yellow. Anterior crossvein arising at origin of R_{2+3} , R_{2+3} almost twice longer than R_s , virtually parallel to R_1 . Upper proximal margin of discal cell slightly arched, posterior crossvein well developed, above half



Figs 1–6. *Plecticus thailandicus* sp. n., male and female terminalia: 1 = male terminalia in lateral view, 2 = aedeagus, 3 = epandrium, proctiger and cerci, 4 = synsternite and gonostyli in dorsal view, 5 = female terminalia in dorsal view, 6 = female genital furca

as long as anterior one. All veins M_1 to M_3 slightly sinuate, so that M_3 is not parallel to M_2 , its apical part equalling length of anterior crossvein wanting. Postcubitus developed as a visible and yellowish pigmented vein only in its basal half, continuing mainly as a hyaline wing fold, absent apically. Halteres completely ochre yellow, each posttegula with a tuft of fine golden yellow hairs. Fore and mid legs ochre yellow, only last two tarsomeres on both legs brown, pubescence inconspicuous, chiefly appressed, golden yellow, on tarsomeres more brownish dorsally, semi-appressed and short, brush-like ventrally. Dorsal hairs on last two tarsomeres black. Tibia-basitarsus index of fore leg 1.20–1.42. Hind coxa, trochanter and femur uniformly yellowish brown, hind tibia and hind basitarsus (except extreme distal apex) black and black haired, rest of hind tarsus completely white and purely whitish haired.

Abdomen ochre yellow, with transverse dark patches on tergites 2–5. Dark bands narrowly separated from anterior margins of segments and reaching about middle of segments from their distal margins but distinctly broader on tergites 4 and 5; not reaching lateral margins of tergites. Venter uniformly yellowish brown. Abdominal pubescence mostly golden yellow, long and erect basally and laterally, semi-erect ventrally and very dense and chiefly appressed dorsally, dark brown to black on dorsal dark parts.

Male terminalia (Figs 1–4) yellow, aedeagal complex more or less darkened. Proctiger subtriangular, cerci short, epandrium without surstyli, dilated towards proximal margin. Ventral synsternite with two medial lobes on distal margin. Gonostylus somewhat swollen in middle, pointed apically on inner side. Aedeagal complex simple, tubelike but flattened apically and broadened proximally, without flat proximal apodeme.

Length: body 8.6–10.8 mm, wing 7.7–10.4 mm.

♀: As in male but with a broader upper frons and species-specific female terminalia. Deeply shining black upper frons relatively broad even in comparison with majority of species of the genus: about 4 times broader than anterior ocellus just above frontal callus, frontal index 2.00–2.18. Tibia-basitarsal index of fore leg 1.30–1.32. Hind basitarsus usually entirely black (including its apex), abdominal spots sometimes partly reduced. Female terminalia (Figs 5–6): apical cercal segment unusually short, barely 1.5 times as long as broad at base, markedly shorter than basal segment. Genital furca delicate and almost hyaline, basal part with oval aperture, posterolateral appendages slender, posteromedial projections absent.

Length: body 8.0–8.5 mm, wing 7.5–7.7 mm.

Discussion: Some colour characters seems to be variable. The black hairs covering two distal tarsomeres of fore and mid legs may be partly extended especially to the dorsal surface of flagellomere (tarsomere 3 in males in particular), the pale distal part of the hind basitarsus may be completely reduced or extended nearly to the distal third. The size and extent of the abdominal patches also show considerable variation. In both sexes they may be, in extreme cases, reduced on abdominal segments 2 and 3, being visible as mere dark medial patches in the middle of segments.

P. thailandicus sp. n. externally resembles the recently described *P. temasekianus* ROZKOŠNÝ et KOVAC, 2003, which is based on a male holotype from Singapore. However, the upper frons, vertex and occiput (the medial sclerite) are clearly yellowish brown in the latter species and not deep black and also structures of the male terminalia show some distinct differences (the posteromedial process of synsternite is tripartite, the aedeagal complex is slender and provided with a long and flat proximal apodeme in *P. temasekianus*). The female of *P. temasekianus* is not known.

NEW RECORDS OF ADDITIONAL PTECTICUS SPECIES
IN THAILAND*Ptecticus aurifer* (WALKER, 1854)

Khao Yai NP, Tad Tapoo, 9–23 Dec 2000, 1 ♀.

Redescription and figures of male terminalia: NAGATOMI (1975) and ROZKOŠNÝ (2002).

Distribution: China, Japan, Russia, India, Indonesia (Java, Sumatra, Kalimantan, Malaysia, Taiwan, Vietnam (WOODLEY 2001, ROZKOŠNÝ & KOVAC 2003). First record from Thailand.

Ptecticus australis SCHINER, 1868

Khao Yai NP, Khao Kheo, 28 Apr – 12 May, 1 ♂.

Diagnostic characters and figures of male terminalia: ROZKOŠNÝ & HAUSER (1998).

Distribution: China, India, Nicobar Islands, Sri Lanka, Taiwan, Thailand (WOODLEY 2001).

Ptecticus cingulatus LOEW, 1855

Khao Yai NP, Khao Kheo, 22 July–5 Aug 2000, 1 ♀; 17 March–1 Apr 2001, 1 ♂; 13–24 May 2001, 1 ♀; 29 km of Khao Kheo, 952 m, 16–30 Sept 2000, T. Nakornrachasima leg., 1 ♂, 1 ♀; 30 Sept–30 Oct 2000, 1 ♂, 1 ♀; Pa Tabak, 25 Apr–16 Sept 2000, 1 ♀; 1–20 Jan 2001, 1 ♂; 17 Feb–4 March 2001, 3 ♂♂, 1 ♀; 4–17 March 2001, 1 ♀; 17 March–1 Apr 2001 3 ♂♂, 4 ♀♀; 1–17 Apr 2001, 7 ♂♂, 4 ♀♀; 13–24 May 2001, 1 ♀; Tad Tapoo, 30 Sept–30 Oct 2000, 3 ♀♀; 9–23 Dec 2000, 1 ♂; 23 Dec–7 Jan 2001, 2 ♂♂; 7–20 Jan 2001, 1 ♂; 14 Feb–4 March 2001, 1 ♀.

Redescription and figures of male terminalia: ROZKOŠNÝ & KOVAC (1996).

Distribution: India, Indonesia (Kalimantan), Malaysia, Singapore, Sri Lanka, Taiwan (WOODLEY 2001, ROZKOŠNÝ & HAUSER 2001, ROZKOŠNÝ & KOVAC 2003). First records from Thailand.

Ptecticus kambangensis DE MEIJERE, 1914

Khao Yai NP, Tad Tapoo, 9–23 Dec 2000, 1 ♂; 20 Jan–3 Feb 2001, 1 ♀.

Redescription and figures of male terminalia: ROZKOŠNÝ & DE JONG (2001).

Distribution: Indonesia (Java, Sumatra) (WOODLEY 2001, ROZKOŠNÝ & KOVAC 2003). First record from Thailand.

Ptecticus minimus ROZKOŠNÝ et KOVAC, 1997

Khao Yai NP, Khao Kheo, 9–22 July 2000, 1 ♀, 1–17 Apr 2001, 1 ♀; Pa Tabak, 17–28 Apr 2001, 1 ♀; Tad Tapoo, 23 Dec–7 Jan 2001, 1 ♀.

Description and figures of male terminalia: ROZKOŠNÝ & KOVAC (1997).

Distribution: Malaysia (Ulu Gombak; ROZKOŠNÝ & KOVAC 1997). First record from Thailand.

Ptecticus vulpianus (ENDERLEIN, 1914)

Khao Yai NP, Pa Tabak, 3–17 Feb 2001, 1 ♂.

Redescription and figures of male terminalia: ROZKOŠNÝ & DE JONG (2001).

Distribution: Indonesia (Java, Sumatra), Malaysia (WOODLEY 2001, ROZKOŠNÝ & KOVAC 2003). First record from Thailand.

*

Acknowledgements – We are grateful to the National Research Council of Thailand and the Royal Forestry Department for permission to collect samples from Khao Yai National Park, and to Dr. JARIYA CHANPAISAENG and Ms. JUMNONGJIT PHASUK for allowing us to study specimens recorded in this paper. This project was supported in part by the National Science Foundation (DEB 0103144) and the Government of Thailand (Royal Golden Jubilee Program) and the Czech Ministry of Education (program 21622416).

REFERENCES

- BRUNETTI, E. (1923) Second revision of the Oriental Stratiomyidae. *Rec. Ind. Mus.* **25**: 45–180.
- GRAY, D., PIPELL, C. & GRAHAM, M. (1994) *National Parks of Thailand (Revised Edition)*. Industrial Finance Corporation of Thailand, Bangkok, 250 pp.
- NAGATOMI, A. (1975) The Sarginae and Pachygasterinae of Japan (Diptera: Stratiomyidae). *Trans. R. Ent. Soc.* **26** (3) (1974): 305–421.
- ROZKOŠNÝ, R. (2002) A revision of the Oriental *Ptecticus* species described by G. Enderlein (Stratiomyidae, Diptera). *Acta zool. hung.* **48**: 21–33.
- ROZKOŠNÝ, R. & HAUSER, M. (1998) A new species of *Ptecticus* Loew (Diptera: Stratiomyidae) from Sri Lanka. *Studia dipterologica* **5**: 337–342.
- ROZKOŠNÝ, R. & HAUSER, M. (2001) Additional records of the *Ptecticus* species from Sri Lanka with a new species and a new name (Stratiomyidae: Diptera). *Studia dipterologica* **7**: 217–223.
- ROZKOŠNÝ, R. & JONG, H. DE (2001) Identity of the Oriental and Australasian species of *Ptecticus* Loew described by J. C. H. de Meijere (Diptera, Stratiomyidae). *Tijdschr. Ent.* **144**: 55–71.
- ROZKOŠNÝ, R. & KOVAC, D. (1996) The Malaysian soldier flies of the genus *Ptecticus* Loew 1855, including new records and descriptions of three new species. *Senckenberg. Biol.* **75**: 181–191.
- ROZKOŠNÝ, R. & KOVAC, D. (1997) *Ptecticus minimus*, a new species of Sarginae from West Malaysia including the description of its larva and puparium (Diptera Stratiomyidae). *Raffles Bull. Zool.* **45**: 39–51.
- ROZKOŠNÝ, R. & KOVAC, D. (1998) Four new Oriental species of *Ptecticus*, with taxonomic and biological notes on some other species (Diptera: Stratiomyidae). *Ent. Probl.* **29**: 69–77.
- ROZKOŠNÝ, R. & KOVAC, D. (2003) Seven new species of *Ptecticus* including new distributional records and a key to the Oriental species. *Senckenberg. Biol.* **82**: 191–211.
- WOODLEY, N. E. (2001) *A world catalog of the Stratiomyidae (Insecta: Diptera)*. Myia, Vol. 11. Backhuys Publishers, Leiden, 473 pp.

Revised version received April 7, 2004, accepted November 16, 2005, published December 29, 2005