

## Range Extensions and New Species for the Tiger Beetle Fauna of China (Coleoptera: Cicindelidae)

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### ABSTRACT

*Naviauxella phongsalyensis* Sawada and Wiesner, 2004, and *Neocollyris* (*Stenocollyris*) *compressicollis* (Horn, 1909) are recorded for the first time for China, collected from southern Yunnan Province. From the same location specimens of *Neocollyris* (*Neocollyris*) *jinpingsi* sp. nov. and *Neocollyris* (*Leptocollyris*) *rogeri* sp. nov. are described. *Therates fruhstorferi fruhstorferi* Horn, 1902, *Cicindela* (*Cicindela*) *gemmata gemmata* Falderman, 1835, and *Tricondyla pulchripes* White, 1844, occurring elsewhere in China, are reported as new records for Yunnan Province.

Key words: Tiger beetles, *Cicindela*, *Naviauxella*, *Neocollyris*, *Therates*, *Tricondyla*

### INTRODUCTION

Sixty-four species and subspecies of Cicindelidae, in fifteen genera, are reported for Yunnan Province, China (Wiesner, 1992; Putschkov & Matalin, 2003; Shook & Wiesner, 2006). This paper adds two range extensions of species known from outside China, three range extensions for species known to occur elsewhere in China, and two previously undescribed species to that list.

### MATERIAL AND METHODS

Specimens of all species in this paper, except *Therates fruhstorferi fruhstorferi* Horn, 1902 and *Cicindela* (*Cicindela*) *gemmata gemmata* Falderman, 1835, were collected in the forests of Jinping County, Honghe Prefecture, Yunnan Province, China, between 8 and 24 June 2005. All specimens from the Jinping sites were collected by netting.

*Therates fruhstorferi fruhstorferi* Horn, 1902 was determined in the collection of the China Academy of Science's Kunming Institute of Zoology (KIZ), Kunming City, Yunnan, China. *Cicindela (Cicindela) gemmata gemmata* Falderman, 1835 was determined in the collection of the Yunnan Forest Disease and Pest Protection and Quarantine Department (YFDPPQD) in Kunming.

## RESULTS AND DISCUSSION

*Cicindela (Cicindela) gemmata gemmata* Faldermann, 1835

The YFDPPQD has a collection of 24 species of tiger beetles, all from Yunnan. The collection contains six females and two males of *C. gemmata*. Collecting was done as part of a national program between 1978 to 1981 to catalogue the biodiversity of the country. However, prior to identification by the authors to species, all of the specimens in the YFDPPQD collection were determined only to family. The YFDPPQD is charged with protecting and preserving the voucher specimens.

All eight specimens are from Yunnan's Zhaotong Prefecture. Four females are from Yongshan County, collected 13-14-V-1980 at 1600m by Guo You-Li & Li Wen-Hua and two females and two males are from Dagan County, collected 30 June 1980 at 1330m by Liu Zheng-Chang.

In China, *C. g. gemmata* is recorded from the provinces of Fujian, Gansu, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Nei Mongol, Qinghai, Shaanxi, Sichuan, and Xizang (Shook & Wiesner, 2006). Outside of China the species is known from Korea (Shook & Wu collection, Southwest Forestry College) and far eastern Russia (Wiesner, 1992)

*Naviauxella phongsalyensis* Sawada and Wiesner, 2004

Two specimens were collected on narrow forest paths on a mountainside near Ma'andi, Jinping Country, Honghe Prefecture, Yunnan. The specimens were very difficult to spot because of their small size and they did not fly. One was collected 8-11 June 2005 on a cloudy day of 24° C, the other on 24-26 June 2005 on a late morning of a sunny day of 34°C. Both specimens are male.

Drawings, photographs and descriptions of the specimens were sent to and reviewed by Jürgen Wiesner, who suggested they were *Naviauxella* species, perhaps *phongsalyensis*. Subsequently he provided the authors with two paratypes for comparison, which confirmed the identification of the species.

Previously *Naviauxella phongsalyensis* was only known from the type locality at Phongsaly, Laos (Sawada and Wiesner, 2004).

*Neocollyris (Stenocollyris) compressicollis* (Horn, 1909)

A single male was netted as it was flying across a path in the forest near Ma'andi at the same path location as the *Naviauxella* specimen of 24-26 June 2005. The early morning was sunny and 32° C.

Confirmation of the species was made by review of descriptions and figures in the literature (Naviaux 1994:227; Naviaux 2004:134,139). Photographs of the dorsal view, lateral view and aedeagus were provided to Roger Naviaux, who confirmed the species.

*Neocollyris (Stenocollyris) compressicollis* (Horn, 1909) is recorded from Assam, India (Naviaux, 1994), Vietnam and northern Laos (Sawada & Wiesner, 2004).

*Therates fruhstorferi fruhstorferi* (Horn, 1902)

Eight specimens, (seven females and one male) were found on December 15<sup>th</sup>, 2005 among 21 other species of Yunnan tiger beetles in the collection of the China Academy of Science's KIZ. They were all collected in Yunnan's Zhaotong Prefecture, Dagan County on 3-VII-1991. The elevation was 1970 m. and the collector was Lin Su.

*T.f. fruhstorferi* is known in China from the provinces of Guangdong and Guizhou (Shook & Wiesner, 2006). The nominative species is not reported outside of China.

*Tricondyla pulchripes* White, 1844.

A single male was collected on 8 June 2005 by the first author at Yixiantian in Jinping Country, Honghe Prefecture, Yunnan Province. The elevation was 980 m. The specimen was running across a rock face between the forest and the river, the early afternoon partly cloudy and 32°C. Jürgen Wiesner verified the species from photographs and written description.

Elsewhere in China, *T. pulchripes* is known from Hong Kong and Guangdong (Shook & Wiesner, 2006). Outside of China it is recorded from Vietnam, Laos and Cambodia (Naviaux, 2002; Sawada & Wiesner, 2004).

### Description of new species

Six specimens, two females and a male each of two new species of *Neocollyris* were taken from broad-leaved shrubs near a dirt road at Ma'andi on 24-26 June 2005. A comparison was made of the specimens against the known literature (Naviaux 1994, 2004).

#### *Neocollyris (Neocollyris) jinpingi* sp. nov.

Holotype. Male; China, Yunnan, Honghe, Jinping, Ma'andi, 1300-1450 m., 24-26-VI-2005, Leg. G. Shook, in authors' collection at SWFC. Printed red label.

Paratypes. 2 females; China, Yunnan, Honghe, Jinping, Ma'andi, 1300-1450 m., 24-26-VI-2005, Leg. G. Shook, in authors' collection at SWFC. Printed red label.

*Derivatio nominis.* The new species derives its name from the county in Southern Yunnan province from which it was collected.

Description. Total length (without labrum) 18 mm one male, 20.5 to 21 mm two females.

Head: Black and round. Eyes very prominent. Vertical carina on the frons. Two or three fine striae above the longitudinal interocular groove toward the back of the eye. Fine striae on the back of the head from at or near the median not reaching the gena (Fig. 1). Head in lateral view rounded and bulging toward the base (Fig. 2). Labrum black, semicircular, two outer teeth acute, medial tooth blunt and submedial teeth rounded (Fig. 3). Disc bulging dorsally and noticeably expanded at the lateral margin. Indentation at outer tooth setal puncture strong in the male. Antennal segments 1-2 black, segments 3-5 black with light brown apex, segments 6-11 light brown. Antennae of male surpassing the base of the pronotum.

Thorax: Black. Shape most similar to *N. pseudosignata* but more slender in the collum and broader in the basal one-third (Fig. 4). Dorsal pronotal disc with numerous transverse fine striae and an obscure to well-defined median groove on the basal half. Base and apex without fine striae, base with scattered punctures. Long, thin hairs laterally, at base and across base of disc to the underside. Base relatively long.

Elytra: Black, with purple reflection on apical half. Parallel-sided in male, slightly expanded before apical angle in female (Fig. 5). Apical truncature rounded. Scattered coarse punctures at base, becoming denser and more elongate toward the apex.

Very few punctures coalesced into common rugose pits (2 to 10) in the medial part of the disc near the suture. Lateral medial fascia almost obscure to modest in size, dull yellow in color.

Legs: Trochanters black. Femurs reddish brown. Pro- and mesa tibiae black. Meta tibia black with light brown apex. Pro- and mesa tarsi black or dark brown, meta tarsi light brown with black apex.

Aedeagus: Comparatively large, shape similar to *N. pseudosignata*, but broader in the basal one-third and narrower in the apical one-third. Length: 3.1 mm. (Fig. 6)

Diagnostic characters. Closest in appearance to *Neocollyris* (*Neocollyris*) *pseudosignata* (Horn, 1902), the new species differs in being black with purple reflections on the apical half of the elytra. Head with distinct longitudinal carina on the frons, fine striae on interocular plane and disc behind eyes. Labrum with blunt median tooth and rounded submedian teeth. Pronotum well marked with fine striae, with or without a median groove. The pronotum of the new species in dorsal view is narrower in the collum and broader in the basal one-third of the disc than *N. pseudosignata*. Elytral truncature rounded. The aedeagus is of the same curvature as *N. pseudosignata*, but narrower on the apical half, broader in the basal half.

Naviaux had previously assigned *N. pseudosignata* to subgenus *Stenocollyris*, but placed the species in subgenus *Neocollyris* in 2004.

*Neocollyris* (*Leptocollyris*) *rogeri* sp. nov.

Holotype. Male; China, Yunnan, Honghe, Jinping, Ma'andi, 1300-1450 m., 24-26-VI-2005, Leg. G. Shook, in authors' collection at SWFC. Printed red label.

Paratypes. 2 females; China, Yunnan, Honghe, Jinping, Ma'andi, 1300-1450 m., 24-26-VI-2005, Leg. G. Shook, in authors' collection at SWFC. Printed red label.

*Derivatio nominis*. The new species is named in honor of Roger Naviaux, the foremost expert on the genus.

Description. Total length (without labrum) 10 mm one male, 11 mm two females.

Head: Black, with violet reflection (Figs. 7 and 8). Head long, triangular, 2 supraorbital setae each side and two setae on frons. Labrum trapezoidal, black laterally and at base, with the median ivory, two outer teeth acute, medial tooth and

submedial teeth rounded, medial tooth sub-equal to submedial teeth (Fig. 9). Antennal segment 1 yellow with black at the base, 2-3 yellow, 4-5 yellow with black dorsally, 6-9 black, 10-11 yellow. Palps in female black with yellow at apex of segments, male palps yellow with scant black at base of segments.

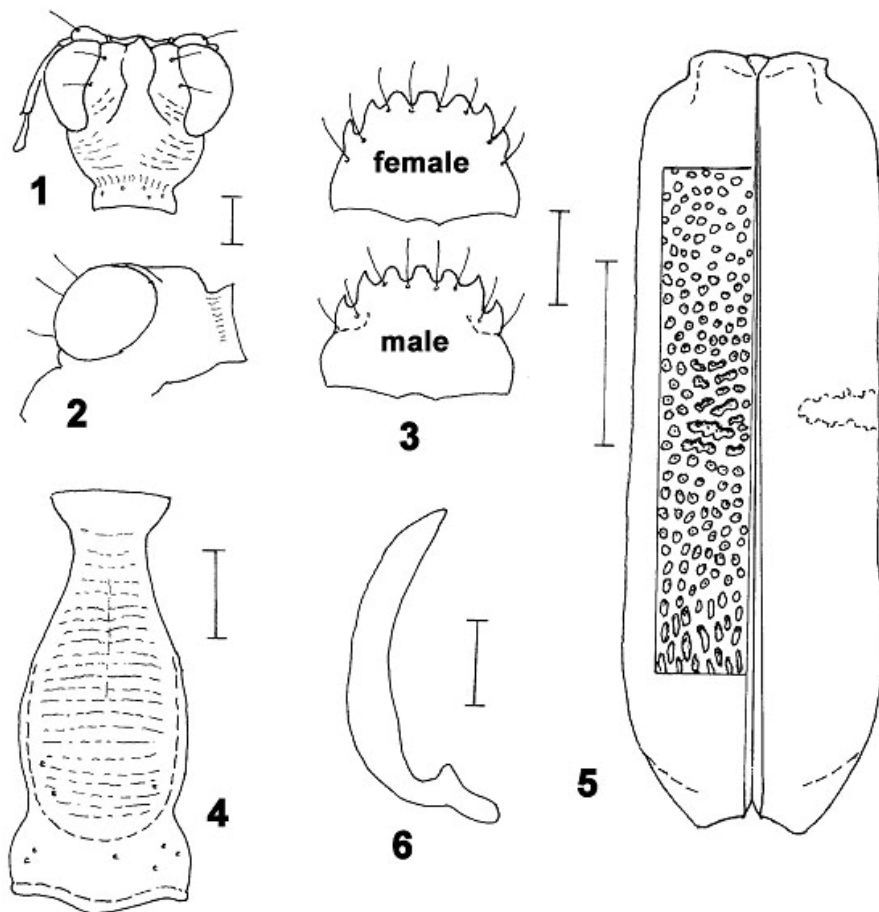
Pronotum: Black, with blue reflections (Figs. 7 and 8). Collum parallel and flat on the side. Disc elongate globular. Punctures with long, thin hairs laterally, at base and more scattered across base of disc.

Elytra: Black, with green or blue reflection at base, purple reflection at apex (Fig. 10). Close coarse punctures finer at base becoming elongate and obscure in the apex. Two yellow fascia; first one at the humerus extending slightly onto disc and then running as a thin marginal line, removed from the lateral edge by a row of punctures almost to the apical angle (interrupted near the median fascia in one specimen), the second fascia at middle extending from the marginal line to near the suture (2 or 3 rows of punctures separating the fascia and suture), expanding as it approaches the suture.

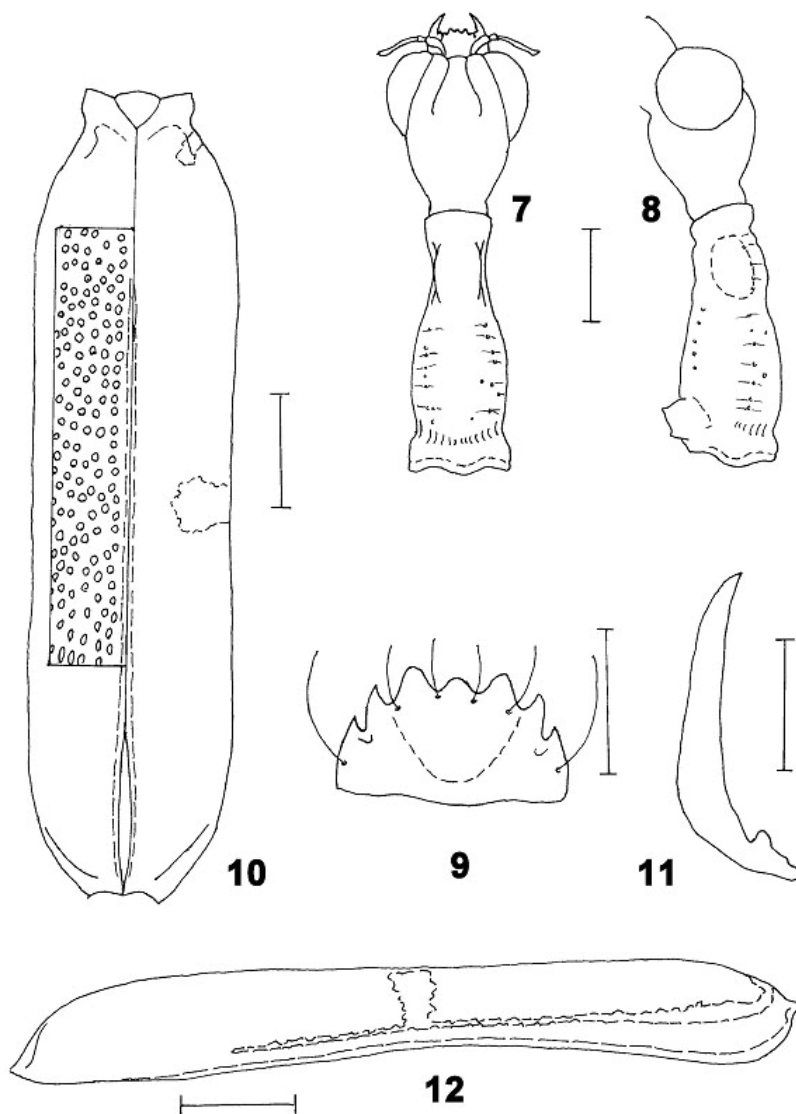
Legs: Trochanters, femurs, pro- and meso-tibiae reddish yellow to reddish brown, darker toward the apex. Meta tibia black basal half, yellow apical half. Tarsi yellow.

Aedeagus: Length: 2.1 mm (Figs. 11)

Diagnostic characters. The species is closest in appearance to *Neocollyris (Leptocollyris) discretegrossesculpta* and differs from it as follows: head interocular grooves longer and diverging toward the base. Median and submedial teeth of the labrum more rounded, medial tooth sub-equal. Outer labral seta very long, tips almost reaching the same plane as the tips of setae of the inner punctures. Antennal coloration different. Color of palps in the male and female of the new species are different in each gender. Pronotum over all not as slender, thicker in the collum, more punctures on the disc, none on the base as compared to *N. (L.) discretegrossesculpta*. A unique, distinct feature of the new species is a thin yellow marginal band, not visible in dorsal view, separated from the lateral margin by a row of puncts (Fig. 12).



Figs. 1-6. 1. Head dorsal view, Scale: 1 mm, 2. Head lateral view, Scale: 1 mm, 3. Labrum female and male dorsal view, Scale: 1 mm, 4. Pronotum dorsal view, Scale: 1 mm, 5. Elytra dorsal view, Scale: 5 mm, 6: Aedeagus side view. Scale: 1 mm.



Figs. 7-12. 7. Head and pronotum dorsal view, Scale: 1 mm, 8. Head and pronotum lateral view, Scale: 1 mm, 9. Labrum dorsal view, Scale: 1.0 mm, 10. Elytra dorsal view, Scale: 1 mm, 11. Aedeagus side view, Scale: 1 mm, 12. Elytra lateral view of fascia, Scale: 1 mm.



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