

## Chinese Species of the Genus *Entetraommatus* FISHER (Coleoptera, Cerambycidae)

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**Abstract** *Entetraommatus trifasciatus* sp. nov. is described from Yunnan Province, and *E. christinae* HOLZSCHUH is reported from Xizang Autonomous Region (Tibet) as a new country record. The genus is an isolated taxon in the subtribe Oemina, and has such unique characters as the incised mandible in two lobes, uni-lobed ligula and antennal scape with distinct cicatrix.

### Introduction

The subtribe Oemina of the tribe Oemini is consisted of 91 genera and mainly ranged in Africa and South America, of which 15 genera including 52 species have so far been recorded from Asia (LINGAFELTER, 2010; TAVAKILIAN & CHEVILLOTTE, 2016). Twelve of the Asian genera are monotypic or known only two or three species and morphologically isolated in the subtribe, except for *Hyphus* LACORDAIRE, 1869 (4 spp.), *Noserius* PASCOE, 1868 (8 spp.) and *Tetraommatus* PERROUD, 1855 (25 spp.) (TAVAKILIAN & CHEVILLOTTE, op. sit.). *Entetraommatus* FISHER is also an isolated genus characterised by the incised mandible in two lobes, uni-lobed ligula or cicatrix of antennal scape. The genus was now consisted of only three species from the limited area from India to Indochina; viz. *E. quercicola* FISHER from India, *E. imbecillus* HOLZSCHUH from Thailand and *E. christinae* HOLZSCHUH from Myanmar (FISHER, 1940; HOLZSCHUH, 1998, 2016).

Recently, we could examine two unknown species of the genus *Entetraommatus* from Yunnan Province and Xizang Autonomous Region (Tibet), China. Our close examination revealed that one of them was a new species without any relative and another one was *E. christinae* which was just recently described from Myanmar. In the following paragraphs, we will describe and record them with the illustrations in detail, and discuss the systematic position of *Entetraommatus*.

### Material and Methods

All the specimens examined are preserved in the Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZAS), the private collection of Chang-Chin Chen, Tianjin, China (CCCC) and Wen-Xuan Bi, Shanghai, China (CBWX). The two additional specimens were examined by the clear photographs taken by Petr VIKTORA (Kutná Hora, Czech Republic). The collecting data of specimens examined are described in the original spellings, though several Chinese characters were translated to English by parenthesis describing when necessary.

The morphology of specimens were observed and photographed by using a stereoscopic microscope (Olympus SZX16), a light microscope (Olympus BX53M) with a microscope digital camera

(Olympus DP73) and an image analysis software (Olympus cellSens). Several structures were observed with a desk model SEM (Hitachi Miniscope TM 3030) without coating. The whole habitus of specimens were observed and photographed by Canon digital camera EOS 70D with macro photo lens EF-50mm and Life-size Converter EF. The drawing of structure was made by using of Adobe Illustrator CS3.

The abbreviations used for the ratio of the measurement in the description are as follows: HW — maximum width of head across tempora just behind lower eye-lobes; PL — length of pronotum; PW — maximum width of pronotum near middle; PA — apical width of pronotum; PB — basal width of pronotum; EL — length of elytra; EW — humeral width of elytra; M — arithmetic mean.

## Taxonomy

### Genus *Entetraommatus* FISHER, 1940

*Entetraommatus* FISHER, 1940: 199; type species: *Entetraommatus quercicola* FISHER, 1940.

Head wholly convex even in frons; frons margined by distinct grooves at sides, provided with a median groove extending from apical margin to posterior part of occiput across concavity at vertex; clypeus transverse, distinctly emarginate; mandibles short, thick, symmetrical in left and right, largely distinctly concave in about apical half of inner sides, incised into two lobes in apical 2/5, with lower lobe twice the width of upper lobe at thickest diameter, arcuate at external margin though almost truncate at apex; maxilla with less developed galea and lacinia, palpus long, with terminal segment short and tapering apicad; labium with ligula uni-lobed and obtusely pointed at apex; palpus with subquadrate terminal segment; eyes small and oblong, with lower lobe narrowly connected with upper lobe (usually completely separated in *E. quercicola*); tempora markedly raised beyond the level of lower eye-lobes. Antennae distinctly longer than body in both sexes, haired on whole segments; scape strongly dilated apicad, with a distinct dorsal cicatrix near apex; segment 3 the longest and stout; segments 4–11 gradually getting shorter and thinner towards apical segments.

Pronotum divergent towards apex, slightly longer than wide or as long as wide, distinctly narrower than the humeral width of elytra; sides arcuate, without distinct tubercles; disc uneven, provided with indistinct swellings, which are formed by two pairs of swellings at sides of apical 2/5 and basal fourth, and a median swelling between the two pairs of lateral swellings. Mesonotum provided with long projection at basal sides; stridulatory files symmetrically, indistinctly divided at middle.

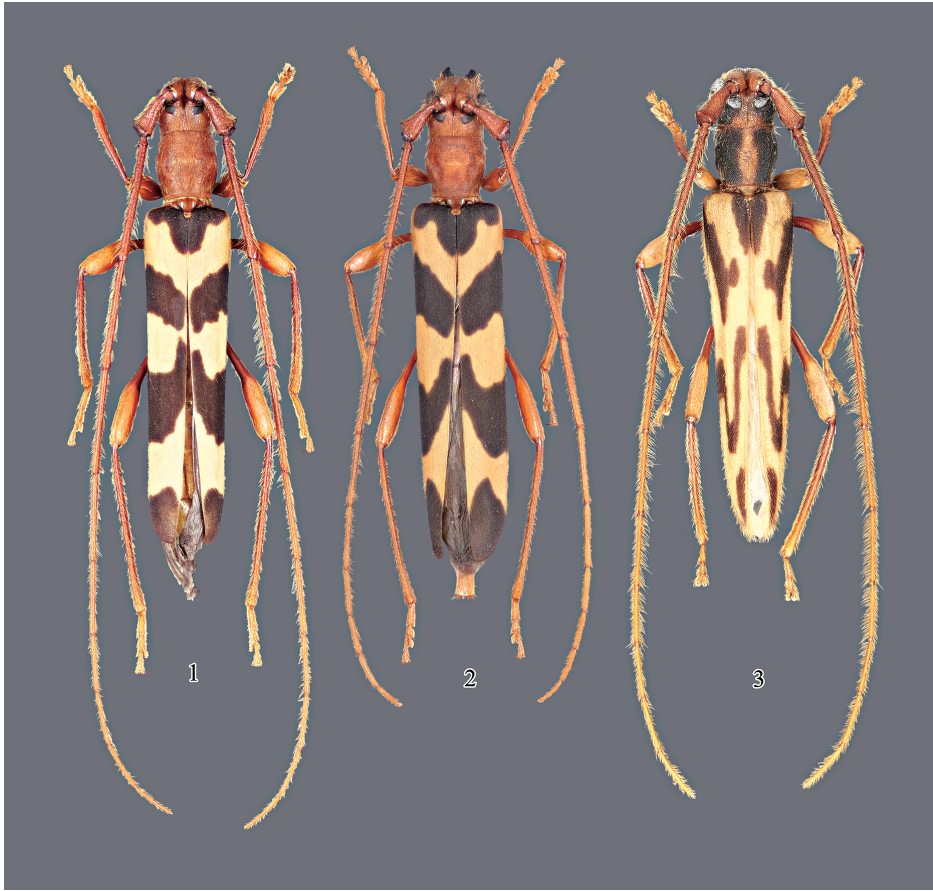
Elytra elongate and slender, almost parallel-sided. Hind wings elongate, with reduced apical part; vein RP strongly produced basad; vein CuA<sub>2</sub> branched at base and connected with MP<sub>3+4</sub> and AA<sub>3</sub> by cross vein.

Prosternum with coxal cavities strongly angulated externally, widely opened posteriad; inter-coxal process deeply invaginate interiorly, hardly visible due to the approximate coxae, with apical part produced between the posterior projections of furcasternum. Mesosternum with coxal cavities widely opened to mesepimera; inter-coxal process very narrow, invaginate interiorly as in prosternal process.

Legs long and stout; femora compressed in clavate part; fore tibia sinuate in apical part, especially in male; tarsi short.

Genitalia in both sexes should be referred to the descriptions of species.

*Range.* India; Myanmar; Thailand; China: Xizang Autonomous Region (Tibet) and Yunnan Province.



Figs. 1–3. *Entetraommatus* spp. from Southwest China. — 1, *E. trifasciatus* sp. nov., holotype male, from Yunnan Province; 2, ditto, female paratype (allotype); 3, *E. christinae* HOLZSCHUH, male, from Xizang Autonomous Region (Tibet).

*Notes.* *Entetraommatus* FISHER is characterised by a combination of the following characters which are clearly distinguished from other genera of the subtribe Oemina: 1) head wholly convex even in frons; 2) tempora markedly raised beyond the level of lower eye-lobes; 3) mandibles incised into two lobes in apical 2/5, largely distinctly concave in inner side; 4) ligula uni-lobed, obtusely produced apicad; 5) scape with dorsal cicatrix near apex; 6) fore and mid coxae with inter-coxal processes very thin and deeply invaginate interiorly.

Though the structure of mouthparts is somewhat similar to that of *Neoeme* GOUNELLE or *Temnopis* AUDINET-SERVILLE (AUDINET-SERVILLE, 1834; GOUNELLE, 1909; MARTINES, 1997), the incised structure of mandible is very unique and thought to be the autapomorphy of *Entetraommatus*. It is very interesting that the both upper and lower pieces of mandible are not only being incised but also slightly movable. The ligula of the Oemina is usually less developed and rarely vestigial, though the uni-lobed form of *Entetraommatus* is not observed in the other genera of the subtribe.

*Entetraommatus trifasciatus* sp. nov.

(Figs. 1, 2, 4, 5, 7, 9, 10, 12, 13–31)

Large and elongate species. Colour largely yellowish brown, a little more yellowish in femora, tarsi and ventral surface, black in eyes and dorsum of mandibles, dull in general though more or less shiny in legs and ventral surface; elytra black, provided with three light yellow bands with zigzag margins in basal sixth, middle and apical fourth; the basal band is strongly oblique and sometimes formed isolated two patches, though the posterior two are almost transverse. Body clothed with golden yellow fine hairs, especially dense on tibiae, antennae and ventral surface, and also with same coloured pubescence on head and pronotum; elytra densely with pubescence and a few erect hairs, of which the colour are same as the discal colour.

**Male.** Body length: 15.2–18.5 mm (from vertex to elytral apices).

Head globose and voluminous, distinctly wider than pronotum, granulate though weakly rugose on occiput; HW/PA 1.14–1.19 (M 1.17), HW/PW 1.03–1.11 (M 1.07); frons markedly convex, strongly narrowed in arcuate line to apex, widest at basal third, with median groove deep; clypeus about 1/4 the length of basal width, deeply emarginate at apical margin; genae 2/5 the depth of lower eye-lobes, distinctly narrowed ventrad in frontal view; vertex broadly shallowly concave; eyes with lower lobes weakly prominent, and inter ocular distance of upper lobes 1+1/5 the width of each lobe. Antennae long, usually more than 1.6 times as long as body, extending elytral apices at middle of segment 6, densely provided with shallow wrinkles and punctures, and partly with short dents mostly on basal three segments; scape markedly stout, triangularly dilated apicad, with cicatrix formed a deep groove just before apex; segment 3 cylindrical, the longest, more than 2.5 times as long as the scape.

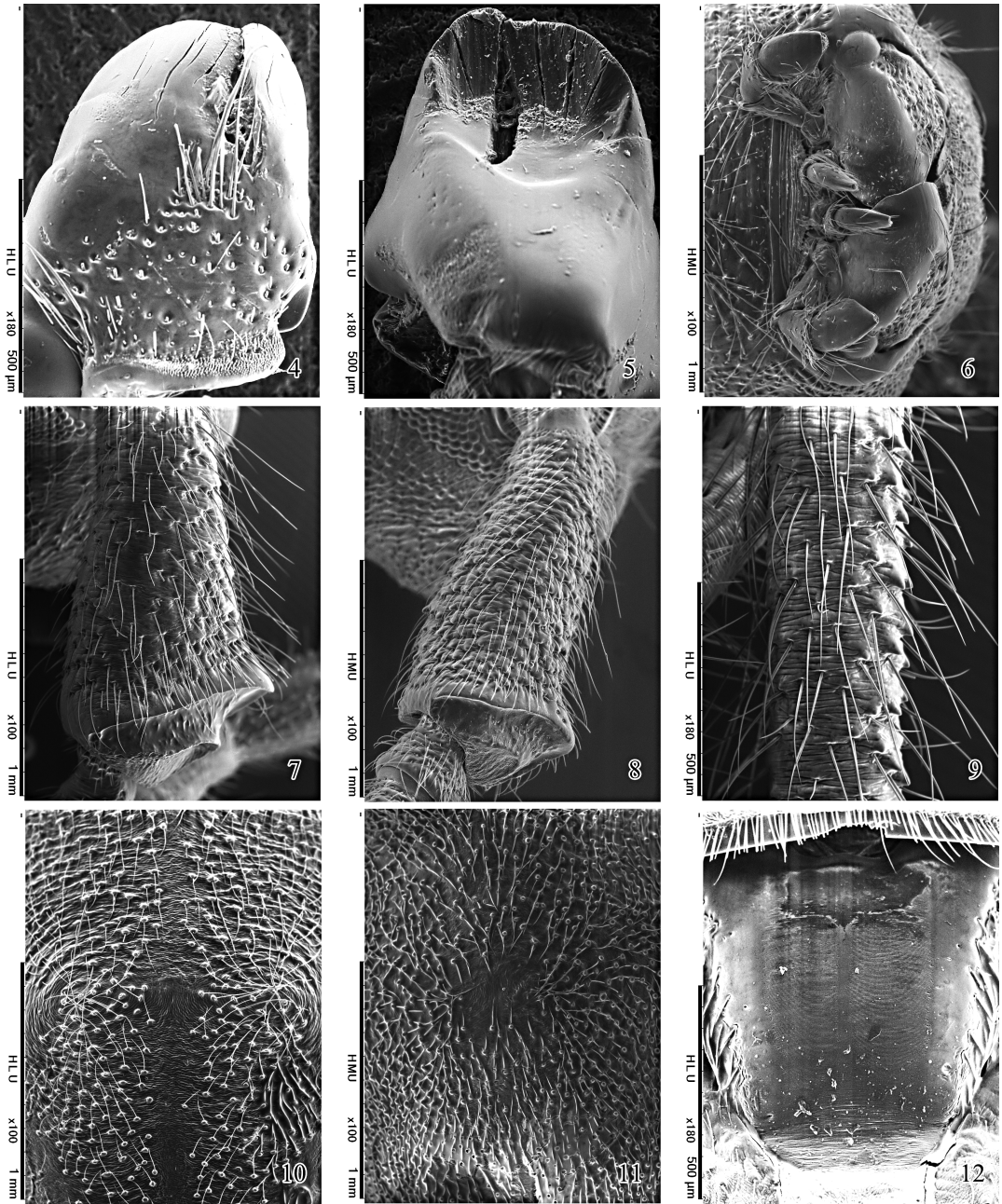
Pronotum longer than wide, distinctly divergent apicad, constricted at base; PL/PW 1.07–1.20 (M 1.14), PL/PA 1.23–1.25 (M 1.24), PB/PA 0.78–0.87 (M 0.82); sides a little swollen just behind apex, weakly arcuate at a level between apical fifth and basal 3/10 then rather suddenly narrowed in straight line to base; disc wholly convex in basal 4/5, provided with swellings which are usually indistinct and almost flattened along midline, and almost always with oblong swellings at sides near middle with shallow concavities just inner sides of them; basal collar more or less reflex; surface rather densely granulate; the granules are arranged in a pair of approximate swirls on disc. Scutellum tongue-shaped, shallowly concave along midline, shagreened.

Elytra slender and elongate, distinctly wider than pronotum; EL/EW 3.88–3.94 (M 3.91), EL/PL 4.93–5.09 (M 5.01); sides with humeri rounded quadrate, almost parallel in basal 4/5, then narrowed in arcuate line to rounded sutural angles; disc flattened above, though uneven and densely granulate on surface.

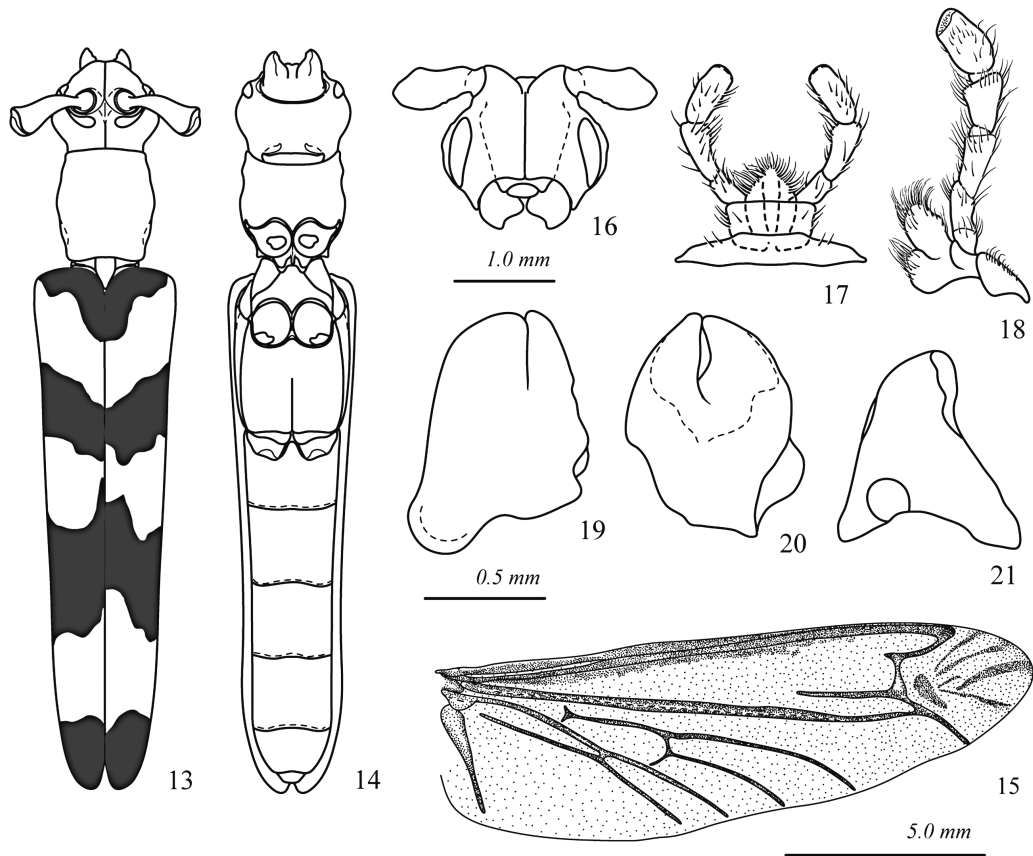
Prosternum provided with dense transverse furrows and scattered with a few granules; furcaterium with posterior projection arcuately bilobed and surrounded apical part of inter-coxal process, which is rather sharply produced posteriad and with distinct median costa. Mesosternum evenly convex, granulate throughout; inter-coxal process with apical part costate medially. Metasternum evenly convex, shallowly punctured in more or less wavy transverse line. Abdomen cylindrical though weakly swollen at sides in apical two ventrites, finely punctured; anal ventrite transverse trapezoidal, widely shallowly emarginate at apical margin.

Legs with 1st segment of hind tarsus equal in length to the following two segments combined.

Male genitalia: Median lobe very small, about 1/7 the length of elytra, well convex; dorsal plate barely reaching the anterior margin of dorsal reflection of ventral plate, rounded at apex; ventral plate obtusely produced apicad in dorsal view; median struts about 1/3 the length of median lobe; copulatory pieces as in Figs. 21–24, consisted of bilobed plate and markedly long piece. Tegmen with param-



Figs. 4–12. SEM images of body parts of *Entetraommatus* spp. from Southwest China. — 4, 5, 7, 9, 10, 12, *E. trifasciatus* sp. nov. from Yunnan Province; 6, 8, 11, *E. christinae* HOLZSCHUH from Xizang Autonomous Region (Tibet). — 4, Right mandible, external view; 5, ditto, internal view; 6, mouthparts, ventral view; 7, 8, antennal scape; 9, antennal segment 3; 10, 11, surface of pronotum, showing granules and pubescence; 12, mesonotum, showing stridulatory files.



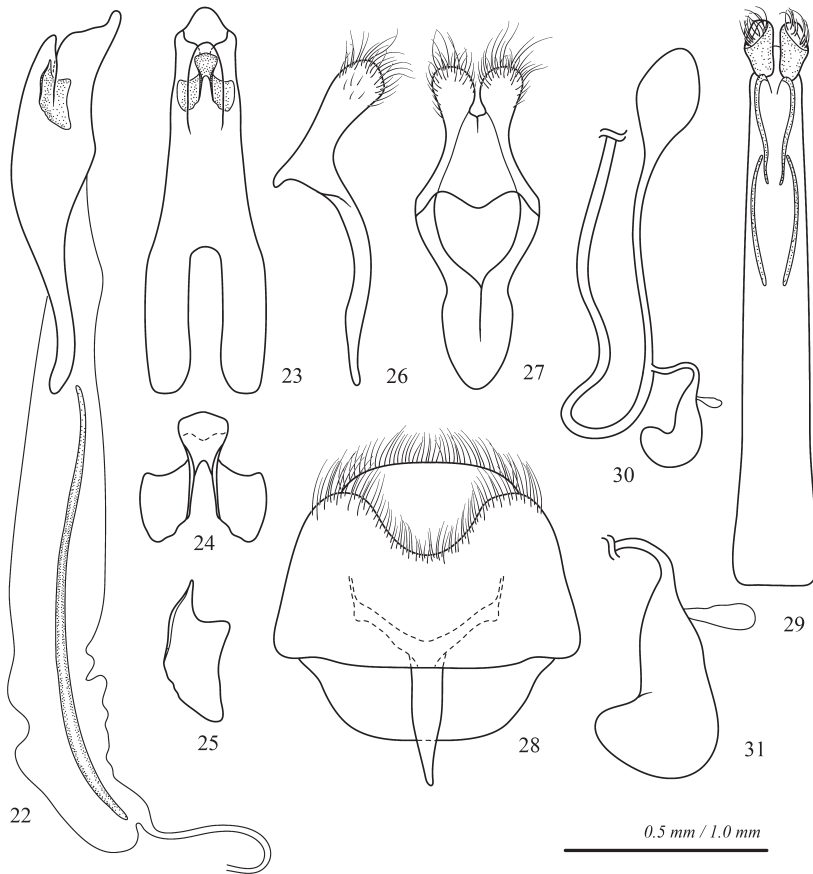
Figs. 13–21. Body parts of *Entetraommatus trifasciatus* sp. nov., male, from Yunnan Province, Southwest China. — 13, Body, dorsal view; 14, ditto, ventral view; 15, right hind wing; 16, head, frontal view; 17, labium, ventral view; 18 maxilla, ventral view; 19, right mandible, external view; 20, ditto, internal view; 21, ditto, dorsal view. Scales: 5.0 mm for figs. 13–15, 1.0 mm for figs. 16 and 0.5 mm for figs. 17–21.

eres distinctly emarginate at sides, markedly widened in apical part, which are densely provided with long setae. Eighth sternite emarginate in wide U-shape at apical margin. Eighth tergite gently arcuate at apical margin.

**F e m a l e.** Body length: 14.8–18.8 mm (from vertex to elytral apices).

Body broader on average than in male. Antennae shorter than in male, exceeding elytral apices at apex of segment 7, more sparsely haired than in male. Pronotum almost as long as wide, sometimes a little wider than long. Elytra broader than in male. Abdomen with basal three ventrites arcuate at sides, distinctly narrowed apicad in apical two ventrites, with anal ventrite roundly produced at apical margin. Standard ratios of body parts are as follows: HW/PA 1.19–1.26 (M 1.22), HW/PW 1.09–1.12 (M 1.11), PL/PW 0.96–1.08 (M 1.00), PL/PA 0.99–1.20 (M 1.10), PB/PA 0.83–0.93 (M 0.88), EL/EW 3.92–4.12 (M 4.03), EL/PL 5.53–6.72 (M 6.14).

Female genitalia: Ovipositor moderately long; baculi in coxite and paraproct arcuate and rather short; coxite lobe absent; stylus hardly sclerotised, triangularly divergent apicad, provided with long,



Figs. 22–31. Genital organs of *Entetraommatus trifasciatus* sp. nov., from Yunnan Province, Southwest China. — 22, Median lobe, lateral view; 23, ditto, dorsal view, endophallus omitted; 24, copulatory piece, dorsal view; 25, ditto, lateral view; 26, tegmen, lateral view; 27, ditto, dorsal view; 28, 8th abdominal segment, ventral view; 29, ovipositor, ventral view; 30, spermatheca and bursa copulatrix; 31, spermatheca. Scales: 1.0 mm for figs. 22, 23, 26–30 and 0.5 mm for figs. 24, 25 and 31.

somewhat waved setae at apex. Bursa copulatrix extremely long and forming a long bursal duct, though elongate ovate in apical part. Spermatheca broad, bent ventrad near apical third, with short duct.

*Type series.* Holotype: ♂, “CHINA Yunnan, / Lu Shui Xian, / Nu Jiang, / 姚家坪 (Yaojiaping) 2300m / 2009 V 13 / X-Y ZHU coll.” “HOLOTYPE / *Entetraommatus trifasciatus* / Niisato et Lin, 2016 (red card)” “IZAS, IOZ(E)1905212”. Paratypes: 1 ♀ (allotype), same collecting data as for the holotype, “ALLOTYPE / *Entetraommatus trifasciatus* / Niisato et Lin (orange card)” “CCCC”; 1 ♂, “CHINA, Yunnan Prov. / Lushui Co., Liuku, / Laimao, corn field / 25.82766°N, 98.85199°E” “875 m, 2005.V.21 N / Liang Hongbin coll. / California Academy & / IOZ., Chinese Acad. Sci.” “泸水县六库镇赖茂村” “IZAS, IOZ(E)1905210”; 1 ♀, “Yunnan, CHINA / Yaojiaping, Lushui / 19. V, 2005 / 云南泸水姚家坪 (Yunnan Lushui Yaojiaping) / leg. Liang Hongbin” “IZAS, IOZ(E)1906491”; 1 ♀, “Yunnan Prov. Lushui Co. / Yaojiaping 2005. V. 20 / 云南泸水姚家坪 / leg. Liang Hongbin” “IOZ(E)1905211”; 1 ♀,

“Yunnan Prov. Lushui Co. / Yaojiaping 2009. V. 13 / 云南泸水姚家坪 / leg. Shan Haicheng JCO-9DI0014” “CCCC”; 1 ♀, “Yunnan Prov. Lushui Co. / Yaojiaping leg. Zhu Jianqing” “云南泸水姚家坪 / 2009-V-13 朱建清” “CBWX”. The paratypes except for the allotype female provide the orange card written as “PARATYPE / *Entetraommatus trifasciatus* / Niisato et Lin, 2016”.

*Additional specimens examined.* 2 ♂♂, “SW CHINA, Yunnan, Gaoligong Shan Mts., Pianma env. / N 25°58.538', E 98°42.613', 2469 m / 7. - 8. VI. 2013, P. Viktora & P. Kabátek lgt.” (In Petr VIKTORA collection, Kutná Hora, Czech Republic.)

*Etymology.* The new specific name is derived from the three yellow bands on the elytra.

*Distribution.* China: Yunnan Province.

*Notes.* The ecological information of the new species is almost unknown. According to the personal communication by Petr VIKTORA, the dead two male specimens in the pupal cells were found from the stem of old oak tree (*Quercus* sp.). The oak without bark in about two meters above ground surface had several hundreds of emergence holes. The trail of larva of the new species in the hard and dry wood is very similar to that of clytine beetles.

### *Entetraommatus christinae* HOLZSCHUH, 2016

(Figs. 3, 6, 8, 11)

*Entetraommatus christinae* HOLZSCHUH, 2016: 81, fig. 9; type locality: Myanmar (Burma), Provinz Kachin State, Paßstraße Mt. Emaw Bum, zum Holzkohlencamp, 2700 m.

*Description of male.* Body length 16.2 mm (from vertex to elytral apices). Colour yellowish brown to dark yellowish brown, dull in general; head dark yellowish brown, largely infusate in occiput except for the median part; antennae dark reddish brown in basal four segments, gradually yellowish towards apical segments; pronotum largely black except for a median dull yellowish brown stripe; scutellum yellowish brown; elytra pale yellowish brown, provided with the following dark brown maculations: 1) a short stripe near suture in basal sixth, 2) an oblique stripe from humerus to middle of disc in basal 2/5, supplemented with two oval spots near suture in basal fourth and along external margin in basal fifth, 3) a zigzag band at a level between basal 2/5 and apical fourth, 4) a V-shaped stripe along external and sutural margins in apical fifth, which is almost divided near apex; ventral surface dark yellowish brown in pro- and mesothoraces, pale yellowish brown in metathorax and abdomen, partly dark brown in metepisterna and at sides of mesosternum; legs yellowish brown, dark reddish brown in peduncles of femora and most parts of tibiae. Body densely clothed with pale brown short to medium-sized hairs.

Head wholly markedly voluminous, distinctly wider than pronotum, densely granulate; HW/PA 1.20, HW/PW 1.30; frons provided with a fine median groove which is extended to the posterior end of occiput, closely, somewhat rugosely punctured. Antennae about 1.6 times as long as body, stout in basal three segments, gradually thinner towards apical segments, closely provided with fine transverse furrows, and also with granules especially on basal four segments; scape moderately clavate just before apical cicatrix, which has a short dent at the ventral side of apex, 2/5 the length of segment 3; segment 2 with a weak dent at the external side of apex; segment 3 the longest though only slightly longer than segment 4.

Pronotum slightly divergent apicad, widest behind apex, almost as long as wide; PL/PA 1.05, PL/PW 0.97, PA/PB 1.15; sides narrowed in sinuate line to base, with weak lateral swellings on apical 2/5; disc moderately raised towards midline, though weakly concave at sides near base and on basal 2/5, and also concave at middle near base, densely granulate though more or less sparse near apical



half of midline. Scutellum semicircular, rugose on surface.

Elytra long, slender, strongly narrowed in almost straight line to apices which are narrowly rounded; EL/EW 3.16, EL/PL 5.71; disc longitudinally depressed near middle and external side, finely densely granulated.

Ventral surface sparsely granulated and transversely rugose on thoraces, weakly rugose on abdomen. Anal ventrite of abdomen widely shallowly emarginate.

Legs with 1st segment of hind tarsus a little longer than the following two segments combined.

Male genitalia: Basically identical with that of *E. trifasciatus* sp. nov. Description and illustration could not be shown in detail since the male genitalia was carelessly lost after the extracting.

*Specimen examined.* 1 ♂, “西藏墨脱察隅 (Xizang Motuo Chayu) / 2014.VII.26 / 張巍巍 (Zhang Weiwei)” “*Entetraommatus* / *christinae* / HOLZSCHUH, 2016 / Det. M.-Y. LIN & T. NIISATO, 2016” “IOZ(E)1905447”.

*Distribution.* Myanmar; China: Xizang Autonomous Region (Tibet).

*Notes.* *Entetraommatus christinae* HOLZSCHUH was described based on a female specimen collected from northern Myanmar. The specimen examined from Xizang is not only the first record from the territory of China but also the first record of male for the species.

## Discussion

The systematic position of *Entetraommatus* FISHER is uncertain since the members of the genus have a combination of several unique characters. Although externally similar to several genera from South America such as *Neoeme* GOUNELLE or *Stenoeme* GOUNELLE, the key characters of *Entetraommatus* do not agree with those of the South American genera (GOUNELLE, 1909; MARTINES, 1997). For instance, the structure of mouth parts is extremely unique. The mandible of *E. trifasciatus* sp. nov. is incised into two lobes in apical 2/5, with movable upper and lower lobes. This character is unknown not only in the Oemina but also in the subfamily Cerambycinae. The cicatrix of antennal scape is unusual at least in the Asian members of the subtribe Oemina. Though quite unlike in facies, the genus *Atenizus* BATES from South America has the same structure on the scape as in *Entetraommatus* (BATES, 1867; MARTINES, 1997; MARTINS & GALILEO, 2004). In these points of view, *Entetraommatus* may be an isolated taxon in the Asian genera of Oemina as in the case of *Jendekia* HOLZSCHUH (HOLZSCHUH, 1993) and *Meiyingia* HOLZSCHUH (HOLZSCHUH, 2010; LI, TIAN & CHEN, 2015).

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## 要 約

新里達也・林 美英：中国産 *Entetraommatus* 属のカミキリムシ（鞘翅目カミキリムシ科）。——— *Entetraommatus* 属（カミキリ亜科 Oemini 族 Oemina 亜族）はわずか3種から構成される小属で、これまで中国から未記録であった。最近になって、雲南省とチベット自治区から得られた大型で特徴的な外観をもつ本属の標本を詳細に検討したところ、1新種と1新記録種であることが判明した。そのうち雲南省産は新種 *E. trifasciatus* sp. nov. で、鞘翅に黄色の3本の横帯をそなえることから同属他種から容易に区別することができる。チベット自治区産はミャンマーから1♀をもとに記載された *E. christinae* HOLZSCHUH と同定され、今回、中国から新たに記録される。

*Entetraommatus* 属は FISHER (1940) の原記載以降に分類学的に検討されたことがないため、本研究に用いた中国産2種に基づいて、詳細に形態の記載と図示を行った。その検討結果によれば、本属はアジア産の Oemina 亜族の構成属に類縁を求めることができるものがなく、むしろ南アメリカの *Neoeme* 属や *Stenoeme* 属などを連想させる外観をそなえている。しかしながら、地理的に遠く隔たりのあるそれら諸属とは、本属に固有な形質を共有することはほとんどなく、直接の類縁はないもの考えられる。本属はアジア産諸属のいくつかのように（たとえば *Jendekia* 属や *Meiyingia* 属）、少なくとも現在の知見では、亜属内で孤立した存在と考えられる。

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