

NEW EAST ASIAN *SYSTROPUS* (DIPTERA: SYSTROPODIDAE)Neal L. Evenhuis<sup>1</sup>

*Abstract.* Five new species of *Systropus* (*S. perniger*, *S. microsystropus*, *S. aurantispinus*, and *S. bifurcus* from China and *S. tetradactylus* from Taiwan) are described and illustrated.

Though Bowden (1967, 1975, 1980) and other authors have treated the genus *Systropus* within the family Bombyliidae, I follow Rohdendorf (1964) and Hall & Evenhuis (1980) in treating *Systropus* in the family Systropodidae. Previous studies on E Asian *Systropus* include Enderlein (1926), Séguy (1963a, 1963b) and Zaitzev (1977). The most recent generic classification is that of Bowden (1967), which is followed here.

*Systropus* is generally a pan-tropic genus; however, Zaitzev (1977) has recorded 2 species from the temperate Amur Region in the USSR, and *Systropus macer* occurs as far north as Massachusetts in the USA. All known species of *Systropus* are parasitic on limacodid (saddleback) moths. Since this parasitism is apparently a specific one, it can be assumed that the potential distribution of *Systropus* would coincide with the distribution of the limacodid hosts. Preliminary studies by this author seem to bear this theory out.

The following species were examined from material in the Bishop Museum, Honolulu (BISHOP) and the California Academy of Sciences, San Francisco (CAS).

***Systropus* (*Systropus*) *perniger* Evenhuis, new species**

Fig. 1

♀. *Length:* 18.5 mm. *Head:* frontal triangle brown, sparse silvery tomentose; face and oral margin yellow with silver tomentum; occiput black, dusted gray pollinose; gula dark brown; antennal segment I dark brownish black, yellow at extreme base; segment II black; segment III missing; antennal ratio 3:1:-; proboscis dark brown. *Thorax:* mesonotum black, shining brownish, short sparse brown to black pubescent; scutellum all black, sparse black pubescent; propleuron brown; meso- and hypopleural gray-black, white pilose; metapleuron brown laterally, black ventrally; halter, stem yellow basally, black apically; knob black; tip of humeral callus yellow, otherwise brown; other isolated brown spots present on postalar callus and before wing base. *Legs:* fore coxa brown, mid- and hind coxae black; femora black; fore tibia yellow, brown at extreme apex; mid tibia yellow; hind tibia reddish-orange; tarsi dark brown; 1st fore tarsomere with yellow spot basally; claws black; pulvilli ½ length of claws. *Wing:* tinted smoky brown; veins dark brown, r-m crossvein at distal ⅓ of discal cell, alula well developed. *Abdomen* (Fig. 2): shining black; tergite II with yellow spot anterolaterally; tergite IV with yellow spot posterolaterally; tergites V-VII with yellow band on posterior margin; tergite VIII black; sternites I-III yellow basally, black apically; sternites IV-VI black with yellowish-brown band on posterior margin; apex black. *Genitalia:* not dissected.

♂. Unknown.

1. Department of Entomology, Bishop Museum, P.O. Box 19000-A, Honolulu, Hawaii 96819, USA.

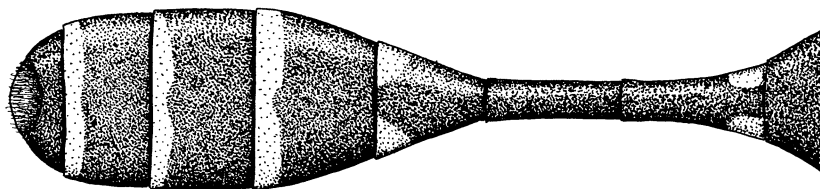


FIG. 1. *Systropus perniger*, ♀ abdomen, dorsal view.

Holotype ♀ (BISHOP 12,120), CHINA (S): Fukien Prov: Chung An: Bohea Hills, 1.X.1939, T.C. Maa.

This species runs to *studyi* using Enderlein's (1926) key but can be separated from it by the brown propleuron, brown isolated mesonotal spots and entirely black scutellum.

***Systropus* (*Systropus*) *tetradactylus* Evenhuis, new species**

Fig. 2-6

♂ (Fig. 2). *Length*: 22.0-24.0 mm. *Head*: frontal triangle orange; face and oral margin yellow; occiput black, cinereous pollinose; gula yellow; antennal segment I yellow, black apically; seg-

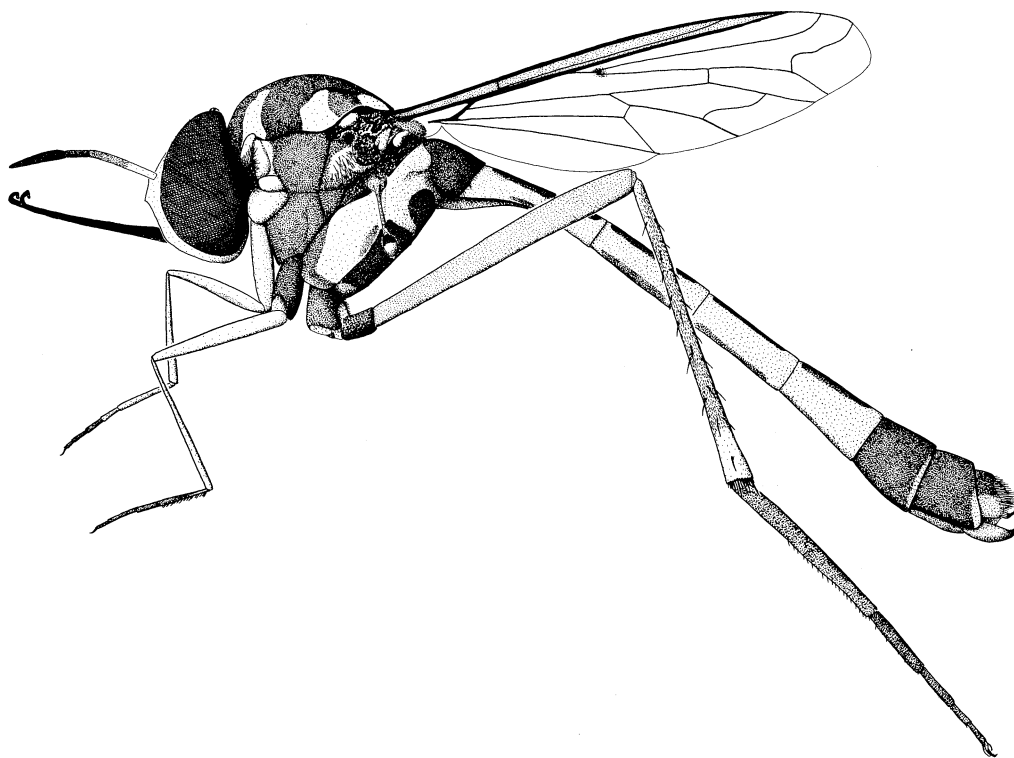


FIG. 2. *Systropus tetradactylus*, ♂ habitus, lateral view.

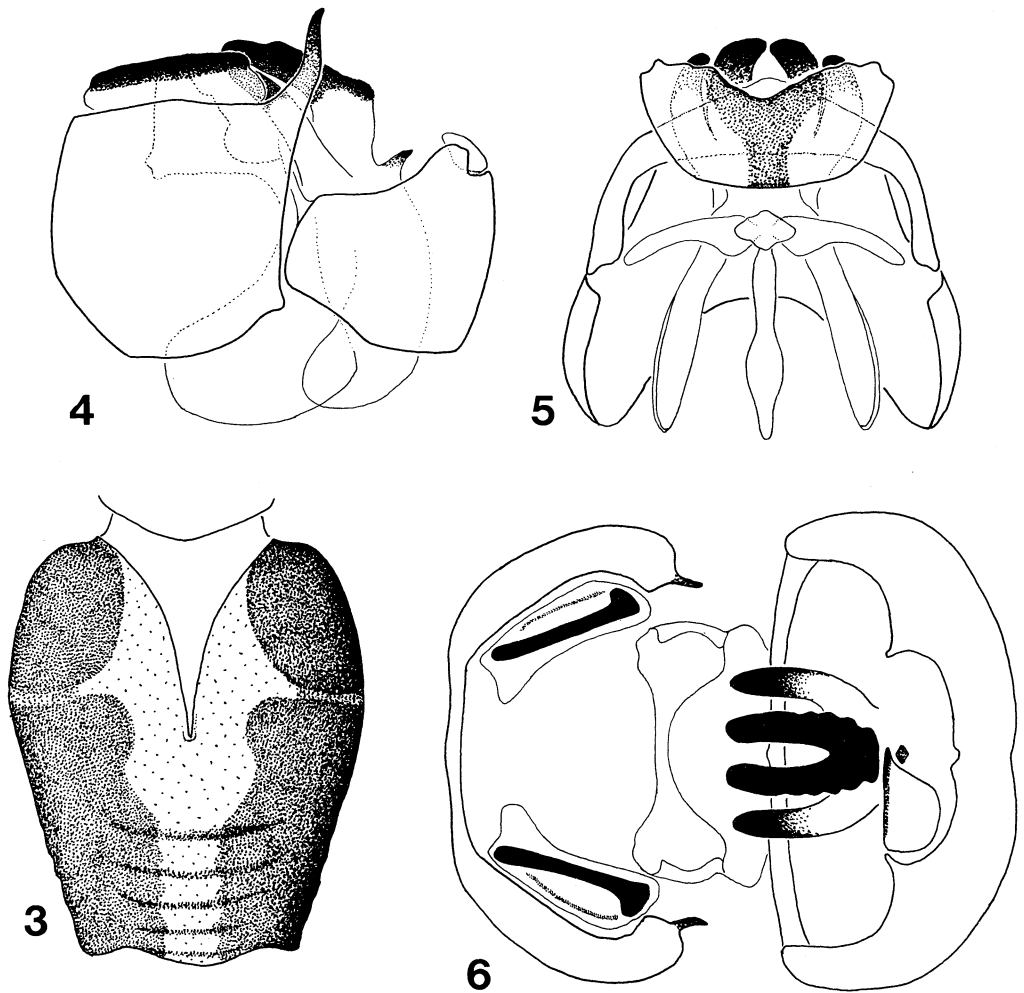


FIG. 3-6. *Systropus tetradactylus*. 3, metasternum, posterior view. 4-6, ♂ genitalia: 4, lateral view; 5, dorsal view; 6, posterior view.

ments II-III black; antennal ratio 3:1:2; proboscis black. *Thorax*: pronotum black; mesonotum dull black, shining brown; scutellum black with yellow spot on posterior margin; propleuron yellow; meso- and sternopleura black; hypopleuron black with yellow spot in middle; metanotum (Fig. 3) yellow with black pattern ventrally; halter stem brown, knob yellow apically, black basally; humeral callus, postalar callus and prealar spots yellow, all isolated. *Legs*: foreleg yellow, tarsal segments III-V black; mid coxa black; hind coxa yellow anteriorly, black posteriorly; mid femur brown basally grading to yellow apically; mid tibia yellow; mid tarsal segment I yellow basally, black apically, segments II-V black; hind femur brown basally, orange apically; hind tibia brown on basal  $\frac{4}{5}$ , yellow on apical  $\frac{1}{5}$ ; hind tarsi all black; claws black; pulvilli  $\frac{3}{4}$  length of claws. *Wing*: smoky gray; veins brown; costal cell light yellow; small brown spot at

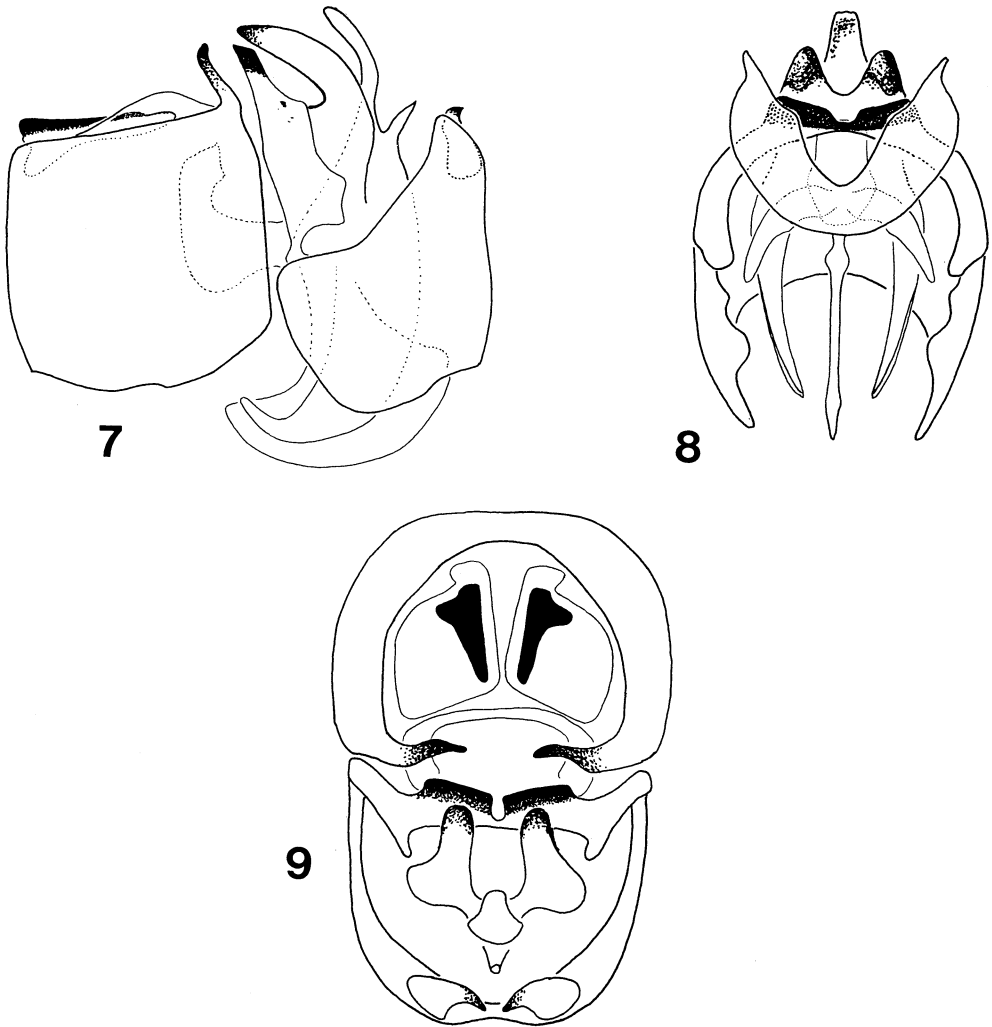


FIG. 7-9. *Systropus microsystropus*, ♂ genitalia: 7, lateral view; 8, dorsal view; 9, posterior view.

bifurcation of veins  $R_{2+3}$  and  $R_{4+5}$ ; r-m crossvein at distal  $\frac{1}{3}$  of discal cell. *Abdomen*: compressed laterally; tergites I-IV black dorsally, yellow laterally; tergites V-VII black, yellow band on posterior margin; sternites I-IV yellow; sternites V-VI black. *Genitalia* (Fig. 4-6): in lateral view with basistylus short, subtriangular, dististylus broad, darkly sclerotized on posterior surface; lateral and dorsal epiphallic lobes fingerlike, darkly sclerotized apically, aedeagus short, diamond-shaped when viewed from above, darkly sclerotized, basal apodeme club-shaped, rounded; epandrium subquadrate with long, thin posterior process darkly sclerotized apically; cerci large, sclerotized posteriorly.

♀. Unknown.

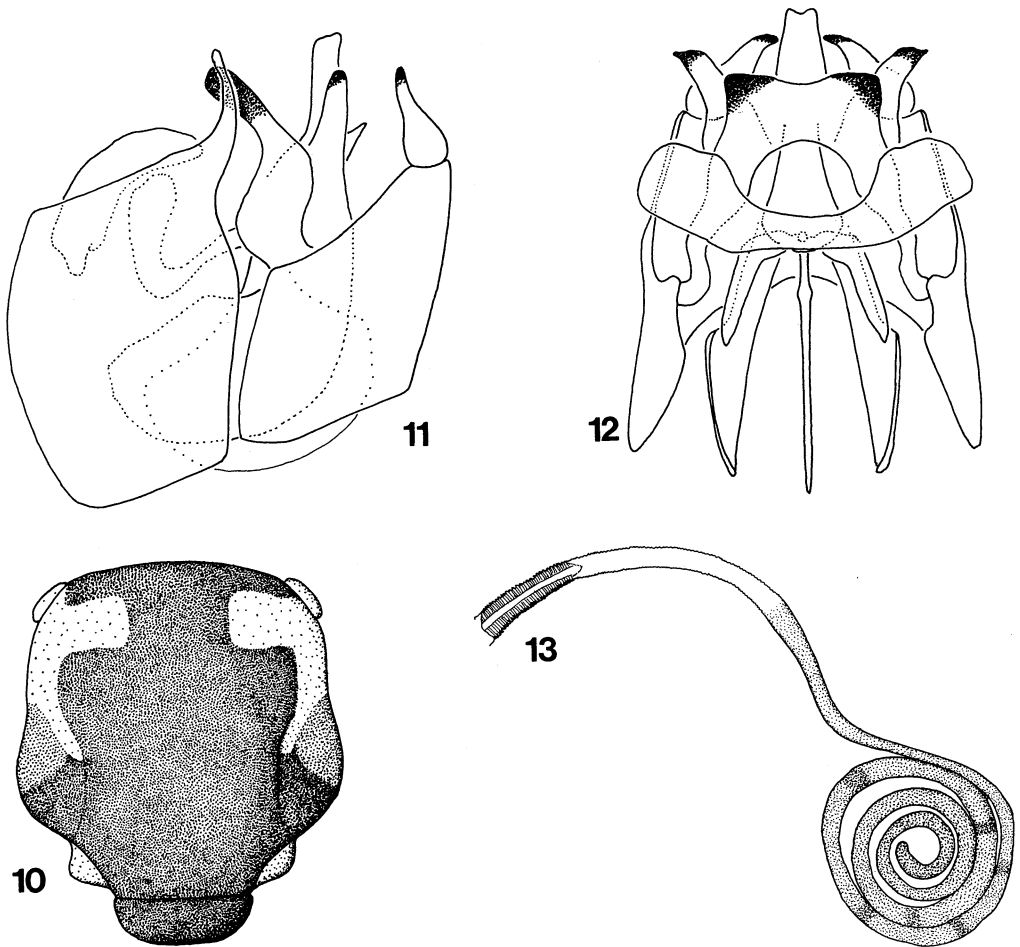


FIG. 10–13. *Systropus aurantispinus*. 10, mesonotum and scutellum, dorsal view. 11–12, ♂ genitalia: 11, lateral view; 12, dorsal view. 13, ♀ spermatheca.

Holotype ♂ (VISHOP 12,121) and 1♂ paratype, TAIWAN: 20 km S of Taipei, Tao Ynan Rd, 155 m, 19.VI.1958, S. Kirner.

In Séguy's (1963b) key, this species runs to *gracilis* Enderlein; however, it differs by having black instead of yellow halter knobs and is not from Sikkim. This species keys to *sauteri* Enderlein in Enderlein (1926), but can be separated from that species by the pigmentation of the hind tibia.

***Systropus (Systropus) microsystropus* Evenhuis, new species**

Fig. 7–9, 15

♀. *Length*: 12.5–13.5 mm. *Head*: frontal triangle, face, oral margin and gula yellow; occiput cinereous pollinose; antennal segment I yellow, black at extreme apex; segments II–III black;

antennal ratio 3:1:2; proboscis black; palpus yellow with long yellow pile. *Thorax*: pronotum black; mesonotum dull black; scutellum black; pleura black except propleuron yellow; halter yellow; humeral callus, postalar and prealar spots yellow, isolated. *Legs*: fore and midlegs yellow; hind coxa brown; hind femur yellowish orange; tibia yellowish orange, black in middle  $\frac{1}{3}$ ; hind tarsi with segment I yellow on basal  $\frac{1}{2}$ , black on apical  $\frac{1}{2}$ , remainder of tarsal segments brown; all legs with claws black; pulvilli equal in length to claws. *Wing*: tinted light gray; r-m crossvein just beyond middle of discal cell. *Abdomen*: compressed laterally; tergite I black, remainder of tergites orange-yellow; sternites orange-yellow; apex of sternites (Fig. 15) pointed, simple. *Genitalia*: not dissected.

♂. Similar to ♀ except knob of halter brown dorsally, yellow ventrally. *Genitalia* (Fig. 7-9) in lateral view with basistylus subquadrate; dististylus broad basally tapering to hooked apex, sclerotized apically; epiphallus with lateral lobes fingerlike, sclerotized apically; dorsal lobe singular, not sclerotized, aedeagus short, not sclerotized; basal apodeme axe-shaped; epandrium subrhomboid with short, thin posterior process, sclerotized apically; cerci large, sclerotized posteriorly.

Holotype ♀ (BISHOP 12,122) and 5♂ ♀ paratypes, CHINA (S): Fukien Prov: Shaowu: Ta-chulan, 10-13.X.1943, T.C. Maa. Allotype ♂ (BISHOP), CHINA (S): Fukien Prov: Kienyang: Liutun, 16.X.1943, T.C. Maa.

This species is similar to *cantonensis* Enderlein but can be separated by the isolated mesonotal spots and the hind basitarsus being yellow on the basal  $\frac{1}{2}$ .

### **Systropus (Systropus) aurantispinus** Evenhuis, **new species**

Fig. 10-13

♀. *Length*: 21.5-24.5 mm. *Head*: yellow; antennal segment I yellow; segments II-III black; antennal ratio 3:1:2; proboscis black. *Thorax*: pronotum black dorsally, yellow laterally; mesonotum as in Fig. 10; scutellum brown, pleura all black except propleuron yellow, hypopleuron brown; halter amber. *Legs*: fore and midlegs yellow; hind coxa brown; hind femur orange; hind tibia brown, yellow on apical  $\frac{1}{3}$ ; hind tarsal segment I orange on basal  $\frac{1}{2}$ , brown on apical  $\frac{1}{2}$ , segments II-IV brown; all legs with claws black; pulvilli equal in length to claws. *Wing*: smoky brown; small brown spot at bifurcation of veins  $R_{2+3}$  and  $R_{4+5}$ ; r-m crossvein at middle of discal cell. *Abdomen*: compressed laterally, reddish orange. *Genitalia* (Fig. 13): with spermathecal reservoir coiled upon itself 4×, sclerotized brownish with small, sparsely distributed dark bands; apical spermathecal duct long, thin, sclerotized on apical  $\frac{1}{2}$ , remainder membranous; ejaculatory apparatus with reduced apical and basal valves; basal duct short, thick, membranous, leading to common duct.

♂. Similar to ♀ except halter knob brown dorsally, yellow ventrally. *Genitalia*: (Fig. 11-12) in lateral view with basistylus subrhomboid; dististylus length 2× basal width, tapering to hooked apex; epiphallus with lateral lobes pointed apically, sclerotized at apex, dorsal lobe spatulate, not sclerotized; aedeagus pointed, not sclerotized; basal apodeme large, axe-shaped, rounded; epandrium subrectangular with long, thin posterior process, not darkly sclerotized apically; cerci large.

Holotype ♀ (BISHOP 12,123), CHINA (S): Fukien Prov: Shaowu, 3.IX.1944, T.C. Maa. Allotype ♂ (BISHOP), CHINA (S): Fukien Prov: Shaowu: Ta Chu Lan, 8-20.VIII.1945, T. C. Maa. *Paratypes*: CHINA (S): Fukien Prov: 3♂ topotypes collected with holotype; Shaowu, Ta Chu Lan, 12♂ ♀, 8.VIII-9.X.1942; Shaowu, Likiatun, 1♂, 18.X.1943; Kienyang, Nwangkeng, 6♂ ♀, 19.VIII.1942; Chungan, Kuatun, 1♀, 22-23.VIII.1945. (All T.C. Maa, BISHOP.)

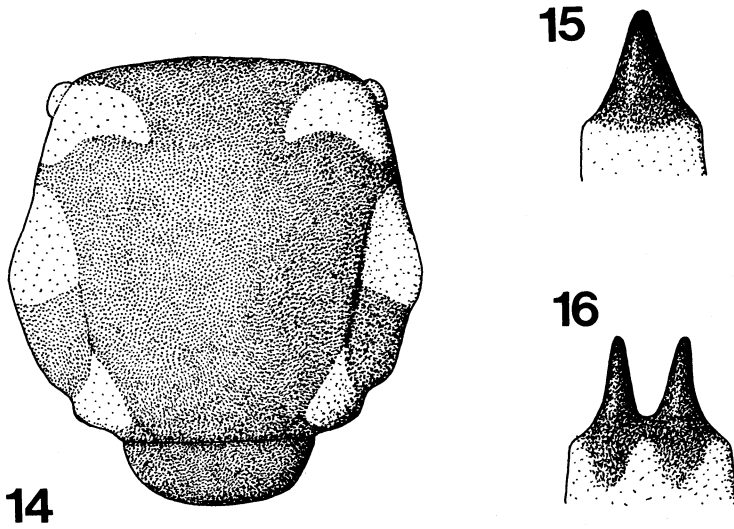


FIG. 14-16. 14, *Systropus bifurcus*, mesonotum and scutellum, dorsal view. 15-16, apex of ♀ sternites: 15, *Systropus microsystropus*; 16, *Systropus bifurcus*.

This species runs to *cantonensis* Enderlein in Enderlein (1926), but can be separated from that species by the coalesced mesonotal spots, the orange spines of the apex of the hind tibia, and the hind basitarsus being yellow on basal  $\frac{1}{2}$ .

***Systropus (Systropus) bifurcus* Evenhuis, new species**

Fig. 14, 16

♀. *Length*: 16.0 mm. *Head*: frontal triangle, face, oral margin and gula yellow; occiput cinereous pollinose, pubescence whitish; antennal segment I yellow, black at apex; segments II-III black; antennal ratio 3:1:2; proboscis black; palpus orange with black pile. *Thorax*: pronotum, mesonotum and scutellum black, patterned as in Fig. 14; propleuron yellow, hypopleuron with gray in middle, otherwise pleura black; halter stem yellow, knob yellowish white. *Legs*: fore and midlegs yellow; hind coxa as in *microsystropus* except tarsal segments I-III orange-yellow, segments IV-V brown; claws black; pulvilli subequal in length to claws. *Wing*: tinted light gray; r-m crossvein beyond middle of discal cell. *Abdomen*: compressed laterally; tergite I black, remainder of tergites amber; sternites amber; apex of sternites (Fig. 16) bifurcate, sclerotized black at apex. *Genitalia*: not dissected.

♂. Unknown.

Holotype ♀ (CAS) and 1♀ paratype, CHINA (N): Manchuria Prov: Kirin, 7.IX.1923, E.C. Van Dyke.

*S. bifurcus* is similar to *cantonensis* Enderlein, except the hind basitarsus is entirely yellow and the apex of the sternites is bifurcate. It is also close to *microsystropus*, n. sp., but can be easily separated by the mesonotal patterning and the bifurcate apex of the sternites.

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