

FIVE NEW *SUILLIA* FROM THE ORIENTAL REGION (DIPTERA: HELEOMYZIDAE)¹

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Abstract. Five new species of *Suillia*, *S. taiwanensis*, *S. uenoi* (Taiwan), *S. borneensis* (Borneo), *S. vietnamensis* (Vietnam) and *S. thaiensis* (Thailand), are described and figured.

This paper includes 5 new species of *Suillia* Robineau-Desvoidy from the Oriental Region and records for the first time the occurrence of the dipterous family Heleomyzidae in Borneo, Vietnam, and Thailand.

The material for this study was from the Department of Entomology, B.P. Bishop Museum (BPBM), Honolulu, Hawaii, and the Entomological Laboratories at Kyushu University (KU), Fukuoka, and Meijo University (MU), Nagoya.

Suillia taiwanensis Okadome, new species

Fig. 1

♂. *Head* rather squared in lateral view; frons brownish yellow, marginal areas of ocellar and orbital plates brown, becoming yellowish anteriorly; width at level of orbital bristles ca. $1.7 \times$ length from anterior ocellus to frontal margin; short setulae present, densest anteriorly; frontal margin narrowly emarginate medially; antennae reddish brown, arising from middle of head; 3rd segment ca. $1.7 \times$ as long as width, oval; arista brownish, base yellowish, plumose; orbito-antennal spot present; face and cheeks pale yellow with gray pollen; 3 irregular rows of buccal setae; ocellar triangle brownish with gray pollen, ocellar and orbital plates concolorous with ocellar triangle; palpi yellow, dark brown at apex. *Thorax* dull brown, covered with gray pollen; mesonotum with 3 indistinct stripes, 1 situated on meson, outer 2 laterad of dorsocentral bristles; dorsocentral bristles and fine mesonotal setae from base of black or brownish black spot; scutellum with only a few setulae (5) scattered near basal bristle on each lateral edge, rounded apically. *Legs* yellowish brown; apical and basal parts of mid and hind tibiae and 3 apical segments of tarsi of all legs dark brown; fore femur with row of about 8 long bristles anterodorsally with bristlelike hairs, mixed with 5 long hairs on ventral surface; mid femur with row of 3 or 4 long anterolateral bristles; hind femur with 3 long bristles on dorsal surface. Bristlelike hairs on ventral surfaces of mid and hind legs rather small in number; ventral surfaces of all tibiae without conspicuous hairs. *Wing* with apical areas of R_{2+3} , R_{4+5} , M_{1+2} , and areas of both crossveins almost hyaline; veins brownish yellow. Halter brownish yellow. *Abdomen* brownish yellow, dorsal surface brownish black; caudal parts yellowish orange; epandrium small. Surstyli symmetrical, rather small, almost parallel-sided, slightly recurved, length $2 \times$ as long as width, apical margin round; inner surface on margin with many small spines and sparse spinelike bristles.

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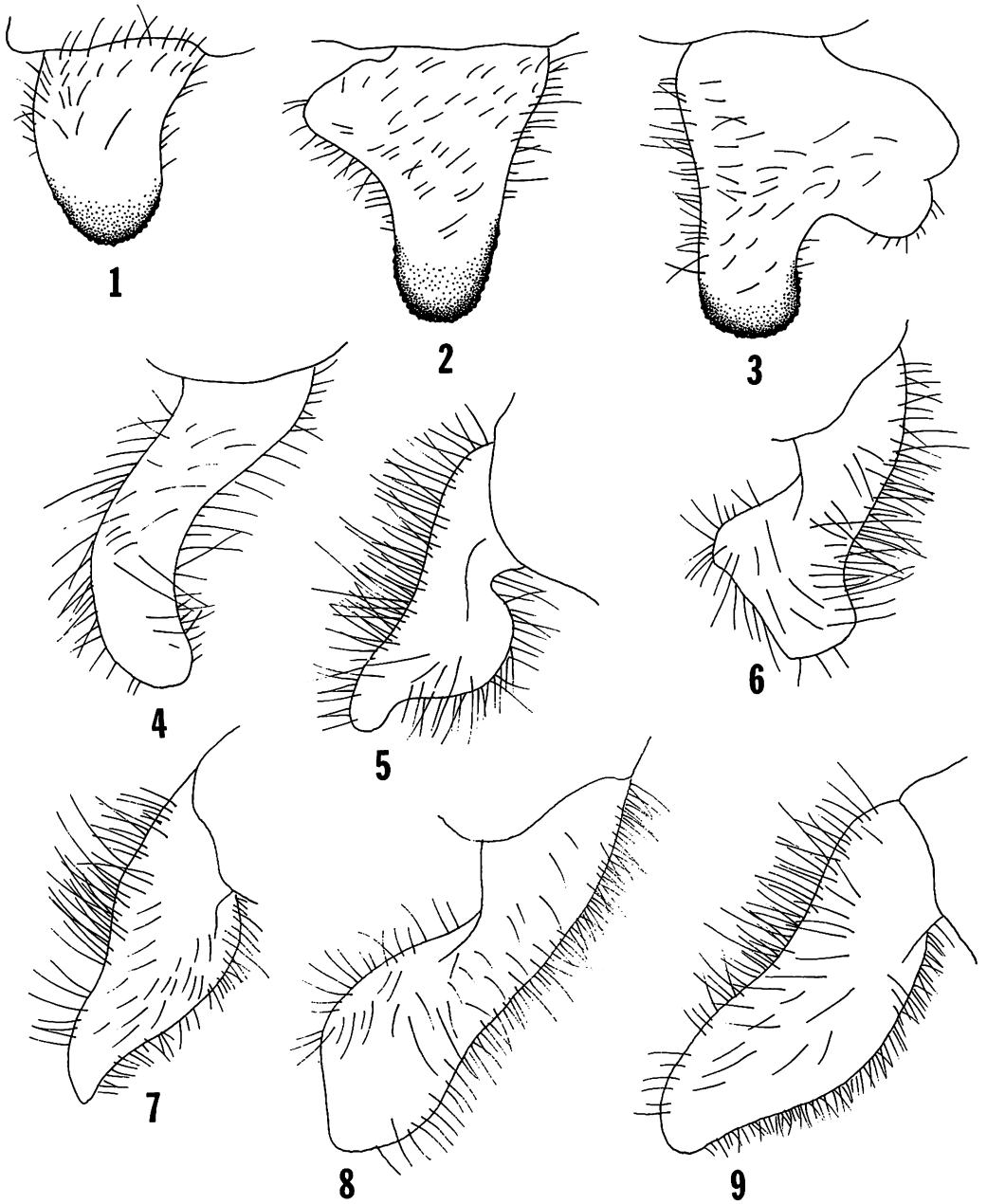


FIG. 1-9. Lateral view of surstyli. 1, *Suillia taiwanensis*, left side. 2-3, *S. uenoi*: 2, left side; 3, right side. 4-5, *S. vietnamensis*: 4, left side; 5, right side. 6-7, *S. thaiensis*: 6, left side; 7, right side. 8-9, *S. borneensis*: 8, left side; 9, right side.

Length: body 5.0 mm, wing 5.2 mm.

♀. Unknown.

Holotype ♂, TAIWAN: Hokko-kaminoshima-onsen, Byoritsu-ken [Miaoli Hsien], 11.IV.1967 (T. Shirozu) (MU).

This species is close in appearance to the Palaearctic *S. strobli* (Czerny) but differs from it by having 10 scutellar setulae, the mid and hind tibiae with basal and apical infuscation, and the mesonotum with dorsocentral bristles and setae rising from black or brownish spots.

***Suillia uenoi* Okadome, new species**

Fig. 2, 3

♂. *Head* nearly rounded in lateral view; frons brownish yellow, marginal areas of ocellar and orbital plates brownish, becoming pale yellow towards base of antennae; width at level of orbital bristles ca. $1.7\times$ length from ocellus to frontal margin; short setulae present; frontal margin gently emarginate medially; antennae yellowish orange, arising above middle of head; 3rd segment ca. $1.8\times$ as long as width, oval; arista yellowish brown, plumose; orbito-antennal spot present; face and cheeks yellow with gray pollen; 2 irregular rows of buccal setae present; ocellar triangle yellowish brown, ocellar and orbital plates pale yellow; palpi wholly pale yellow; occipital bristles yellow. *Thorax* reddish brown, covered with gray pollen; mesonotum without longitudinal stripe; dorsocentral bristles and setulae from dark brown spot at base; a wide brownish stripe from lateral margin of humerus to base of wing; scutellum with 24 setulae scattered over each lateral $\frac{1}{3}$ of disc, apical margin rounded; episternum clothed with some short hairs. *Legs* yellowish brown; apical part of hind femur infuscated; all femora with bristly hairs on ventral surface; fore femur with row of 5 long bristles on anterodorsal surface; mid femur with row of 3 long bristles on anterolateral surface; fore femur with bristly hairs longer than those of mid and hind femora; tarsal hairs small in number on ventral surfaces. *Wing*: costal spines short, slightly longer than width of costa; distal areas of R_{2+3} , R_{4+5} , and M_{1+2} yellowish brown. Halter entirely yellow. Surstyli asymmetrical; left surstylus with anterior margin strongly produced before base, apical portion rounded, outer surface with short spines and sparse bristly hairs on margin; right surstylus with anterior margin strongly and broadly produced before base, apical portion formed into rounded lobe, posterior $\frac{1}{2}$ clothed with many hairs outwardly, inner surface with many marginal short spines.

Length: body 6.7 mm, wing 6.8 mm.

♀. Unknown.

Holotype ♂, TAIWAN: Fen-chihu, Chai Hsien, 1370 m, 12.IV.1965 (S. Ueno) (KU).

This species is similar to *S. taiwanensis*, n. sp., but differs from it by having a larger body, no longitudinal stripes on the mesonotum, and small hairs present on the episternum.

***Suillia borneensis* Okadome, new species**

Fig. 8, 9

♂. *Head* rounded in lateral view; frons entirely yellowish brown, surrounding areas of orbital plates brown, ocellar triangle brown; width at level of orbital bristles ca. $1.5\times$ length from anterior ocellus to frontal margin; antennae yellowish brown, brown anteriorly, 3rd segment ca. $2\times$ as long as wide, ovoid; arista brown, base yellow, plumose; orbito-antennal spot present; face and cheeks reddish brown with silvery pollen; 1 vibrissa present; 3 irregular rows of buccal

setae present; orbital plates subshining pale yellowish brown; ocellar triangle with cinereous pollen; palpi entirely pale yellow, somewhat tinged with reddish apically; occipital bristles yellow. *Thorax* brownish yellow; dorsocentral bristles and mesonotum with short setulae not rising from dark spots; disk of scutellum yellowish brown, flat, with some setulae on outer margin, rounded apically; pleurae orange-yellow, with narrow brownish stripe not extending from lateral margin of humerus to base of wing. *Legs* yellowish brown; dorsoapical parts of fore and hind femora, tibiae, and apical 3 segments of all tarsi infuscated; fore femur with 5 long bristles dorsally, long bristlelike hairs on ventral surface; mid femur with 5 bristles anterolaterally; 3 bristles on apical posterolateral surface; hind femur with irregular row of 10 bristles on anterolateral surface; ventral surfaces of mid tibia with many bristlelike hairs, denser and longer than on fore and hind tibiae. *Wing* with marginal, submarginal, apical parts of 1st and 2nd posterior cells, and posterior crossvein clouded; veins brown; spines on costal vein shorter than length of anterior crossvein. Halter pale yellow, knob brownish. *Abdomen* reddish yellow, blackish brown dorsally, 1st tergite reddish yellow laterally. Surstyli asymmetrical; without spinelike bristles along inner distal area; left surstylus broad on distal $\frac{2}{3}$, evenly tapering to apex; anterior and posterior surfaces with many long bristles, outer bristles more dense. Posterior margin of right side slightly bulging near middle portion, not pointed at apex; anterior and posterior sides with many bristles, anterior marginal bristles.

Length: body 9.0 mm, wing 9.5 mm.

♀. Distinct from ♂ by following characters: ventral surfaces of fore trochanter with 2–4 bristles; fore femur with 2 bristles; long hairlike bristles on ventral surfaces of all tibiae lacking; abdomen orange-yellow, posterior margins of tergites 1–2 blackish brown; tergites 4–6 dark brown; tergite 7 brown.

Length: body 9.5 mm, wing 8.5 mm.

Holotype ♂, MALAYSIA: SABAH: Mt Kinabalu, 2140 m, 22–30.X.1958 (T.C. Maa) (BPBM 13,272). *Allotype* ♀, same data as holotype. *Paratypes*: 1♂, 1♀, same data as holotype; 1♀, SABAH: Tenompok, 30 mi [ca. 48 km] E of Jesselton, 1460 m, 17–21.X.1958, fannula of bamboo hut (Maa). All in BPBM.

This species is closely related to *S. vietnamensis*, n. sp., but can be distinguished from it by having no mesonotal vittae and no lateral vitta extending from side of humerus to base of wing; the surstylus differs as described above.

***Suillia vietnamensis* Okadome, new species**

Fig. 4, 5

♂. *Head* rounded in lateral view; frons yellowish brown, orbital plates and ocellar triangle margins brown; width at level of orbital bristles ca. $1.2 \times$ length from anterior ocellus to frontal margin; antennae pale yellowish brown, 3rd segment ca. $1.8 \times$ as long as wide, oval; arista brownish, base yellowish brown, plumose; orbito-antennal spot present; face and cheeks reddish brown; 3 oral vibrissae; orbital plates subshining yellowish; ocellar plates with ash-gray pollen; palpi yellowish brown; occipital bristles yellow. *Thorax* yellowish brown; mesonotum with 2 faded brownish stripes at meson; dorsocentral bristles and short mesonotal setulae not rising from dark spots; scutellum yellowish brown, some setulae on marginal area, rounded apically; pleurae yellowish brown, narrow brownish stripe from lateral margin of humerus to base of wing. *Legs* pale brownish yellow; apical part of fore and hind tibiae and apical segment of all tarsi infuscated; fore femur with 6–7 bristles on posterodorsal surface and with long bristly hairs on ventral surface; mid femur with 3 bristles on anterolateral surface and 2 bristles on posterolateral surface; hind femur with irregular row of 7 bristles on anterolateral surface; ventral sides of mid and hind femora with short brushlike hairs; ventral surfaces of all tibiae

with long bristlelike hairs. *Wing* with apical parts of 2nd through 4th longitudinal veins and posterior crossvein clouded; apical spine on costal vein longer than length of anterior crossvein. Halter pale yellow, knob brown. *Abdomen* yellowish brown dorsally, infuscated brownish yellow on sides. Surstyli asymmetrical, left surstylus slightly narrow distally, curved, bluntly rounded at tip; posterior and anterior surface with dense bristles. Right side with stout basal portion, broadest at middle portion, constricted toward round apex; posterior surface with long bristles; anterior surfaces of left and right sides without spinelike bristles.

Length: body 10.0 mm, wing 11.5 mm.

♀. Differs from ♂ by having 3–4 bristles on ventral surface of fore trochanter; abdomen blackish brown; tergites 1–5 yellowish brown laterally.

Length: body 9.5 mm, wing 9.7 mm.

Holotype ♂, VIETNAM: Fyan, 900–1000 m, 11.VII–9.VIII.1961 (N.R. Spencer) (BPBM 13,273). Allotype ♀, same data as holotype. Paratypes: 2♂, 3♀, same data as holotype. All in BPBM.

This species is related to *S. thaiensis*, n. sp., but can be distinguished from it by the presence of an orbito-antennal spot, by the mesonotal vittae, and by the difference in the surstyli.

***Suillia thaiensis* Okadome, new species**

Fig. 6, 7

♂. *Head* rounded in lateral view; frons orange-yellow, surrounding areas of orbital plates and ocellar triangle brown, pale yellow towards antennal base; width at level of orbital bristles ca. 1.5× length from anterior ocellus to frontal margin; antennae yellowish brown, 3rd segment ca. 1.9× as long as width, oval; arista brown, base yellow plumose; orbito-antennal spot absent; face pale yellow, gena reddish brown, spotted; 3 vibrissae present; 2–3 irregular rows of buccal setae present; orbital plate pale yellow, shining, smooth; occipital bristles yellow. *Thorax* yellowish brown; mesonotum coarsely clothed with setulae; dorsocentral bristles and short mesonotal setulae not rising from dark spots; disk of scutellum yellowish brown, some setulae on outer margin, narrow brownish stripe from lateral margin of humerus to base of wing. *Legs* reddish yellow; apical part of all tibiae infuscated; fore femur with about 5 bristles on posterodorsal surface, long bristlelike hairs on ventral surface; mid femur with 3 bristles anterolaterally, 2 bristles on posterolateral surface; hind femur with irregular row of 6 bristles, mid and hind femora with short brushlike hairs; all tibiae with comparatively long bristlelike hairs on ventral surfaces. *Wing* with apical areas of marginal, submarginal, 1st and 2nd posterior cells, and posterior crossvein infuscated; veins pale yellowish brown; spines on costal vein slightly longer than length of anterior crossvein. Halter reddish yellow, knob yellowish brown. *Abdomen* yellowish, dull brown dorsally infuscated with yellowish brown on sides. Surstyli asymmetrical, left surstylus with stout basal portion, sinuate, broadest at apical 1/3; posterior surface with many long bristles, anterior surface with comparatively long bristles on apical portion. Right side narrowly triangular, tapering to pointed apex; posterior and anterior sides with many long bristles, posterior bristles longer than inner side; without spinelike bristles on inner distal sides of left and right surstyli.

Length: body 9.5 mm, wing 9.0 mm.

♀. Distinctly paler than ♂, especially abdomen; segments 1–4 orange-yellow, posterior margins with blackish brown, pale laterally, segment 5 dark brown, pale laterally, segment 7 entirely orange-yellow.

Length: body 10.0 mm, wing 9.5 mm.

Holotype ♂, THAILAND: NW Chiangmai, Doi Suthep, 1278 m, 29.III–4.V.1958 (T.C. Maa) (BPBM 13,274). Allotype ♀, same loc. as holotype, 4.IV.1958. Paratypes: 1♀, same loc. as holotype,

1-5.IV.1958; 1♀, same loc. as holotype, 1-8.IV.1958; 2♀, Chiangdao Prov, 450 m, 5-11.IV.1985. All in BPBM.

This species is distinguished from *S. borneensis*, n. sp., by the absence of an orbito-antennal spot, by the presence of a brownish stripe from the lateral margin of the humerus to the base of the wing, and by the different surstyli.

KEY TO SPECIES OF ORIENTAL *SULLIA*

1. Wing brownish hyaline with dark brown and white patches **luzonensis** Okadome
Wing brownish hyaline with only brown patches 2
2. Mesopleuron with hairs; posterodorsal corner of sternum infuscated
. **takasagomontana** Okadome
Mesopleuron without hairs; posterodorsal corner of sternum not infuscated 3
3. Arista plumose; frontal margin emarginate medially; scutellum with hairs on dorsal surface 5
Arista pubescent; frontal margin not emarginate medially; scutellum without hairs on dorsal surface 4
4. First and 2nd dorsocentral bristles arising from large brown dots **yasudai** Okadome
All dorsocentral bristles arising from same size dots **prima** Hendel
5. Dorsocentral bristles and fine mesonotal setae arising from brownish black spot at base 6
Dorsocentral bristles and fine mesonotal setae not arising from brownish black spot 7
6. Mesonotum with 3 brown stripes **taiwanensis**, n. sp.
Mesonotum without stripes **uenoi**, n. sp.
7. Three oral vibrissae; pleurae with narrow brownish stripe from lateral margin of humerus to base of wing 8
Three oral vibrissae; pleurae without brownish stripe from lateral margin of humerus to base of wing **borneensis**, n. sp.
8. Orbito-antennal spot present, mesonotum with 2 faded brownish stripes at meson; marginal cell entirely dark brown **vietnamensis**, n. sp.
Orbito-antennal spot absent, mesonotum without brown stripe; marginal cell without dark brown **thaiensis**, n. sp.

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IMPORTANT NOTICE

The *International Journal of Entomology* will suspend publication following the last issue of the 1985 volume, i.e., 27(4). We regret that this step must be taken at this time.

An outlet for entomology papers is anticipated through Bishop Museum Press, either through current series or as part of a multidisciplinary journal now being planned by the Press. Manuscripts within the scope of medical and veterinary entomology and acarology may be submitted for consideration by the *Journal of Medical Entomology*.