

## Two New Genera of Serphidae from Taiwan (Hymenoptera: Serphoidea)\*

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### 摘 要

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本文記述臺灣細蜂科(Serphidae)二新屬，即*Maaserphus*及*Phoxoserphus* genn. nov. 前者包括 *M. basalis*, *M. striatus*, *M. fuscipes*, *M. longicaudus* 及 *M. brevicaudus* 五新種。後者包括 *Ph. vescus* 及 *Ph. chikoi* 二新種。各種並附SEM圖加以說明。

並就現存於臺灣省農業試驗所昆蟲標本館13,000餘細蜂科標本分屬整理結果，臺灣產者共計十二屬，其中十屬為臺灣新記錄。

**關鍵詞：**臺灣，細蜂科，新屬。

### Abstract

Descriptions and SEM illustrations are provided for *Maaserphus* and *Phoxoserphus*, genn. nov. as well as *M. basalis*, *M. striatus*, *M. fuscipes*, *M. longicaudus*, *M. brevicaudus*, *Ph. vescus* and *Ph. chikoi* spp. nov. A checklist of the 12 genera occurring in Taiwan is appended.

**Key words:** Taiwan, Serphidae, new genera.

The family Serphidae represents a moderately small group among the parasitic Hymenoptera. In Townes' (1981) recent taxonomic revision of the world Serphidae, 310 species in 3 subfamilies (Vanhorniinae, Acanthoserphinae and Serphinae) were recognized. The biology of the various species is virtually unknown besides a few scattered published records as parasites of certain beetle larvae (Townes, 1981).

The Taiwanese Serphidae have so far been

studied by Brues (1940), Townes (1981) and Lin (1987). Only 9 species in 2 genera are on the faunistic list, viz., *Exallonyx chiuuae* Townes, *Nothoserphus admirabilis* Lin, *N. aequalis* Townes, *N. debilis* Townes, *N. epilachnae* (Pschorn-Walcher), *N. fuscipes* Lin, *N. mirabilis* Brues, *N. partitus* Lin, *N. townesi* Lin. In 1980–1986, an extensive survey of the Taiwanese insect-fauna was carried out by the Taiwan Agricultural Research Institute,

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with emphasis of the use of sweeping nets and Malaise traps for minor-sized insects. Over 13,000 serphid specimens resulted. Preliminary examination of these specimens (plus a few old ones stored in the old TARI collection) revealed representatives of 12 genera, of which only 2 (*Exallonyx*, *Nothoserphus*) have been previously recorded from Taiwan. A checklist of the genera follows. Those marked with asterisks represent new record for the Island.

#### Subfamily Serphinae

##### Tribe Disogmini

\* *Disogmus* Förster, 1856

##### Tribe Cryptoserphini

\* *Maaserphus* gen. nov.

*Nothoserphus* Brues, 1940

\* *Cryptoserphus* Kieffer, 1907

\* *Phoxoserphus* gen. nov.

\* *Mischoserphus* Townes, 1981

\* *Hormoserphus* Townes, 1981

\* *Brachyserphus* Hellén, 1941

##### Tribe Serphini

\* *Phaenoserphus* Kieffer, 1908

\* *Serphus* Schrank, 1780

\* *Phanoserphus* Pashorn-Walcher, 1958

*Exallonyx* Kieffer, 1904

The material on which this report is based was collected by B. H. Chen (BHC), C. C. Chen (CCC), C. C. Chien (CCC), K. C. Chou (KCC), L. Y. Chou (LYC), S. P. Huang (SPH), K. S. Lin (KSL), S. C. Lin (SCL), T. Lin (TL), I. Nitobe (IN), C. C. Pan (CCP), W. S. Tang (WST), C. H. Wang (CHW), chiefly from the central highland of Taiwan. The involved localities and their altitudes are as follows.

Alishan — 2,400 m, Chiayi hsien  
Anmashan — 2,275 m, Taichung hsien  
Chitou — 1,150 m, Nantou hsien  
Meifeng — 2,150 m, Nantou hsien  
Shangkung — 1,850 m, Taichung hsien  
Sungkang — 2,150 m, Nantou hsien  
Taipingshan — 1,950 m, Ilan hsien  
Tayuling — 2,560 m, Hualien hsien  
Tsuifeng — 2,300 m, Nantou hsien  
Tungpu — 1,200 m, Nantou hsien  
Wushe — 1,150 m, Nantou hsien

The terminology used in this paper is adapted from Townes (1981) except the pronotal plate is showed in Fig. 9. The relative measurements in the descriptions of the species were made under an ocular micrometer, all at the same magnification, 40 micrometric units = 1 mm.

#### Genus *Maaserphus* nov.

Type-species: *Maaserphus basalis* Lin, sp. nov. by present designation.

Wings normal, length of forewing 1.8–3.9 mm. Body normally slender. Head usually short, in front view frequently wider than long, clypeus about 0.6–0.8 as wide as face, apex truncate or weakly concave; malar suture present. Mandible sharpened apically, with a subapical tooth on upper edge. Occipital carina rather weak, present dorsally and laterally. Antenna moderately long, 13-segmented in both sexes, flagellomeres 1–11 of male with small circular tyloids at midlength of each segment. Lateral margins of pronotal plate parallel or nearly so, posterolateral corner angulate or rounded. Lateral scrobe of pronotum with a longitudinal furrow, and some wrinkles; upper part with entire anterior carina, behind upper end of that carina there are a few short carinae. Notauli shorter than tegula. Mesopleuron with a horizontal groove, mesopleural furrow foveolate throughout, its lower part sometimes small. Metapleuron with 0.6–0.75 smooth area, its anterior furrow foveolate, upper part of smooth area connected by a fine short carina to upper lateral margin of propodeum. Propodeum moderately long, weakly convex, anterior part almost as long as posterior part, with a median carina and a large smooth area at sides, and also a few hairs; posterior part irregularly rugulose. Forewing with stigma of moderate size. Raidus originating in vicinity of midlength of stigma, its vertical almost as long as wide or longer than thick. Radial cell short to moderately short, anterior margin about 0.5 to 1.0 time as depth of stigma, costal vein extending hardly at all beyond radial cell. Longer spur of hind tibia about 0.35 to 0.5 as long as hind basitarsus. Gaster without a stalk. Base of syntergite with

a median longitudinal groove. Ovipositor sheath about 0.59 to 0.96 as long as hind tibia, hairless or haired.

This genus can be recognized by the combination of characters of pronotal plate, side scrobe, forewing venation, hind tibial spur and base of syntergite. In these respects, it differs from *Oxserphus* Masner and *Apoglypha* Townes and other genera of the tribe Cryptoserphini.

The name of this genus is given in honor of Prof. T. C. Maa.

Members of the genus fall into 2 well-defined species-groups.

### Key to species-group of *Maaserphus*

1. Mesopleural furrow foveolate only at above horizontal groove; base of syntergite of gaster with a long narrow median groove; ovipositor sheath smooth, hairless. . . . . *basalis*-group
- Mesopleural furrow entirely foveolate; base of syntergite of gaster with a weak short broad groove; ovipositor sheath with erect hairs. . . . . *fuscipes*-group

### The *basalis*-group

In front view, lateral margin of pronotal plate straight or nearly so. Mesopleural furrow with 5–6 foveae above horizontal groove. Lower part of metapleural smooth area about 0.17 to 0.2 as height of smooth area. Base of syntergite of gaster with only a single long narrow median groove. Ovipositor sheath hairless, weakly bent.

This species-group is at present known from 2 species from Taiwan.

### Key to species of *basalis*-group

1. In lateral view of head temple short, about 0.35 of female, 0.32 of male as long as eye. Mesopleuron with lower part of mesopleural furrow smooth, only with a series of hairs. Base of syntergite of gaster smooth; ovipositor sheath about 0.9 as long as hind tibia, gradually widened from midpoint to apex. . . . . *basalis* sp. nov.

- In lateral view of head, temple moderately short, about 0.64 of female, 0.5 of male as long as eye. Mesopleuron with lower part of mesopleural furrow striate and with rather numerous hairs. Base of syntergite of gaster with weak sculptures on sides of median groove. Ovipositor sheath about 0.73 as long as hind tibia, very slightly widened from midpoint to apex. . . . . *striatus* sp. nov.

### *Maaserphus basalis* Lin, sp. nov.

Fig. 1–2, 9–10, 17–18, 25,  
30, 33–35, 44–45, 76.

Female. Length of forewing 2.2–2.8 mm. Diameter of anterior ocellus about 3 micrometric units. LOL:POL:OOL about as 2.5:6:4.5. Temple about 0.35 as long as eye. Eye about 16:10.5. Malar space about 3 units. Relative lengths and widths of antennal segments as 5:3.5; 2.8:2.5; 6.5:2.5; 6:2.8; 6:2.9; 6:2.8; 5.5:2.8; 5.5:2.7; 5:2.5; 4.8:2.8; 4.5:2.8; 4.5:2.9; 8:3.1.

Ratio of dimensions of thorax about 2:1:1.2. Side scrobe of pronotum with very weak wrinkles. Mesopleuron with posterior portion below horizontal groove smooth, with a series of hairs arranged along before posterior margin. Upper part of smooth area of metapleuron connected by a weak carina to lateral margin of propodeum. Vertical radius as long as thick, front margin of radial cell about 0.86 as depth of stigma. Longer spur of hind tibia about 0.5 as long as hind basitarsus. Lateral area of anterior part of propodeum rather broad, about 0.76 as long as wide. Base of syntergite smooth, only with a median narrow groove reaching near thyridia; anterolateral portion with almost 16 hairs. Ovipositor sheath about 0.91 as long as hind tibia, about 11.5 times as long as width at midpoint, very weakly bent and very slightly widened toward apical part.

Male. Length of forewing 2.0–2.7 mm. Diameter of anterior ocellus about 3 units. LOL:POL:OOL about 2.5:5.8:4. Temple about 0.32 as long as eye. Eye about 16:11. Malar space about 3 units. Relative lengths and widths of antennal segments as 6:3; 2.5:2.5;

6.5:2.7; 6:2.5; 6:2.8; 6:2.8; 5.5:2.8; 5.5:2.8; 5:2.8; 5:2.7; 5:2.6; 5:2.7; 7.6:2.5. Small circular tyloids on flagellomeres 1–10 situated at midlength of each segment; that on flagellomere 11 situated near basal 1/3.

Ratio of dimensions of thorax about 1.9:1:1.1, of gaster about 2.7:1:1.3.

Brown black. Mouth parts, tegula, legs and ovipositor sheath fuscous. Antenna fuscous, under surface of scape more or less paler at base. Wings hyaline, veins fulvo-fuscous, stigma dark. Hairs on body and wings fulvous.

Holotype: ♀, Central Taiwan: Tsuifeng, IV. 1984, Malaise trap (KSL & KCC).

Paratypes: Anmashan, ♀, 6–9. VII. 1978 (LYC). Shangkuang, 3 ♀♀, 20. IX. 1968 (SKL). Tsuifeng, ♀, 8. V. 1981 (KSL & SCL); ♀, VI. 1981 (KSL & WST); ♀, 8 ♂♂, VIII. 1984; 2 ♀♀, 9 ♂♂, IX. 1984; ♀, X. 1984, Malaise trap (KSL & KCC); ♀, IX. 1985; ♀, X. 1985, Malaise trap (KSL). Meifeng, 2 ♂♂, 26. VIII. 1980 (KSL & CHW); 3 ♀♀, 5–9. X. 1980 (CCC & CCC); ♂, 7. XI. 1981 (SCL & WST); ♀, 20–23. VIII. 1981 (LYC & SCL); ♀, 7. XI. 1981 (SCL & WST); 7 ♂♂, VIII. 1984; 3 ♀♀, 3 ♂♂, IX. 1984, Malaise trap (KSL & KCC). Sungkang, ♀, 3 ♂♂, 6. VIII. 1984 (KSL); 2 ♀♀, 15–17. VIII. 1984 (KCC); ♀, ♂, 13–15. IX. 1984 (KSL & SCL); ♀, 2 ♂♂, IX. 1984; ♀, 16 ♂♂, X. 1984; 5 ♂♂, XI. 1984, Malaise trap (KSL & KCC); 2 ♂♂, IX. 1985; 3 ♀♀, X. 1985, Malaise trap (KSL). Tungpu, 13 ♀♀, 2 ♂♂, 18–23. XI. 1981 (TL & WST); 6 ♀♀, 18–21. X. 1982 (KCC & SCL); ♀, 22–25. XI. 1982 (KCC & SPH); 2 ♀♀, 13–16. XII. 1982 (KCC & CCP); ♀, 10–14. I. 1983 (KCC & SPH); ♀, ♂, X. 1985; ♀, XII. 1985, Malaise trap (KSL). Wushe, ♀, 13. IV. 1983 (KCC). Chitou, ♀, ♂, 13. XI. 1968 (KSL). Alishan, ♂, 10. X. 1912 (IN); ♂, 17–20. VIII. 1982 (KCC & CCP).

*Maaserphus striatus* Lin, sp. nov.

Figs. 3–4, 11–12, 19–20, 26, 31, 36–37, 46–47, 77.

Female. Length of forewing 3.3–4.0 mm. Diameter of anterior ocellus about 4 units. LOL:POL:OOL about 3:8:8.5. Temple about

0.64 as long as eye. Eye about 20.5:11. Malar space about 5 units. Relative lengths and widths of antennal segments as 8:4.4; 3:3; 9:3.4; 8:3.8; 8:3.8; 8:3.8; 7.5:3.8; 7.5:3.9; 7:3.9; 7:4; 7.4:4.1; 7.4:4.2; 11:4.5.

Ratio of dimensions of thorax about 2.3:1:1.2. Side scrobe of pronotum wrinkled but sometimes weakly so. Mesopleuron with posterior portion below horizontal groove with striae and rather numerous hairs. Upper part of smooth area of metapleuron connected by a narrow carina to upper lateral margin of propodeum. Vertical radius as long as thick, anterior margin of radial cell about 0.9 as long as depth of stigma. Longer spur of hind tibia about 0.42 as long as hind basitarsus. Lateral smooth area of anterior part of propodeum relatively narrow, about 0.67 as long as wide. Base of syntergite weakly sculptured at side of median groove; anterolateral portion with more than 30 hairs. Ovipositor sheath about 0.73 as long as hind tibia, 11.5 times as long as width at midpoint, weakly thickened and gradually bent at apical portion.

Male. Length of forewing 3.1 mm. Diameter of anterior ocellus about 3 units. LOL:POL:OOL about 2.6:6.5:6.5. Temple about 0.5 as long as eye. Eye about 17.5:10. Malar space about 4 units. Relative lengths and widths of antennal segments as 8:4; 2.5:3; 9:3.8; 8:3.9; 8:4; 7:4; 6.5:3.9; 6.5:3.9; 6.3:4; 6.3:3.8; 6:3.7; 6:3.7; 10:3.7. Tyloids on flagellomeres as in *basalis*.

Ratio of dimensions of thorax about 2.2:1:1.2, of gaster about 3.5:1:1.3.

Brown black, sometimes paler. Mouthparts, tegula and legs fulvous to rufous, mandible, antenna (but base of scape rather pale) and ovipositor sheath fuscous. Wings hyaline, veins fuscous, stigma dark. Hairs on body and wings brownish.

Holotype: ♀, Central Taiwan: Sungkang, IX. 1985, Malaise trap (KSL).

Paratypes: ♂, Taipingshan, 26–28. VII. 1983 (LYC). Tsuifeng, ♀, X. 1984, Malaise trap (KSL & KCC). Meifeng, ♂, 24–26. VI. 1981 (KSL & WST); ♀, IX. 1984, Malaise trap (KSL & KCC).

This species can readily be distinguished from the preceding one by the difference mentioned in the key.

### The *fuscipes*-group

In frontal view, lateral margin of pronotal plate short and concave or nearly so. Mesopleural furrow foveolate both above and below horizontal groove. Lower part of metapleural smooth area narrow. Base of syntergite of gaster with weak broad median groove, usually with longitudinal shallow depression laterally. Ovipositor sheath with erect hairs and with apical portion never distinctly widened.

The *fuscipes*-group contains 3 species found in Taiwan.

### Key to species of *fuscipes*-group

1. Ovipositor sheath about 0.96 as long as hind tibia, about 10 times as long as width at midpoint. Radial cell of forewing markedly short, about 0.5 as long as depth of stigma; vertical radius wider than long, apex of radius gradually thick. Temple about 0.69 of female, 0.57 of male as long as eye. Forewing about 1.8–1.9 mm long . . . . . *fuscipes* sp. nov.
- Ovipositor sheath about at most 0.77 as long as hind tibia, at most 8 times as long as width at midpoint. Radial cell of forewing about as long as depth of stigma; vertical radius narrow, almost as long as wide; apex of radius slightly thickened. Temple of female at most about 0.36 as long as eye. Forewing about 2.6–3.2 mm long . . . . . 2
2. Ovipositor sheath relatively long, about 0.77 as long as hind tibia and 8.3 times as long as width at midpoint. Upper part 1/3 of lateral scrobe of pronotum with hairs. Anterior portion of lateral surface of syntergite with more than 20 hairs. . . . . *longicaudus* sp. nov.
- Ovipositor sheath relatively short, about 0.59 as long as hind tibia and 5.6 times as long as width at midpoint. Upper part of lateral scrobe of pronotum with rather numerous hairs on upper half and anterior

portion. Anterior portion of lateral surface of syntergite with less than 5 hairs. . . . . *brevicaudus* sp. nov.

### *Maaserphus fuscipes* Lin, sp. nov.

Figs. 5–6, 13–14, 21–22, 27, 32, 38–39, 48–49, 78.

Female. Length of forewing 1.8 mm. Diameter of anterior ocellus about 2 units. LOL:POL:OOL about 2.4:5.5:4. Temple about 0.69 as long as eye. Eye about 10:6.5. Malar space about 2.3 units. Relative lengths and widths of antennal segments as 5:2.5; 2:2; 4.3:1.8; 4:1.9; 4:2; 4:2; 4:1.8; 4:2; 3.3:2.1; 3.3:2.2; 3.3:2.4; 3.3:2.5; 7:2.5.

Ratio of dimensions of thorax about 2.2:1:1.2. Pronotal plate with lateral margin relatively long, concave behind its midlength. Hairs on upper portion of side scrobe of pronotum sparse. Forewing with anterior margin of radial cell short, about 0.5 as long as depth of stigma; vertical radius thicker than long; radius distinctly widened apically. Longer spur of hind tibia about 0.38 as long as hind basitarsus. Lateral smooth area of anterior portion of propodeum about 1.3 times as long as wide. Anterior margin of syntergite broadly concave medially and with short broad groove behind that concavity; anterolateral portion of syntergite with 6 short hairs. Ovipositor sheath about 0.96 as long as hind tibia, and about 10 times as long as width at midpoint, apex weakly bent, with erect hairs.

Male. Length of forewing 1.9 mm. Diameter of anterior ocellus about 1.5 units. LOL:POL:OOL about 1.5:4.3:4.3. Temple about 0.57 as long as eye. Eye about 11:7. Malar space about 2.2 units. Relative lengths and widths of antennal segments as 4:2.6; 2:2; 4:2.4; 4:2.5; 3.6:2.5; 3.8:2.6; 3.8:2.6; 3.7:2.6; 3.5:2.5; 3.6:2.5; 3.4:2.5; 3.5:2.5; 6.4:2.6. Tyloids small, circular, found on flagellomeres 1–11.

Ratio of dimensions of thorax about 2.2:1:1.2, of gaster about 2.8:1:1.2. Radial cell slightly broader than in female. Pronotal plate with lateral margin relatively short, concave before midlength.

Brown black. Mandible and ovipositor sheath dark. Antenna and legs fuscous, apices of coxa and trochanters rather pale. Wings hyaline, veins fuscous. Hairs on body and wings brownish.

Holotype: ♀, Central Taiwan: Sungkang, XII. 1985, Malaise trap (KSL).

Topotype: ♂, Same data as for holotype, but collected on X. 1985.

*Maaserphus longicaudus* Lin, sp. nov.

Figs. 7, 15, 23, 28, 40, 42, 50, 79.

Female. Length of forewing 3.2 mm. Diameter of anterior ocellus about 2.5 units. LOL:POL:OOL about 2.5:6:6. Temple about 0.36 as long as eye. Eye about 16:9. Malar space about 4 units. Relative lengths and widths of antennal segments as 6:3.5; 3:3; 7.2:2.8; 7:2.9; 6.8:2.8; 7:2.7; 7:2.8; 6.6:2.9; 5.5:3; 6:3; 5.4:3.2; 5.4:3.4; 10:3.7.

Ratio of dimensions of thorax about 2.3:1:1.3. Pronotal plate with relatively short, straight lateral margin; hairs on upper portion of side scrobe of pronotum rather dense, covering upper 1/3 of surface and anterior portion. Forewing with anterior margin of radial cell as long as depth of stigma; vertical radius as long as thick. Longer spur of hind tibia about 0.42 as long as hind basitarsus. Lateral smooth area of anterior portion of propodeum about 1.6 times as long as wide. Anterolateral portion of syntergite with 17 hairs. Ovipositor sheath about 0.77 as long as hind tibia, and about 8.3 times as long width at midpoint, apical portion strongly bent, with erect hairs.

Brown black. Antenna fuscous, base of scape fulvous below, mandible (both ends darker), labrum, tegula and legs fulvous. Ovipositor sheath fusco-ferruginous. Wings hyaline, veins fuscous, stigma dark.

Male. Unknown.

Holotype: ♀, Central Taiwan: Sungkang, XI. 1985, Malaise trap (KSL).

*Maaserphus brevicaudus* Lin, sp. nov.

Figs. 8, 16, 24, 29, 41, 43, 51, 80.

Female. Length of forewing 2.6–2.8 mm.

Diameter of anterior ocellus about 3 units. LOL:POL:OOL about 2.5:6:5. Temple about 0.29 as long as eye. Eye about 15:10. Malar space about 4 units. Relative lengths and widths of antennal segments as 6:4; 2.8:2.8; 8:3; 7:3; 6.5:3; 6.5:3; 6:3; 6:3; 5.3:3; 5.5:3; 5.3:3.4; 5.5:3.6; 10:4.

Ratio of dimensions of thorax about 2.2:1:1.3. Lateral margin of pronotal plate moderately short, concavely curved before midpoint. Hairs on upper portion of side scrobe of pronotum rather dense, there is a transverse smooth area above longitudinal groove. Forewing with anterior margin of radial cell as long as depth of stigma; vertical radius as long as thick. Longer spur of hind tibia about 0.36 as long as hind basitarsus. Lateral smooth area of anterior portion of propodeum about 1.5 times as long as wide. Anterolateral portion of syntergite bare, without hairs. Ovipositor sheath about 0.59 as long as hind tibia, and about 5.6 times as long as width at midpoint, apical part very strongly bent, with erect hairs.

Brown black. Antenna fuscous, scape and sometimes basal flagellomeres 4 fulvous below. Mandible (both ends darker), tegula and legs fulvous. Ovipositor sheath fuscous, apex fulvous. Wings hyaline, veins fuscous, stigma dark. Hairs on body and wings fulvous.

Male. Unknown.

Holotype: ♀, Central Taiwan: Sungkang, IX. 1984, Malaise trap (KSL & KCC).

Paratype: ♀, Meifeng, X. 1985, Malaise trap (KSL).

*Genus Phoxoserphus* nov.

Type-species: *Phoxoserphus chikoi* Lin, sp. nov. by present designation.

Wings normal, forewing 2.2–3.0 mm long. Body moderately slender. Head rather short, in front view wider than high. Clypeus about 0.67 to 0.76 as wide as face; anterior margin straight or very broadly concave. Mandible sharpened apically and with a subapical tooth at upper edge. Occipital carina distinctly complete. Antenna moderately long, 13-segmented in both sexes, flagellomeres of male with long hairs and with small circular tyloids on seg-

ments 1–10 or 2–8. Lateral margin of pronotal plate strongly concave behind midpoint; posterior part narrower than anterior part; in lateral view, with upper anterior carina, and a depression at lower end of carina, side scrobe of pronotum smooth. Notauli shorter than tegula. Prescutellar groove smooth. Mesopleuron with horizontal groove, anterior part with complete or incomplete hair-band; mesopleural furrow foveolate only above horizontal groove and its lower portion smooth. Metapleuron with a large smooth area occupying almost 0.5 of its surface; upper part without a carina connecting upper lateral margin of propodeum. Anterior margin of radial cell of forewing moderately long, about 1.6–1.8 times as depth of stigma; vertical radius slightly longer than thick. Longer spur of hind tibia about 0.4 as long as hind basitarsus. Propodeum weakly convex dorsally, anterior part somewhat longer than posterior part, with a median carina and a side large area. Gaster without a stalk. Base of syntergite with 9–11 longitudinal grooves. Ovipositor sheath about 0.66–0.77 as long as hind tibia, about 7.7–10.3 times as long as width at midpoint, surface smooth, apex rounded and broadened.

*Phoxoserphus* is relatively close to *Cryptoserphus* Kieffer, 1907 and *Tretoserphus* Townes, 1981. But in *Cryptoserphus*, the hind tibial spur is exceedingly long, and the ovipositor sheath comparatively longer and different in shape; while in *Tretoserphus*, the upper part of smooth area of metapleuron is connected by a fine short carina to the upper lateral edge of propodeum and the tyloids on male flagellomeres are elliptic in outline.

The generic name is derived from *phoxos* (peaked) plus the proper nominative *Serphus*, referring to the sharp upper end of anterior carina on side scrobe of pronotum.

#### Key to species of *Phoxoserphus*

1. Ovipositor sheath relatively long, about 0.77 as long as hind tibia, and about 10 times as long as width at midpoint. In male, tyloids found on flagellomeres 1–10. Base of syntergite with narrow median

groove and 4 additional grooves on each side. Body hairs rather dense. Anterior part of mesopleuron with complete hair-band . . . . . *vescus* sp. nov.

- Ovipositor sheath relatively short, about 0.66 as long as hind tibia and about 6.7 times as long as width at midpoint. In male, tyloids found on flagellomeres 2–8. Base of syntergite with somewhat broad median groove and 5 grooves on each side. Body rather sparsely haired. Anterior part of mesopleuron with incomplete hair-band . . . . . *chikoi* sp. nov.

#### *Phoxoserphus vescus* Lin, sp. nov.

Figs. 52–53, 56–57, 60, 64, 66,  
68–69, 72, 74, 81.

Female. Length of forewing 2.6 mm. Body rather densely haired. Clypeus about 0.69 as wide as face, surface convex, anterior margin thin, depressed and truncated. Diameter of anterior ocellus about 1.5 micrometric units. LOL:POL:OOL about 3:5.5:4. Eye about 9.5:6.5. Malar space about 2 units. Temple about 0.7 as long as eye. Occipital carina prominent. Relative lengths and widths of antennal segments as 4.5:3; 2:2.7; 7:2; 6:2; 6:2; 5.7:2; 5.5:2; 5:2; 4.5:2.3; 4.3:2.3; 4.4:2.3; 4.4:2.5; 8:3.

Ratio of dimensions of thorax about 2:1:1.2. Pronotal plate in front view with posterolateral portion relatively short, weakly raised; in lateral view, upper anterior margin with weakly undulate short carina, its upper end weakly raised; upper portion with rather dense hairs. Anterior part of mesopleuron with complete hair-band. Forewing with anterior margin of radial cell about 2 times as long as depth of stigma; vertical radius about 1.7 times as long as thick. Anterior part of propodeum almost as long as posterior part; lateral area of median carina almost about 1.75 times as long as wide, with more numerous hairs than on *chikoi*. Base of syntergite with 9 rather short longitudinal grooves; lower half of anterolateral area with more than 20 hairs. Ovipositor sheath about 0.77 as long as hind tibia, and about 10.3 times as long as width at

midpoint, with few short hairs, apex bluntly rounded.

Male. Length of forewing 3.0 mm. Diameter of anterior ocellus about 2 units. LOL:POL:OOL about 2.8:6:6. Eye about 11:7.5. Temple about 0.67 as long as eye. Malar space about 3 units. Relative lengths and widths of antennal segments as 5:3.5; 2.5:2.8; 8.3:2.4; 8.2:2.6; 8:2.8; 8:2.8; 8:2.8; 8:2.6; 7.5:2.7; 7.4:2.6; 7:2.5; 7:2.4; 10.5:2.7. Small circular tyloids on flagellomeres 1–10.

Ratio of dimensions of thorax about 2.3:1:1.4, of gaster about 3.2:1:1.1.

Fuscous. Tegula and legs pale fuscous, except bases of fore and mid coxae of female and fore coxa of male which are fulvous. Wings hyaline, veins fuscous, stigma dark. Hairs on body and wings brownish.

Holotype: ♀, Central Taiwan: Tsuifeng, XI. 1985, Malaise trap (KSL).

Topotype: ♂, Same data as of holotype, but collected in XII. 1984, Malaise trap (KSL & KCC).

*Phoxoserphus chikoi* Lin, sp. nov.

Fig. 54–55, 58–59, 62–63, 65, 67, 70–71, 73, 75, 82.

Female. Length of forewing 2.2–2.5 mm. Body sparsely haired. Clypeus about 0.89 as wide as face, surface convex, anterior margin thin, evenly depressed and truncated. Mandible strong and long, sharply point, with a subapical tooth on upper edge. Occipital carina complete and prominent. Diameter of anterior ocellus about 2 units. LOL:POL:OOL about 2.5:5:5. Temple about 0.82 as long as eye. Eye about 10:7. Malar space about 3 units, malar suture present. Relative lengths and widths of antennal segments as 4:3.2; 2:2.6; 6:2; 6:2; 5.5:2.3; 5.4:2.4; 5:2.4; 4.5:2.5; 4.5:2.5; 4.3:2.5; 4.2:2.5; 4.2:2.7; 8.5:3.5.

Ratio of dimensions of thorax about 2.5:1:1.4. Pronotal plate with hairs sparse; in front view, posterolateral portion distinctly raised; in lateral view, upper anterior margin with short, straight carina, and with a depression just low end; scrobe smooth, upper part with a few scattered hairs. Notauli about 0.42

as long as tegula. Prescutellar groove deep, smooth, with hairs. Mesopleuron with horizontal groove complete, mesopleural furrow foveolate, area below horizontal groove smooth. Metapleuron with a large smooth impunctate area, occupying about 0.65 of the surface. Forewing with anterior margin of radial cell about 1.6 times as long as depth of stigma, vertical radius slightly longer than thick. Longer spur of hind tibia about 0.44 as long as hind basitarsus. Propodeum weakly convex dorsally, anterior part longer than posterior part, with median and lateral carinae, forming a pair of large lateral areas, which are about 1.75 as long as wide; posterior part with irregular rugae. Gaster without a stalk, base of syntergite with 11 longitudinal grooves; anterolateral area with about 15 hairs. Ovipositor sheath about 0.66 as long as hind tibia, and about 7.7 times as long as width at midpoint, very weakly bent at middle, apex rounded, with some very sparse short hairs.

Male. Length of forewing 2.3–2.7 mm. Clypeus about 0.73 as wide as face. Diameter of anterior ocellus about 1.8 units. LOL:POL:OOL about 2.4:4:5. Temple about 0.71 as long as eye. Eye about 9:6.5. Malar space about 1.5 units. Relative lengths and widths of antennal segments as 3.5:3; 2:2.5; 6:2; 6:2.3; 6:2.2; 5.5:2.1; 5.5:2.1; 5.5:2.3; 5.5:2.2; 5.3:2; 5.5:2; 5.3:2; 8:2. Flagellomeres with long erect hairs; tyloids small, circular, found on segments 2–8.

Ratio of dimension of thorax about 2.3:1:1.3, of gaster about 2.8:1:1.1.

Fuscous. Head and gaster more or less darker. Mandible (apex dark), tegula and legs fulvous. Antenna (except 2 basal segments which are fulvous) and ovipositor sheath fuscous. Wings hyaline, stigma fuscous, veins pale fuscous. Hairs on body and wings brownish.

Holotype: ♀, Central Taiwan: Sungkang, IX. 1985, Malaise trap (KSL).

Paratypes: Tayuling, ♀, 10–16. VI. 1980, Malaise trap (KSL & BHC). Tsuifeng, ♂, 3. VI. 1980 (LYC & CCC); ♀, 8. V. 1981 (KSL & SCL); ♂, 23. V. 1982 (LYC); ♂, 23–25. VI. 1983 (KSL & SCL); ♀, IV. 1984; ♀, ♂, V. 1984; 2 ♀♀, VII. 1984; 15 ♀♀, 5 ♂♂, VIII.



1984; 4 ♀♀, 4 ♂♂, IX. 1984; 3 ♀♀, 2 ♂♂, X. 1984, Malaise trap (KSL & KCC). Meifeng, ♀, ♂, 20–23. VI. 1979 (KSL & BHC); ♀, 19–21. IV. 1983 (KCC & SPH); ♂, VI. 1984; 7 ♀♀, 7 ♂♂, VIII. 1984; ♂, IX. 1984, Malaise trap (KSL & KCC). Sungkang, 7 ♀♀, 6 ♂♂, 6. VIII. 1984 (KSL); ♂, 15–17. VIII. 1984 (KCC); 2 ♀♀, 3 ♂♂, X. 1984, Malaise trap (KSL & KCC); 2 ♀♀, ♂, IX. 1985; 3 ♂♂, X. 1985; ♂, XI. 1985; ♂, XII. 1985, Malaise trap (KSL). Wushe, ♂, 6–11. V. 1981 (KSL & SCL).

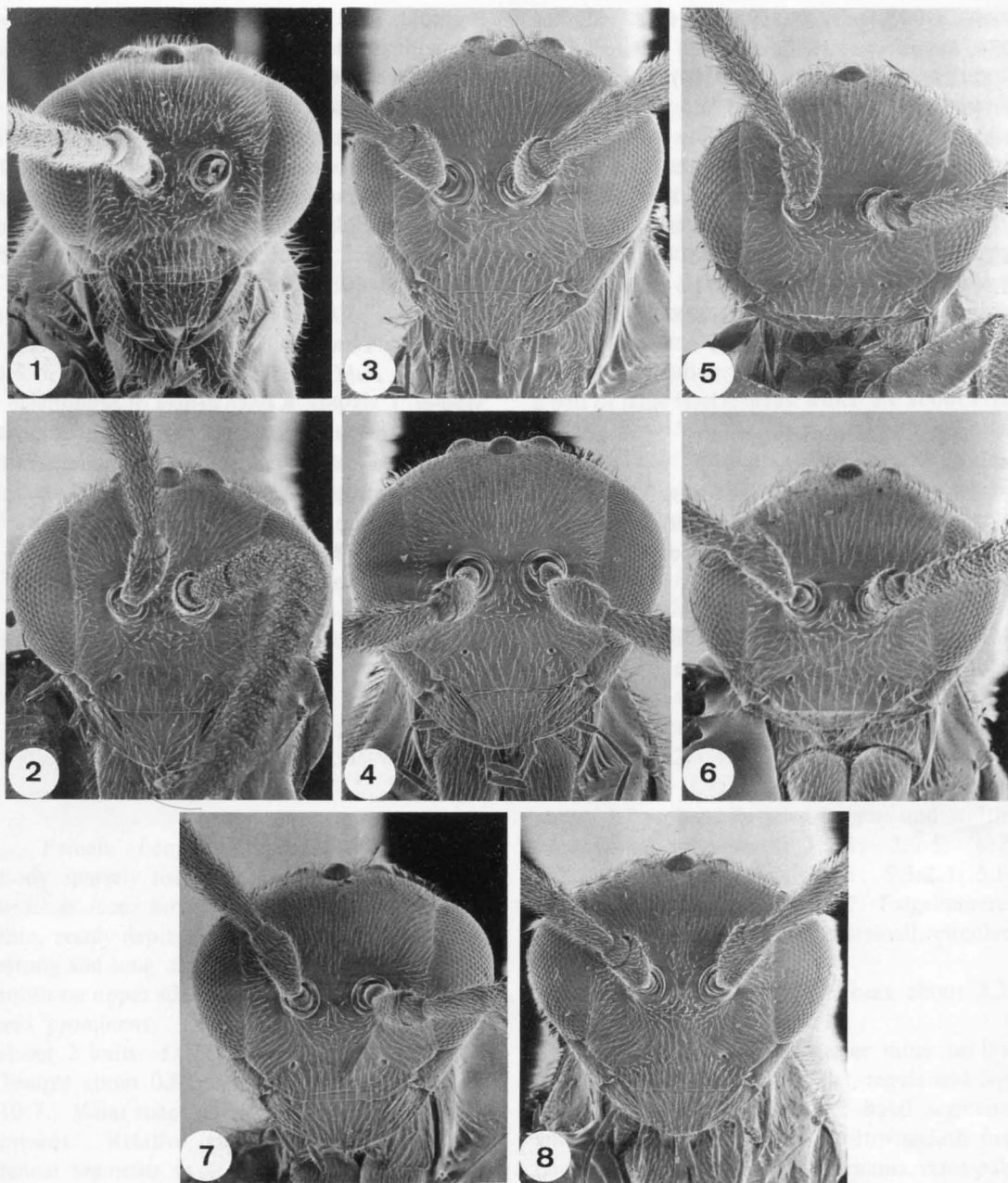
The name of this species is for my late young son Chiko Lin.

### Acknowledgments

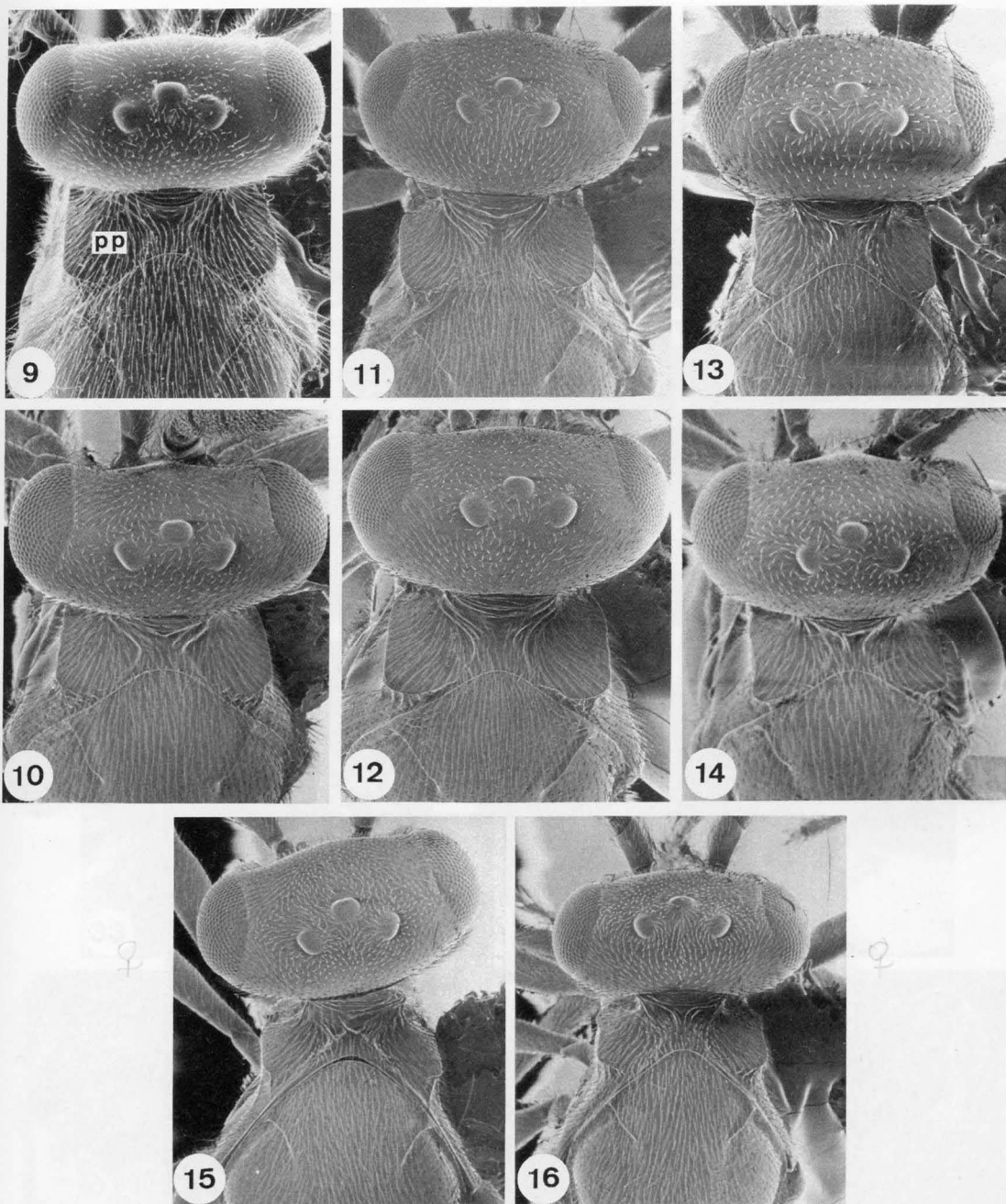
The writer wishes to express his hearty thanks to Professor T. C. Maa for thoroughly revising the manuscript of this paper.

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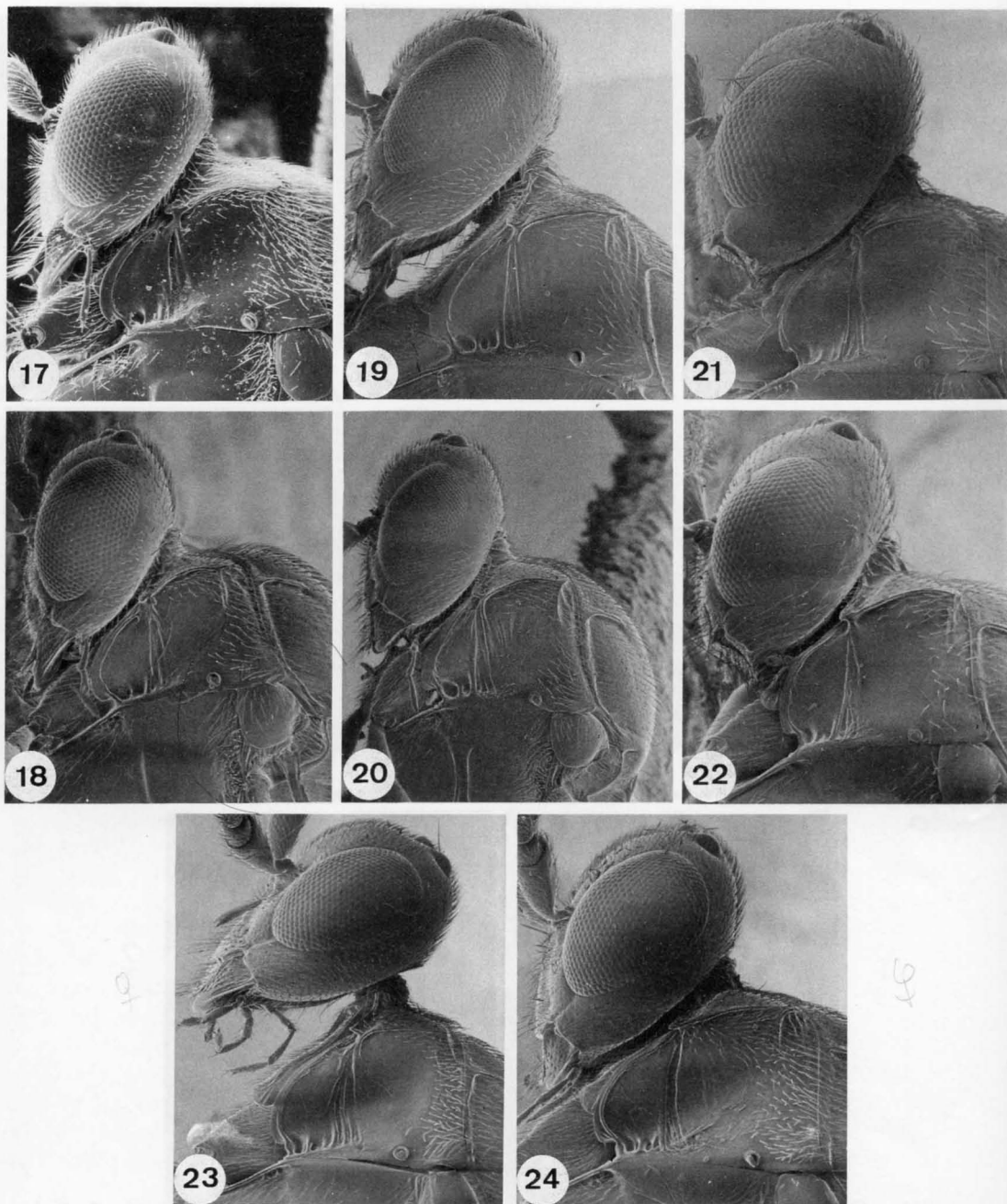
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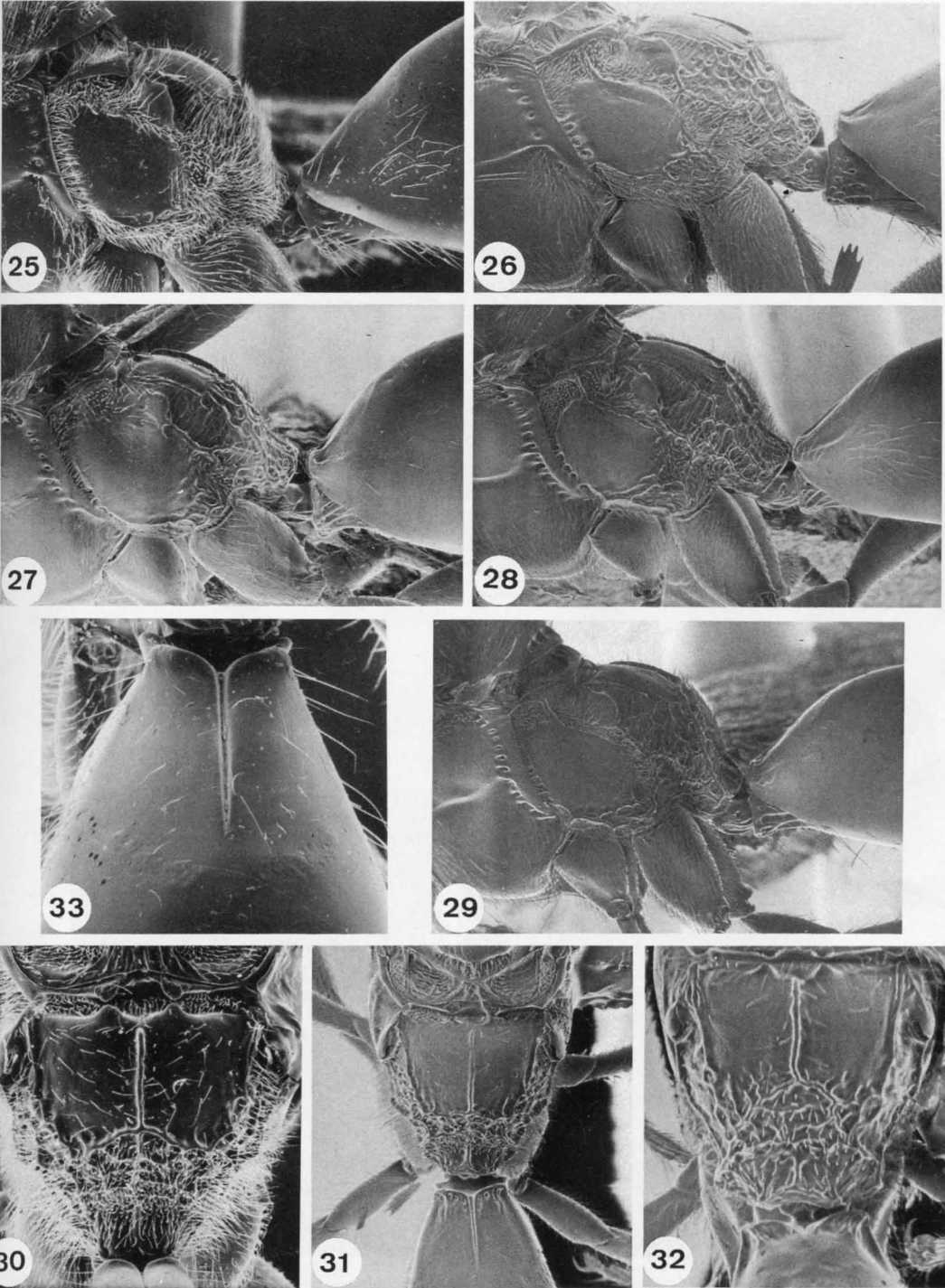
Figs. 1–8. Heads of *Maaserphus* spp. nov. in front view. *M. basalis* female (1,  $\times 130$ ) and male (2,  $\times 150$ ), paratypes; *M. striatus* female (3,  $\times 100$ ) and male (4,  $\times 100$ ), paratypes; *M. fuscipes* female (5,  $\times 170$ ) and male (6,  $\times 150$ ), holotype and topotype, respectively; *M. longicaudus* female (7,  $\times 100$ ), holotype; *M. brevicaudus* female (8,  $\times 100$ ), paratype.



Figs. 9–16. Heads and anterior part of thoraces of *Maaserphus* spp. nov. in dorsal view. *M. basalis* female (9,  $\times 130$ ) and male (19,  $\times 140$ ), paratypes; *M. striatus* female (11,  $\times 100$ ) and male (12,  $\times 100$ ), paratypes; *M. fuscipes* female (13,  $\times 150$ ) and male (14,  $\times 170$ ), holotype and topotype, respectively; *M. longicaudus* female (15,  $\times 100$ ), holotype; *M. brevicaudus* female (16,  $\times 100$ ), paratype. (pp = pronotal plate)

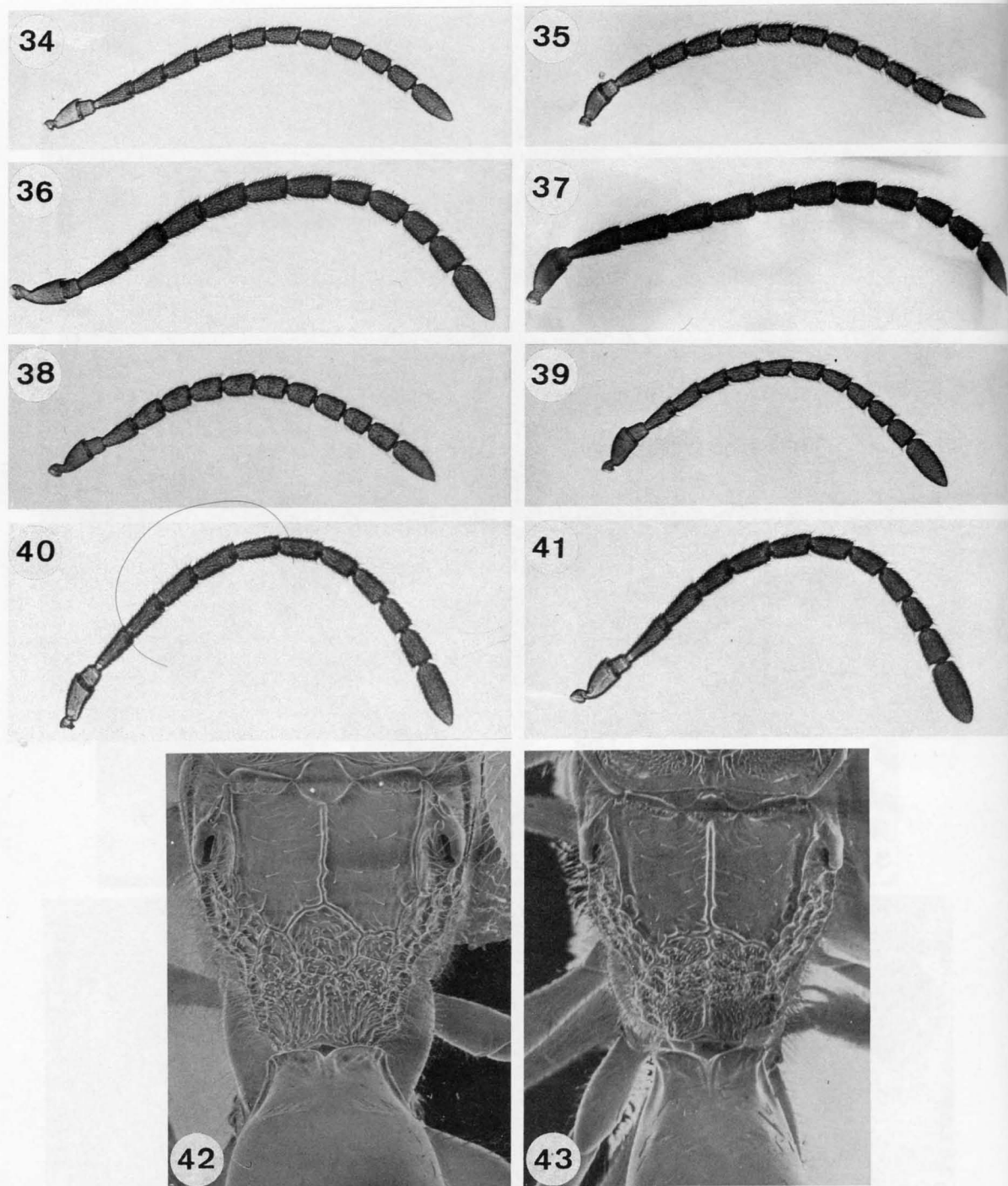


Figs. 17–24. Head and anterior part of thoraces of *Maaserphus* spp. nov. in lateral view. *M. basalis* female (17,  $\times 100$ ) and male (18,  $\times 100$ ), paratypes; *M. striatus* female (19,  $\times 80$ ) and male (20,  $\times 70$ ), paratypes; *M. fuscipes* female (21,  $\times 170$ ) and male (22,  $\times 150$ ), holotype and topotype, respectively; *M. longicaudus* female (23,  $\times 100$ ), holotype; *M. brevicaudus* female (24,  $\times 110$ ), paratype.

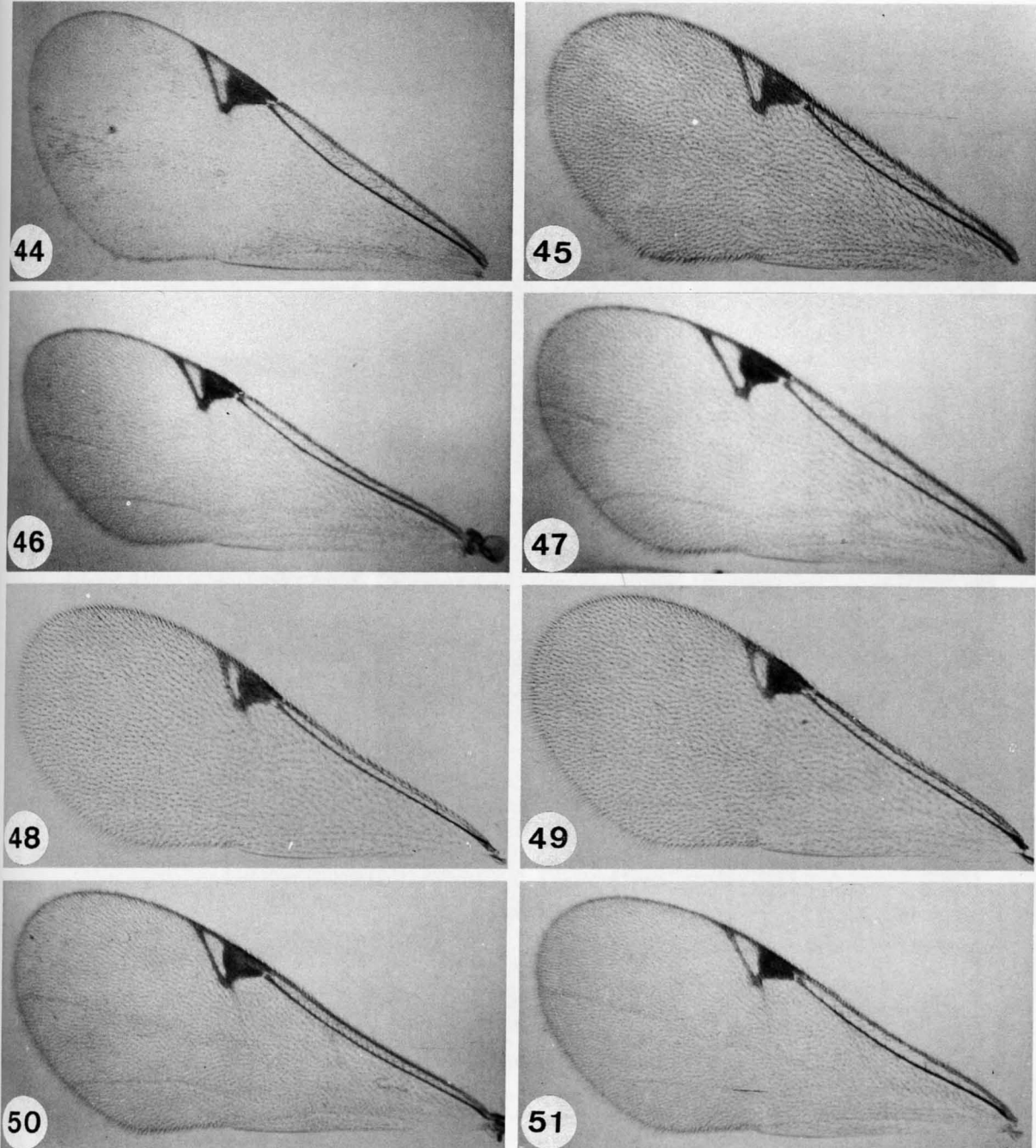


Figs. 25–33. Posterior part of thoraces and base of syntergites in lateral and propodeums in posterodorsal view of *Maaserphus* spp. nov. *M. basalis* female (25,  $\times 80$ ; 30,  $\times 130$ ; 33,  $\times 200$ ), paratype; *M. striatus* female (26,  $\times 70$ ; 31,  $\times 70$ ), paratype; *M. fuscipes* female (27,  $\times 130$ ; 32,  $\times 170$ ) holotype; *M. longicaudus* female (28,  $\times 70$ ), holotype; *M. brevicaudus* female (29,  $\times 80$ ), paratype.

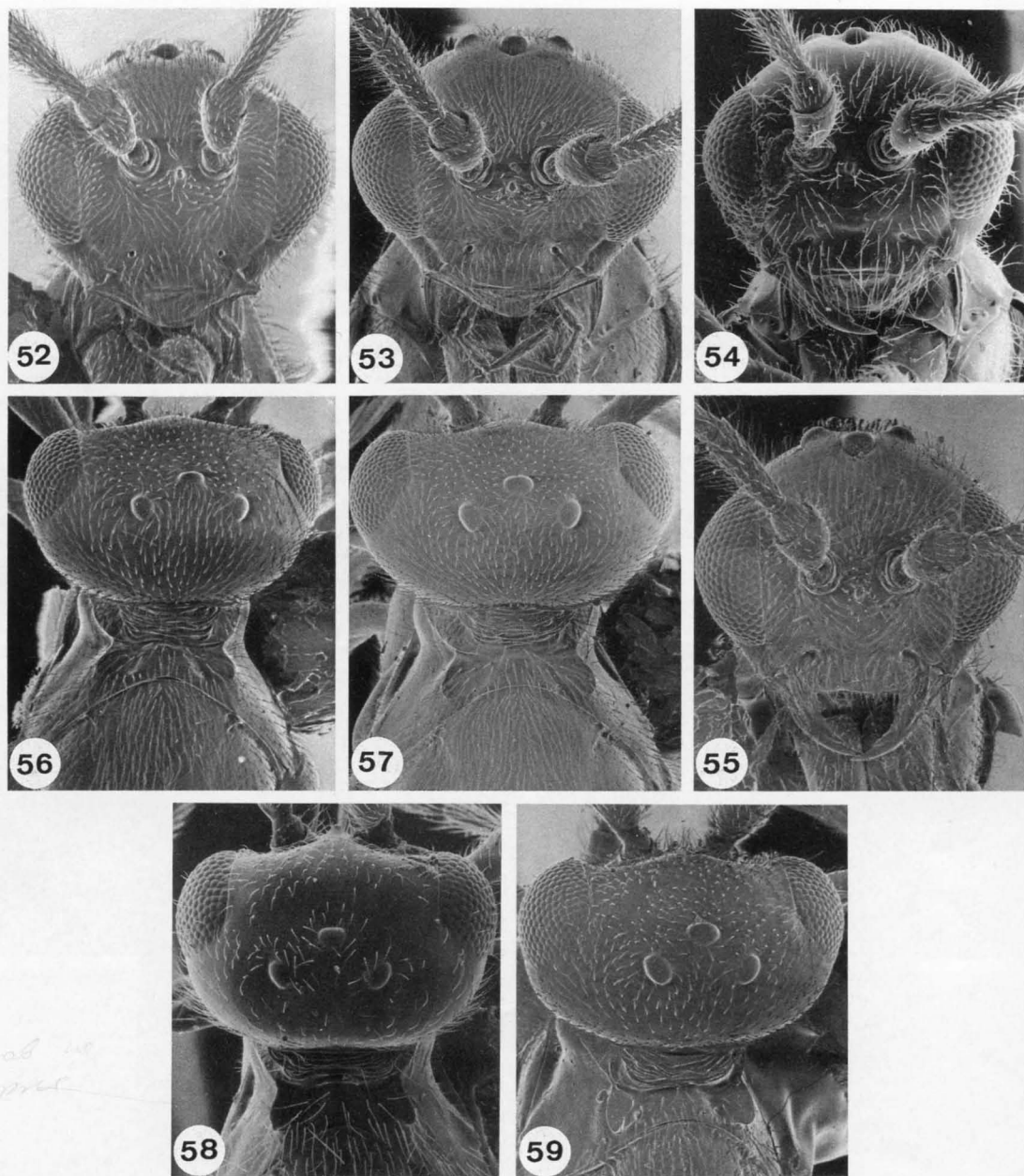




Figs. 34–43. Antennae, propodeums and base of syntergites of *Maaserphus* spp. nov. in posterodorsal view. *M. basalis* female (34,  $\times 44$ ) and male (35,  $\times 47$ ), paratypes; *M. striatus* female (36,  $\times 42$ ) and male (37,  $\times 42$ ), paratypes; *M. fuscipes* female (38,  $\times 47$ ) and male (39,  $\times 45$ ), holotype and topotype, respectively; *M. longicaudus* female (40,  $\times 48$ ; 42,  $\times 100$ ), holotype; *M. brevicaudus* female (41,  $\times 46$ ; 43,  $\times 110$ ), paratype.

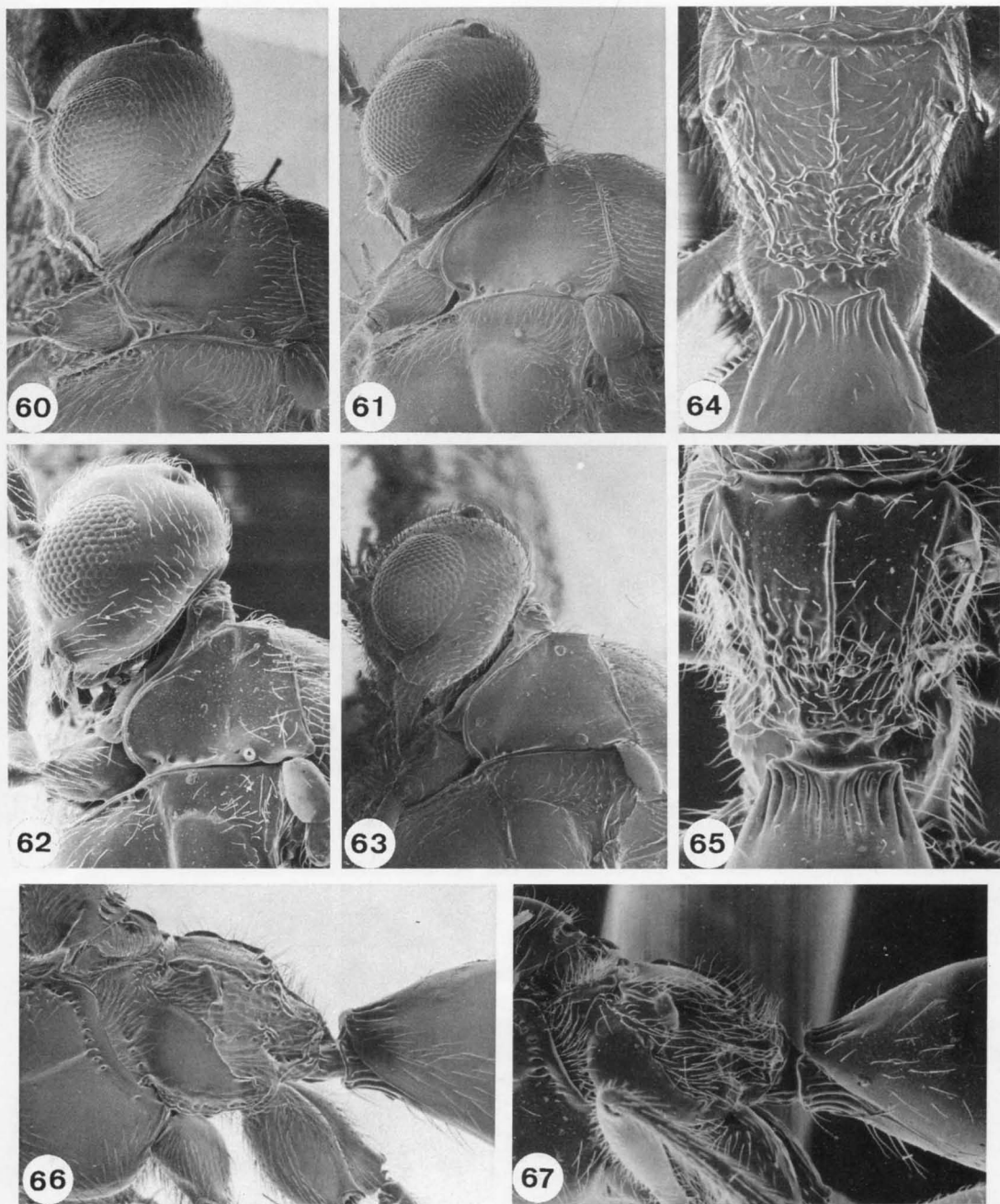


Figs. 44–51. Forewings of *Maaserphus* spp. nov. *M. basalis* female (44,  $\times 25$ ) and male (45,  $\times 35$ ), paratypes; *M. striatus* female (46,  $\times 24$ ) and male (47,  $\times 29$ ), paratypes; *M. fuscipes* female (48,  $\times 48$ ) and male (49,  $\times 47$ ), holotype and topotype, respectively; *M. longicaudus* (50,  $\times 27$ ), female, holotype; *M. brevicaudus* (51,  $\times 31$ ), female, paratype.

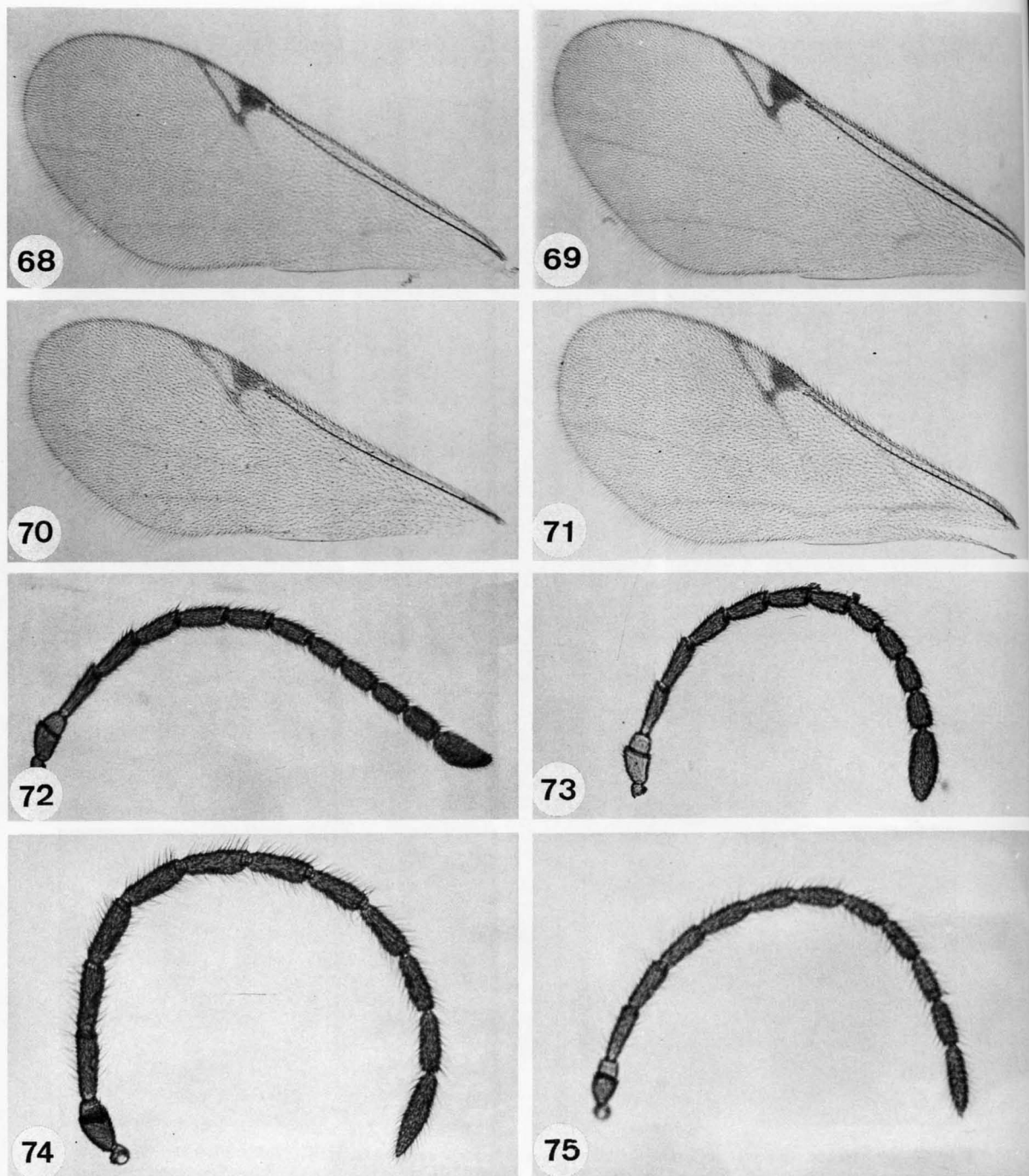


Figs. 52–59. Head in front and dorsal view, and anterior part of thoraces in front view of *Phoxoserphus* spp. nov. *Ph. vesus* female (52, 56) and male (53, 57), holotype and topotype; *Ph. chikoi* female (54, 58) and male (55, 59), paratype, (each  $\times 170$ ).

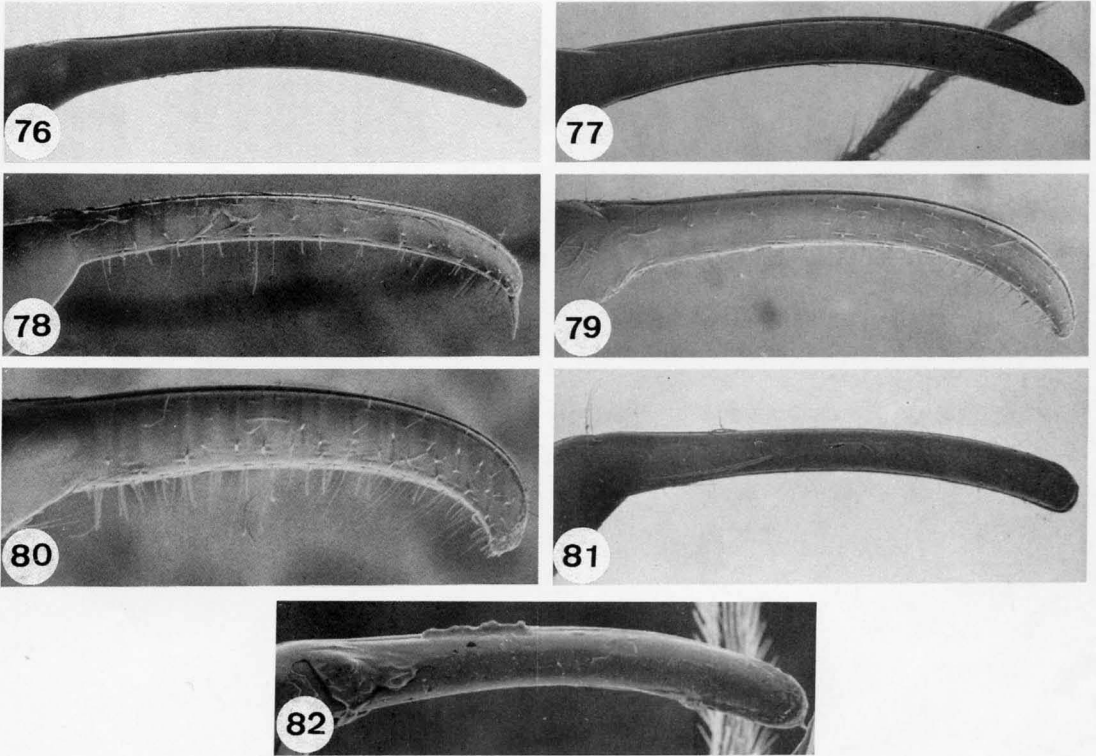




Figs. 60–67. Heads, thoraces and base of syntergites in lateral and dorsal view, of *Phoxoserphus* spp. nov. *Ph. vescus* female (60,  $\times 130$ ; 64,  $\times 150$ ; 66,  $\times 110$ ), male (61,  $\times 140$ ), holotype and topotype; *Ph. chikoi* female (62,  $\times 130$ ; 65,  $\times 170$ ; 67,  $\times 120$ ), male (63,  $\times 140$ ), paratypes.



Figs. 68–75. Forewings and antennae of *Phoxoserphus* spp. nov. *Ph. vesus* female (68,  $\times 33$ ; 72,  $\times 56$ ), male (69,  $\times 45$ ; 74,  $\times 56$ ), holotype and topotype, respectively; *Ph. chko*i female (70,  $\times 38$ ; 73,  $\times 59$ ), male (71,  $\times 34$ ; 75,  $\times 37$ ), paratypes.



Figs. 76–82. Ovipositor sheaths of *Maaserphus* and *Phoxoserphus* spp. nov. *M. basalis* (76,  $\times 83$ ), paratype; *M. striatus* (77,  $\times 100$ ), paratype; *M. fuscipes* (78,  $\times 150$ ), holotype; *M. longicaudus* (79,  $\times 79$ ), holotype; *M. brevicaudus* (80,  $\times 168$ ), paratype; *Ph. vesus* (81,  $\times 150$ ), holotype; *Ph. chikoi* (82,  $\times 200$ ), paratype.