Taiwan Agric. Res. Inst., Spec. publ. No. 22: 51–66 23 May 1987

ON THE GENUS *NOTHOSERPHUS* BRUES, 1940 (HYMENOPTERA: SERPHIDAE) FROM TAIWAN[1]

by
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Abstract: Of the eight Taiwanese species of the genus *Nothoserphus* Brues enumerated in this paper, *N. partitus*, *N. townesi*, *N. fuscipes* and *N. admirabilis* are new to science whereas *N. aequalis* Townes and *N. epilachnae* (Pschorn-Walcher) are new additions to the fauna of Taiwan.

INTRODUCTION

The genus *Nothoserphus* was originally erected by Brues (1940) for a single species (*mirabilis* Brues) from Taiwan. Since then the genus recorded and described from Eruope and Japan under the names *Thosmonina* Hellén and *Watanabeia* Masner, respectively, and the taxonomy was revised by Townes (1981) who synonymized *Thomsonina* and *Watanabeia*, divided the genus into 3 species-groups and recognized 7 species from the Palearctic and Oriental Regions. He also added a second Taiwanese species (*debilis* Townes).

The present report is based on the collection of the Taiwan Agricultural Research Institute, Taichung. Eight species are involved, including 4 new ones. The several hundreds of specimens used in the study were from different parts of the Island, especially the central parts. They were collected largely by sweepings and Malaise trap. The collectors are: B. H. Chen (BHC), C. C. Chen (CCC), K. C. Chou (KCC), L. Y. Chou (LYC), S. P. Huang (SPH), C. J. Lee (CJL), C. N. Lin (CNL), K. S. Lin (KSL), S. C. Lin (SCL), T. Lin (TL), C. C. Pan (CCP), W. S. Tang (WST), C. H. Wang (CHW), C. H. Yang (CHY). The involved localities (and their altitudes) are as follows. TAOYUAN Hsien: Paling 800–1,600 m. TAICHUNG Hsien: Anmashan 2,275 m, Lishan 1,900 m, Wuling 1,900 m, Kukuan 730 m, Wanfeng 50 m. HUALIEN Hsien: Tayuling 2,560 m, Fuli to Tungho (Taitung Hsien) 100–500 m. NANTOU Hsien: Tsuifeng 2,300 m, Meifeng 2,150 m, Sungkang 2,100 m, Tungpu 1,200 m, Wushe 1,150 m, Lushan 1,000 m, Hoshe 1,000 m. CHIAYI Hsien: Alishan 2,400 m, Fenkihu 1,370 m. PINGTUNG Hsien: Shantimen 100 m. TAITUNG hsien: Tawu 50 m.

Genus **NOTHOSERPHUS** Brues

Nothoserphus Brues, 1940:263. Type-species: *Nothoserphus mirabilis* Brues, by original designation.

Thomsonina Hellén, 1941:40. Type-species: *Proctotrupes boops* Thomson, by original designation. Synonymized by Townes, 1981:61.

[1] Contribution No. 1346 from Taiwan Agricultural Research Institute. Partial result of the program "A Survey on Insect Fauna of Taiwan", supported in part at TARI by a grants-in-aid during the period between 1980–1986 from the National Science Council of Taiwan, Republic of China.

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Watanabeia Masner, 1958:477. Type-species: *Disogmus afissae* Watanabe, by original designation. Synonymized by Townes, 1981:61.

Body stout. Head extremely short, transverse when viewed dorsally and subtriangular when viewed frontly. Clypeus, its anterior margin rounded and distinctly narrowly reflexed. Gena with a very strong ridge posteriorly. Upper temple gradually short. Occiput and posterior gena either flattened or depressed; occipital carina complete, its upper part close to foramen magnum. Mandible very small, frequently difficult to see. Antenna moderately long, flagellum in 11 segments, as in all members of Serphidae; tyloids elliptic or linear, weak or strongly elevated. Anterolateral portion of pronotum with a large swollen elevation, also with a vertical ridge connected anterolaterally. Notauli moderately short to long and deep. Mesopleural groove broad curved, smooth or foveate; posterior suture usually foveate; anterior and lower portions covered with fine hairs. Metapleuron with an anterodorsal smooth area that covers 0.2–0.5 of its surface. Anterior part of propodeum very short, with a long downward slope in profile. Stigma deep and short; radius descending vertically from lower corner of stigma, vertical part of radius about 0.4–1.3 as long as wide, turning at an acute angle obliquely toward costa; anterior margin of radial cell about 0.25–0.65 as long as depth of stigma; costa ending either at or just beyond apex of radius. Longer spur of hind tibia ending between basal 0.25–0.4 of hind basitarsus. Gaster with a stalk that is about 0.3–1.1 as long as wide. Base of syntergite often with a long median furrow and sometimes short lateral furrows. Ovipositor-sheath about 0.5 as long as hind tibia, sometimes short enough to be retracted.

This genus has been found in the Oriental and Palearctic Regions and is parasitic on the larvae of Scymninae and Epilachninae (Coleoptera: Coccinellidae).

Key to species-groups of *Nothoserphus*

1. Notauli extremely short, either about as long as or slightly longer than tegula. Metapleuron with a smooth area that covers at least 0.3 of its surface. . . . . ***boops***-group
– Notauli distinctly long, reaching past center of mesoscutum. Metapleuron with a smooth area that covers at most 0.2 of its surface. 2
2. Median lobe of mesoscutum with a foveate groove before notauli; hind ends of notauli separated by a narrow, wedge-shaped ridge near posterior disk. Area between postocelli either with a pair of weak rounded processes or a pair of strongly elevated spatulate processes. Side scrobe of pronotum coarsely rugose in and above sulcus. . . . . ***mirabilis***-group
– Median lobe of mesoscutum without a foveate groove before notauli; hind ends of notauli separated by about the length of tegula; area between postocelli rounded off posteriorly. Side scrobe of pronotum either almost smooth or weakly rugose in and above sulcus. . . . . ***afissae***-group

boops-group

Vertex rounded off posteriorly. Tyloids on male flagellar segments 2–7 elliptic, weakly convex or convex, smooth or with fine punctures. Notauli short, or longer than tegula; lacking a short groove before notauli. Prescutellar groove smooth or with longitudinal ridges. Upper anterior swelling of side of pronotum margined by a vertical ridge; side scrobe of pronotum smooth behind this swelling and in the sulcus. Metapleuron with a smooth area at least 0.35 of its surface, the rest coarsely rugose. Ovipositor-sheath about 0.4–0.5 as long as hind tibia.

Two species are heretofore known, one occurs in Europe and another in Japan, both are parasitic on the genus *Scymnus* of Coccinellidae. On this island we have at hand 3 new species.

Key to Taiwanese species of the *boops*-group

1. Prescutellar groove with 4 longitudinal ridges. Antenna mainly fulvous; flagellar segments 1–4 equal in length to one another; tyloids inconspicucous. Anterior foveate furrow of metapleuron as broad as posterior furrow of mesopleuron. Stigma discally pale-colored. . . . . ***partitus*** sp. nov.

– Prescutellar groove smooth, without longitudinal ridge. Antenna mainly brown; flagellar segments 1–4 not equal in length to one another. Tyloids on flagellar segments 2–7 or 4–6 smooth or with punctures. Anterior foveolate furrow of metapleuron narrow, not as broad as posterior foveate furrow of mesopleuron. Stigma brown. 2

2. Lower temple about 0.3 as long as eye. POL hardly longer than OOL (6:5.8). Legs except coxae mainly fulvous. Tyloids on flagellar segments 2–7 elliptic, convex and smooth. . . . . ***townesi*** sp. nov.

– Lower temple about 0.5 as long as eye. POL distinctly longer than OOL (7.8:5). Antenna and legs mainly fuscous. Tyloids on flagellar segments 4–6 elliptic, weakly convex, with minute punctures. . . . . ***fuscipes*** sp. nov.

Nothoserphus partitus Lin, sp. nov.
(Figs. 1, 4, 7, 10, 25)

Male: Fore wing 1.9 mm long. Frons smooth and shining, evenly convex, with very sparse minute setigerous punctures, upper lateral area slightly depressed. LOL:POL:OOL about as 3.3: 7.5:4. Temple markedly short, about 0.25 as long as eye. Relative lengths and widths of antennal segments about as 6:3; 2.4:2.4; 7:2; 6.5:2; 5.5:1.8; 5.5:1.8; 5.5:1.8; 5.5:2; 5:2; 5:2; 4.8:2; 4.7:2; 7:2; tyloids of flagellum inconspicuous.

Side scrobe of pronotum smooth and shining, with a raised vertical ridge, laterodorsal area rugulose behind swelling process, and reaching before tegula. Mesoscutum smooth, with rather dense punctures anteriorly and very sparse ones posteriorly. Notauli slightly longer than tegula; anterolateral furrow foveolate. Prescutellar groove deep, with 4 longitudinal ridges; scutellum smooth. Propodeum sloping downward posteriorly, relatively long, areolate, lacking lateral ridge, posterior disk with sculptures. Anterior furrow of metapleuron distinctly foveate, similar to posterior foveate furrow of mesopleuron; smooth area of metapleuron 0.3 of latter's surface.

Brownish black. Antenna gradually darkened toward apex, under surface fulvous. Lower portion of mesopleuron and gaster dark brown, lateral angle of pronotum before tegula and lower portion brown. Wings hyaline, margin of stigma and veins fulvous, stigma discally pale-colored; tegula and legs fulvous, terminal tarsomeres dark brown.

Female: Unknown.

Holotype ♂, Central Taiwan: Nantou Hsien, Tungpu, 18–23. XI. 1981 (TL & WST).

Nothoserphus townesi Lin, sp. nov.
(Figs. 2, 5, 8, 11, 26)

Female: Fore wing 1.8–2.4 mm long. Frons smooth and shining, with very sparse minute setigerous punctures; upper frons weakly evenly convex in profile; temple about 0.3 as long as eye; LOL:POL:OOL about as 2.8:6:5.8. Relative lengths and widths of antennal segments about as 8:4; 2:3; 7:2.8; 6:2.8; 5.8:2.8; 5.7:2.8; 5:2.8; 5.4:3; 5:3; 4.5:3; 4.5:3; 4.5:3; 8:3.3.

Side scrobe of pronotum smooth and shining, with raised vertical ridge anterodorsally, and a

few longitudinal rugulose behind that ridge; with setigerous punctures before tegula and spiracle. Notauli foveate anteriorly, shorter than tegula, usually with shallow broad furrow reaching almost to level of tegulae, anterolateral furrow shallow and smooth. Prescutellar groove smooth, without longitudinal ridge. Anterior furrow of metapleuron foveolate; smooth upper area occupying about 0.6 of its surface. Propodeum in profile with dorsal margin of upper part convexly curved, sloping downward posteriorly, areolate, lateral ridge present, posterior disk with distinct sculptures. Gastral stalk as long as high when viewed laterally; syntergite with dense minute punctures at posterior 0.2 of its surface. Ovipositor-sheath about 0.4 as long as hind tibia.

Brownish black. Under surface of antenna fulvous, 9 basal and 4 apical segments fuscescent; palpi gray; tegula and coxae fuscous; legs fulvous except tarsi dorsally and terminal tarsomeres fuscescent; wings hyaline, stigma and veins fuscous.

Male: Fore wing 1.8–2.0 mm long. Essentically similar to female, but distinctly darker; base of scape, pedicel, under surface of flagellomeres 1 and 2 more or less fuscescent. Relative lengths and widths of antennal segments about as 5.5:3.5; 2:3; 5.7:2.8; 5.5:2.8; 5.4:2.8; 5:2.7; 5:2.6; 5:2.6; 5:2.6; 4.8:2.4; 4.8:2.3; 4.4:2.3; 7:2.4; tyloids on flagellar segments 2–7 elliptic, smooth, about 0.6–0.7 as long as the segments.

Holotype ♀, Central Taiwan: Nantou Hsien, Tungpu 1,200 m, 28. IV-2. V. 1981 (TL & CJL).

Paratypes: Lishan, ♂, 26. VI. 1979 and Wuling, ♀, 27–29. VI. 1979 (KSL & LYC). 4♀♀, ♂, same data as holotype; 5♀♀, same locality as holotype but on 20–24. IV. 1982 (TL & KCC); 9♀♀, ♂, 19–23. VII. 1982 (LYC & TL); ♀, 18–21. X. 1982 (KCC & SCL); ♀, 10–14. I. 1983 (KCC & SPH); 10 ♀♀, 16–20. IV. 1984; 7♀♀, 23–27. VII. 1984 (KCC & CHY). Hoshe, 3♀♀, 22. VII. 1982 (LYC & TL). Lushan, ♂, 27–31. V. 1980 (KSL & LYC). Wushe, ♀, 7. V. 1984 (KCC & CCP). Sungkang, 2♂♂, X. 1984, Malaise trap (KSL & KCC). Meifeng, 2♀♀, 15. VII. 1982 (SCL & CNL); ♀, VI. 1984, Malaise trap (KSL & KCC). Tsuifeng, ♀, 16. VII. 1982 (SCL & CNL); ♀, 15–16. VIII. 1984 (KCC). Alishan, ♀, 17–20. VIII. 1982 (KCC & CCP); 6♀♀, 7–8. VIII. 1986 (KCC).

This species can be distinguished from *N. boops* Thomson by the presence of tyloids on flagellar segments 2–7 of the male. The name is in honor of Dr. H. Townes.

Nothoserphus fuscipes Lin, sp. nov.
(Figs. 3, 6, 9, 12, 27)

This and the preceding species are very closely related to each other, but they may be recognized by the characters mentioned in the key.

Female: Fore wing 1.9–2.3 mm long. Upper frons evenly convex in profile; lower temple about 0.5 as long as eye. LOL:POL:OOL about as 2.8:7.8:5. Relative lengths and width of antennal segments as 6.5:3.6; 2:3; 6.8:2.8; 6:2.8; 6:2.8; 5.5:2.8; 5.3:2.8; 5.4:3; 5.4:3; 4.8:3.1; 4.8:3.1; 4.4:3.1; 9:3.2.

Anterodorsal vertical ridge of pronotal side scrobe weak, with short rugulose behind it. Anterior furrow of metapleuron smooth or weakly foveolate. Propodeum areolate-rugulose, in profile its anterior part strongly curved while posterior part flattened; lateral ridges parallel to one another, posterior disk weakly sculptured, often smooth and shining at its lateral areas. Ovipositor-sheath about 0.4–0.5 as long as hind tibia.

Brownish black; fuscous on antenna (scape black), side of pronotum before tegula, lower portions of meso- and metapleuron, legs and gaster; fuscescent on apex of pedicel, lower surface of flgellomere 1, inner surface of fore femur, base and under surface of fore tibia, both ends of mid femur, mid and hind tibiae, all tarsi venterally and terminal tarsomeres. Wings hyaline, stigma and veins fuscous.

Male: Fore wing 1.8–2.2 mm long. Relative lengths and widths of antennal segments as 6:3.5; 2.5:2.2; 6.8:2.8; 5.5:2.8; 5.5:2.8; 5.5:2.8; 5.5:2.8; 5.5:2.5; 5.8:2.5; 5.8:2.5; 5.7:2; 5.5:2; 9:2; tyloids on flagellar segments 4–6 weakly raised, with minute punctures, about 0.7 as long as the segments.

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

Paratypes: Tayuling, 2♂♂, 24–26. VI. 1977 (KSL); 2♀♀, 10–16. VI. 1980 (KSL & BHC); ♀, 3♂♂, 10–15. IX. 1980; ♂, 12–16. IX. 1980, Malaise trap (KSL & CHW). Anmashan 2♀♀, 6–9. VII. 1979 (LYC). Tsuifeng, ♂, 1–3. VIII. 1981 (TL & WST); ♀, VII. 1984, Malaise trap (KSL & KCC); 2♀♀, same data as holotype. Meifeng, ♀, XI. 1985, Malaise trap (KSL). Sungkang, ♀, X. 1984, Malaise trap (KSL & KCC).

afissae-group

Vertex rounded off posteriorly. Tyloids on male flagellar segments 4–8, 5–7 or 5–8, each like an elevated carina, extending from base of the involved segment to a small tooth near its apex. Upper anterior swelling on side of pronotum with a sharply rounded edge, surface behind the swelling smooth or almost so. Side scrobe of pronotum smooth or more or less wrinkled. Notauli posteriorly reaching center of mesoscutum, their posterior ends separated by a distance about the length of tegula. Median lobe of mesoscutum lacking a short foveate groove before notauli. Prescutellar groove with or without a pair of longitudinal ridges. Metapleuron coarsely rugose throughout or with a smooth upper anterodorsal corner. Ovipositor-sheath very short, usually invaginated.

Four species have so far been described from Japan and the Oriental Region where are known as parasites of phytophagous coccinellids of the species-group. Of the three species enumerated below, two are new to Taiwan.

Key to Taiwanese species of the *affissae*-group

1. Prescutellar groove without longitudinal ridges; gastral tergits following the syntergite with fine punctures only. . . . . ***aequalis*** Townes
– Prescutellar groove with one strong submedian longitudinal ridge; gastral tergites following the syntergite with both fine and coarser punctures. 2
2. Lower temple about 0.4 as long as eye, POL:OOL about 9:8.5. Of male, tyloids present on flagellar segments 4–8. . . . . ***debilis*** Townes
– Lower temple about 0.5 as long as eye, POL:OOL about 7:8. Of male, tyloids found on flagellar segments 5–7. . . . . ***epilachnae*** (Pschorn-Walcher)

Nothoserphus aequalis Townes
(Figs. 13, 16, 19, 22, 18)

Nothoserphus aequalis Townes, 1981. Mem. Amer. Ent. Inst. 32:66. Holotype ♀, from Nepal, deposited in Biosystematics Research Institute, Ottawa.

Length of fore wing of female 3.1–3.5 mm, of male 3.1–3.3 mm. Diameter of anterior ocellus about 4 micrometric units, LOL:POL:OOL about as 3:7:8. Lower temple about 0.4 as long as eye. Relative lengths and widths of antennal segments in female as 8:4; 3:4; 12.3:3.7; 11:3.7; 10:3.5; 10:3.5; 10:3.5; 9:3.6; 8:3.5; 8:3.2; 8:3.2; 7.5:3; 12.5:3. In male, as 7:4.5; 3.5:4; 12.6:4; 10:4; 10:4; 10:4; 9.5:3.5; 10:3.6; 8.5:3.5; 8.5:3.5; 8:3.2; 7.5:3.2; 12:3; tyloids on flagellar segments 5–8.

Distribution: Nepal, Taiwan.

Specimens examined: Paling, 2♀♀, 3–5. V. 1983 (KCC & CCP). Tungpu, ♀, 5–8. X. 1981 (TL & WST); ♀, 2♂♂, 19–23. VII. 1982 (LYC & TL); ♂, 18–21. X. 1982 (KCC & SCL); 3♀♀, 22–25. XI. 1982 (KCC & SPH); 2♀♀, 23–27. VII. 1984 (KCC & CHY); 3♂♂, X. 1985; ♀, XI. 1985; ♀, XII. 1985 Malaise trap (KSL). Fuli to Tungho, ♀, 9–11. XI. 1982 (KCC & SPH).

Nothoserphus debilis Townes
(Figs. 14, 17, 20, 23, 29)

Nothoserphus debilis Townes, 1981. Mem. Amer. Ent. Inst. 32:66. Holotype ♂ from Taiwan: Fenkinhu, deposited in B. P. Bishop Museum, Honolulu, Hawaii.

Length of fore wing of female 3.4–3.6 mm, of male 2.9–3.7 mm. Diameter of anterior ocellus about 3.5 micrometric units, LOL:POL:OOL about as 2.6:7:8; lower temple about 0.5 as long as eye. Relative lengths and widths of antennal segments in female as 7:3.4; 3:3.5; 12:3; 10:3; 9.6:3; 10.6:3; 10:3; 9.7:3; 8.5:3; 8.5:3; 7.5:3; 7.5:3; 11:3; in male as 8:4.5; 2.3:3.7; 12:3.5; 9.7:3.5; 9:3.5; 9.6:3.2; 8.5:3.2; 8.3:3.2; 8.3:3.2; 8.5:3; 7.8:3; 7.8:3; 13:3; tyloids present on flagellar segments 4–8.

Distribution: Nepal, Taiwan.

Specimens examined: Tsuifeng, 29♂♂, 21. VI. 1979 (KSL & BHC); 9♂♂, 25–27. VI. 1981 (KSL & WST); ♀, 1–3. IX. 1982 (LYC & KCC); 4♂♂, 23–25. VI. 1983 (KSL & SCL). Meifeng, ♂, 20–22. VI. 1979 (KSL & BHC); ♂, 7–9. V. 1981 (KSL & SCL); ♀, 22. V. 1982 (LYC). Mushe, ♀, 6–11. V. 1981 (KSL & SCL).

Nothoserphus epilachnae (Pschorn-Walcher)
(Figs. 15, 18, 21, 24, 30)

Watanabeia epilachnae Pschorn-Walcher, 1958. Beitr. z. Ent. 8:725, 727, 728. Holotype ♀, from Java: Lembang, deposited in the U. S. National Museum, Washington.

Nothoserphus epilachnae Townes, 1981. Mem. Amer. Ent. Inst. 32:67, key, redes., hosts.

Length of fore wing of female 3.1–3.8 mm, of male 2.9–3.8 mm. LOL:POL:OOL about as 3.8:9:8.5; diameter of anterior ocellus about 4 micrometric units, lower temple about 0.4 as long as eye. Antennal segments of female in the following relative proportions of lengths and widths 8:5; 3:4.5; 14:3.2; 13:3.2; 12.5:3.2; 12:3.2; 12:3.2; 11:3.2; 10:3.2; 9.5:3; 8:3; 8:3; 13:3; of male 8:5.5; 3:4.3; 15:4.4; 13:4.5; 12:4; 12:3.8; 11.5:3.8; 11.5:3.8; 11.5:3.8; 11:3.2; 10.5:3.2; 10:3.2; 15:3; tyloids found on flagellar segments 5–7. Male antennae more or less darker than female ones.

Hosts: *Epilachna admirabilis*, *E. vigintioctopunctata* (Coleoptera: Coccinellidae) phytophagous.

Distribution: Vietman; China: Yunnan (Kunming), Taiwan.

Specimens examined: Tayuling, ♀, 10–16. VI. 1980, Malaise trap (KSL & BHC). Tsuifeng, ♀, 4♂♂, 2. VI. 1979 (KSL & BHC); 3♀♀, 2♂♂, 3. VI. 1980 (LYC & CCC); 5♂♂, 25–27. VI. 1981 (KSL & WST); ♀, 2♂♂, 1–3. VIII. 1981 (TL & WST); ♀, 20. IV. 1983 (KCC & SPH); 3♂♂, 23–25. VI. 1983 (KSL & SCL); ♀, IX. 1984 Malaise trap (KSL & KCC). Meifeng, ♀, 8♂♂, 2–4. VI. 1980 (LYC & CCC); 2♀♀, ♂, 7–9. V. 1981 (KSL & SCL); ♂, 24–26. VI. 1981 (KSL & WST); 2♀♀, 22. V. 1982 (LYC); ♂, 22–23. VI. 1983 (KSL & SCL). Sungkang, ♂, X. 1984 Malaise trap (KSL & KCC); ♀, X.

1985; ♀, XI. 1985, Malaise trap (KSL). Wushe, ♀, 11–15. IX. 1984 (KSL). Tungpu, ♂, 28. IV-2. V. 1981 (TL & CJL); ♂, 18–23. XI. 1981 (TL & WST); ♀, 20–24. IV. 1982 (TL & KCC); ♀, 18–21. X. 1982 (KCC & SCL).

mirabilis-group

Head strongly depressed behind anterior ocellus, with a pair of strongly elevated spatula-like processes or with a pair of weakly rounded processes between postocelli. Tyloids elliptic, usually small, hardly raised, found on flagellar segments 4–7 or 4–8. Upper anterior swelling of side of pronotum bordered by a vertical ridge. Side of pronotum behind the upper anterior swelling coarsely punctate-rugose; side scrobe of pronotum with short, coarse, irregular wrinkles. Notauli extending caudad beyond center of mesoscutum, their hind ends separated from one another by a narrowly wedge-shaped ridge. Median lobe of mesoscutum with a foveate groove before notauli. Prescutellar groove with two longitudinal ridges. Metapleuron coarsely reticulate-rugose. Ovipositor-sheath about 0.24 as long as hind tibia, frequently invaginated.

Probably this species-group is confined to the Oriental Region, and its members are parasitic on aphidivorous coccinellids. Two species, both are now at hand, one of them is new to science.

Key to species of the *mirabilis*-group

1. Head with a pair of strong spatula-like processes between postocelli, area behind anterior ocellus strongly depressed. Median lobe of mesoscutum with a long, curved foveate groove before notauli. Tyloids on male flagellar segments 4–7, and situated near bases. . . . . ***mirabilis*** Brues

– Head with a pair of weak rounded processes between postocelli, and not strongly depressed behind anterior ocellus. Median lobe of mesoscutum with a short straight foveate groove before notauli. Tyloids situated near midlength of each of male flagellar segments 4–8. . . . . ***admirabilis*** sp. nov.

Nothoserphus admirabilis Lin, sp. nov.

(Figs. 31–33, 37–39)

Male: Fore wing 2.6–2.8 mm long. Head with a pair of weak, rounded processes between postocelli. LOL:POL:OOL about as 4:10:6. Frons smooth, flattened, with or without a median furrow. Lower temple about 0.4 as long as eye. Relative lengths and widths of antennal segments about as 6.5:5; 3:3.5; 11:3.5; 9.5:3.5; 9.5:3.5; 8.7:3; 9:3; 8.8:3; 8.8:3; 8:2.8; 8:2.8; 7.6:2.5; 11:2.5; tyloids small, elliptic, weakly raised, situated near midlength of each of flagellomere 4–8. Side scrobe of pronotum with irregular wrinkles. Median lobe of mesoscutum with a short straight foveate groove before notauli. Mesopleural longitudinal groove smooth. Gastral syntergite with dense minute punctures at posterior 0.2.

Brown black, antenna and coxae fuscous; basal 4 segments of antenna more or less, palpi, tegula and legs fulvous, but all terminal tarsomeres fuscous. Wings hyaline, fore wing distinctly infuscate, veins fuscous.

Female: Unknown.

Holotype ♂, Central Taiwan: Sungkang, XI. 1984 Malaise trap (KSL & KCC).

Paratypes: Tungpu, ♂, 5–8. X. 1981 (TL & WST); ♂, 22–25. XI. 1982 (KCC & SPH). Shantimen, ♂, 31. I-4. II. 1983 (KCC & SPH).

This species can readily be recognized from the following one by the difference mentioned in the key.

Nothoserphus mirabilis Brues
(Figs. 34–36, 40–42)

Nothoserphus mirabilis Brues, 1940. Proc. Amer. Acad. Arts Sci. 73:263. Holotype ♂ from Taiwan: Taihorin, deposited Museum Comparative Zoology, Harvard Univ., Cambridge.

Nothoserphus mirabilis Townes, 1981. Mem. Amer. Ent. Inst. 32:68, key, redes., fig.

Length of fore wing of female 2.3–3.4 mm, of male 2.6–3.4 mm. LOL:POL:OOL about as 5:13.5:7; diameter of anterior ocellus about 4 micrometric units; lower temple about 0.4 as long as eye. Relative lengths and widths of antennal segments of female about as 9:5; 3:3.5; 13:3.5; 11:3.5; 10:3.5; 10:3.5; 10:3.5; 9.5:3.5; 9:3.5; 9:3.5; 8.5:3.5; 7.8:3.5; 11.5:3.5; of male about as 9:5; 3:3.5; 12:3; 10:3; 10:3; 9:3; 9:3; 9:3; 9:3; 9:3; 8:3; 8:2.5; 11:2.5. Tyloids weak, small, elliptic, situated near bases of male flagellar segments 4–7.

Host: Undetermined coccinellid larvae.

Distribution: Taiwan, Nepal, Java.

Specimens examined: Anmashan, 3♀♀, 6–9. VII. 1979 (LYC). Wuling, ♂, 27–29. VI. 1979 (KSL & LYC). Kukuan, 4♀♀, ♂, 20–22. VI. 1978 (KSL & KCC). Wanfeng, 20 ♀♀, 97♂♂, 2–20. I. 1979 (KSL); 2♀♀, ♂, V. 1979, ex pupa of an undetermined coccinellid on soybean (KSL). Tayuling, ♀, 10–16. VI. 1980 (KSL & BHC); ♀, 12–15. IX. 1980 (KSL & CHW). Tsuifeng, ♀, ♂, 3. VI. 1980 (LYC & CCC); ♀, 1–3. VIII. 1981 (TL & WST); 2♂♂, 5. VIII. 1984 (KSL); ♂, 15–16. VIII. 1984 (KCC). Tungpu, ♀ 23–27. VII. 1984 (KCC & CHY); ♀, ♂, IX. 1985, Malaise trap (KSL). Wushe, ♀, 23–25. VI. 1981 (KSL & WST); 2♀♀, ♂, 11–15. IX. 1984 (KSL). Lushan, 3♂♂, 27–31. V. 1980 (KSL & LYC). Shantimen, ♀, 1–5. III. 1982 (KCC & CCP); ♀, 31. I-4. II. 1983 (KCC & SPH); 2♀♀, ♂, 16–20. I. 1984 (KCC & CCP). Tawu, ♂, 12–14. II. 1981 (LYC & KCC).

ACKNOWLEDGEMENTS

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

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Masner, L. 1958. A new genus of Proctotrupidae from Japan (Hymenoptera: Proctotrupoidea). Beitr. z. Ent. 8:477–481, 4 figs.

Pschorn-Walcher, H. 1958. Zur Kenntnis der Proctotrupidae der *Thomsonina*-Gruppe (Hymenoptera). Beitr. z. Ent. 8:724–731, 1 pl.

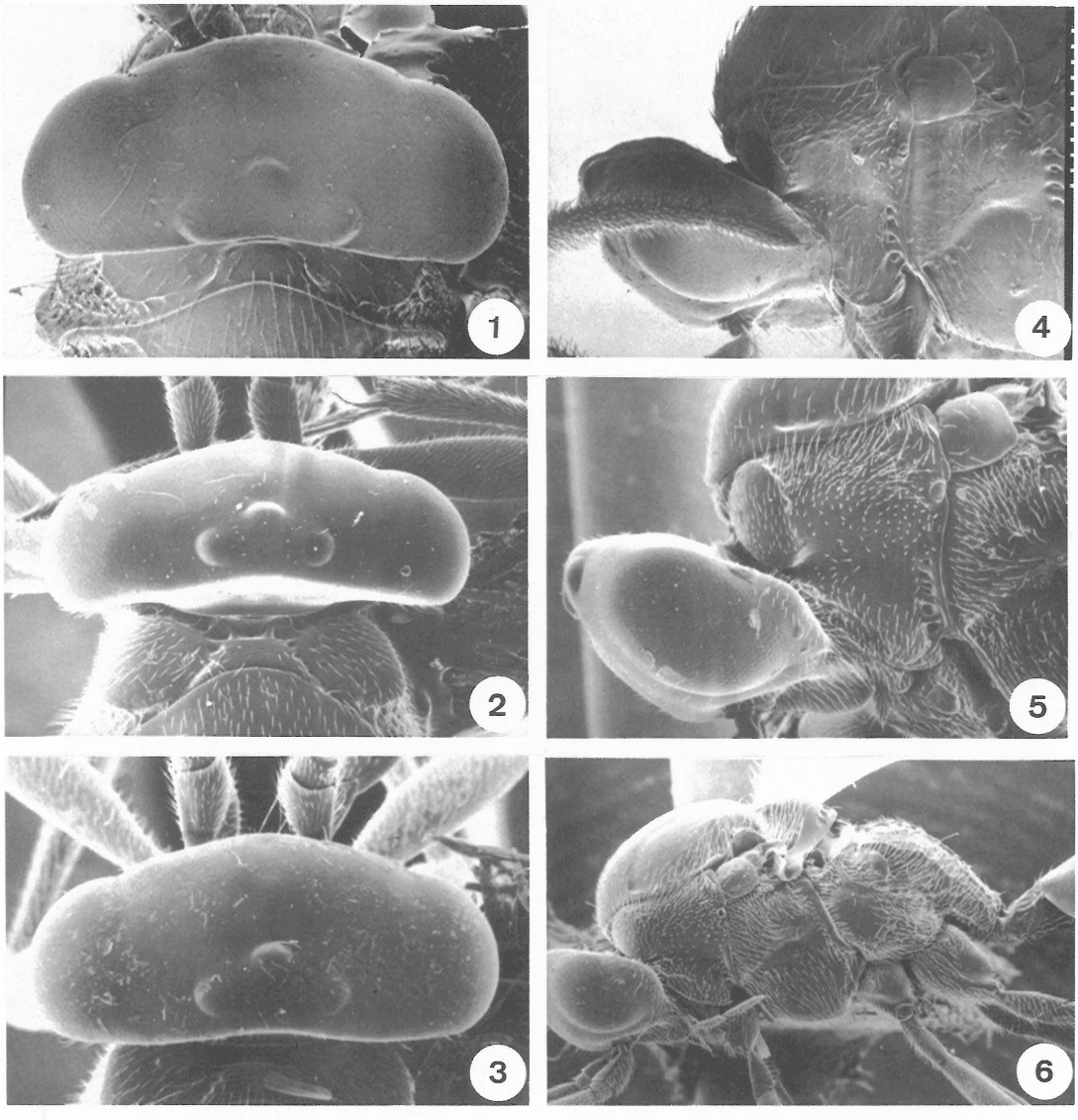
Townes, H. 1981. A revision of the Serphidae (Hymenoptera). Mem. Amer. Ent. Inst. 32:i–iv, 1–541, 575 figs.

臺灣 *Nothoserphus* 屬細蜂之分類

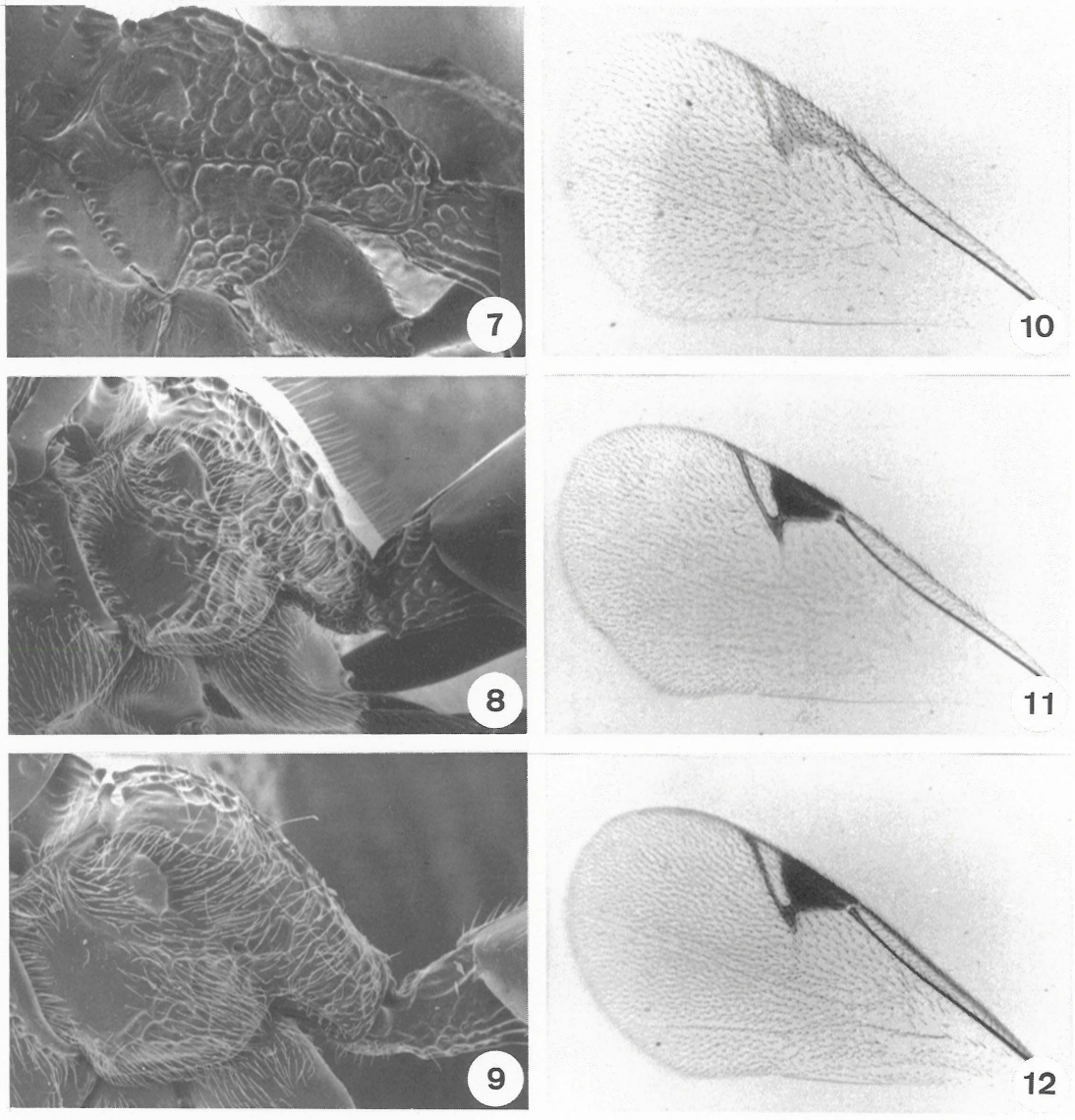
林 珪 瑞

中文摘要

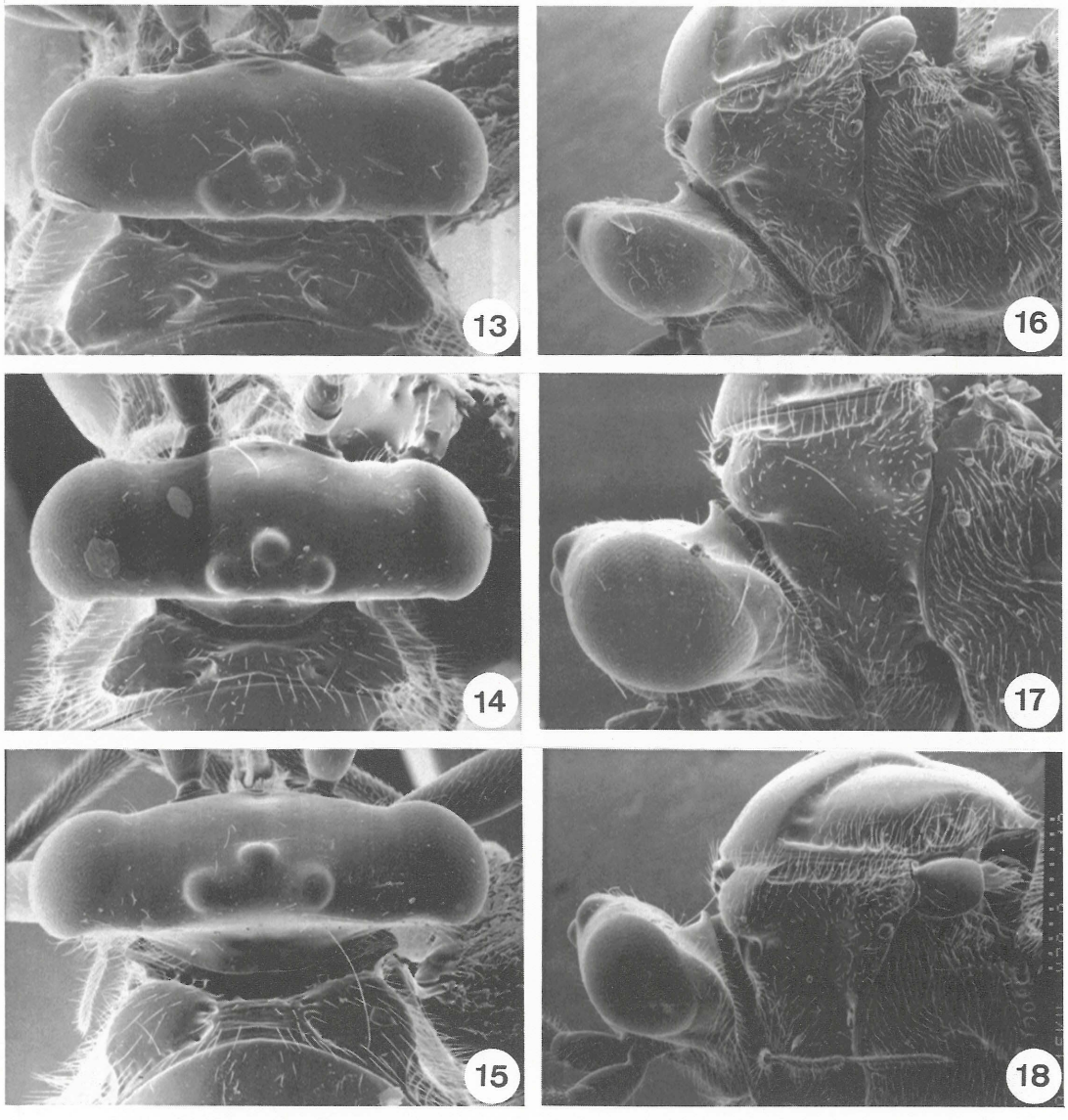
*Nothoserphus*屬係隸於細蜂科(Serphidae)，臺灣產者有：分溝細蜂*N. partitus*湯斯細蜂*N. townesi*褐足細蜂 *N. fuscipes*及圓突細蜂 *N. admirabilis* spp. nov.等 4 新種；光溝細蜂 *N. aepualis* Townes 瓢蟲細蜂 *N. epilachnae* (Pachorn-Walcher) 2 種爲臺灣新記錄及已有記錄之淺溝細蜂 *N. debilis* Townes及雙突細蜂 *N. mirabilis* Brues 共 8 種。本文詳細記述屬、種群、種之分類特徵及檢索表。各主要特徵並以掃描電子顯微鏡(SEM)照相供參考。



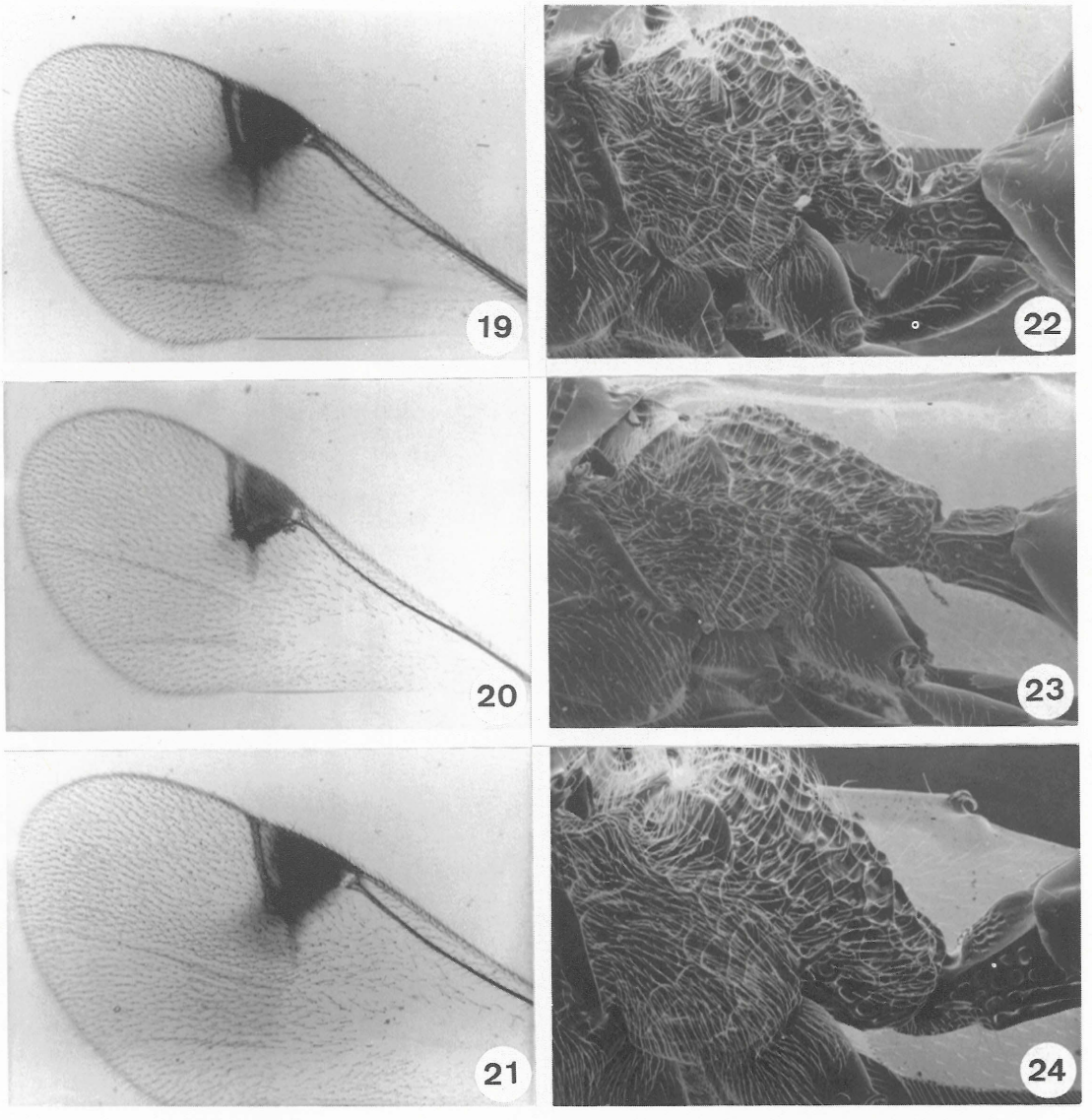
Figs. 1–6. *Nothoserphus partitus* (1, 4) holotype, female, *N. townesi* (2, 5) and *N. fuscipes* (3, 6) spp. nov., paratypes, female. 1–3, heads in dorsal view; 4–5, heads and part thoraces, and 6, thorax in lateral view. (All specimens SEM, gold coated 15 kv except 1, 4 uncoated 1 kv)



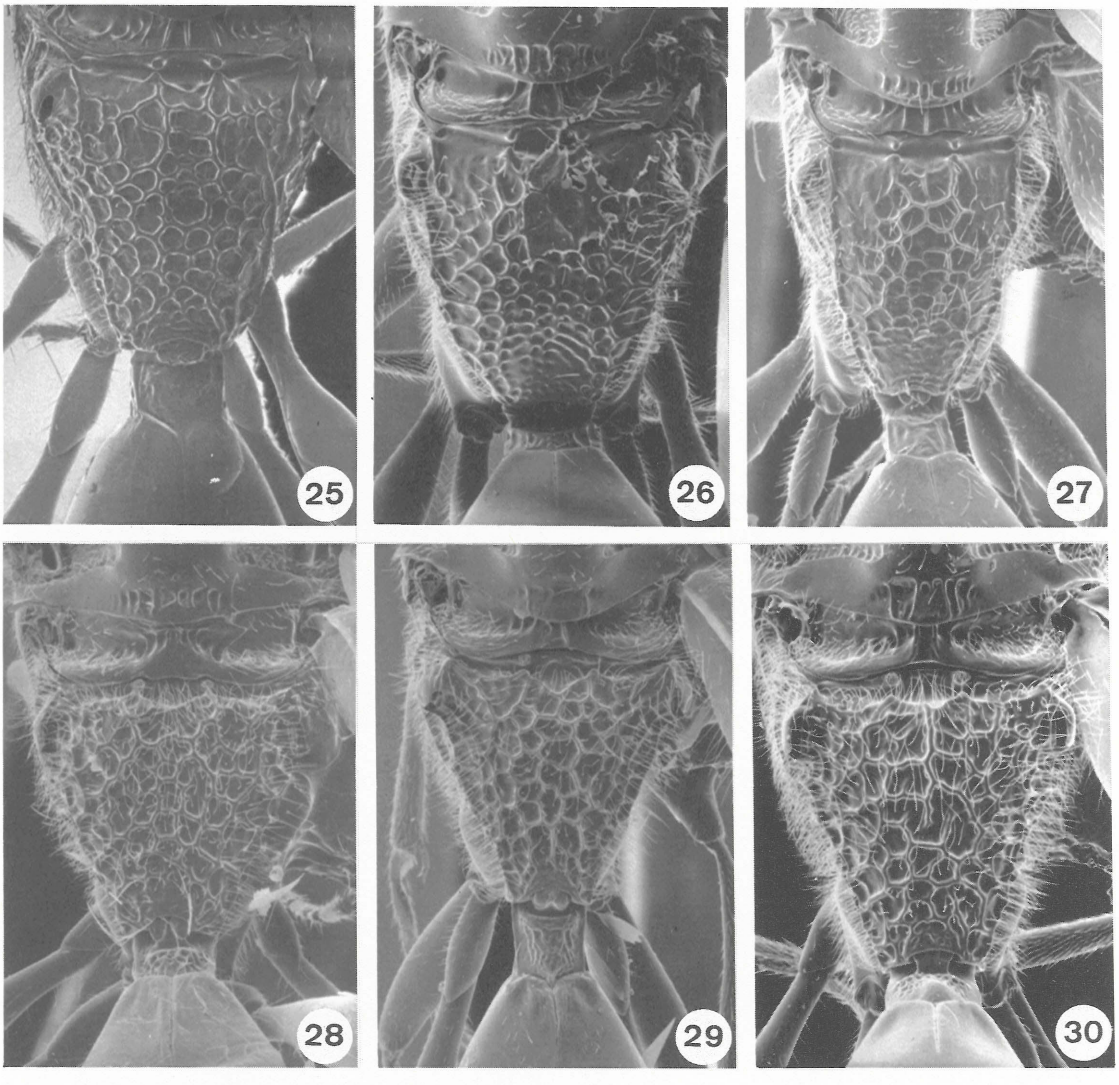
Figs. 7–12. *Nothoserphus partitus* (7, 10) holotype, female, *N. townesi* (8, 11) and *N. fuscipes* (9, 12) spp. nov., paratypes, female. 7–9, metapleura, propodeums and gastral stalks in lateral view; 10–12, fore wings. (All specimens SEM, 8, 9 gold coated 15 kv; 7 uncoated 1 kv)



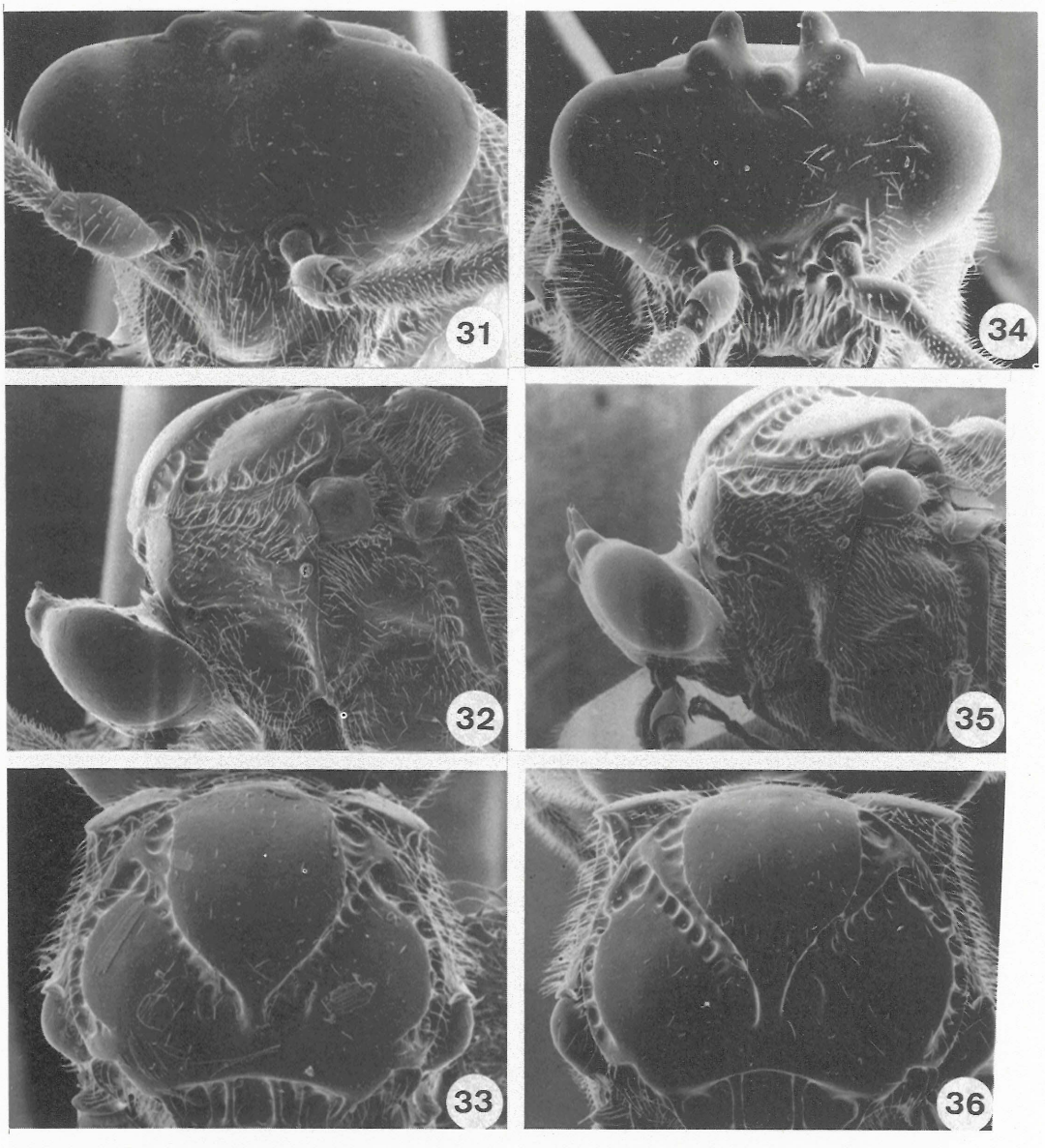
Figs. 13–18. *Nothoserphus aequalis* Townes (13, 16) *N. debilis* Townes (14, 17) *N. epilachnae* (Pschorn-Walcher) (15, 18). 13–15, heads in dorsal view; 16–18, heads and part thoraces in lateral view. (All specimens SEM, gold coated 15 kv)



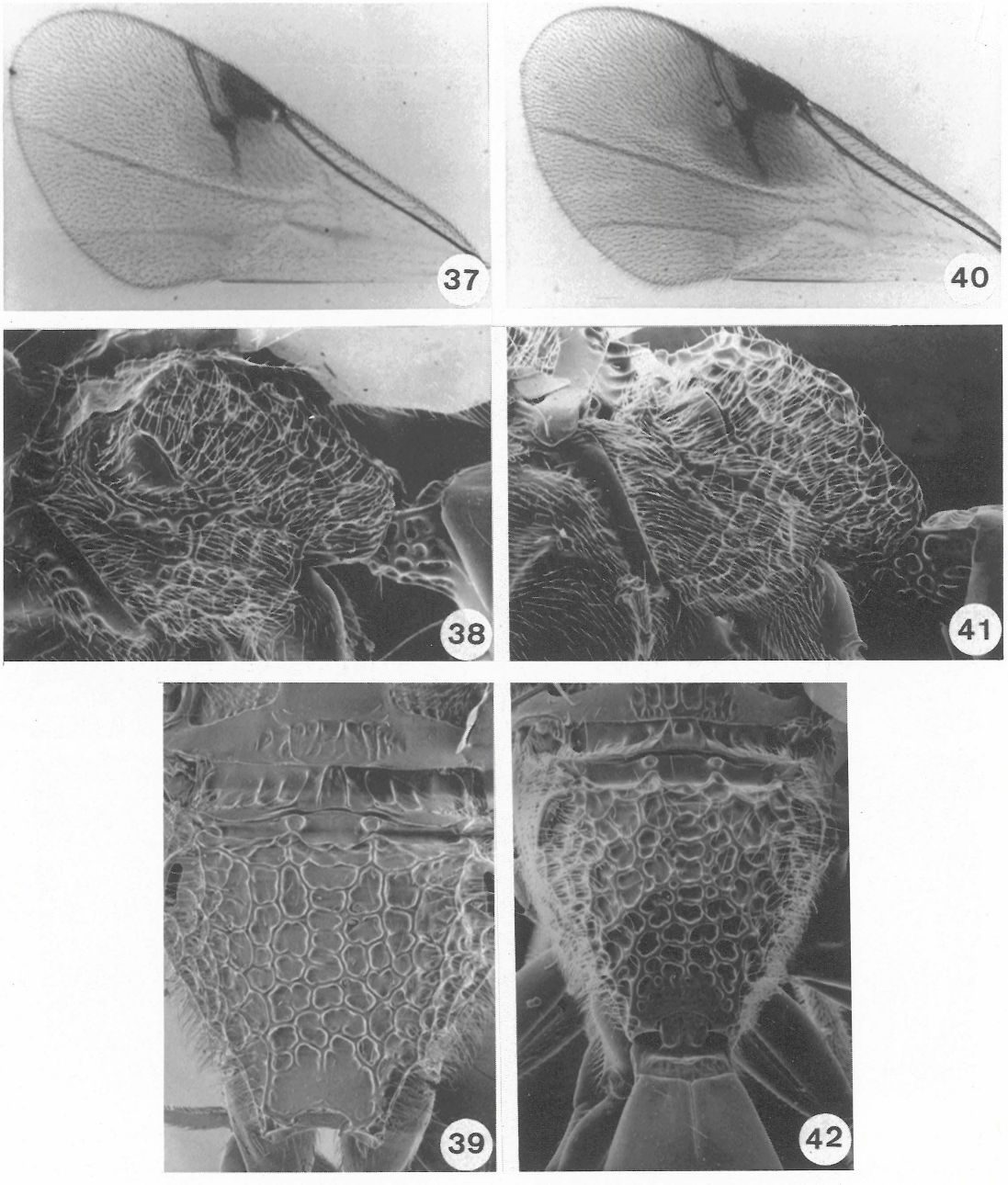
Figs. 19–24. *Nothoserphus aequalis* Townes (19, 22), *N. debilis* Townes (20, 23) and *N. epilachnae* (Pschorn-Walcher) (21, 24). 19–21, fore wings; 22–24, metapleura, propodeums and gastral stalks in lateral view. (22–24 all specimens SEM, gold coated 15 kv)



Figs. 25–30. Propodeums and bases of gaster. *Nothoserphus partitus* (25), *N. townesi* (26), *N. fuscipes* (27) spp. nov., *N. aequalis* Townes (28), *N. debilis* Townes (29) and *N. epilachnae* (Pschorn-Walcher) (30). (All specimens SEM, gold coated 15 kv except 25 uncoated 1 kv)



Figs. 31–36. *Nothoserphus admirabilis* sp. nov. (31–33) male, paratype and *N. mirabilis* Brues (34–36) female. 31, 24, heads in frontal view; 32, 35, heads and part thoraces in lateral view; 33, 36, mesoscuta in in dorsal view. (All specimens SEM, gold coated 15 kv)



Figs. 37–42. *Nothoserphus admirabilis* sp. nov. (37–39) male, paratype and *N. mirabilis* Brues (40–42). 37, 40, fore wings; 38, 41, metapleura, propodeums and gastral stalks in lateral view; 39, 42, propodeums in posterodorsal view. (38, 41, 42 all specimens SEM, gold coated 15 kv; 39 uncoated 1 kv)