SOME NEW ERIOPHYOID MITES FROM TAIWAN (ACARINA: ERIOPHYOIDEA)

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ABSTRACT—Seven new eriophyoid species from Taiwan are described and illustrated by means of SEM photomicrographs. They are: *Aculodes hibisci* sp. nov. (on *Hibiscus tiliaceus*), *Neopropilus jatrophus* gen. et sp. nov. (on *Jatropha curcase*), *Neoametaculus neolitseae* sp. nov. (on *Neolitsea acuminatissima*), *Phyllocoptruta semialata* sp. nov. (on *Rhus semialata* var. *roxburghiana*), *Rhynacus championi* sp. nov. (on *Bauhinia championi*), *Vasates irisanae* sp. nov. (on *Ficus irisana*), and *V. scandensi* sp. nov. (on *Paederia scandens*).

KEY WORDS: Eriophyoid mites, Taiwan

INTRODUCTION

The specimens photographed by the Scanning Electron Microscope (SEM) were modified with the technique of Baker et al. (1986). The specimens were collected in 75% alcohol in a cavity slide. They were placed in a drop of 1 to 2 cc 100% isopropyl alochol, then in same amount of Freon 113, on a hot plate at about 55°C. The dried specimens were picked up by means of a brush and placed on double-sticky tape attached to a stub. The stub is placed in the HUS-5GB/(Hitachi) for coating with metal (Aluminum or Argentum). Finally, an Ion coator (RMC-Eiko, Mode IB-2) was used to coat Argentum.

The photos were taken on a Fuji Neopan 120 film with a Hitachi S570 SEM, with the accelerating voltage set at 20 kilovolts. Measurements were taken of specimens mounted on slides and given in microns (u).

The specimens are deposited in the Division of Collection & Research, National Museum of Natural Science, Taichung, Taiwan.

KEY TO SPECIES OF ERIOPHYOID MITES OF TAIWAN

1. Rostrum large, abruptly bent down; shield without lobe; featherclaw divided. .... *Rhynacus championi* sp. nov.
-. Rostrum small; shield lobe present; featherclaw simple. .....2.
2. Body wormlike, abdomen subequal dorsoventrally. ..... *Aculodes hibisci* sp. nov.
-. Body spindleform, abdomen differentiated into broader tergites and narrower sternites. .....3.
3. Dorsal shield with anterolateral setae; 1st and 2nd ventral tubercles and setae missing. .... *Neopropilus jatrophus* gen. et sp. nov.
-. Dorsal shield without anterolateral setae; 1st or 2nd ventral tubercles and setae present. .....4.
4. Dorsal tubercles on rear shield margin. ..... 5.
-. Dorsal tubercles set ahead of rear shield margin. .....6.
5. Dorsal setae long; female genital coverflap with two lobes. ..... *Vasates irisanae* sp. nov.
-. Dorsal setae short; female genital coverflap complete. ..... *Vesates scandensi* sp. nov.
6. Opisthosomal dorsum with central longitudinal trough. ..... *Phyllocoptruta semialata* sp. nov.
-. Opisthosoma dorsally arched, not forming ridge. ..... *Neometaculus neolitseae* sp. nov.

Phyllocoptruta Keifer, 1938

Type species: *Typhlodromus oleivors* Ashmead, 1879

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Phyllocoptruta semialatae sp. nov.
Figures 1-4

Female: Body fusiform, 152.8 long; shield 33.2 long, 42.9 wide, lobe produce; shield with granules at lateral sides, design a network, median line faint, line on posterior third of prodorsal shield between dorsal setae, admedian lines from apex to base, connected at basal third, submedian lines form cells at apical half, directed to rear; dorsal tubercles 16.6 apart, dorsal tubercles ahead of rear shield margin, 6.3 apart; dorsal setae minute, projecting centre coxae with granules, 1st setiferous coxal tubercles 9.5 apart, 2nd setiferous coxal tubercles 8.1 apart, 3rd setiferous coxal tubercles 22.8 apart; featherclaw simple, 5-rayed.
Abdomen: middorsal trough ends at apical two-thirds, first 3 tergites 4.6 long; sternites with beadlike microtubercles; abdomen with all setae present; lateral setiferous tubercles 38.6 apart, the cross distance from lateral setiferous tubercles to 1st ventral seta 45.1, 1st ventral setiferous tubercles 32.3 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 35.6, 2nd setiferous tubercles 15.9 apart, the cross distance between 2nd setiferous tubercles to 3rd ventral seta 39.7, 3rd setiferous tubercles 14.1 apart; caudal setiferous tubercles 9.3 apart; accessory setae present.
Coverflap 19.1 wide, 14.4 long, with 12 ridges; genital setiferous tubercles 12.1 apart.

Male: 120.8 long, shield 30.3 long, 25.1 wide; genital 12.9 wide, 7.3 long.

Host plant and symptom: ***Rhus semialata*** Murr. var. ***roxburghiana*** DC. This mite is a vagrant on lower surface of leaf, causing no symptoms.

Holotype: female, XI-2-1990, Kuohsing, Nantou by K. W. Huang.

Paratypes: 4 females, 2 males (on slides), data as holotype.

Note: This new species is similar to *P. musae* Keifer, 1955 but differs by the network on the shield, and ratio of tibia to tarsus.

Rhynacus Keifer, 1951

Type species: *Diptilomiopus arctostaphyli* Keifer, 1938

Rhynacus championi sp. nov.
Figures 5-8

Female: Body spindleform, 116.1 long; shield 25.3 long, 52.5 wide, lobe absent; shield design a network, with median line from apex to rear shield margin, obscure from basal one-to two-thirds, admedian lines parallel to median line, form cells with median line, submedian lines form cells line with admedian lines; dorsal tubercles and dorsal setae absent; 1st setiferous coxal tubercles and setae absent, 2nd setiferous coxal tubercles 7.9 apart, 3rd setiferous coxal tubercles 19.1 apart; featherclaw divided, stem stout, 8-rayed.
Abdomen: dorsum with a short central anterior ridge; first 3 tergites 4.9 long; sternites with beadlike micro-tubercules; lateral setiferous tubercles and setae absent; 1st ventral setiferous tubercles 30.6 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 33.9, 2nd setiferous tubercles 21.6, the cross distance from 2nd setiferous tubercles to 3rd ventral seta 34.9, 3rd setiferous tubercles 18.9 apart; caudal setiferous tubercles 1.9 apart; accessory setae absent.
Coverflap 20.3 wide, 12.6 long, with 3 to 5 cross ridges, irregularly arranged in two ranks; genital setiferous tubercles 16.2 apart.

Male: Not seen.

Host plant and symptoms: ***Bauhinia championi*** Benth. This mite is a vagrant on lower surface of leaf, causing no symptoms.

Holotype: female, XI-2-1990, Kuohsing, Nantou by K. W. Huang.

Paratypes: 2 females (on slides), data as holotype.

Note: This new species is similar to *R. carolinensis* (Keifer), 1940 but differats by the network on base of shield and featherclaw.

Vasates Shimer, 1869

Type species: *Vasates qadripedes* Shimer, 1869

Vasates irisanae sp. nov.
Figures 9-16

Female: Body spindleform, 171.8 long; shield 49.1 long, 60.1 wide, lobe produce; shield design with median line from apical third to rear shield margin, admedian lines parallel to median line, form cells with median line, submedian lines form cells with

admedian lines; dorsal tubercles large, 32.6 apart, on rear shield margin, dorsal setae long, project posterior; 1st setiferous coxal tubercles 11.7 apart, 2nd setiferous coxal tubercles 11.9 apart, 3rd setiferous coxal tubercles 29.5 apart; featherclaw simple, 5-rayed.
Abdomen: tergites evenly arched and wavy, the first 3 tergites 7.6 long; sternites with beadlike microtubercles; abdomen with all setae present; lateral setiferous tubercles 58.7 apart, the cross distance from lateral setiferous tubercles to 1st ventral seta 55.6, 1st ventral setiferous tubercles 41.2 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 45.1, 2nd setiferous tubercles 27.3 apart, the cross distance from 2nd setiferous tubercles to 3rd ventral seta 53.9, 3rd setiferous tubercles 23.5 apart; caudal setiferous tubercles 9.1 apart; accessory setae present.
Coverflap 28.6 wide, 15.7 long, with several dashlike ridges on either lobes; genital setiferous tubercles 20.5 apart.

Male: Body 138.5 long; shield 44.4 long, 54.9 wide; genitalia 16.9 wide, 12.9 long.

Host plant and symptom: *Ficus irisana* (Elm). This mite is a vagrant on lower surface of leaf, causing no symptoms.

Holotype: female, III-3-1991, Wufeng, Taichung, by K. W. Huang.

Paratypes: 3 females, 2 males (on slides), data as holotype. 3 females (on slides), X-19-1990, Chiaochi, Ilan, by K. W. Huang.

Note: This new species is similar to *V. cercidis* Hall, 1967 but differs by the network of the shield, genital coverflap ridges, and featherclaw.

Vasates scandensi sp. nov.
Figures 17-22

Female: Body spindleform, 141.7 long; shield 38.1 long, 53.5 wide, lobe produce; shield design with median line from apical third to near rear shield margin, admedian lines complete, form cells with median line, submedian lines run along shield margins, with longitudinal line direct to anterior margin of shield; dorsal tubercles 32.1 apart, on rear shield margin; dorsal setae short, direct to posterior; 1st setiferous coxal tubercles 11.2 apart, 2nd setiferous coxal tubercles 8.6 apart, 3rd setiferous coxal tubercles 24.1 apart; featherclaw simple, 5-rayed.
Abdomen: tergites evenly arched and wavy, the first 3 tergites 5.4 long; sternites with beadlike microtubercles; lateral setiferous tubercles 42.2 apart, the cross distance from lateral setiferous tubercles to 1st ventral seta 45.4, 1st ventral setiferous tubercles 33.6 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 39.6, 2nd setiferous tubercles 17.8 apart, the cross distance from 2nd setiferous tubercles to 3rd ventral seta 39.9, 3rd setiferous tubercles 21.5 apart; caudal setiferous tubercles 9.3 apart; accessory setae present.
Coverflap 20.9 wide, 8.6 long, with 11-13 ridges; genital setiferous tubercles 14.9 apart.

Male: Body 138.5 long; shield 38.9 long, 54.9 wide; genitalia 21.3 wide, 12.4 long.

Host plant and symptoms: *Paederia scandens* (Lour.) Merr. This mite is a vagrant on lower surface of leaf, causing no symptoms.

Holotype: female, VIII-13-90, Taichung city, by K. W. Huang

Paratypes: 3 females, 2 males (on slides), data as holotype.

Note: This new species is similar to *V. qadripedes* Shimer, 1869 but differs by the network on the shield.

Aculodes Keifer, 1966

Type species: *Vasates mckenziei* Keifer, 1944

Aculodes hibisci sp. nov.
Figure 23-28

Female: Body wormlike, 181.4 long; shield 25.4 long, 26.9 wide, lobe produce; shield design with many dashlike lines, median line from apical one-fifth to near rear shield margin, admedian lines from apex to rear shield magin, submedian line subparalled to admedian, forking on anterior half of shield; lateral sheild margins granulate; dorsal tubercles 16.6 apart, dorsal tubercles on rear shield margin; dorsal setae directed posterior; 1st setiferous coxal tubercles 7.3 apart, 2nd setiferous coxal tubercles 8.1 apart, 3rd setiferous coxal tubercles 17.5 apart; featherclaw simple, 6 rayed; leg with horizontal stripes.
Abdomen: tergites and sternites subequal in

number; the first 3 tergites 0.6 long, with spinelike microtubercles; sternites with bead like microtubercles; abdomen with normal complement of setae; lateral setiferous tubercles 32.2 apart, the cross distance from lateral setiferous tubercles to 1st ventral seta 43.1 1st ventral setiferous tubercles 31.1 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 51.2, 2nd setiferous tubercles 23.9 apart, the cross distance from 2nd setiferous tubercles to 3rd ventral seta 50.6, 3rd setiferous tubercles 15.4 apart; caudal setiferous tubercles 11.3 apart; accessory setae present.
Coverflap 16.2 wide, 10.1 long, with 18-20 ridges; genital setiferous tubercles 13.2 apart.

Male: 175.1 long, shield 26.3 long, 33.7 wide; genital 15.6 wide, 8.5 long.

Host plant and symptoms: *Hibiscus tiliaceus* Linn. This mite form galls on both surface of leaf. The gall is pink on top.

Holotype: female, X-21-1990, Wufeng, Taichung, by K. W. Huang.

Paratypes: 4 females, 1 male (on slides), data as holotype.

Note: This new species is similar to *A. mckenziei* (Keifer), 1944 but differs by the longer median shield line, the elongate microtubercles, the shape of the coverflap and the 6-rays of empodial featherclaw. After the examination by the SEM, the body subequal dorsoventrally is good in the shape, but the body differentialted into broader tergites and narrower sternites is bad for the results.

Neopropilus gen. nov.

Type species: *Neopropilus jatrophus* sp. nov.

Body flattened; shield broad with lobe; dorsal tubercles and setae missing; anterolateral setae present on front margin, well separted; tarsus I with 2 knobbed solenidia and tarsus II with 1; featherclaw simple.

Abdominal tergites broad, abruptly narrow from anterior third to caudal part, lateral side parallel; sternites with beadlike microtubercles; 1st and 2nd ventral tubercles and setae absent; female genital coverflap smooth.

Note: This new genus is close to *Propilus* Keifer, 1975 but differs in that tarsus I has 2 knobbed solenida and tarsus II 1; 1st and 2nd ventral tubercles and setae absent; opisthosomal tergites abruptly narrow from anterior third towards rear.

Neopropilus jatrophus sp. nov.
Figures 29-34

Female: Body flattened, 151.8 long; shield 44.1 long, 60.6 wide, with lobe; shield design with admedian lines complete; anterolateral setae 37.1 apart, dorsal tubercles and setae absent; 1st setiferous coxal tubercles 12.8 apart, 2nd setiferous coxal tubercles 8.5 apart, 3rd setiferous coxal tubercles 27.3 apart; featherclaw simple 4-rayed.
Abdomen: tergites broad, abruptly narrow from anterior third towards rear, the lateral margin parallel, the first 3 tergites 26.5 long; sternites with beadlike microtubercles; 1st and 2nd tubercles and setae absent; lateral setiferous tubercles 52.8 apart, 3rd ventral setiferous tubercles 20.5 apart; accessory setae absent. coverflap 20.2 wide, 12.3 long, smoth; genital setiferous tubercles 17.8 apart.

Male: Not seen.

Host plant and symptoms: *Jatropha curcas* Linn. This mite is a vagrant on lower surface of leaf, apparently without symptoms.

Holotype: female, I-8-1991, Nanjinhu, Pintung by K. W. Huang.

Paratypes: 3 females (on slide), data as holotype.

Neometaculus Mohanasundaram, 1983

Type species: *Neometaculus bauhiniae* Mohanasundaram, 1983

Neometaculus neolitseae sp. nov.
Figures 35-40

Female: Body spindleform, 116.2 long; shield 40.3 long, 31.4 wide, lobe produce; shield design a reticulum median line complete, forming cells with admedians, admedian lines complete subparallel to median line, diverging towards rear shield margin, submedian line obscure; dorsal tubercles set ahead of rear margin of shield, 26.9 apart, dorsal setae short, pointing upward; 1st setiferous coxal tubercles and setae absent, 2nd setiferous coxal tubercles 9.5 apart, 3rd setiferous coxal tubercles 19.1 apart; featherclaw simple, 3-rayed.
Abdomen: tergites evenly arched, first 3 tergites 3.9

long; sternites with beadlike microtubercles; abdomen with all setae present; lateral setiferous tubercles 34.9 apart, the cross distance from lateral setiferous tubercles to 1st ventral seta 35.5, 1st ventral setiferous tubercles 25.5 apart, the cross distance from 1st ventral setiferous tubercles to 2nd ventral seta 31.5, 2nd setiferous tubercles 14.3 apart, the cross distance from 2nd setiferous tubercles to 3rd ventral seta 28.6, 3rd setiferous tubercles 16.3 apart; caudal setiferous tubercles 5.5 apart; accessory setae absent.
Coverflap 22.5 wide, 16.8 long, smooth, with granules; genital setiferous tubercles 13.5 apart.

Male: 99.9 long, shield 26.5 long, 30.3 wide; genital 16.5 wide, 6.4 long.

Host plant and symptoms: *Neolitsea acuminatissima* (Hay.) Kaneh. et Sasaki. This mite is a vagrant on lower surface of leaf, without any symptoms.

Holotype: feamle, XI-2-1990, Kuohsing, Nantou by N.W. Huang.

Paratypes: 3 females, 1 male (on slides), data as holotype.

Notes: This new species is similar to *N. bauhiniae* Mohanasunderam, 1983 but differs by the shield design a reticulum median line complete, and coverflap with granules.

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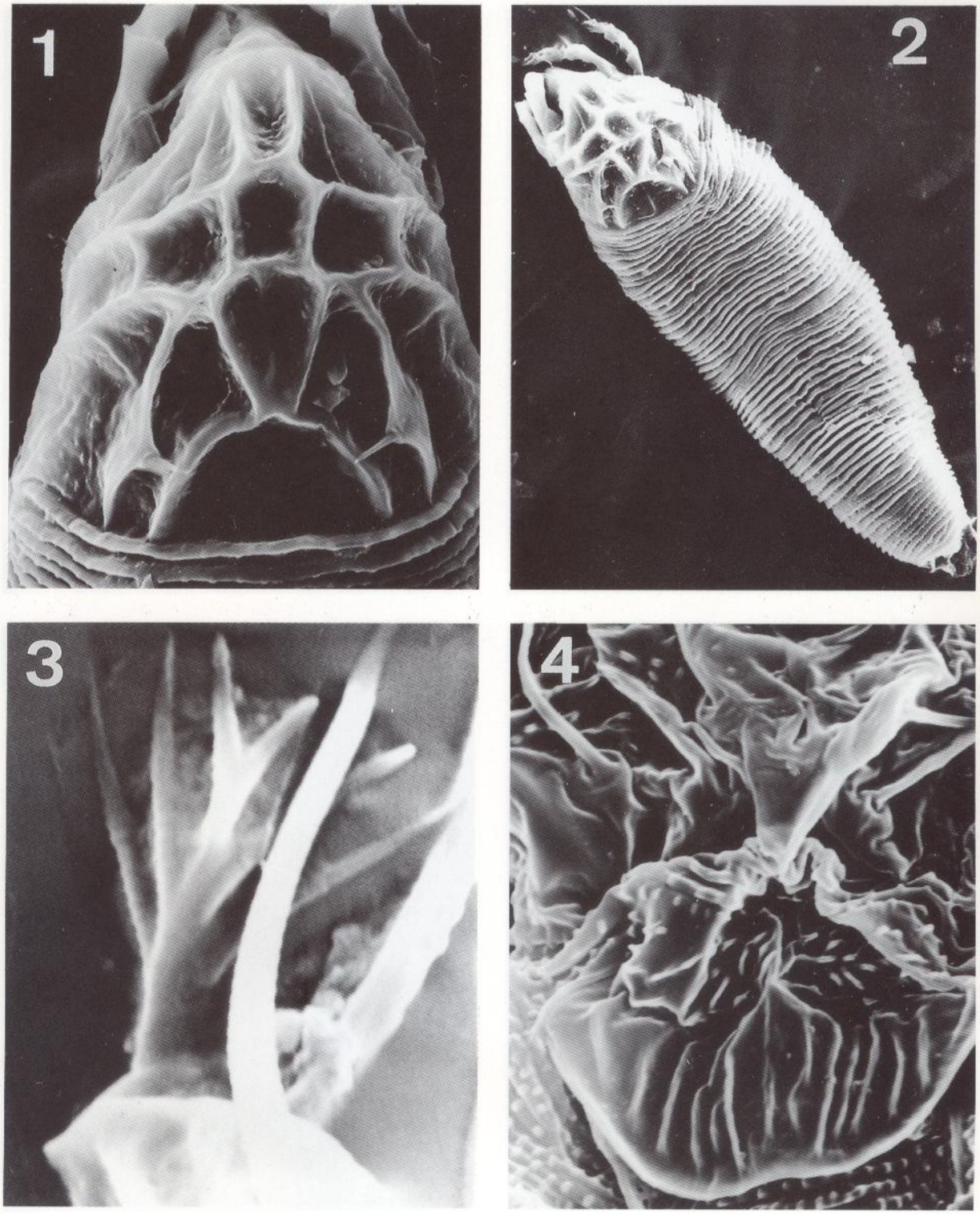
臺灣產節蜱類之新種

黃坤煒

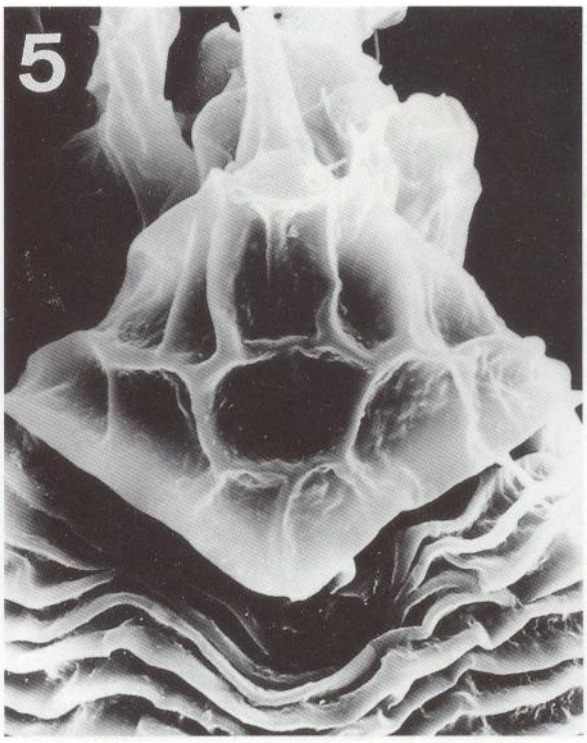
摘 要

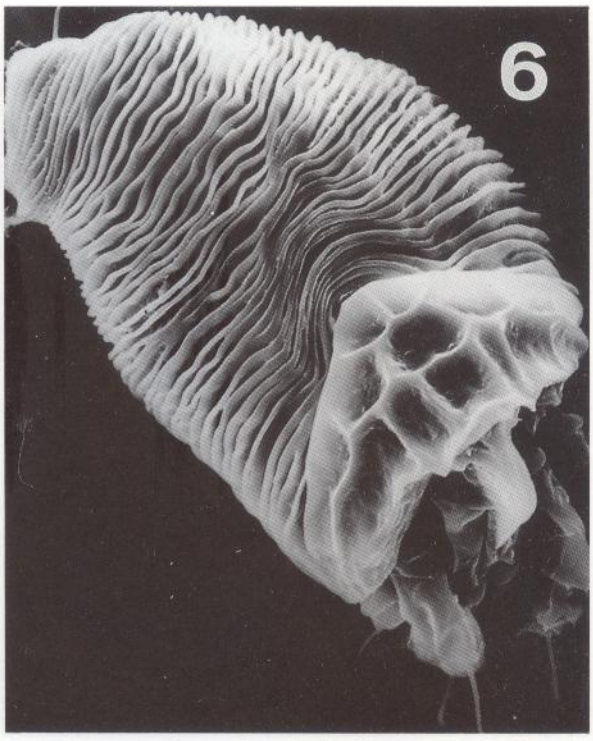
本文利用掃描式電子顯微鏡所得照片，來描述臺灣產七新種節蜱，分別爲：*Aculodes hibisci* sp. nov.(於*Hibiscus tiliaceus*), *Neopropilus jatrophus* gen. et sp. nov.(於*Jatropha curcas*), *Neoametaculus neolitseae* sp. nov.(於*Neolitsea acuminatissima*), *Phyllocoptruta semialata* sp. nov.(於*Rhus semialata* var. *roxburghiana*), *Rhynacus championi* sp. nov.(於*Bauhinia championi*), *Vasates irisanae* sp. nov.(於*Ficus irisana*),及*V. scandensi* sp. nov.(於*Paederia scandens*).

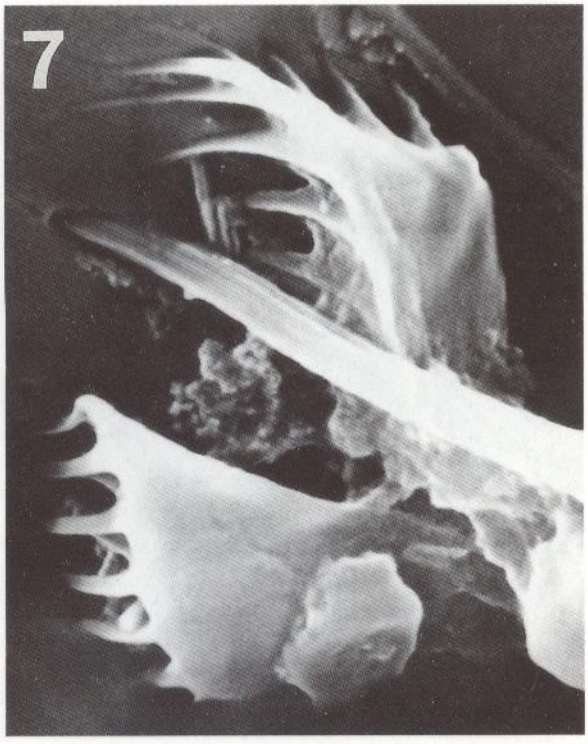
關鍵詞：節蜱類，臺灣。



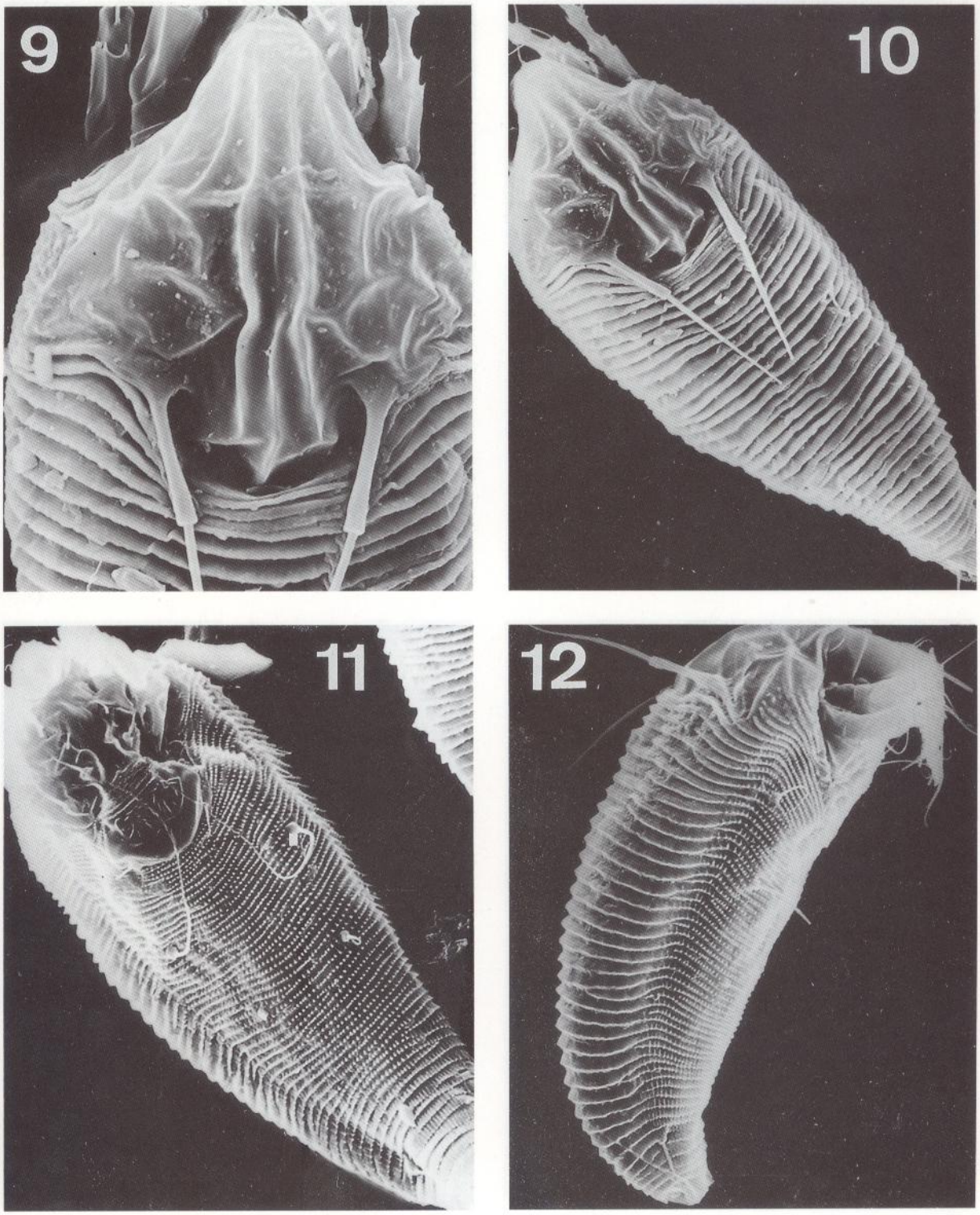
Figures 1-4. ***Phyllocoptruta semialata*** sp. nov. 1, Dorsal view. 2, Shield. 3, Genital coverflap, female, 4, Featherclaw.



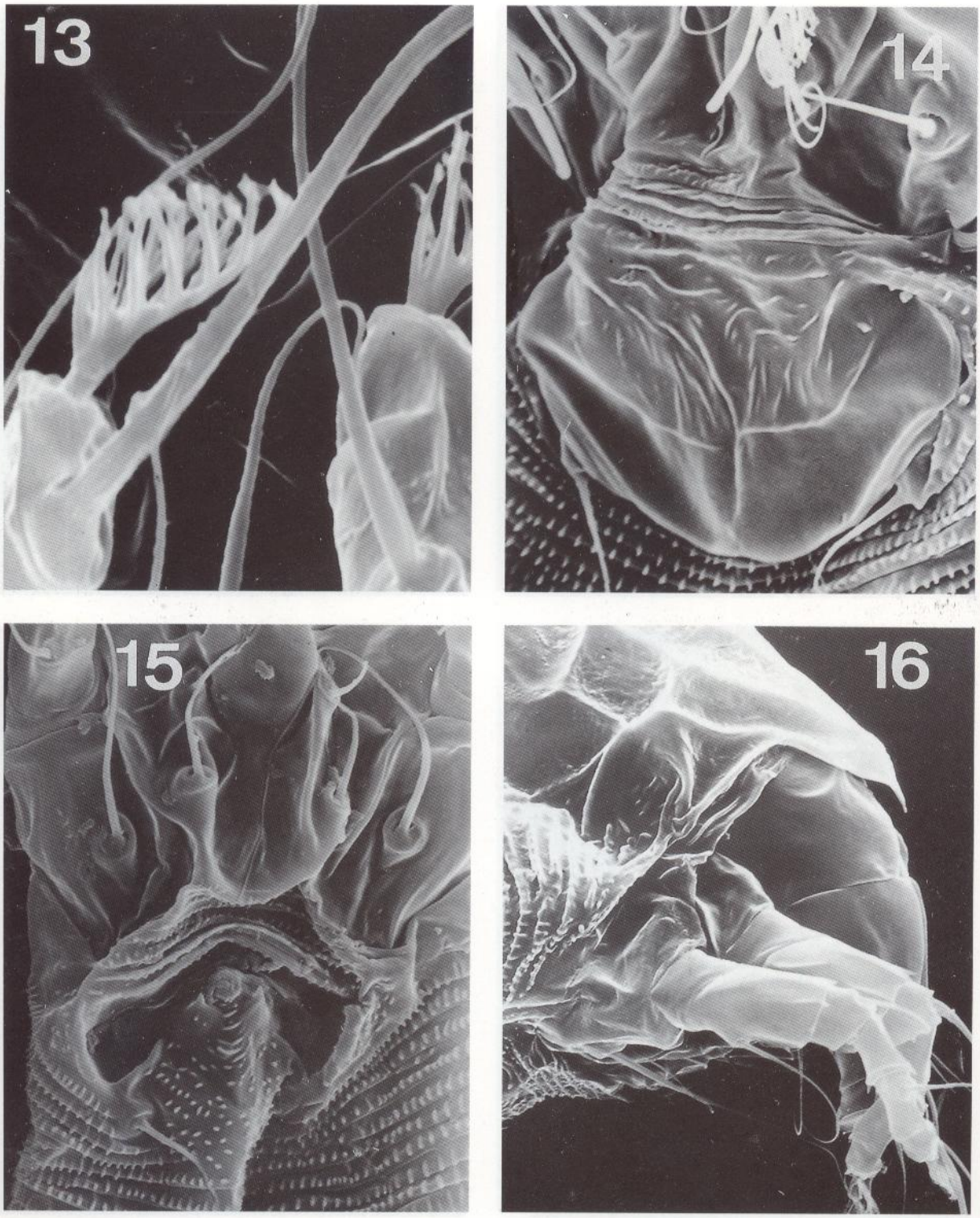




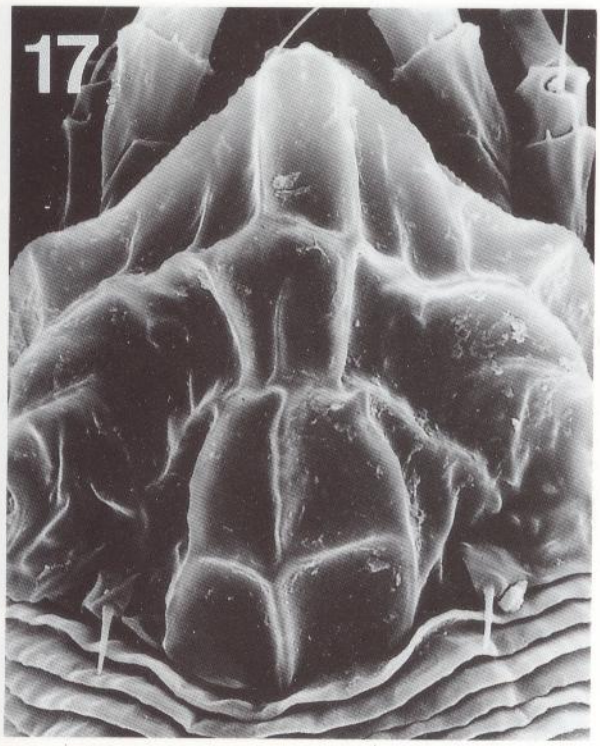
Figures 5-8. ***Rhynacus championi*** sp. nov. 5, Dorsal view. 6, Shield. 7, Genital coverflap, female. 8, Featherclaw.

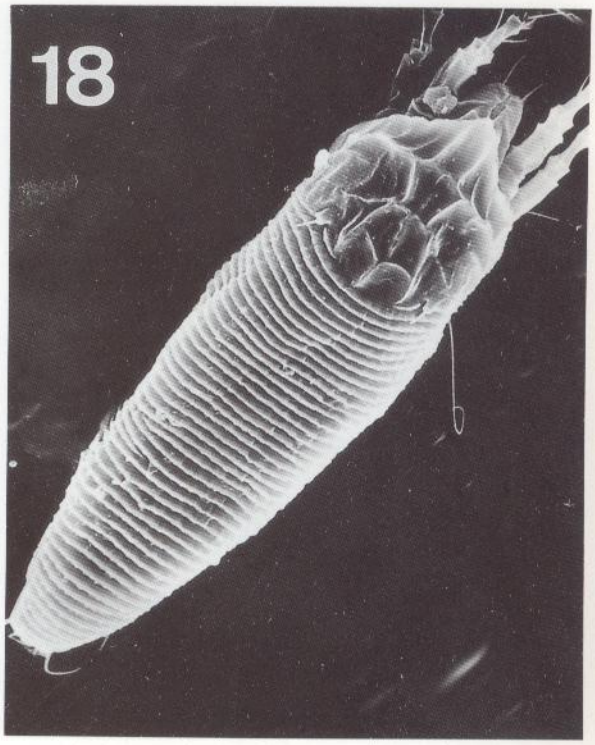


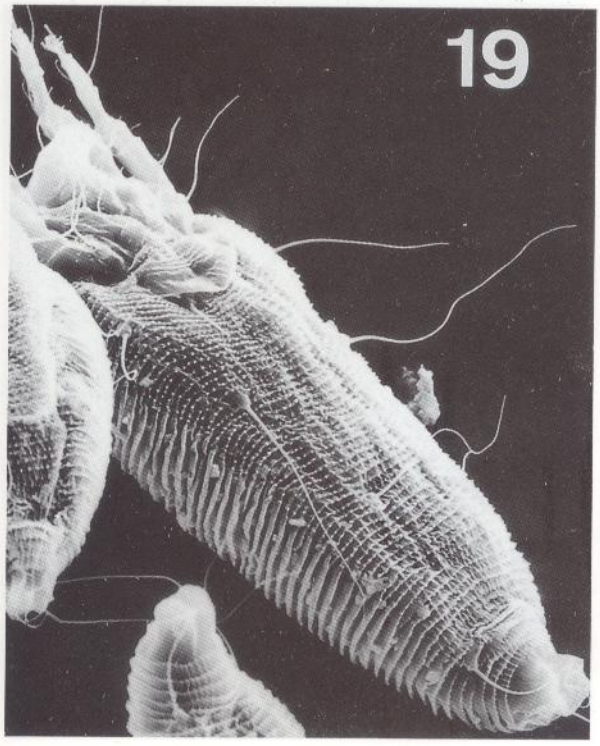
Figures 9-12. ***Vasates irisanae*** sp. nov. 9, Dorsal view. 10, Shield. 11, Lateral view. 12, Ventral view.



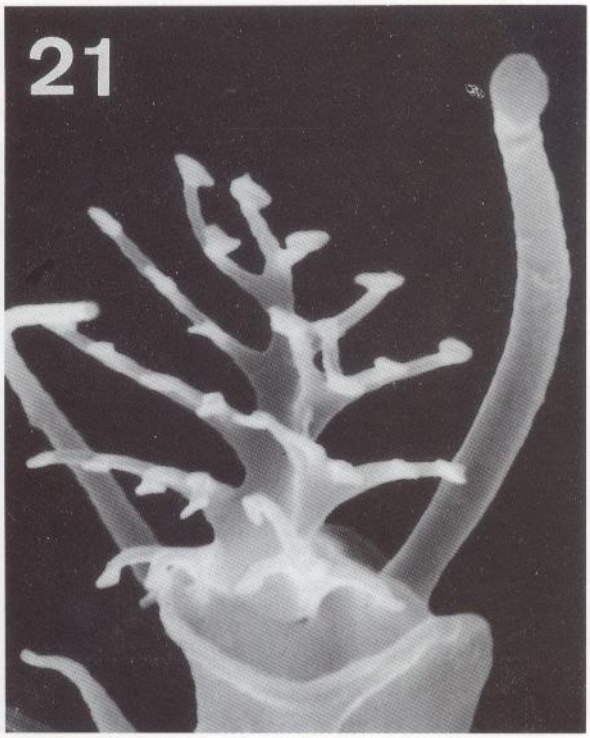
Figures 13-16. ***Vasates irisanae*** sp. nov. 13, Genital coverflap, female. 14, Featherclaw. 15, Anterior region, lateral view. 16, Genital area, male.

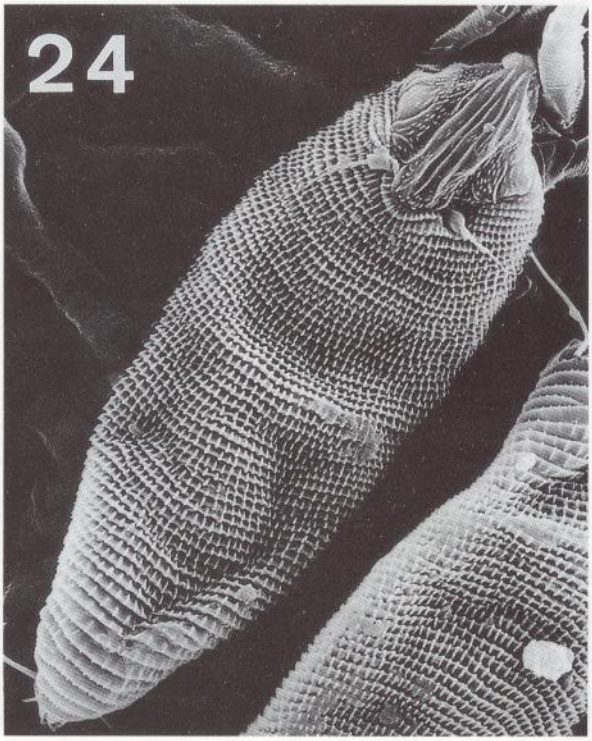




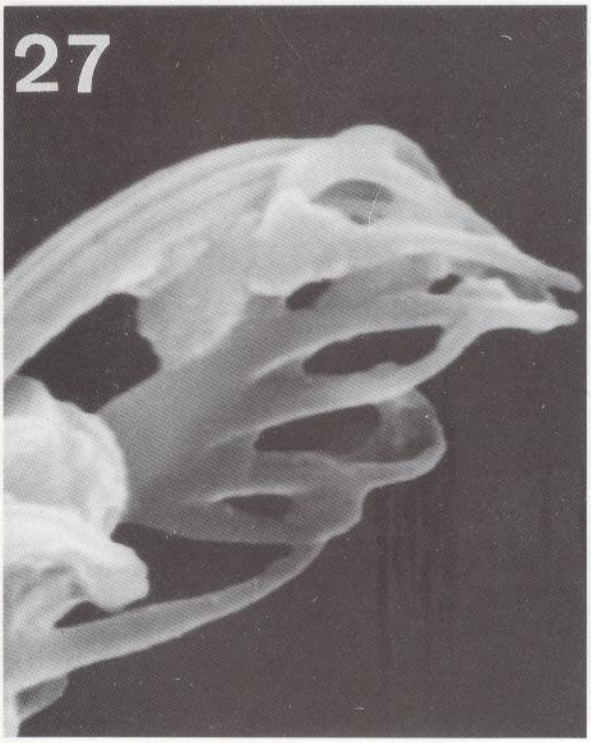


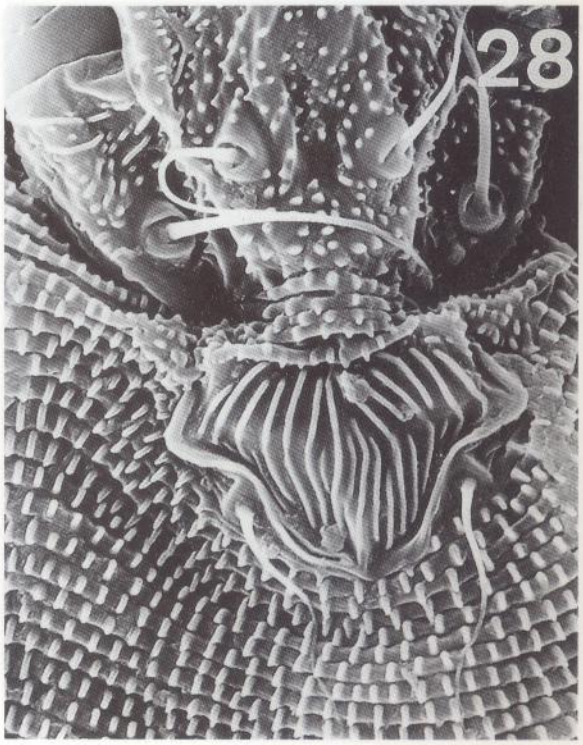
Figures 17-20. ***Vasates scandensi*** sp. nov. 17, Dorsal view. 18, Shield. 19, Genital area, male. 20, Ventral-lateral view.



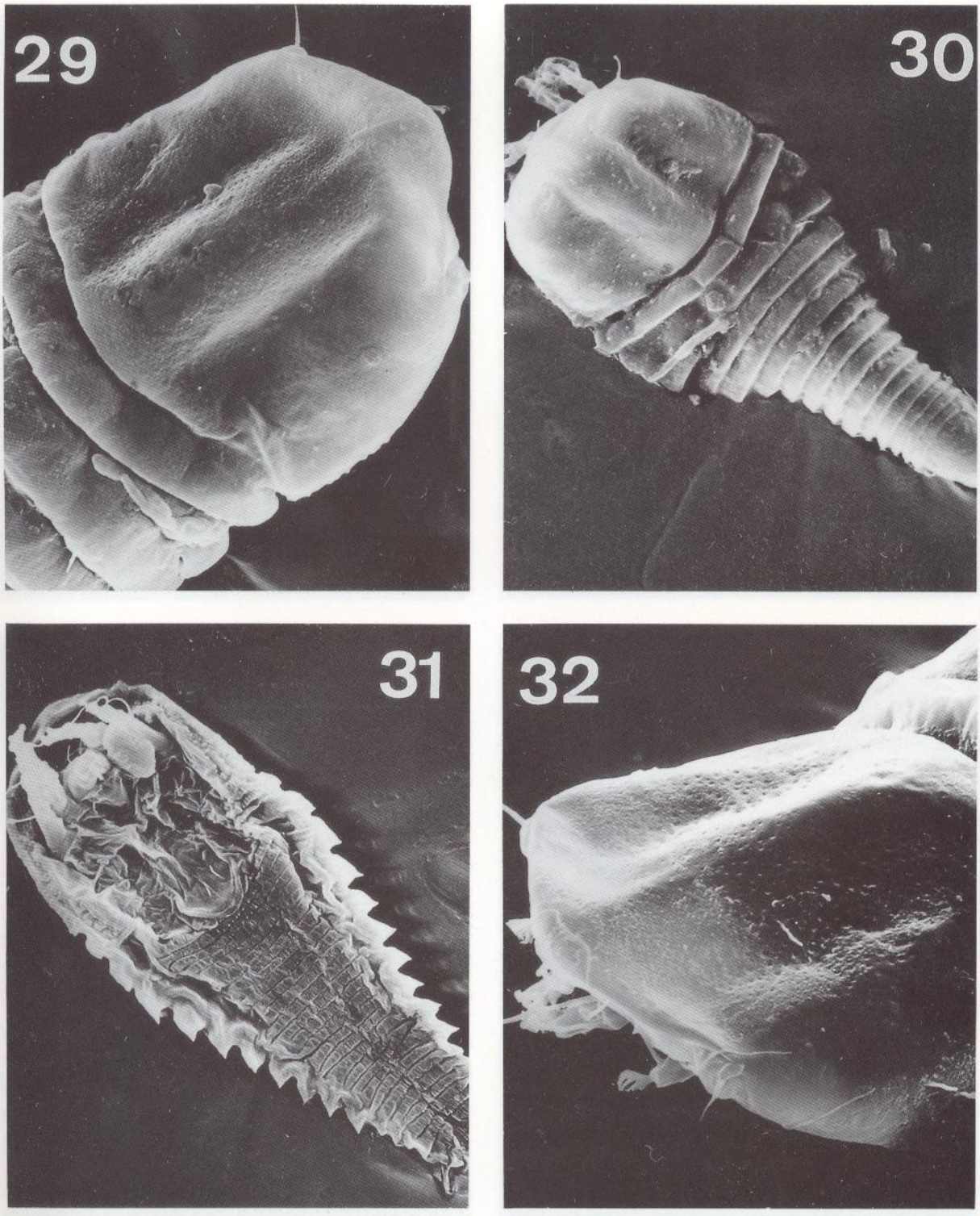


Figures 21-24. ***Vasates scandensi*** sp. nov. 21, Genital coverflap. 22, Featherclaw. ***Aculodes hibisci*** sp. nov. 23, Dorsal view. 24, Shield.

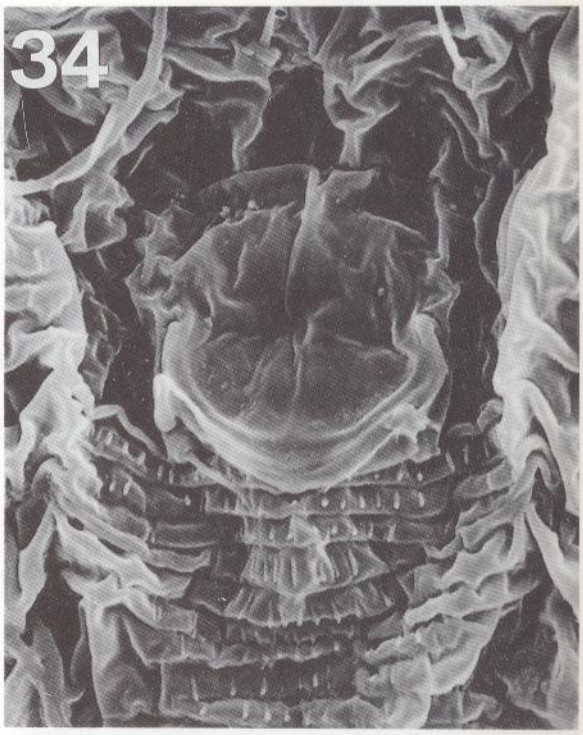


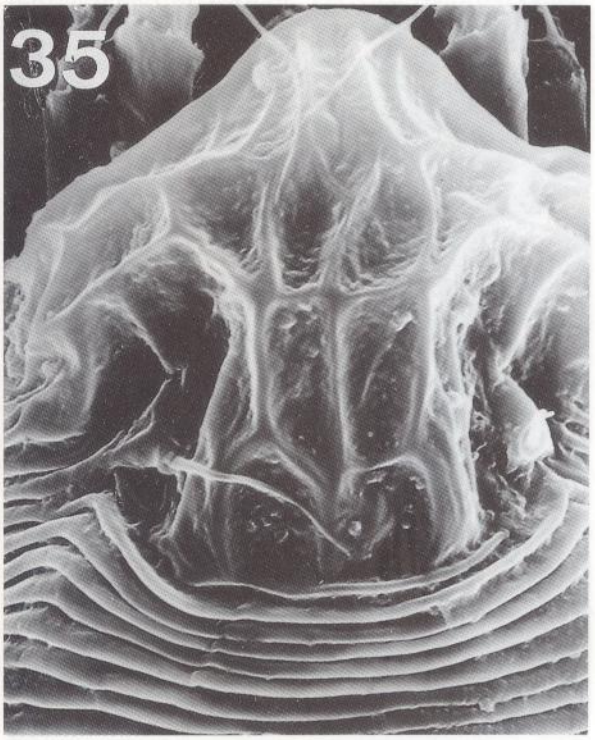


Figures 25-28. ***Aculodes hibisci*** sp. nov. 25, Legs. 26, Ventral-lateral view. 27, Genital coverflap, female. 28, Featherclaw.

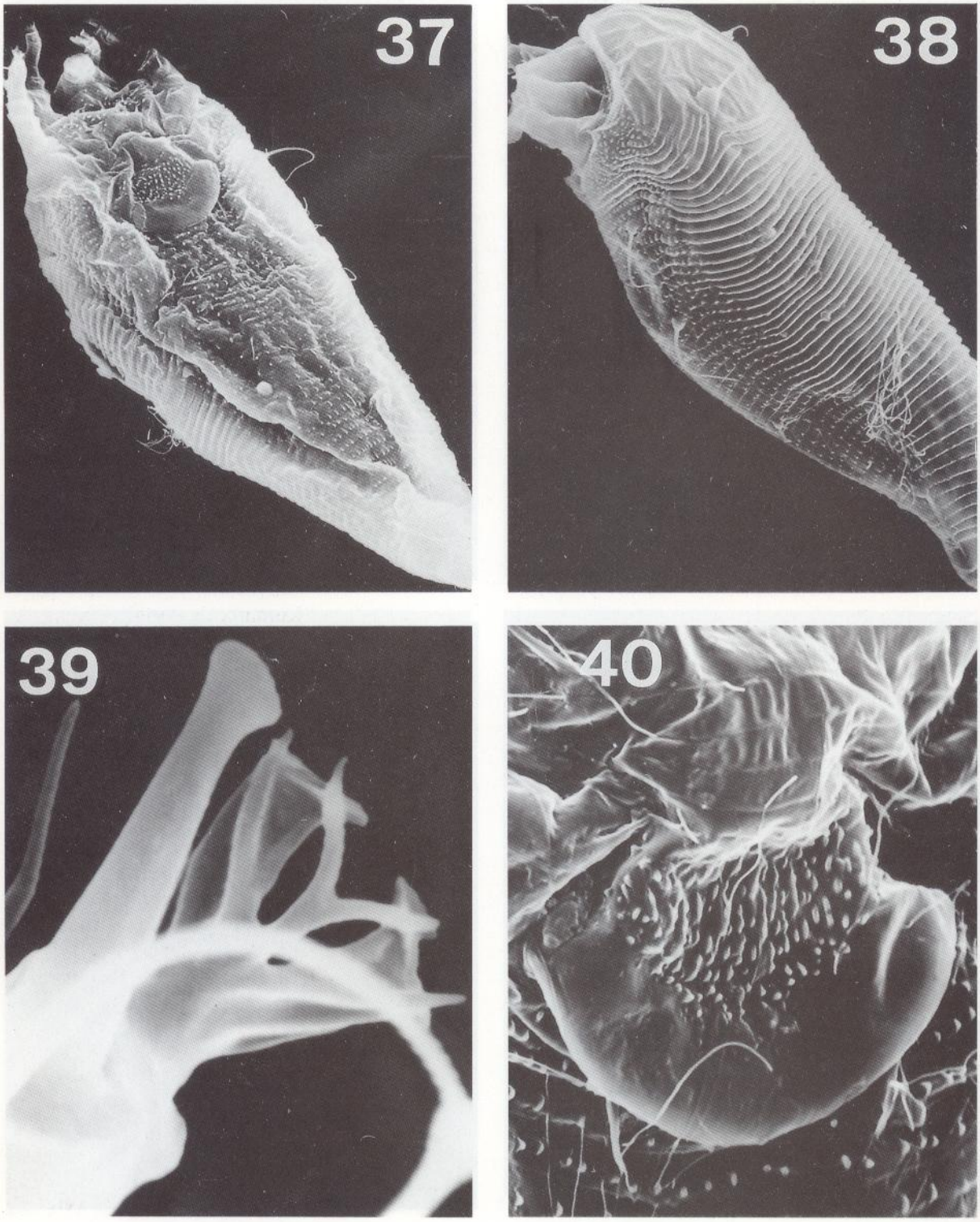


Figures 29-32. ***Neopropilus jatrophus*** gen. et sp. nov. 29, Dorsal view. 30, Shield, dorsal view. 31, Shield, lateral view. 32, Ventral view.





Figures 33-36. ***Neopropilus jatrophus*** gen. et sp. nov. 33, Genital coverflap, female. 34, Feathcerclaw. ***Neometaculus neolitseae*** sp. nov. 35, Dorsal view. 36, Shield.



Figures 37-40. ***Neometaculus neolitseae*** sp. nov. 37, lateral view. 38, Ventral view. 39, Genital coverflap, female. 40, Featherclaw.