STUDIES ON THE FAUNA OF SURINAME
AND OTHER GUYANAS: No. 33.

PHYTOSEIIDAE OF BRITISH GUYANA
with keys to species
(Acarina: Mesostigmata)

by

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The Phytoseiidae have diverse habits. Some are apparently obligate predators, preying on other mites or on insects, others are facultative predators feeding on fungus hyphae, pollen, or plant sap when no prey is at hand (CHANT 1959a), and one species, *Anthoseius hebetis* DE LEON (1959b), is found only in the flowers of *Heliotropium parviflorum* where it probably feeds exclusively on pollen. Although phytoseiids are common in British Guyana there are no records of the occurrence of any species in that country.

Through the kind invitation of Dr J. M. CHERRETT, a member of the University College of North Wales Guiana Expedition 1963 (OGDEN, 1964), I spent 13 days (22 Oct.–3 Nov. 1963) collecting mites in the Nature Reserve, near the Expedition's Headquarters about 24 miles south of Bartica. The phytoseiids collected while with the Expedition and while in the Georgetown area are recorded below. The names of the plants from which mites were collected were provided, while with the Expedition, by Mr RUFUS BOYAN and Mr CHARLES SANDY, and while in the Georgetown area, by Mr R. PERSAUD and Mr DONALD DRAYTON.

In the descriptions, all measurements are in microns and all drawings and descriptions of new species are of holotype females unless indicated otherwise. Length of cervix includes the atrium and all are drawn to practically the same scale. The system of GARMAN'S (1948) for designating body setae is used here as is that

of ATHIAS-HENRIOT's (1957) for designating the macrosetae of the legs.

WESTERBOER & BERNHARD (1963) reduced the number of genera usually placed in the Phytoseiidae to 3 and added 3 genera previously placed in other families. CHANT & BAKER (1965) put forward a somewhat different classification, but while doing so placed, it appears to me, widely separated species in the same genus. MUMA (1961) and WAINSTEIN (1962) on the other hand erected a large number of genera based on morphological differences ignored by the above mentioned workers. Because the classification put forward by MUMA and by WAINSTEIN seems to reflect evolutionary relationships better than the classification put forward in the 2 later papers I have followed more or less MUMA and WAINSTEIN.

KEY TO GENERA OF PHYTOSEIIDAE IN BRITISH GUYANA: Females

1. Dorsal shield with 4 pairs of anterolateral setae 2
1'. Dorsal shield with 5 or 6 pairs of anterolateral setae . . . 8

2. Dorsal shield with D5 absent . . . . (1) *Amblyseiulus* Muma
2'. Dorsal shield with D5 present 3

3. Peritrematal shield at coxa IV extending to or almost to exopodal shield (Fig. 104) 4
3'. Peritrematal shield at coxa IV not extending to exopodal shield (Fig. 113) 5

4. Seta S1 on dorsal shield; dorsal shield smooth; metapodal shield normal . . . . . (2) *Iphiseiodes* DeL.
4'. Seta S1 on interscutal membrane; dorsal shield with circular pits; metapodal shield greatly enlarged . . . . . (3) *Paraamblyseius* Muma

5. Fixed digit short (less than 23 μ long) and with only a few teeth all distal of the *pilus dentilis;* posterior margin of sternal shield with large median lobe (sternal shield in this genus weakly sclerotized and posterior margin usually difficult and often

impossible to see); 1st pair of preanal setae removed from anterior margin of ventrianal shield . . (4) *Euseius* Wainstein

5'. Fixed digit long (over 25 μ long) and with 8 or more teeth several being proximal of the *pilus dentilis* 6

6. M2 shorter than tibia IV; posterior margin of sternal shield usually with a large median lobe; preanal setae crowded towards anterior margin of ventrianal shield (5) *Typhlodromalus* Muma

6'. M2 longer or shorter than tibia IV; posterior margin of sternal shield concave or straight; preanal setae in normal position 7

7. M2 about or much more than 1½ times as long as tibia IV; L9 long and whip-like; sgeIV much longer than stIV; D2–D5 minute (less than 10 μ long) . . . . . (6) *Amblyseius* Berlese

7'. M2 about as long as or shorter than tibia IV; L9 not long and whip-like; sgeIV about as long as or shorter than stIV, the tips usually blunt or bulbous; D2–D5 usually not minute . . . . . (7) *Typhlodromips* DeL.

8. Seta S1 on shield . . . . . (8) *Phytoseius* Ribaga

8'. S1 on interscutal membrane 9

9. Fixed digit with teeth only near tip; M2 shorter than tibia IV . . . . . (9) *Typhloseiopsis* DeL.

9'. Fixed digit with teeth nearly full length of blade; M2 much longer than tibia IV . . . . . (10) *Diadromus* Athias

(1) **Amblyseiulus** Muma

Amblyseiulus MUMA, 1961: 278. Type: *Typhlodromus okanagensis* Chant, 1957.

Amblyseiulus cannaensis Muma Fig. 103

Amblyseiulus cannaensis MUMA 1962: 4, fig. 4 A–H.

A female (Fig. 103) was collected on *Mourera sideroxylon* in the Nature Reserve on 24.X.1963. It differs from MUMA's drawing of a

Florida specimen in having L1 somewhat longer. A male was collected the same day in the same area from dead leaves.

(2) **Iphiseiodes** De Leon

Iphiseiodes De Leon, 1966. Type: *Sejus quadripilis* Banks, 1904.

KEY TO SPECIES OF IPHISEIODES IN BRITISH GUYANA: Females

1. Dorsal shield with 2 pairs of long setae. . *quadripilis* (Banks)
1′. Dorsal shield with 3 pairs of long setae. . . *kamahorae* n. sp.

Iphiseiodes quadripilis (Banks) Fig. 104

Sejus quadripilis BANKS, 1904, fig. 104; *Seiulus quadripilis* (Banks), BANKS 1905: 138; *"Amblyseius" quadripilis* Banks, CUNLIFFE & BAKER 1953: 26, 2 figs.; *Amblyseiulus quadripilis* (Banks), GARMAN 1958: 78, fig. 2; *Iphiseius quadripilis* (Banks), CHANT 1959a: 110, fig. 261–262; *Amblyseius* (*Iphiseius*) *quadripilis* (Banks), MUMA 1961: 288; *Iphiseius quadripilis* (Banks), CHANT & BAKER 1965: 10, fig. 37–39; *id.*, DE LEON 1965c: 121; *Iphiseiodes quadripilis* (Banks), DE LEON 1966: *In press.*

Iphiseiodes quadripilis is a dark brown, nearly round, shiny mite found also in Florida, Mexico, Central America and the West Indies. In British Guyana, it was collected at Georgetown on *Tabebuia* sp. Nothing is known of its food habits.

Iphiseiodes kamahorae n. sp. Fig. 105

Iphiseiodes kamahorae is distinct from other species with 3 pairs of long setae on the dorsal shield in having D1 and L1 about as long as L2 and in the shape of the cervix. The male is unknown.

FEMALE. Dorsal shield 280 long, 226 wide; body dark brown with setae and markings as in Fig. 103. Lengths of setae: L1 7, L4 59, L9 56, D1 9, M2 56. Ventrianal shield 78 long, 97 wide. Chelicerae not clear, but fixed digit with about 10 teeth. Legs slender, tibia IV

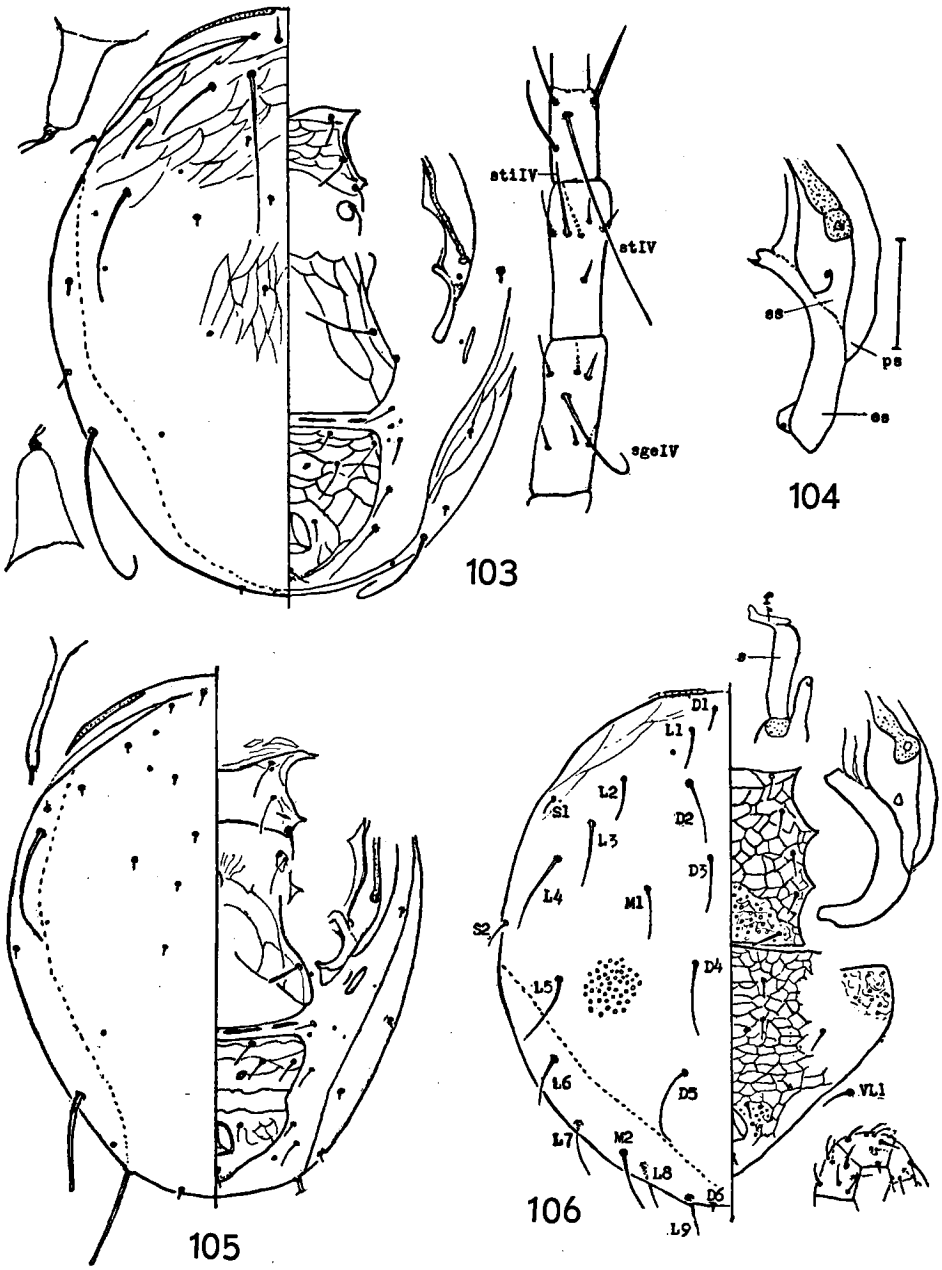


Fig. 103. *Amblyseius cannaensis* Muma. — Dorsal and ventral shields, part of leg IV — sgeIV, macrosetae of genu IV; stiIV, macroseta of tibia IV; stIV, macroseta of tarsus IV — and right and left cervices to show variation in shape. (Specimen from Nature Reserve).

Fig. 104. *Iphiseiodes quadripilis* (Banks). — Peritrematal shield in region of coxa IV — es, exopodal shield; ps, peritrematal shield; ss, stigmatal shield. The scale represents 36 microns. (Specimen from Georgetown, ♀).

Fig. 105. *Iphiseiodes kamahorae* n. sp. — Dorsal and ventral shields and cervix.

Fig. 106. *Paraamblyseius ogdeni* n. sp., ♂. — Dorsal and ventral shields, part of leg IV, and spermatodactyl — f, foot; s, shank.

40 long, 16 wide; tarsus IV 90, with pretarsus, 111 long; sgeI 18, II 22, III 22, IV 45; stiIV 25, the tips of all these setae slightly bulbous; stIV 27, the tip blunt. Cervix about 26 long, 2 wide at mid-length.

Holotype: Female, Nature Reserve, Bartica, B. G., 2.XI.1963 (D. De Leon), on *Pouteria* sp. Paratype: 1 female collected with holotype.

(3) **Paraamblyseius** Muma

Paraamblyseius MUMA, 1962: 8, fig. 8 A–E. Type: *Paraamblyseius lunatus* Muma, 1962. CHANT & BAKER 1965: 12, fig. 60–62.

Paraamblyseius ogdeni n. sp. Fig. 106

Paraamblyseius ogdeni differs from the only other known species (*P. lunatus*) in having most all the setae of the dorsal shield much longer. As emphasized by CHANT & BAKER, genu III in this genus has only 6 setae as follows: $1\frac{2}{0}, \frac{2}{0}1$ (EVANS' system, 1963). The female is unknown.

MALE. Dorsal shield about 220 long, 185 wide and covered with what appear to be small circular pits; body dark brown with setae and markings as in Fig. 106. Lengths of setae: L1 23, L4 52, L5 40, L9 21, D1 13, M2 38. S1 and S2 on dorsal shield. Ventrianal shield partly obscured, but apparently with only 3 pairs of preanals. Spermatodactyl with foot about 6 long, shank about 14 long. Legs moderately long, without macrosetae; tibia IV 22 long, 14 wide; tarsus IV 60 long, with pretarsus, about 75 long.

Holotype: Male, Nature Reserve, Bartica, B. G., 28.X.1963 (D. De Leon), on *Pouteria speciosa*. Paratype: 1 male, on *Moureria sideroxylon*, other data as for holotype. The mite is named for Mr JOHN OGDEN, Botanist, a member of the Expedition.

(4) **Euseius** Wainstein

Euseius WAINSTEIN, 1962: 15. Type: *Seiulus finlandicus* Oudemans; DE LEON 1965c: 125, fig. 8–9.

Euseius alatus n. sp. Fig. 107

Euseius alatus resembles *E. subalatus* (DeL.) from Puerto Rico, but differs from it chiefly in having the anterolateral setae slightly shorter and the posterolateral setae, the cervix and the peritreme longer. This species and *E. subalatus* form a distinct group by having S2 on the dorsal shield.

FEMALE. Dorsal shield 325 wide, 260 long; body whitish with setae and markings as in Fig. 107. Lengths of setae: L1 21, L2 17, L3 20, L4 26, L5 21, L6 25, L7 28, L8 28, L9 63, D1 28, D3 16, D5 20, M2 22. Sternal shield and other ventral parts not clear; ventrianal shield about 97 long, 60 wide near anterior end. Fixed digit about 21 long, with 2 distal teeth. Legs moderately slender; tibia IV 47 long, 21 wide; tarsus IV 127, with pretarsus, 157 long; sgeI 21, sgeII 16, stiII 20, sgeIII 35, stiIII 21, sgeIV 48, stiIV 28, stIV 53, the tips of sgeI and II sharp, the others bulbous. Cervix about 25 long.

MALE. Resembles female; dorsal shield 256 long, 180 wide. Spermatodactyl with foot about 10.5 long, shank 17 long.

Holotype: Female, Georgetown, B. G., 4.XI.1963 (D. De Leon), on *Cassia bicapsularis*. Paratypes: 1 male collected with holotype, 1 female on *Cassia polyphylla* and 1 female on *Persea americana*, Georgetown, 21.X.1963.

(5) **Typhlodromalus** Muma

Typhlodromalus MUMA, 1961: 288. Type: *Typhlodromus peregrinus* Muma, 1965; DE LEON 1962: 121, fig. 74–86; VAN DER MERWE & RYKE 1964: 263, 69 figs. (all their species are in the genus *Euseius*, now considered to be a group distinct from *Typhlodromalus*); DE LEON 1965c: 124, fig. 5–7.

Typhlodromalus arawak n. sp. Fig. 108

Typhlodromalus arawak is distinct in having all 3 preanal setae touching or nearly touching the anterior margin of the ventrianal shield. The male is unknown.

FEMALE. Dorsal shield 317 long, 185 wide; body whitish with

setae and markings as in Fig. 108. Lengths of setae: L1 26, L2 11, L3 10, L4 31, L5 11, L6 13, L7 11, L8 8, L9 63, M1 8, M2 11, D1 22, D2 9, D3 8, D4 11, D5 12, D6 7, VL1 27. Sternal shield not clear; ventrianal shield 99 long, 54 wide near anterior end. Fixed digit about 31 long. Legs I and II thicker than III and IV; tibia IV 48 long, 22 wide; tarsus IV 128, with pretarsus, 168 long; sgeI 36, II 25, III 28, IV 58, stiIV 28, stIV 75, the tips all tapering to sharp points. Cervix about 21 long.

Holotype: Female, Nature Reserve, Bartica, B. G., 24.X.1963 (D. De Leon), on *Swartzia benthamiana*. Paratype: 1 female on *Moureria sideroxylon*, other data as for holotype.

(6) **Amblyseius** Berlese

Amblyseius BERLESE, 1914: 143; BERLESE 1923: 255; GARMAN 1948: 16; EVANS 1952: 397; CUNLIFFE & BAKER 1953: 24; WOMERSLEY 1954: 188; EVANS 1957: 223; CHANT 1959a: 66; MUMA 1961: 287; ATHIAS-HENRIOT 1961: 419; DE LEON 1961: 85; GONZALEZ & SCHUSTER 1962: 8; PRITCHARD & BAKER 1962: 237; DE LEON 1962a: 19; *ib.* 1962b: 175; MUMA 1962: 6; SCHUSTER & PRITCHARD 1963: 225; CHANT & BAKER 1965: 13; DE LEON 1965c: 121. Type of genus: *Zercon obtusus* Koch, 1839.

KEY TO SPECIES OF AMBLYSEIUS IN BRITISH GUYANA: Females

1. Ventral and anal shield separated (Fig. 109) . *segregans* n. sp.
1′. Ventral and anal shields fused to form a ventrianal shield 2

2. Ventrianal shield with a narrow "waist", preanal pores almost touching base of 3rd pair of preanal setae (Fig. 110) . . . . . *largoensis* Muma
2′. Ventrianal shield with sides either convex or weakly concave 3

3. Cervix trumpet-shaped (Fig. 111) . . . . . *circumflexis* n. sp.
3′. Cervix with sides nearly parallel 4

4. Cervix narrower than atrium at atrial end; L1 more than 40 long (Fig. 112) . . . . . *aerialis* (Muma)

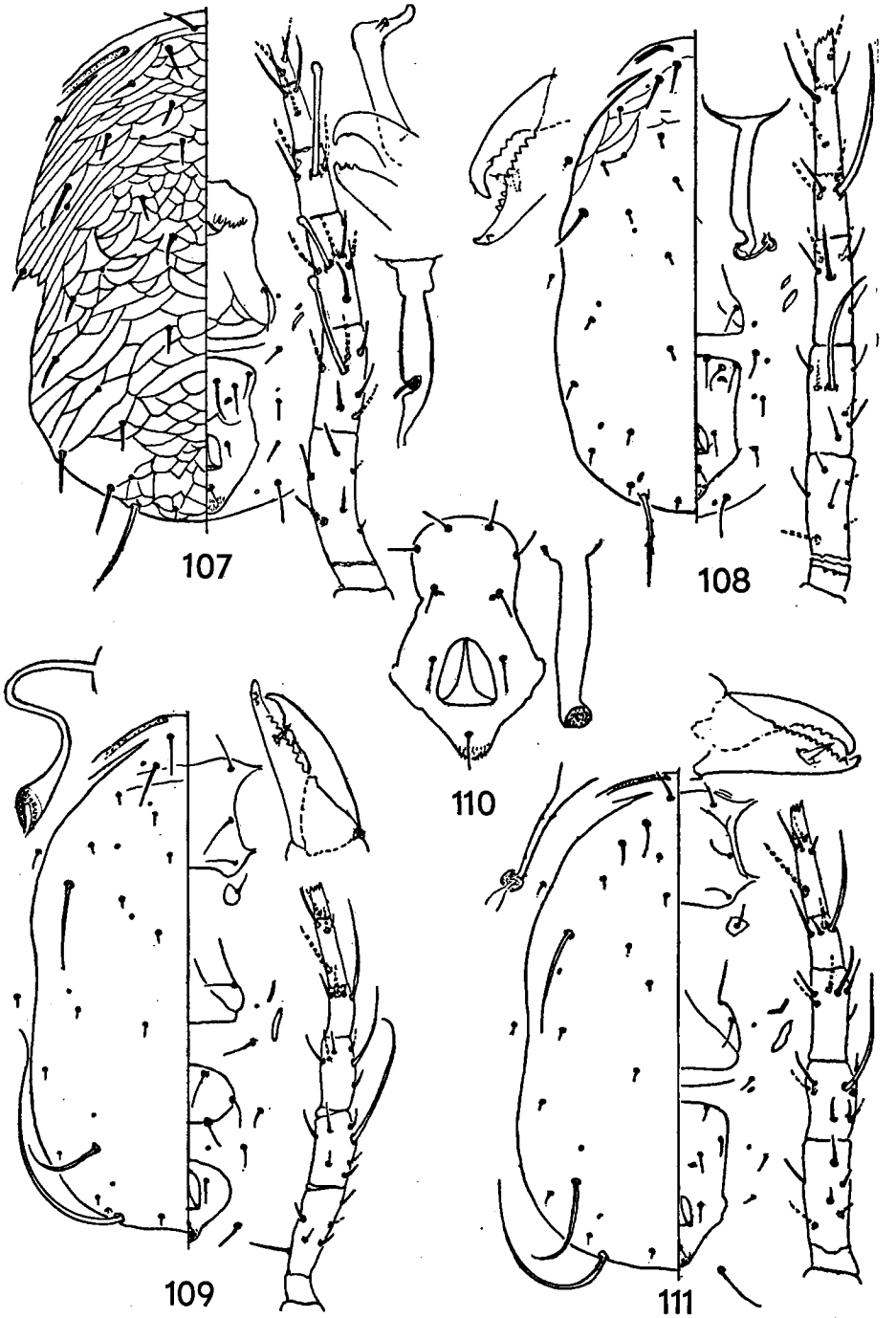


Fig. 107. *Euseius alatus* n. sp. — Dorsal and ventral shields, part of leg IV, cervix; spermatodactyl of paratype.

Fig. 108. *Typhlodromalus arawak* n. sp. — Dorsal and ventral shields, chelicerae, part of leg IV, and cervix.

Fig. 109. *Amblyseius segregans* n. sp. — Dorsal and ventral shields, chelicerae, part of leg IV, and cervix.

Fig. 110. *Amblyseius largoensis* (Muma). — Ventrianal shield and cervix. (Specimen from Georgetown).

Fig. 111. *Amblyseius circumflexis* n. sp. — Dorsal and ventral shields, chelicerae, part of leg IV, and cervix.

4'. Cervix as wide as or wider than atrium at atrial end; L1 less than 35 long 5

5. Cervix with the about the same diameter its full length (Fig. 113) . . . . . *martus* n. sp.
5'. Cervix narrowed at middle (Fig. 114) . . . *guianensis* n. sp.

Amblyseius segregans n. sp. Fig. 109

Amblyseius segregans resembles *A. perditus* Chant & Baker differing from that species most noticeably in having a much longer cervix. The male is unknown. This species and *A. perditus* are the only known species in the genus with ventrianal shields divided.

FEMALE. Dorsal shield 320 long, 208 wide; body pearly white with setae and markings as in Fig. 109. Lengths of setae: L1 36, L2 7, L3 5, L4 70, L5 8, L6 7, L7 7, L8 7, L9 199, M1 5, M2 68, D1 32, D2 5, D3 6, D4 7, D5 7, D6 7, S1 14, VL1 23. Legs moderately heavy; tibia IV 47 long, 22 wide; tarsus IV 141, with pretarsus, 183 long; sgeI 49, stI (proximal) 36, (distal) 48, sgeII 38, III 43, stiIII 37, sgeIV 87, stiIV 63, stIV 72. Cervix about 36 long, about 1.5 wide at narrowest part.

Holotype: Female, Nature Reserve, Bartica, B. G., 26.X.1963 (D. De Leon), on *Tapirira marchandii*. Paratype: 1 female, collected with holotype.

Amblyseius largoensis (Muma) Fig. 110

Amblyseiopsis largoensis MUMA, 1955: 266, fig. 11–12; GARMAN 1958: 76, fig. 8a–e (misidentification?); *Amblyseius largoensis* (Muma), EHARA 1959: 293, fig. 17–18; *Typhlodromus* (*Amblyseius*) *largoensis* (Muma), CHANT 1959: 96, fig. 226–227; *Amblyseius* (*Amblyseialus*) *largoensis* (Muma), MUMA 1961: 287; *Amblyseius largoensis* (Muma), DE LEON 1961: 91; EHARA 1961: 96, fig. 8; SCHUSTER & PRITCHARD 1963: 237, fig. 26 (misidentification); CHANT & BAKER 1965: 18, fig. 99–103 (misidentification); DE LEON 1965c: 121.

Amblyseius largoensis, described from specimens collected in Florida where it is common, is also a common and widespead species

in the West Indies. It also occurs in Mexico where it appears to be uncommon and in Japan. In British Guyana, it was collected on 3 different species of palms, and on *Spondias dulcis*, *Coix lacrymae-jobi*, *Artocarpus communis*, *Cassia bicapsularis*, and *Swietenia* sp. all at Georgetown and on a malpighiaceous shrub at Vreed-en-Hoop.

The lengths of some setae of the dorsal shield of a female from Georgetown follow: D1 36, L1 54, L4 90, M2 81. Ventrianal shield 105 long, 72 wide at level of anus. Tibia IV 54 long, 22 wide; tarsus IV 138, with pretarsus, 170 long. Cervix about 26 long, about 4.5 wide at mid-length.

Amblyseius circumflexis n. sp. Fig. 111

Amblyseius circumflexis resembles *A. corderoi* Chant & Baker, 1965, but differs in having L9 much shorter and a much shorter cervix. The male is unknown.

FEMALE. Dorsal shield 298 long, 199 wide; body with setae and markings as in Fig. 111. Lengths of setae: L1 23, L2 13, L3 7, L4 67, L5 7, L6 9, L7 9, L8 8, L9 about 135, M1 5, M2 70, D1 19, D2–D4 7, D5 9, D6 7, S1 14, S2 9. Ventrianal shield 98 long, 58 wide near anterior end. Fixed digit about 28 long. Tibia IV 45 long, 22 wide; tarsus IV 115, with pretarsus, 140 long; sgeI 34, II 29, III 30, IV about 60, stiIV 30, stIV 49. Cervix about 21 long.

Holotype: Female, Nature Reserve, Bartica, B. G., 26.X.1963 (D. De Leon), on *Quiina albiflora*. Paratype: Female, 24 mile post Bartica-Potaro road, 23.X. 1963, on *Licaria* sp.

Amblyseius aerialis (Muma) Fig. 112

Amblyseiopsis aerialis MUMA, 1955: 264, fig. 7–9; *Amblyseius aeralis* (Muma) (*sic*) ATHIAS-HENRIOT 1957: 338, fig. 5 A–B (misidentification?); *Amblyseiopsis aeralis* Muma (*sic*), GARMAN 1958: 75, fig. 7 a–g; *Amblyseius aerialis* (Muma), ATHIAS-HENRIOT 1958: 34, fig. 12B, 15A; *Typhlodromus* (*Amblyseius*) *aerialis* (Muma), CHANT 1959a: 88, fig. 180–181.

A female from Bartica on *Spondias dulcis* and one from Georgetown on a fan palm are probably this species. They are large mites,

the dorsal shield being about 395 long, and a light yellowish brown in color. Length of setae: L1 49, L4 100, L9 290, M2 about 145, D1 31, the other setae of the dorsal shield less than 10 long. SgeI 42, II 42, III 58, IV 143, stiIV 96, stIV 78 (Georgetown female; the drawings in Fig. 112 are also of this specimen). These setal lengths are somewhat shorter than are those for specimens from Florida, but the cervices are practically identical. And in both, the sclerotized part of the cervix (length about 23, width 2.8) gradually disappears and only a milk-colored tube, 5–10 long of the same diameter as the sclerotized part of the cervix, continues on to the vesicle. The fixed digit has about 12 teeth, the movable digit 4 teeth; specimens kindly sent to me by Dr MUMA from Florida also have the movable digit with 4 teeth, but as the original description speaks of this digit being smooth the number is apparently not constant. Tibia IV 55 long, 29 wide; tarsus IV 143, with pretarsus, 173 long.

CHANT (1959a) speaks of this species occurring in Honduras, but CHANT & BAKER (1965) do not list this species from Central America. CHANT (1959a) also records it from Mexico, but during 6 months of collecting in many parts of that country I collected no specimens, so it is apparently an uncommon species there.

Amblyseius martus n. sp. Fig. 113

Amblyseius martus resembles *A. aerialis* (Muma), differing most noticeably from that species in having L1, M2, the macrosetae, and the cervix shorter, and in having the cervix practically the same diameter as the atrium. The male is unknown.

FEMALE. Dorsal shield 306 long, 199 wide; body pearly white with setae and markings as in Fig. 113. Lengths of setae: L1 29, L2 15, L3 9, L4 83, L5 9, L6 8, L7 8, L8 9, L9 220, M1 7, M2 100, D1 27, D2 6, D3 6, D4 7, D5 7, D6 6. Ventrianal shield 103 long, 65 wide near anterior end. Fixed digit about 30 long and with about 11 teeth, movable digit not clear, but the movable digit of a paratype has 4 teeth. Tibia IV 48 long, 22 wide; tarsus IV 127, with pretarsus, 153 long; sgeI 41, II 36, III 43, IV 103, stiIV 55, stIV 65. Cervix about 18 long, 2.5 wide.

Holotype: Female, Nature Reserve, Bartica, B. G., 28.X.1963 (D. De Leon), on *Swartzia leiocalycina*. Paratypes: 1 female, on *Anaxagorea dolichocarpa* and 1 female, on *Sclerobium micropetalum*, other data as for holotype.

Amblyseius guianensis n. sp. Fig. 114

Amblyseius guianensis is a species belonging to the *aerialis-martus* group; it can be readily separated from others in this group by its long, slender cervix. The male is unknown.

FEMALE. Dorsal shield 337 long, 226 wide; body with setae and markings as in Fig. 114. Lengths of setae: L1 33, L2 12, L3 8, L4 90, L5 9, L6 11, L7 10, L8 9, L9 221, M1 7, M2 111, D1 28, D2 7, D3 5, D4 7, D5 8, D6 8, VL1 67. Ventrianal shield 115 long, 61 wide near anterior end. Fixed digit about 30 long and with about 11 teeth, movable digit not clear. Tibia IV 49 long, 19 wide; tarsus IV 123, with pretarsus, 154 long; sgeI 40, II 33, III 44, stiIII 31, sgeIV 99, stiIV 56, stIV 63. Cervix about 25 long.

Holotype: Female, 3 miles south of Bartica, 22.X.1963 (D. De Leon), on *Anacardium occidentale*.

(7) **Typhlodromips** De Leon

Typhlodromips DE LEON, 1965a: 23. Type: *Typhlodromus* (*Typhlodromopsis*) *simplicissimus* DE LEON, 1959c: 117, fig. 11–13.

KEY TO SPECIES OF TYPHLODROMIPS IN BRITISH GUYANA: Females

1. Distance between the pair of pores of ventrianal shield greater than distance between the 3rd pair of preanal setae (Fig. 115) . . . . . *daviesi* n. sp.
1′. Distance between the pair of pores of ventrianal shield less than distance between the 3rd pair of preanal setae . . . 2

2. SgeIV with tip tapering to a sharp point (Fig. 116) *arcus* n. sp.
2′. SgeIV with tip bulbous 3

3. SgeIV about as long as genu IV (Fig. 117) . *scleroticus* n. sp.
3'. SgeIV about ½ as long as genu IV (Fig. 118) . *auratus* n. sp.

Typhlodromips daviesi n. sp. Fig. 115

Typhlodromips daviesi resembles *T. simplicissimus* De L., but the preanal pores are farther apart and the cervix differs.

FEMALE. Dorsal shield 282 long, about 160 wide; body pale yellowish brown with setae and markings as in Fig. 115. Lengths of setae: L1 23, L2 12, L3 10, L4 38, L5 10, L6 13, L7 8, L8 7, L9 62, M1 6, M2 35, D1 17, D2 5, D3 8, D5 8, VL1 36. Ventrianal shield about 87 long, 64 wide. Chelicerae not clear (fixed digit of a paratype 31 long, with 15 teeth). Tibia IV 42 long, 18 wide; tarsus IV 103, with pretarsus, 121 long; sgeI 27, II 22, III 24, IV 41, stiIV about 16, stIV 36, all tapering to sharp points.

MALE. Resembles female; dorsal shield 210 long, 145 wide; spermatodactyl with foot 9 long, shank 11 long. Probably this species but not certain.

Holotype: Female, Nature Reserve, Bartica, B. G., 26.X.1963 (D. De Leon) on *Unonopsis guatteroides* infested with *Tenuipalpus*. Paratypes: 1 female, on *Swartzia benthamiana*, 24.X. and 1 female on *S. leiocalycina*, 28.X.1963; other data as for holotype.

The mite is named for Mr J. N. DAVIES, zoologist, a member of the Expedition.

Fig. 112. *Amblyseius aerialis* (Muma). — Ventrianal shield and cervix. (Specimen from Georgetown).

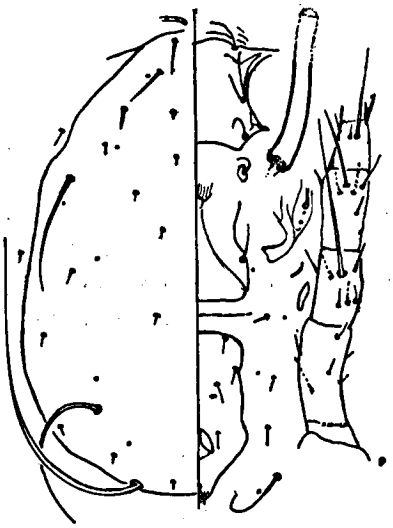
Fig. 113. *Amblyseius martus* n. sp. — Dorsal and ventral shields, part of leg IV, and cervix.

Fig. 114. *Amblyseius guianensis* n. sp. — Dorsal and ventral shields, part of leg IV, and cervix.

Fig. 115. *Typhlodromips daviesi* n. sp. — Dorsal and ventral shields, part of leg IV, and cervix; spermatodactyl of paratype.

Fig. 116. *Typhlodromips arcus* n. sp. — Dorsal and ventral shields, part of leg IV, and cervix.

Fig. 117. *Typhlodromips scleroticus* n. sp. — Dorsal and ventral shields, part of leg IV, chelicerae, and cervix.



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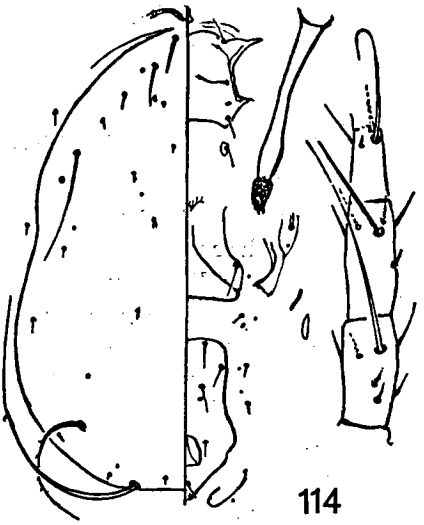

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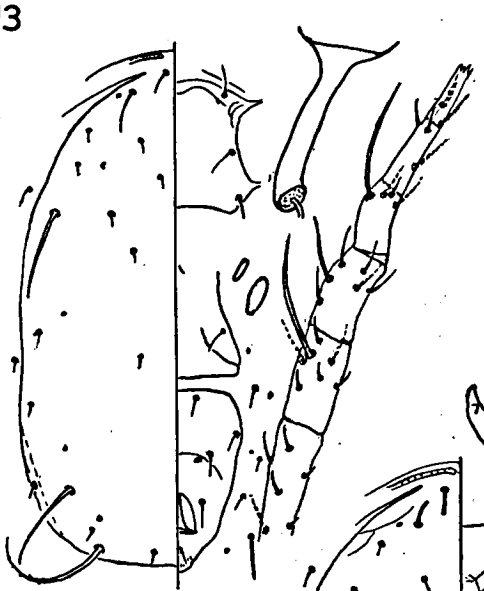

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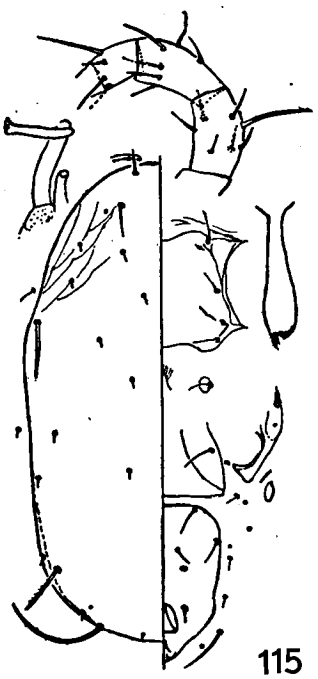

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Typhlodromips arcus n. sp. Fig. 116

Typhlodromips arcus resembles *T. caribbeanus* (DE LEON 1965c) in the shape of the ventrianal shield and the position of the preanal pores, but differs most noticeably in having the setae of the dorsal shield less uniform in length, much longer macrosetae, and a much longer cervix. The male is unknown.

FEMALE. Dorsal shield 271 long, about 181 wide; body light yellowish brown with setae and markings as in Fig. 116. Lengths of setae: L1 28, L2 8, L3 7, L4 52, L5 9, L6 9, L7 10, L8 8, L9 75, M1 7, M2 56, D1 19, D2 7, D4 7, D5 8. Ventrianal shield about 100 long, 72 wide. Chelicerae not clear, fixed digit with about 10 teeth. Tibia IV 45 long, 18 wide; tarsus IV 121, with pretarsus, 139 long; sgeI 31, II 28, III 26, IV 51, stiIV 39, stIV 50. Cervix about 23 long, 2.5 wide.

Holotype: Female, Nature Reserve, Bartica, B. G., 28.X.1963 (G. B. Evans), on *Pouteria reticulata*.

Typhlodromips scleroticus n. sp. Fig. 117

Typhlodromips scleroticus resembles *T. caribbeanus* (De L.) in general facies; it differs most noticeably in having shorter D setae and longer macrosetae. The male is unknown.

FEMALE. Dorsal shield 271 long, 181 wide; body brown, sternal, genital, and ventrianal shields more deeply pigmented than rest of body, with setae and markings as in Fig. 117. Lengths of setae: L1 about 15, L2 7, L3 14, L4 15, L5 10, L6 9, L7 5, L8 5, L9 36, M1 7, M2 32, D1 15, D2 11, D3 7, D4 7, D5 7, D6 7, VL1 24. Ventrianal shield 80 long, 76 wide. Fixed digit 27 long with 8 or 9 teeth, movable digit with 3 teeth. Tibia IV 29 long, 21 wide; tarsus IV 79, with pretarsus, 94 long; sgeI 15, II 13, III 14, IV 29, stiIV 14, stIV 24 long, the tip of sgeIII pointed, tips of others bulbous. Cervix not clear, about 4.5 long, 4.2 wide.

Holotype: Female, Nature Reserve, Bartica, B. G., 2.XI.1963 (D. De Leon), on *Pouteria* sp.

Typhlodromips auratus n. sp. Fig. 118

Typhlodromips auratus belongs in the *caribbeanus-scleroticus* group; it is readily distinguished from other members of the group by the shape of the cervix and the presence of a pore at M1. The male is unknown.

FEMALE. Dorsal shield 284 long, 171 wide; body light brown with setae and markings as in Fig. 16. Lengths of setae: L1 17, L2 11, L3 11, L4 15, L5 14, L6 14, L7 10, L8 10, L9 42, M1 7, M2 30, D1 14, D2 11, D3 11, D4 12, D5 14, D6 7, VL1 21. Ventrianal shield 87 long, 81 wide. Fixed digit about 31 long and with 10 teeth, movable digit with 3 teeth. Tibia IV 33 long, 18 wide; tarsus IV 78, with pretarsus, 92 long; sgeI 8, II 9, III 11, stiIII 13, sgeIV 16, stiIV 15, stIV 24. Cervix about 7 long, 7 wide.

Holotype: Female, Nature Reserve, Bartica, B. G., 2.XI.1963 (D. De Leon), on *Swartzia benthamiana*. Paratype: Female, in association with *T. daviesi* n. sp. on *Unonopsis guatteroides* infested with *Tenuipalpus*, 26.X.1963; other data as for holotype.

(8) **Phytoseius** Ribaga

Phytoseius RIBAGA, 1902: 177; CHANT 1959a: 105; WAINSTEIN 1959: 1361; CHANT & ATHIAS-HENRIOT 1960: 213; PRITCHARD & BAKER 1962: 223; CHANT & BAKER 1965: 8. Type of genus: *Gamasus plumifer* Canestrini & Fanzago, 1876.

The genus is composed of 2 groups. In 1 group, seta S2 is absent. WAINSTEIN (1959) named the 2 groups, but PRITCHARD & BAKER (1962) said WAINSTEIN erred in his determination of the group to which the type species belonged and renamed the 2 groups. As the matter apparently is not yet settled (CHANT & BAKER 1965, side with WAINSTEIN), sub-generic names are not used here.

KEY TO SPECIES OF PHYTOSEIUS IN BRITISH GUYANA: Females

1. Seta S2 absent . . . . . *rex* DeL.
1'. Seta S2 present . . . . . 2.

2. M1 with a pore near base; dorsal shield practically smooth . . . . . *averrhoae* DeL.

2'. M1 without a pore near base; dorsal shield rugose . . . . . *guianensis* DeL.

Phytoseius rex De Leon Fig. 119

Phytoseius rex DE LEON, 1966: *in Press.*

Phytoseius rex was described from specimens collected in Trinidad. In British Guyana, a female was collected 5.XI.1963 at the Agricultural Experiment Station, Mon Repos, on *Leonotis nepenthifoliae.* The drawing (Fig. 119) is of this female.

Phytoseius averrhoae De Leon

Phytoseius averrhoae DE LEON, 1965b: 16, fig. 8.

This species was described from three specimens collected on *Averrhoa bilimbi* at Bartica, 3.XI.1963.

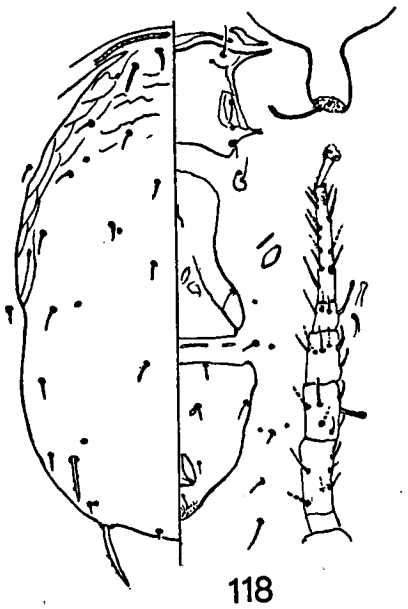
Phytoseius guianensis De Leon

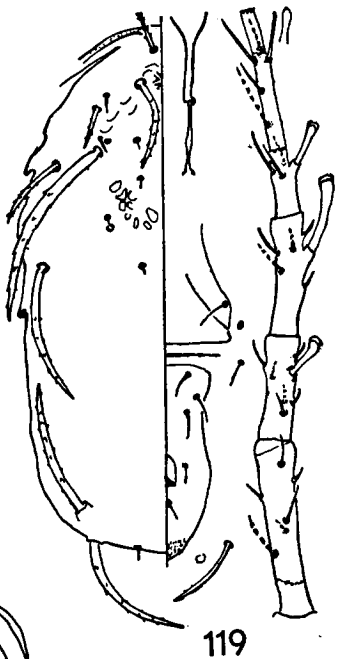
Phytoseius guianensis DE LEON, 1965b: 18, fig. 11.

This species was described from seven specimens collected on *Pueraria phaseoloides* at Mon Repos, 5.XI.1963.

Typhloseiopsis De Leon

Typhloseiopsis DE LEON, 1959a: 150, fig. 5; CHANT 1959a: 113; MUMA 1961: 294; PRITCHARD & BAKER 1962: 222; SCHUSTER & PRITCHARD 1963: 205. Type of genus: *Typhloseiopsis theodoliticus* De Leon.





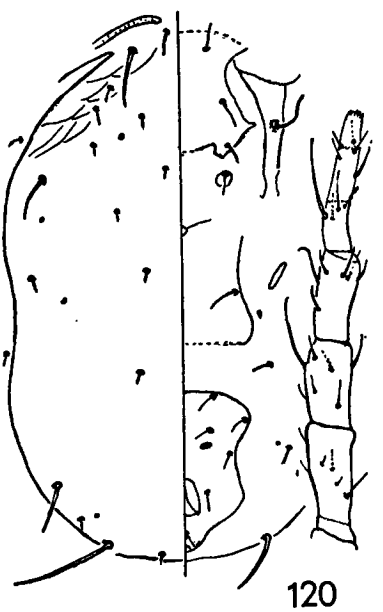


Fig. 118. *Typhlodromips auratus* n. sp. — Dorsal and ventral shields, part of leg IV, and cervix.

Fig. 119. *Phytoseius rex* DeL. — Dorsal and ventral shields, part of leg IV, and cervix. (Specimen from Agr. Exp. Sta., Mon Repos).

Fig. 120. *Typhloseiopsis funiculatus* DeL. — Dorsal and ventral shields, part of leg IV, and cervix. (Specimen from Georgetown).

Fig. 121. *Diadromus regularis* (DeL.) — Dorsal and ventral shields, part of leg IV, and cervix; spermatodactyl. (Specimens from Nature Reserve).

Typhloseiopsis funiculatus De Leon Fig. 120

Typhloseiopsis funiculatus DE LEON, 1965c: 122, fig. 1.

Three females of this species were collected at Georgetown on *Cassia polyphylla*, 21.X.1963. The drawing (Fig. 120) is of one of these females.

Diadromus Athias-Henriot

Diadromus ATHIAS-HENRIOT, 1960: 67. Type of genus: *Typhlodromus contiguus* Chant, 1959b.

Diadromus regularis (De Leon) Fig. 121

Typhloseiopsis regularis DE LEON, 1965c: 122, fig. 2.

This species resembles *Typhloseiopsis funiculatus* in the arrangement of the setae of the dorsal shield, but the different type chelicerae, the long M2, and the proportionally different sized leg segments will serve to distinguish it from the foregoing genus which superficially it so closely resembles. The male, not previously known, is described below. The species has been collected in Puerto Rico and in Trinidad. In British Guyana, it was collected in the Nature Reserve on *Mourera sideroxylon*, *Protium decandrum*, and on an unrecognized tree. These specimens have some of the long setae of the dorsal shield and the macrosetae appreciably shorter than do the specimens from Puerto Rico and Trinidad, and should probably be considered separate species. More specimens, however, and both sexes are needed from all these areas to determine the ranges of variation and to establish limits for the members of the complex.

FEMALE (from *Mourera sideroxylon*). Dorsal shield 352 long, 236 wide; body with setae and markings as in Fig. 121. Lengths of setae: L1 31, L5 73, L8 245, M2 87, D1 24, VL1 35. Tibia IV 54 long, about 20 wide; tarsus IV 143, with pretarsus, 170 long; sgeI 54, II 38, III 38, IV 84, stiIV 36, stIV 45. Cervix not clear, at least 10 long, about 3.5 wide.

MALE (from unidentified tree). Resembles female, but lateral margins without notches. Dorsal shield 271 long, about 185 wide; ventrianal shield with 4 pairs of setae. Spermatodactyl about 30 long.

The types and paratypes of the new species are in the author's collection.

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