THREE NEW *TYPHLODROMUS* FROM SOUTHERN FLORIDA (ACARINA: PHYTOSEIIDAE)

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The phytoseiids appear to be mostly predaceous mites preying on plant-feeding mites and on scale insects. In spite of the importance of many of them as biological control agents, the species in Florida are poorly known. Until the publication of Dr. Muma's paper (1955)[1] on the phytoseiids found on Florida citrus only five species had been recorded from the state from all hosts. In his paper Dr. Muma lists eleven species, nine of which were new records for the state—six of these new species.

All measurements are in microns, and are averages unless variation from the average is more than ten percent, in that case the range is given.

Typhlodromus alveolaris, n. sp.

(Figures 1-3)

T. alveolaris belongs to the group of mites in this genus with eight lateral setae on the dorsal shield and L6 about in line with D5; it differs from the other two species (*aberrans* Oud. and *irregularis* Evans) with these characters in having four pairs of preanals.

FEMALE: Body broadly oval; dorsal shield irregularly imbricate, the anterolateral and lateral parts as far as M2 areolate, 290 long, 156 wide at about S1. In the following measurements setal length is given above the line, distance between setal bases below the line; for lateral setae this is the distance to the setal base behind, for the others it is the transverse distance between bases: L1 $\frac{17}{21}$, L2 $\frac{16}{26}$, L3 $\frac{19}{25}$, L4 $\frac{20}{30}$, L5 $\frac{26}{35}$, L6 $\frac{28}{100}$, L7 $\frac{13}{4}$, L8 83; M1 $\frac{13}{53}$, M2 $\frac{62}{78}$; D1 $\frac{15}{3}$, D2 $\frac{12}{15}$, D3 $\frac{11}{8}$, D4 $\frac{13}{17}$, D5 $\frac{12}{17}$, D6 $\frac{10}{21}$; S1 15; VL1 14; three pairs of pores as indicated in figure. Anterior end of peritreme reaching to about midway between coxae II and III, peritremal plate ending behind coxa IV in a blunt hook. Sternal plate indistinct, posterior margin not determinable; genital plate 80 wide at caudal end; ventrianal plate 104 long, 78 wide with four pairs of preanals and a pair of large pores 14 apart. Fixed digit with a small tooth near end and a larger one just proximal of it, moveable digit with one tooth proximal of curve. Legs slender without macrochaetae, but dorsal setae of patellae, tibiae and basitarsi rather stout and patella I with a stout setae 19 long on anterior margin near base at about right angle to margin; tarsus IV 112 long, not including pretarsus.

MALE: Not known.

Holotype: Female, Coral Gables, Florida, October 20, 1955 (D. De Leon) from *Cassia* sp.; taken from leaves infested with *Brevipalpus phoenicis* and large numbers of an apparently undescribed species of *Tarsonemus*.

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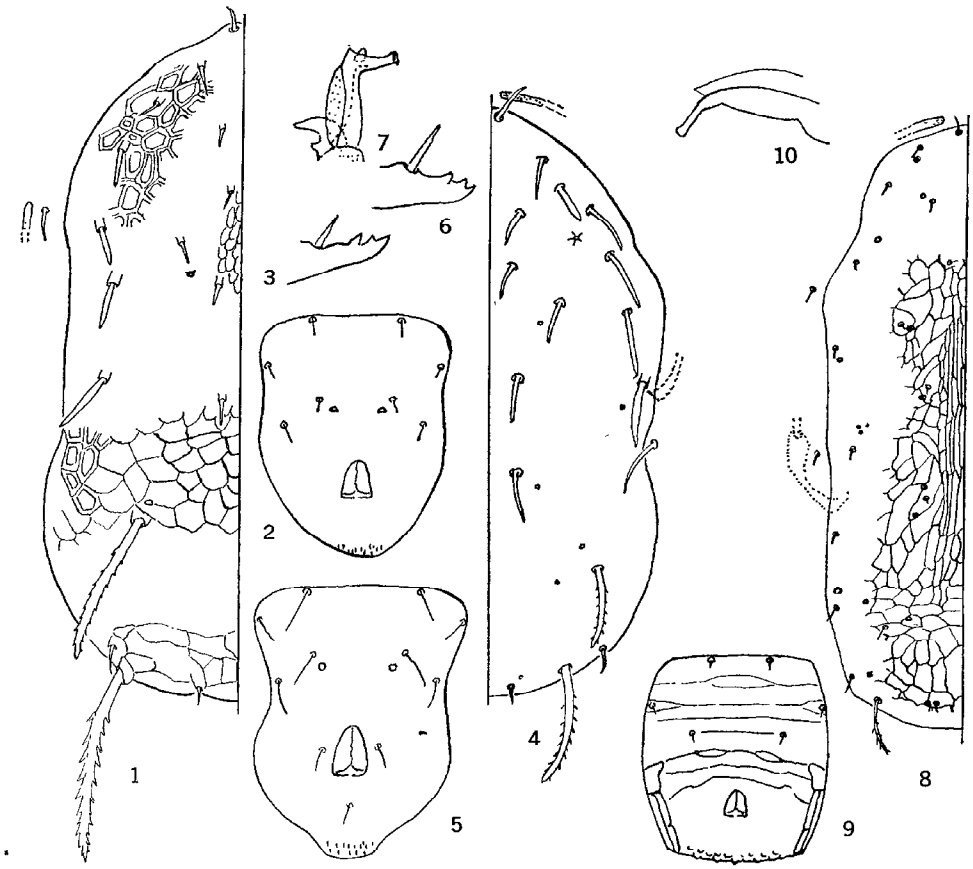
[1] Muma, M. H. 1955. Phytoseiidae (Acarina) associated with citrus in Florida. Ann. Ent. Soc. Am. 48(4) : 262-272.



Typhlodromus alveolaris, n. sp.: Fig. 1, dorsal shield; Fig. 2, ventrianal plate; Fig. 3, teeth of fixed digit.

Typhlodromus cornus, n. sp.: Fig. 4, dorsal shield; Fig. 5, ventrianal plate; Fig. 6, teeth of fixed digit; Fig. 7, spermatophore.

Typhlodromus paspalivorus, n. sp.: Fig. 8, dorsal shield; Fig. 9, ventrianal plate; Fig. 10, spermatophore.

Typhlodromus cornus, n. sp.

(Figures 4-7)

T. cornus belongs to the group of mites in this genus with eight lateral setae on the dorsal shield of the female and L6 about in line with D4; it differs from the other three species (*confusus* (Garman), *pini* Chant, and *citri* Garman & McGregor) in this group by having among other characters L8 and M2 more than three times as long as L7.

FEMALE: Body oval, light tan; dorsal shield 285 long, 155 wide, mildly imbricate with 16 pairs of setae. In the following measurements the same system is used to record setal length and distances between bases as in *T. alveolaris*:

L1	20-29,	L2	14-20,	L3	24,	L4	22-28,	L5	31,	L6	34,	L7	11-14,	
	10-14		13		20		25		30		134		15	
L8	65;	M1	16-20,	M2	47;	D1	20,	D2	16,	D3	15,	D4	20,	D5 20-26, D6 9;
			55		91		2		19		17		19	20 16

S1 20, S2 31, VL1 39; seven pairs of pores as indicated in figure (some specimens have fewer, and a pore may be present on one side and not the other); in some specimens S2 sometimes on shield; of ten specimens, it is on the shield on both sides, in one specimen, and on the shield on one side only in four specimens. Anterior end of peritreme reaching to D1. Sternal plate indistinct posteriorly, with apparently two pairs of setae; genital plate 64 wide at caudal end; ventrianal plate 82 long, 65 wide with four pairs of preanals and a pair of large pores 16 apart. Fixed digit with teeth as shown in figure; moveable digit with a very small tooth at base of curve. Legs relatively short; tarsus IV with a tapering macroseta on basitarsus 23 long, length of tarsus excluding pretarsus 89.

MALE: Resembles female, but S2 always on shield; dorsal shield 217 long, 138 wide. Spermatophore of shape shown in figure, the foot 7 long, the shaft 12 long.

Holotype: Female, Coral Gables, Florida, June 4, 1956 (D. De Leon) from *Callicarpa americana*. *Allotype*: Coral Gables, September 15, 1956 from *Coccolobis laurifolia;* other *paratypes*: two females, same data as for holotype; three females and one male, same data as for allotype; one male and one female, Coral Gables, November 2, 1956, from *Citrus mitis*, and one female from orange, Coral Gables, November 3, 1956. Additional specimens have been collected from *Sida* sp. and from *Eugenia* sp., Delray Beach; two specimens in bad condition collected from guava in 1954 probably belong here.

Typhlodromus paspalivorus, n. sp.
(Figures 8-10)

T. paspalivorus belongs to the group of mites in this genus with nine pairs of lateral setae and M2 not paired with L7 or L8. It is distinguished from other members of this group by having most of the setae of the dorsal shield short (9-12 microns) and the scale-like markings of the dorsal shield between D4 and D5 very much longer than wide.

FEMALE: Body whitish, dorsal shield nearly rectangular, 344 long, 146 wide at S1, 139 wide at L6, mildly but distinctly imbricate, scale-like markings (hereafter called scales) between D4 and D5 and extending from a point about even with M1 to a point about in line with L7 very much longer than wide (about 3.5 wide, 25-35 long), forward of these narrow scales and lateral of them to margin of shield scales less regular in shape and not as elongate, a few being nearly circular in outline; scales in area bounded approximately by L7 and M2 faint and somewhat wider than long, behind this area scales distinct, larger and mostly longer than wide; all dorsal shield setae smooth, except L9. The same system is used here to record setal lengths and distances between setae as that used for *T. alveolaris*:

L1	11,	L2	11,	L3	11,	L4	12,	L5	11,	L6	14,	L7	15,	L8	19,	L9	52; M1 9,
	25		36		38-47		58		45		40		30		23		65

M2	17;	D1	11,	D2	9,	D3	10,	D4	11,	D5	11,	D6	9;	S1	11,	S2	10;	VL1	25
	77		14		30		14-19		35		32		28						

(smooth); pores distributed as shown in figure. Anterior end of peritreme extending almost to D1. Sternal plate with faint elongate scales and three pairs of setae; metapodal plate tapering caudad 35 long, 4 wide; ventrianal

plate 111 long, 82 wide, about as wide at anterior end as posterior end of genital plate which it almost touches, with three pairs of preanal setae and with a pair of small nearly circular pores 33 apart. Fixed digit 21 long with three to five teeth behind terminal hook and a lateral tooth between terminal hook and first tooth; moveable digit 21 long with one tooth just proximal of curve. Legs without macrochaetae.

MALE: Resembles female, but imbrications of dorsal shield less distinct; dorsal shield 260 long, 120 wide; spermatophore of shape shown in figure; fixed digit with two teeth close behind terminal hook; moveable digit with one tooth.

Holotype: Female, Coral Gables, Florida, May 29, 1956 (D. De Leon) under leaf sheath of *Paspalum* sp. in association with colony of *Steneotarsonemus paspali* DeL. and *S. furcatus* DeL. on the former or on both of which this species almost certainly feeds. *Allotype*: same data as for holotype; other *paratypes*: five females, two collected October 10, 1955 and three May 29, 1956, other data same as for holotype.

Paratypes of the latter two species will be deposited in the University of Florida Collections, Gainesville.
