

## THE GENUS *TYPHLODROMUS* IN MEXICO (ACARINA: PHYTOSEIIDAE)

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The genus *Typhlodromus* as here considered comprises only those mites restricted by Chant (1957) to the subgenus *Typhlodromus*. These are typhlodromids with more than four pairs of anterior lateral setae. Four new species are described and collection records are given for seven other species. I can find no record of any member of this group having previously been collected in Mexico. These mites were associated usually with colonies of plant feeding mites on leaves or on twigs of the infested plant. Predatorism was observed but once when a nymph, probably *T. cornus*, was seen to feed on an egg of *Tenuipalpus bakeri* on *Arbutus glandulosa*.

In the descriptions of new species all measurements are in microns and are averages unless the variation from the average is more than ten per cent, in that case the range is given. In this, as in previous papers on the family (De Leon, 1957, 1958), the names suggested by Garman (1948) for distinguishing the setae of the dorsal shield are used.

The females of two species, *T. cornus* and *T. ellipticus*, vary in the number of lateral setae—some specimens have 8, some 9 on a side. The dorsal shield of these two species at S2 on occasion cuts in around this pair of setae on either one or on both sides; the other times it comes down straight on both sides placing the pair on the shield on both sides. In the key to species at the end of this paper these two species consequently are keyed out twice—once under mites with eight lateral setae and once under mites with nine lateral setae.

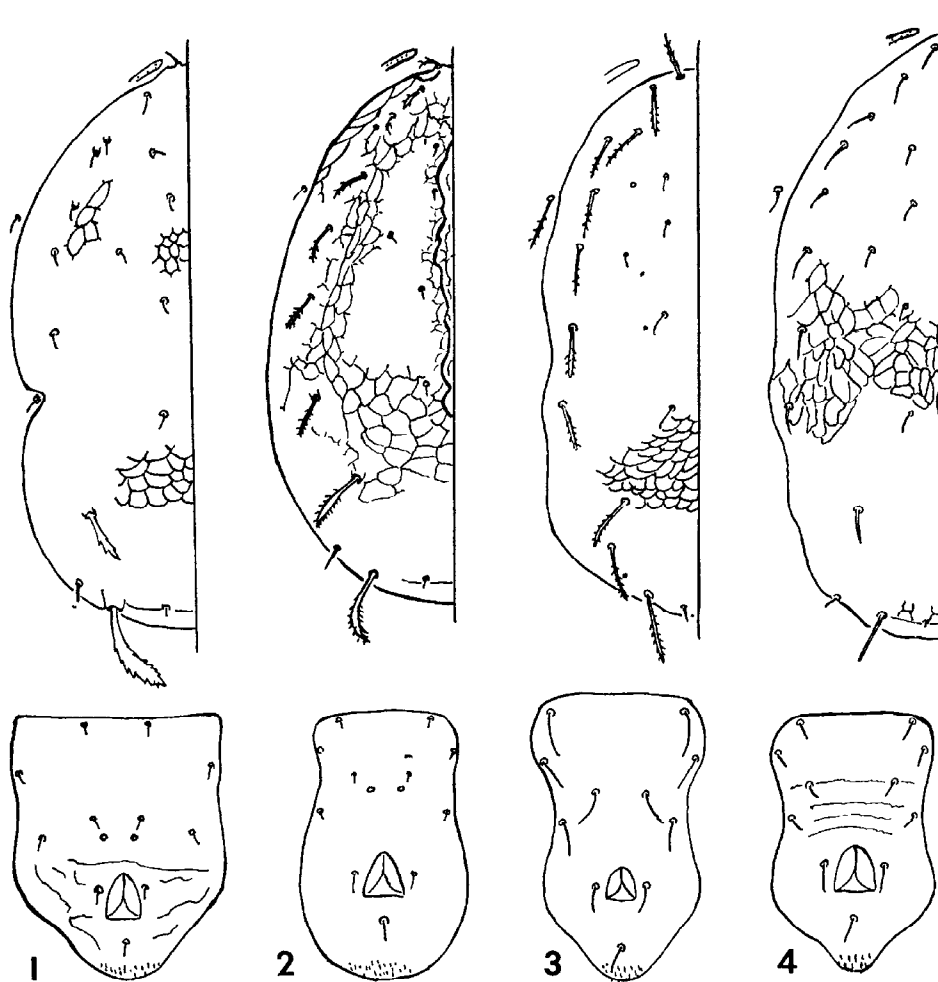
### *Typhlodromus ellipticus* De Leon (1958)

*T. ellipticus*, known previously only from southern Florida, occurs rather commonly around Veracruz, Ver. In that area it was taken in December 1956 and January 1957 from nine different plants including coconut, *Achras zapota*, and *Ixora*. Other collection records follow: Cordoba, Ver., February 1957, from *Bursera simaruba*; Tuxtla Gutierrez, Chiapas, January 1957, from several hosts; San Cristobal, Chiapas, January 1957, from *Alnus* sp. and Matias Romero, Oax., January 1957, from *Annona* sp.

The pectinations of the dorsal setae are not distinct in some specimens.

### *Typhlodromus alveolaris* De Leon (1957)

This very distinctive mite was described from a single specimen taken on *Cassia* sp. growing on the grounds of the U. S. Plant Introduction Garden near Coral Gables, Fla. In Mexico three specimens were collected March 3, 1957, at Rinconado, Ver., from *Piscidia piscipula*.



All figures are of females. Upper drawing, dorsal shield; lower drawing, ventrianal shield.

Figure 1. *Typhlodromus adjacentis*, n. sp.; Figure 2. *T. carinulatus*, n. sp.; Figure 3. *T. luculentis*, n. sp.; Figure 4. *T. juniperi*, n. sp.

*Typhlodromus adjacentis*, n. sp.

(Figure 1)

*T. adjacentis* belongs to the species group with eight lateral setae. It is readily distinguished from the other species in this group by the very short setae of the dorsal shield, the expanded and strongly pectinate margins of M2 and L8, and the nearly pentagonal ventrianal shield.

**FEMALE:** Dorsal shield reticulate, 304 long, 182 wide with 16 pairs of setae on the dorsal shield as follows: eight laterals, six dorsals, two medians. All setae of dorsal shield short; except for L8 longest lateral seta (L6) is 16 long; L8 50 long, elliptic, somewhat flattened, strongly pectinate; M2 similar to L8, 28 long. Sternal shield indistinct; ventrianal shield 109 long, 84 wide, of shape shown in the figure and with four pairs of preanal setae and a pair of pores; three pairs of interscutal setae, includ-

ing VL1, bordering ventrianal shield; VL1 smooth, 17 long; two pairs of metapodal shields, the primary one in two specimens rather wedge-shaped and two specimens bear what appears to be a faint, small, oval tertiary shield just mediolateral of primary shield. Leg IV with macroseta 18 long.

MALE: Resembles female. Dorsal shield 235 long, 155 wide; ventrianal shield with four pairs of preanal setae and a pair of pores.

*Holotype*: Female, Aticama, Nay., April 8, 1957 (D. De Leon) from *Randia* sp. *Paratypes*: Two females, same data as for holotype; two females, Tuxtla Gutierrez, Chiapas, January 26 and 27, 1957, from *Telauma mexicana* and *Sapindus saponaria*; one male, Aticama, Nay., April 13, 1957, from coffee.

*Typhlodromus cornus* De Leon (1957)

One of the most common typhlodromids collected in Mexico was *T. cornus*. Records of representative collections follow: Near San Cristobal, Chiapas, January, from *Trixis* sp., *Persea schideana*, *Archibaccharis nucrenata* and *Arbutus glandulosa*; Tuxtla Gutierrez, Chiapas, January, from *Sida acuta*, *Quercus* sp., *Ceiba acuminata*, and other plants; near P. de Vacas, Oax., from *Byrsonima crassifolia*; Huito, Oax., from *Quercus* sp.; Tzintzuntzan and Chuparcuero, Mich., March from *Verbesina* sp., and an unknown host; Guadalajara, Jal., March, from avocado and pomegranate; Tepic, Nay., March, from *Quercus*, *Pisonia* and other plants.

The Mexican specimens on the whole are larger than Florida specimens and specimens with S2 on the shield (thus giving a count of nine lateral setae) are more common than specimens with S2 in its normal position. Of 53 specimens, 34 per cent have eight pairs of lateral setae, 61 per cent have nine pairs of lateral setae, and 5 per cent have eight lateral setae on one side and nine lateral setae on the opposite side. Specimens with eight or with nine pairs of lateral setae were not restricted to any one place, except possibly Tuxtla Gutierrez where the only specimens collected had eight pairs of lateral setae.

*Typhlodromus conspicuus* (Garman) (1948)

Records of representative collections of this distinctive species follow: Mante, Tams., December, from *Sapindus saponaria*; Veracruz, Ver., December and January, from Lime, *Pithecolobium*, *Malvaviscus*, and other plants; Tuxtla Gutierrez, Chiapas and neighboring region, January, from *Trixis* sp., *Zanthoxylum* sp., *Alnus arguta*; Oaxaca, Oax., February, from *Quercus* sp.; Tepic, Nay., March, from *Verbesina* sp., *Baccharis trinerva*, and *Sapium* sp.; San Blas, Nay., March, from *Cedrela* sp., *Ardisia revoluta*, and *Casearia* sp.

*Typhlodromus floridanus* Muma (1955)

*T. floridanus* was collected as follows: Veracruz, Ver., January, from *Bumelia* sp.; Tuxtla Gutierrez, Chiapas, January, from *Lippia hypoleia* and from an unknown plant; Tehuantepec, Cax., January, from *Cocos nucifera* and from *Citrus* sp.

*Typhlodromus annectens* De Leon (1958)

Collection records for this species follow: Mante, Tams., December, from *Croton cortesianus*, Veracruz, Ver., December and January, from *Guazuma tomentosa*, *Psidium* sp., and cherimoya; San Cristobal, Chiapas, January, from *Alnus arguta*; Tuxtla Gutierrez, Chiapas, January, from *Morus alba* and *Sapindus saponaria*; Acuitzingo, Ver., February, from *Eupatorium petiolare*; San Blas, Nay., May, from *Helicteres guazumae-folia*; Ciudad del Maiz, S.L.P., June, from *Cedrela* sp.

*Typhlodromus carinulatus*, n. sp.

(Figure 2)

*T. carinulatus* belongs to the species group with nine lateral setae and M2 unpaired with any other seta. It is readily distinguished from other members of this group in having nearly all the lateral setae pectinate and shorter than the distance to the next seta behind, short smooth dorsal setae, and ventrianal shield with a constriction well towards the anterior end and with a pair of pores.

FEMALE: Dorsal shield 281 long, 172 wide, imbricate-areolate, with a series of more or less coalesced areolae extending down the middle and giving the shield a slightly ridged appearance; seventeen pairs of setae on the dorsal shield, the nine pairs of laterals, except L2, all somewhat to distinctly shorter than distance to seta behind and all pectinate except L8; L1 16, L4 21, L6 23 and L9 37 long; the six pairs of dorsals short, smooth; M1 short, smooth, M2 38 long, expanded, flattened, and strongly pectinate at edges. Sternal shield indistinct; ventrianal shield constricted anteriorly, with four pairs of preanal setae and a pair of pores and bordered by two pairs of interscutal setae including VL1; two pairs of metapodal shields, the primary one lenticular in shape, 21 long, 5 wide. Leg IV without macrosetae.

*Holotype*: Female, La Tinaja, Ver., February 5, 1957 (D. De Leon), from *Pithecolobium lanceolatum*.

*Typhlodromus luculentis*, n. sp.

(Figure 3)

*T. luculentis* belongs to the species group with nine lateral setae, M2 unpaired with any other seta and the ventrianal shield without a pair of pores. The strongly pectinate lateral setae all of about the same length distinguish this species from other members of this group.

FEMALE: Dorsal shield 316 long, 172 wide, strongly imbricate anterior of setae M2 and with 17 pairs of setae as follows: Nine laterals all strongly pectinate, six dorsals only D1 pectinate, and two medians. The lengths of most of these setae follow: L1 31, L2 31, L3 29, L4 33, L5 36, L6 35, L7 36, L8 34, L9 39; D1 31, D5 18; M1 18, M2 39; VL1 34 (faintly pectinate). Sternal shield with two pairs of setae; ventrianal shield with four pairs of preanals, no pores, and bordered by three pairs of interscutal setae including VL1; two pairs of metapodal shields, the primary one oval, 19 long, 5 wide. Leg IV without macroseta.

MALE: Resembles female. Dorsal shield 255 long, 159 wide; ventrianal shield with four pairs of preanal setae and no pores.

*Holotype*: Female, Tuxtla Gutierrez, Chiapas, January 11, 1957 (D. De Leon), from *Guazuma tomentosa*. *Paratypes*: One male, same data as for holotype; one male, January 15, 1957, from *Cecropia peltata*, other data as for holotype.

*Typhlodromus pacificus* McGregor (1956)

*T. pacificus* was collected in the following localities: Reynosa, Tams., December, from *Croton torreyana* and *Melochia tomentosa*; P. de Vacas, Oax., January, from *Byrsonima crassifolia*; Arenal, Jal., March, from *Lagascea* sp.; Encinal, S.L.P., June, from *Quercus* sp.

*Typhlodromus juniperi*, n. sp.  
(Figure 4)

*T. juniperi* belongs to the species group with nine pairs of lateral setae, M2 unpaired with any other seta and the ventrianal shield without a pair of pores. It differs from other members of this group by having L2 and L3 short and M2 reaching less than halfway to L9.

FEMALE: Dorsal shield reticulate 334 long, 181 wide with seventeen pairs of setae of the following lengths: L1 16-20, L2 13-20, L3 15-18, L4 13-20, L5 19, L6 18-24, L7 20, L8 11-18, L9 30; D1 17, D2 12, D3 11, D4 11-15, D5 11-18, D6 10; M1 11-15, M2 20; VL1 22. Sternal shield with two pairs of setae; ventrianal shield 98 long, 58 wide with four pairs of preanal setae and no pores and bordered by two pairs (one specimen has three pairs) of interscutal setae including VL1; two pairs of metapodal shields, the primary one 24 to 39 long and about 6 wide, the secondary one narrowly oval and about 10 long. Leg IV with a slender macroseta.

MALE: Resembles female. Dorsal shield 259 long, 165 wide; ventrianal shield with four pairs of preanal setae and no pores. Foot and shank of spermatophore bearer about equal in length and at about right angles to each other.

*Holotype*: Female, Reynosa, Tams., December 18, 1956 (D. De Leon), from *Croton torreyana*. *Paratypes*: One male, two females, Huito, Oax., February 1, 1957, from *Juniperus* sp.; one female, Carmen, Puebla, March 4, 1957, from *Juniperus* sp.

Paratypes of the above new species will be deposited in the University of Florida Collections, Gainesville.

KEY TO SPECIES (FEMALES) WITH MORE THAN FOUR PAIRS OF ANTERIOR LATERAL SETAE

1. Dorsal shield with 8 pairs of lateral setae ..... 2  
Dorsal shield with 9 pairs of lateral setae ..... 6
2. Most lateral setae coarse, narrow-elliptic, or pectinate or a combination of these characters ..... 3  
Most lateral setae slender, simple, and tapering gradually to a point 4

3. Anterolateral area of dorsal shield alveolate, lateral setae very coarse ..... *alveolaris* DeL.  
Anterolateral area of dorsal shield imbricate, or rather smooth; lateral setae narrow-elliptic and usually distinctly pectinate ..... *ellipticus* DeL.
4. Bases of L2 and L3 about their own diameter apart; L1 to L5 (except L2) reaching less than halfway to seta behind .... *adjacentis*, n. sp.  
Bases of L2 and L3 well separated from each other; L1 to L5 reaching more than halfway to base of seta behind ..... 5
5. L7 over one-half as long as L8; leg IV without macrosetae; body brownish ..... *conspicuus* (Garman)  
L7 less than half as long as L8; leg IV with macroseta; body light tan or whitish ..... *cornus* DeL.
6. D2 to D5 very long, reaching to, or well beyond base of seta behind; leg IV without macroseta ..... 7  
D2 to D5 short, reaching about to or falling well short of seta behind; leg IV with or without macroseta ..... 8
7. Peritreme reaching forward to beyond middle of coxa I; most setae of dorsal shield smooth; male with triangular scoop-shaped apophysis on femur II; larger species, female with dorsal shield 340-400 long ..... *floridanus* Muma  
Peritreme not reaching forward to beyond middle of coxa I, usually only as far as middle of coxa II; most setae of dorsal shield pectinate; male without apophysis on femur II; smaller species, female with dorsal shield 240-290 long ..... *annectens* DeL.
8. Ventrianal shield with a pair of pores ..... 9  
Ventrianal shield without pores ..... 11
9. Most lateral setae smooth, simple, and tapering gradually to a point; ventrianal shield distinctly "waist-shaped" ..... *cornus* DeL.  
Most lateral setae pectinate, narrow-elliptic, or narrow elliptic and pectinate; ventrianal shield scarcely "waist-shaped" or not at all. 10
10. Bases of L2 and L3 close together; D2 to D5 tapering, slender, simple ..... *carinulatus*, n. sp.  
Bases of L2 and L3 well removed from each other; D2 to D5 narrow-elliptic and usually pectinate ..... *ellipticus* DeL.
11. Most lateral setae pectinate ..... *luculentis*, n. sp.  
Only seta L9 of lateral series may be pectinate ..... 12
12. M2 reaching much more than halfway to base of L9; L4, L5, and L6 reaching to or nearly to base of seta behind ..... *pacificus* McG.  
M2 reaching distinctly less than halfway to base of L9; L4, L5, and L6 reaching about halfway or less to base of seta behind *juniperi*, n. sp.

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