

A NEW SPECIES OF LARVAL *LEPTUS* (PARASITENGONA: ERYTHRAEIDAE) AND NEW RECORDS OF LARVAL ERYTHRAEIDAE PARASITIZING ORTHOPTERA FROM FRENCH GUIANA

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ABSTRACT — A total of 30 larval mites (Erythraeidae) parasitizing 8 species of Orthoptera were captured during a sampling trip in French Guiana. These collections represent the first reports for the genera *Leptus* and *Charletonia* from this country. It is the first time that *Leptus nikanori* Haitlinger, 2000 has been captured outside of Costa Rica and the third record for *Charletonia domawiti* Haitlinger, 2004 after being reported from Brazil and Costa Rica. We also describe and illustrate the new species *Leptus multisolenidiae* parasitizing *Episomacris gruneri* (Descamps and Amédégnato 1970).

KEYWORDS — French Guiana; Erythraeidae; *Charletonia domawiti*; *Leptus multisolenidiae* n. sp.; *Leptus nikanori*

INTRODUCTION

During a field trip in French Guiana, we collected 30 larval erythraeid mites parasitizing 8 species of Orthoptera. The mites captured belong to the Family Erythraeidae Robineau-Desvoidy 1828. Two of the species identified belong to the genus *Leptus* Latreille 1796 and another species belongs to the genus *Charletonia* Oudemans 1910. Both genera are distributed world-wide but no captures have been reported previously from French Guiana.

Haitlinger (2004a) reported 19 species of *Leptus* described from South America. Since then, only one species *Leptus tiranicus* Haitlinger 2006 from Isla Margarita (Venezuela) has been described (Haitlinger 2006). The genus *Charletonia* is less known and only 8 species have been reported from the New World, two from Central America,

two from South America and 4 from North America (Treat and Flechtmann 1979; Southcott 1991; Haitlinger 2000a; Haitlinger 2004b; Mayoral and Barranco 2011).

MATERIALS AND METHODS

Mites parasitizing different species of orthopterans were removed from their hosts under a binocular microscope using with forceps. Orthopterans were captured during a sampling field trip in French Guiana by hand or using light traps. Measurements and illustrations were made after clearing the specimens in 50 % lactic acid and mounting them on slides using PVA medium (Walter and Krantz 2009) using a Nikon Optiphot-2 compound microscope with a drawing attachment. All the measurements are given in micrometers. Terminology and abbreviations used follow Treat and Flechtmann (1979).

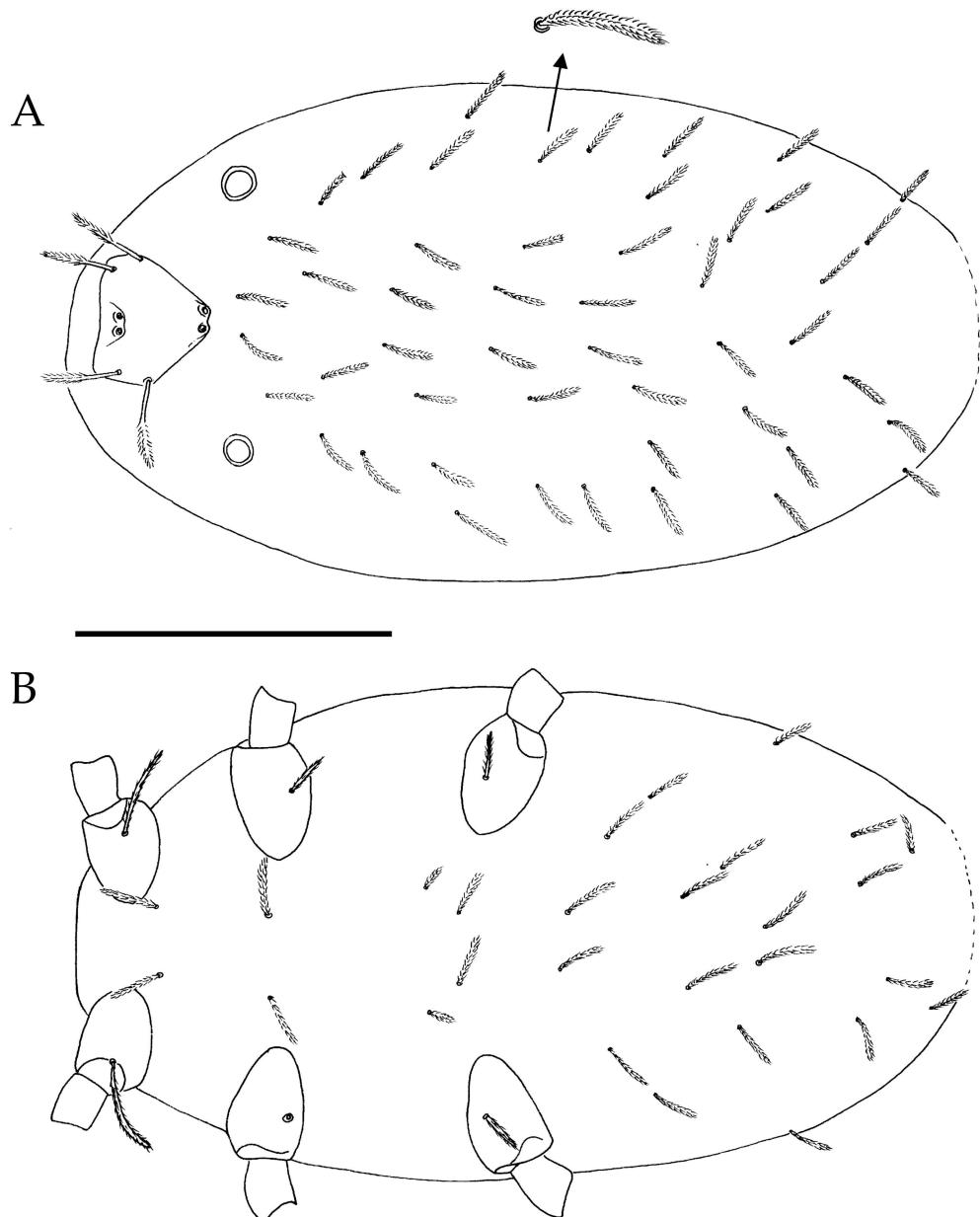


FIGURE 1: *Leptus multisolenidiae* n. sp. (larvae), holotype. A – idiosoma, dorsal view; B – idiosoma, ventral view. Scale bar 100 µm.

viations for the description of the new species follows Southcott (1993) and Haitlinger (1999). Data on paratype are written in parentheses.

RESULTS

Family Erythraeidae Robineau-Desvoidy 1828

Genus *Charletonia* Oudemans 1910

Charletonia domawiti Haitlinger 2004

Material studied — 1 larva, Kaw mountain. Cayenne. French Guiana. 8-1-2008. P. Barranco leg. On Romaleidae (R-290); 4 larvae, Kaw mountain. Cayenne. French Guiana. 8-1-2008. P. Barranco leg. On *Schistocerca nitens* (Thunberg 1815) P. Barranco det. (R-291A-D); 9 larvae, Kaw mountain. Cayenne. French Guiana. 8-1-2008. P. Barranco leg. On *Abracris flavolineata* (De Geer 1773) P. Barranco det. (R-293A-I).

Remarks — This species was described from Brazil (Haitlinger 2004b) and captured on plants from a single specimen. Mayoral and Barranco (2011) captured this species in Costa Rica parasitizing *Neoconocephalus triops* Linnaeus 1758 (Tettigoniidae, Conocephallinae). Now, we report *C. domawiti* from French Guiana parasitizing two species of Acrididae (Orthoptera). This is the third report of this species worldwide. The hosts known for this species are all different species of Orthoptera. However, this species is able to parasitize the two different suborders, the long-horned (Ensifera) and the short-horned Orthoptera (Caelifera).

Genus *Leptus* Latreille 1796

Leptus nikanori Haitlinger 2000

Material studied — 2 larvae, Kaw mountain. 8-1-2008. French Guiana. P. Barranco leg. On *Pseudoprosopia scabra* (Klug 1820) P. Barranco det. (R-282A-B); 6 larvae, Kaw mountain. 8-1-2008. Roura. French Guiana. P. Barranco leg. On Ommatotalpinae (R-283A-F); 2 larvae, Kaw mountain. 12-1-2008. Roura. French Guiana. P. Barranco leg. On Ommatotalpinae (R-284A-B); 4 larvae, Kaw mountain. 8-1-2008. Roura. French Guiana. P. Barranco leg. On *Anaulacomera* sp. (R-285A-D).

Remarks — *Leptus nikanori* was described from a single specimen from Irazú, Costa Rica collected on plants (Haitlinger 2000b). Later, it was captured parasitizing 3 species of katydids and 2 species of phasmids, also in Costa Rica (Mayoral and Barranco 2011). For the first time this species is captured in French Guiana.

The morphometric data and chaetotaxia of these specimens are identical to the ones reported from Costa Rica (Mayoral and Barranco 2010). Interestingly, some specimens from French Guiana show a longer solenidia on tarsus I (72 – 94 µm) (R-282A,B; R-283A-F; R-284A,B) while other specimens captured in a location nearby have shorter solenidia (45 – 49 µm) (R-285A-D). The second ones have the same length ("short") as the ones reported from Costa Rica in Mayoral and Barranco (2011).

Leptus multisolenidiae n. sp. (Figures 1-3; Table 1)

Material studied — Holotype, larva, Kaw mountain. Cayenne. French Guiana. 8-1-2008. P. Barranco leg. On *Episomacris grunerri* (Descamps and Amédégnato 1970) P. Barranco det. (R-292B); Paratype, 1 larva, same location, collector and host as holotype (R-292A). Holotype and paratype are deposited in the "Museo Nacional de Ciencias Naturales de Madrid" (MNCN) in Spain with numbers MNCN 20.02/17155 and MNCN 20.02/17156, respectively.

Description based on holotype — Color in life red-orange. Idiosoma oval (holotype slightly engorged), length 337 µm and width 187 µm. Dorsum of idiosoma with 49 (47) setae in irregular transverse rows, 45 – 50 µm long (Figure 1A). Dorsal scutum moderately chitinized, porose but without striations, triangular shaped. Two pairs of filliform sensilla, posteriors (S) twice longer than the anteriors ones (AM) (Table 1); both with fine setules in distal 1/5 and 1/3 of their entire length, respectively. Scutum bearing two pair of scutalae (AL and PL), similar in length (Figure 2A); AL setae are nude in proximal 1/2 of its entire length and PL are nude in proximal 1/3.

Ventral idiosoma with one coxala on coxae I, II and III, coxala I the longest (Table 1). Two inter-

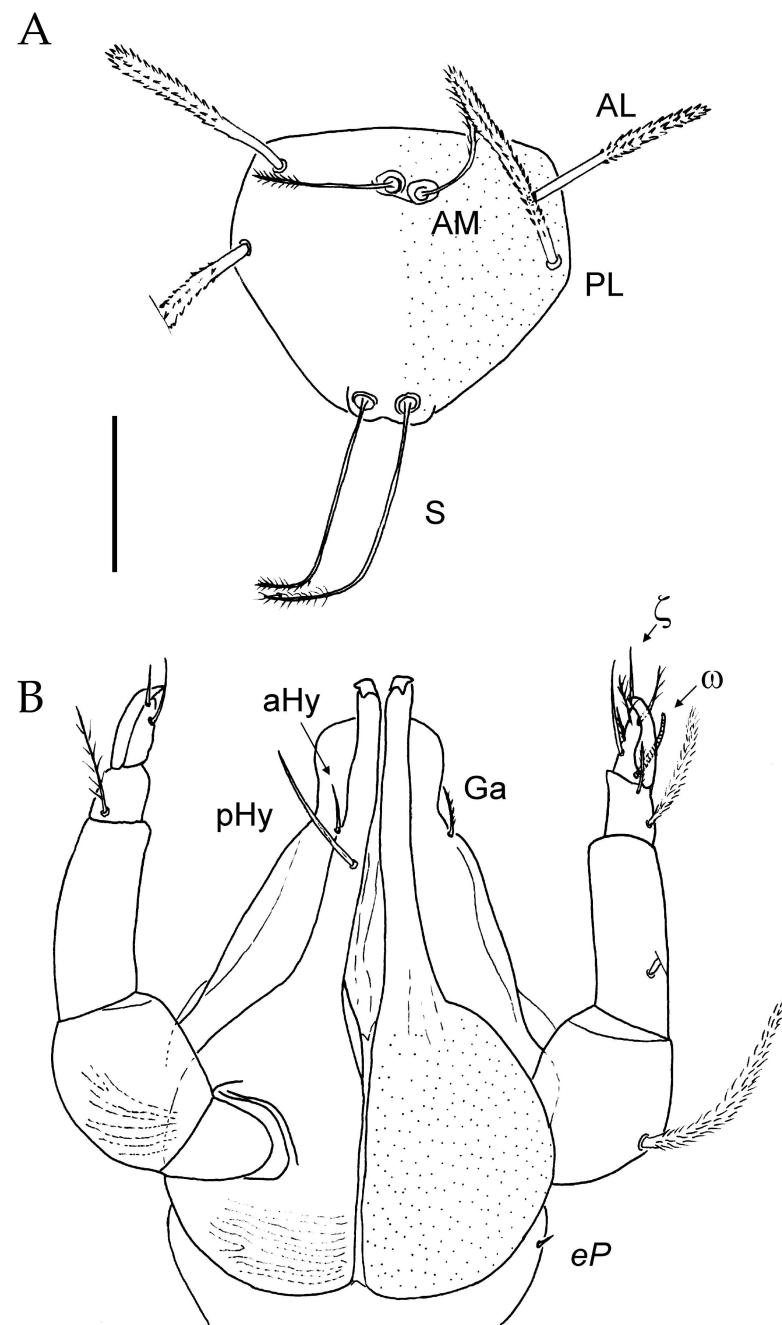


FIGURE 2: *Leptus multisolenidiae* n. sp. (larvae), paratype. A – scutum; B – gnathosoma, right side dorsal view; left side ventral view. Scale bar 60 μ m.

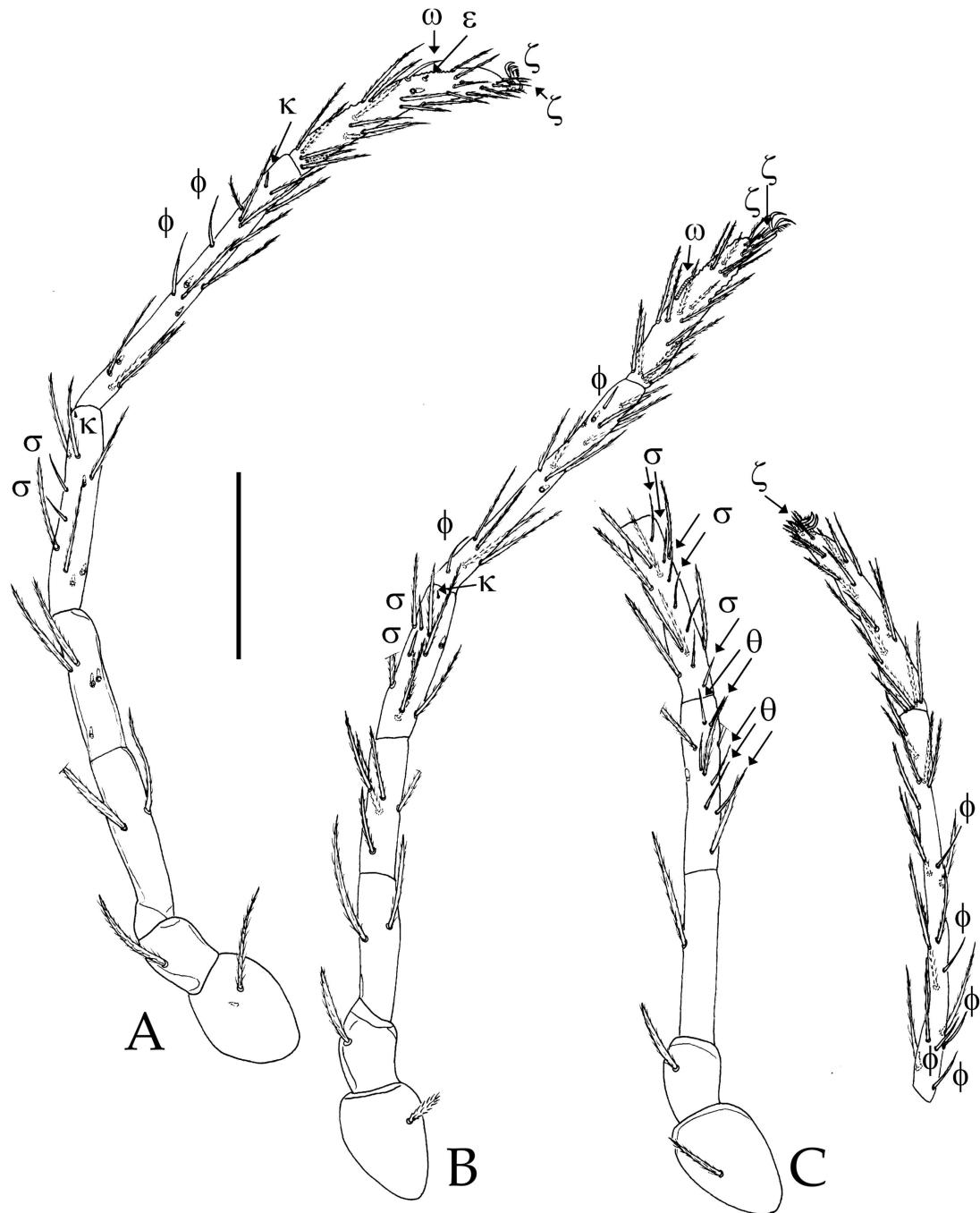


FIGURE 3: *Leptus multisolenidiae* n. sp. (larvae), paratype. A – Leg I; B – Leg II; C – Leg III. Scale bar 150 μm .

coxalae between coxae I, 54 µm long, two between coxae II, 50 µm long and 4 intercoxalae between coxae II-III, the anterior ones shorter (27 µm) than the posterior ones (45 µm). Behind coxae III, 20 (19) setae with setules, 41 – 50 µm (Figure 1B).

Gnathosoma porose, narrow, length 247 µm. One pair of galealae with small setules, pointed, 22 µm long; anterior hypostomala smooth, pointed, simple, 13 µm long; posterior hypostomala with similar shape but thicker and stronger, with fine setules, 54 µm long; palpal supracoxala present, blunted peg, 4 µm long. Palpal setal formula: fPp= 0-B-B-BBB-3B3N (Figure 2B).

Leg setal formula: Leg I: Ta-1,2,1,25B; Ti-2,1,14B; Ge-2,1,8B; Tf-5B; Bf-2B; Tr-1B, Cx-1B (Figure 3A). Leg II: Ta-1,2,24B; Ti-2,15B; Ge-2 (2-3),1,8B; Tf-5B; Bf-2B; Tr-1B, Cx-1B (Figure 3B). Leg III: Ta-1,24B; Ti-5-6,15B; Ge-7-9 (8),8B; Tf-6-7,5B; Bf-1B; Tr-1B, Cx-1B (Figure 3C).

$$IP = 1041 + 940 + 1116 = 3097 \text{ (Holotype)}$$

$$IP = 946 + 851 + 1016 = 2813 \text{ (Paratype)}$$

Measurements for the holotype and paratype are given in Table 1.

Remarks — The presence of multiple solenoidialae on the genua III can be found only in one species of the genus *Leptus*, *L. comosus* Southcott,

TABLE 1: Morphometric data (in micrometers) for *Leptus multisolenidiae* n. sp. (larvae) from French Guiana.

Character	Holotype	Paratype	Character	Holotype	Paratype
IL	270	337	Bf I	135	119
IW	150	187	Tf I	128	117
L	120	112	Ge I	171	150
W	130	119	Ti I	265	230
AW	92	92	Ta I	189	186
PW	115	112	Cx II	110	108
AA	12	13	Tr II	72	63
SB	16	16	Bf II	117	103
ISD	79	75	Tf II	110	108
AP	27	29	Ge II	135	117
AL	81	74	Ti II	230	202
PL	88	77	Ta II	166	150
AM	51	-	Cx III	112	106
S	108	-	Tr III	68	63
DS	47-54	45-50	Bf III	137	121
GL	243	247	Tf III	139	135
1b	90	87	Ge III	155	135
2b	36	31	Ti III	321	285
3b	52	48	Ta III	184	171
Cx I	95	86	IP	3097	2813
Tr I	58	58			

1991 from South Australia with six solenoidalae (Southcott 1991). *Leptus multisolenidiae* n. sp. has 7 – 9 solenidia on Ge III and therefore belongs to this exclusive group of species. *Leptus comosus* is also the only species with solenoidalae on Tf I, II, III bearing 3, 4, 6 - 7, respectively. *Leptus multisolenidiae* n. sp. carries 6 - 7 solenoidalae on telofemur III (same as *L. comosus*), but has none on Tf I or II.

However, these two species differ from each other in several characters. *Leptus comosus* belongs to the group of *Leptus* with two genualae on the palp and is characterized as being "an extremely hairy larva, more so than any other described species" (Southcott 1991b), bearing ventrally more than 80 setae anterior to coxae III. This is not the case for *L. multisolenidiae* that belongs to the group of *Leptus* with one genuala on the palp and carries only 8 setae anterior to coxae III. Morphometric data also allows us to differentiate both species well, all the segments of the legs are considerably longer in the new species, cf. the length of the Ti I, II, III (230 – 275, 202 – 230, 285 – 321 vs. 118 – 138, 108 – 125, 158 – 186); thus resulting in a much larger IP (2813 – 3097 vs. 1820, respectively).

Etymology — The name of the species is after the presence of many solenidia on the telofemur of the leg III.

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