

## TWO NEW SPECIES OF *LEPTUS* LATREILLE, 1796 (ACARI, ERYTHRAEIDAE) FROM THE U.S.A.

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ABSTRACT — *Leptus nearcticus* n. sp. and *Leptus indianensis* n. sp. are described from opilionids (phalangids), *Leiobunum* spp., from Indiana, U.S.A. They are the first species of this genus described from North America.

### INTRODUCTION

The genus *Leptus* Latreille, 1796 has a cosmopolitan distribution. The adults are free living while the larvae are parasitic on various insects (Collembola, Coleoptera, Orthoptera, Hemiptera, Hymenoptera, Lepidoptera and Diptera) or arachnids (scorpions, spiders, opilionids [phalangids]). More than 80 species have been described, most of them from their larval stage. The descriptions of these larvae are generally very short, and some important characters, such as the numbers of solenidia on the legs and the chaetotaxy of the palps, are frequently omitted.

Southcott (1961) has discussed the systematics of the Erythraeidae and the nomenclature of the setae of the legs, and proposed standard data that we have used in our papers on this group (Fain and Elsen 1972, 1987). We have adopted the terminology proposed by Grandjean (Fain and Elsen 1987) for the specialized setae of the legs and palpi.

The number of solenidia (Spinalae) on the legs was used by Beron (1975) to split the genus into 4 groups as follows:

- I. The "*schedingi*" group: with one species, *L. schedingi* (Oudemans, 1905). In this group genu I bears 5 solenidia, tibia I bears 1 solenidion.
- II. The "*stieglmayri*" group: with 3 species, *L. stieglmayri* (Oudemans, 1905), *L. southcotti* Beron, 1975 and *L. echinopus* Beron, 1975. In

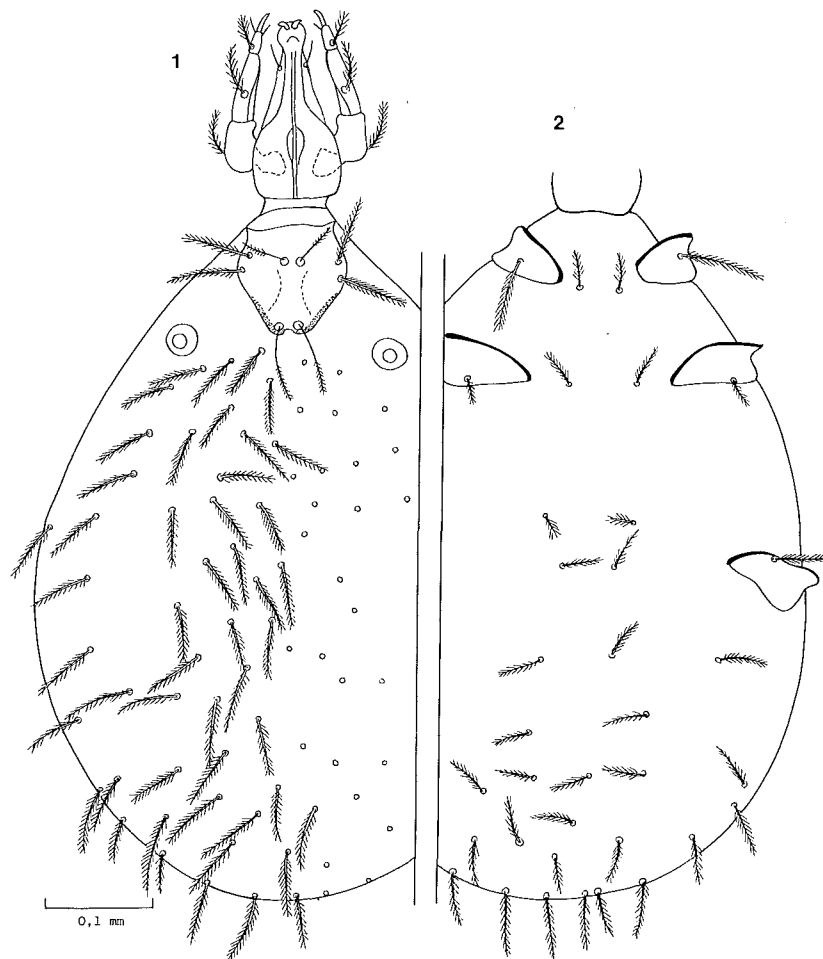
this group genu I bears 2 or 5 solenidia, tibia I bears 3, 5 or 7 solenidia.

- III. The "*sieversii*" group: with one species, *L. sieversii* (Oudemans, 1911). Genua I and II and tibiae I and II each with 1 solenidion.
- IV. The "*ignotus*" group: All the other species are included here. Number of solenidia as in *L. sieversii* except that genu II lacks a solenidion and tibiae I and II bear 2 solenidia. This group can be subdivided according to the number of barbed setae on the palpal femur, on the palpal genu, and on the basifemur of leg III.

The objective of this paper is to describe two new species of *Leptus* from the larval stage, both from Indiana, USA.

Little information is available concerning the genus *Leptus* in North America. Even though they did not attempt to identify them specifically, several authors have reported larvae of *Leptus* spp. on various insects or arachnids (see Treat, 1975). The hosts for the larvae described herein were opilionids (phalangids) from the genus *Leiobunum*. However, the females are extremely difficult to identify so host species names are given only where verification was obtained.

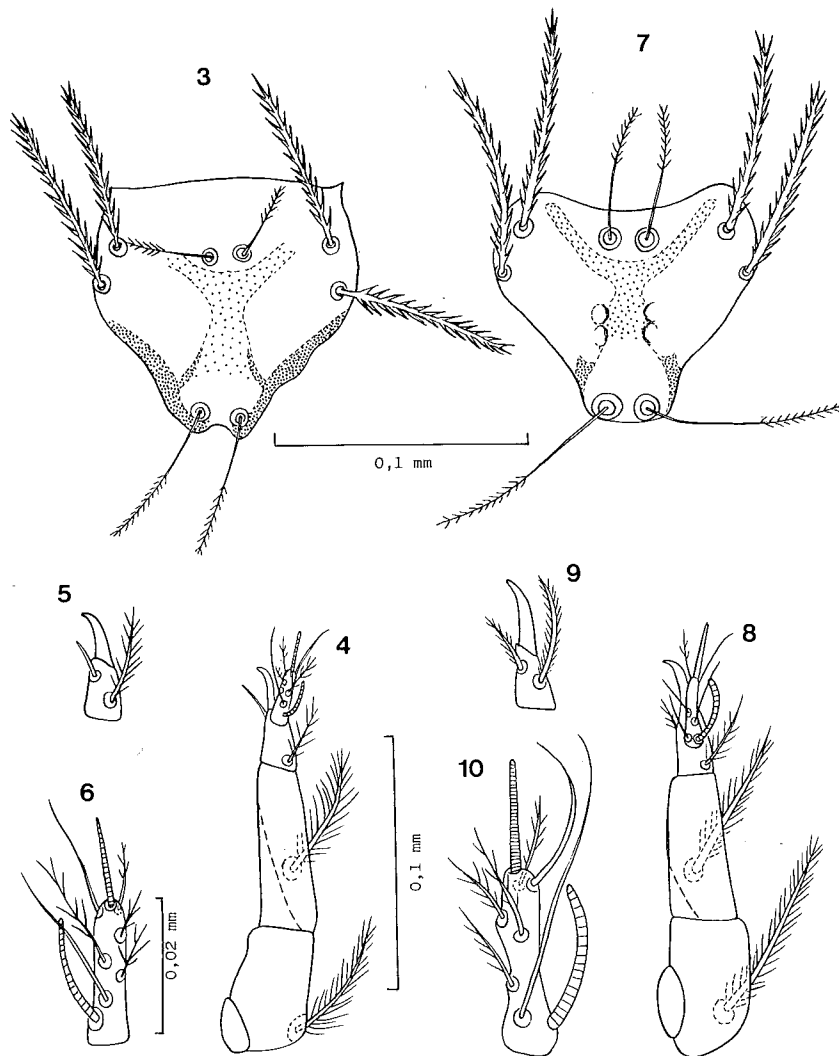
All measurements are in micrometers. The body length includes the gnathosoma. The length of the legs does not include the claws or coxae. The diameter of the eyes is that of the lens and does not include the surrounding ring. We used



Figs. 1-2. *Leptus nearcticus* n. sp.: 1. Larva in dorsal view; 2. larva in ventral view.

Table 1. Standard data (in microns) based on 8 paratypes.

	<i>Leptus nearcticus</i> n. sp.			<i>Leptus indianensis</i> n. sp.		
	Average	Maximum	Minimum	Average	Maximum	Minimum
L	105	108	98	104	111	96
W	101	105	96	106	111	102
AL	70	75	63	88	96	81
PL	75	80	72	86	99	79
ASens	41	42	38	51	60	45
PSens	60	62	60	81	90	75
ASBa	28	31	24	24	35	18
AW	80	86	75	82	87	78
PW	93	96	87	100	106	95
SBa	12	13	10	15	17	12
SBp	15	16	14	15	18	12
ISD	93	100	87	89	96	86
A-P	16	18	12	18	21	16
ASBM	25	28	21	14	15	12



Figs. 3-10. *Leptus nearcticus* n. sp.: 3. Scutum; 4. palp in ventral view; 5. palpal tibia in dorsal view; 6. palpal tarsus enlarged in ventral view. *Leptus indianensis* n. sp.: 7. Scutum; 8. palp in ventral view; 9. palpal tibia in dorsal view; 10. palpal tarsus enlarged, in ventral view.

here the "standard data" proposed by Southcott (1961) for the scutum, but we added a new measurement, ASBM, which is the perpendicular distance between the bases of the anterior sensillae and the anterior edge of the scutum in the midline. This distance indicates the shape of the anterior edge of the scutum (straight or concave), e.g., in the two new species the lengths of the scutum are almost the same whereas ASBM is strikingly different. Specimen numbers refer to S.L. Gummer slide numbers.

*Leptus nearcticus* n. sp. belongs in the *ignotus* group, whereas *L. indianensis* n. sp. cannot be included in any of these groups, since it bears 3 solenidia on tibia I and only one solenidion on

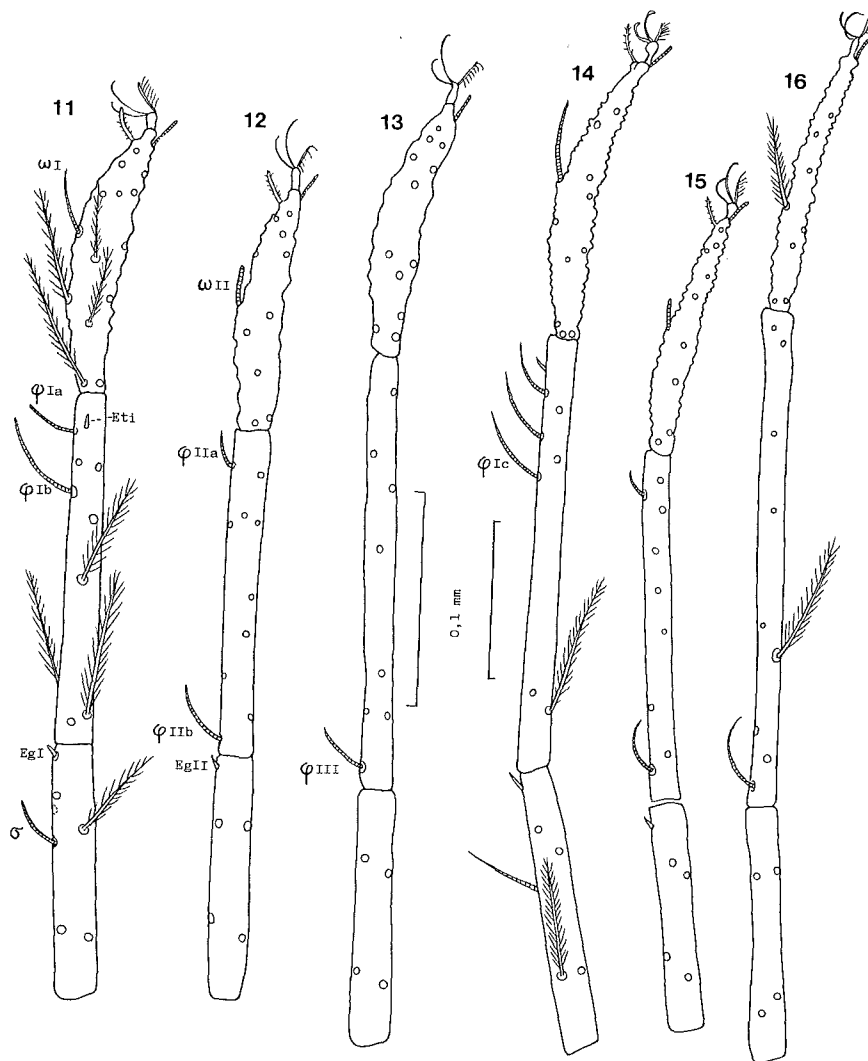
genus I. Therefore we have proposed a new group for it, the *indianensis* group.

1. *Leptus nearcticus* nov. spec.

HOLOTYPE LARVA (Figs. 1-6, 11-13) — Body 840 long and 480 wide. In 5 paratypes the lengths are 1020, 900, 720, 600 and 570.

*Dorsum*: With 94 barbed setae, averaging 60 long (range 45-70). Scutum with anterior margin nearly straight, the anterior corners pointed. Sensillae with short barbs in their apical half. Diameter of eye lens 15.

*Venter*: With about 38 B setae 22 to 60 long. Intercoxals I not longer than the other ventral



Figs. 11-16. *Leptus nearcticus* n. sp., genu, tibia and tarsus: 11. leg I; 12. leg II; 13. leg III. *Leptus indianensis* n. sp., genu, tibia and tarsus: 14. leg I; 15. leg II; 16. leg III.

setae. Coxal setae I to III 78, 27 and 46 long, respectively.

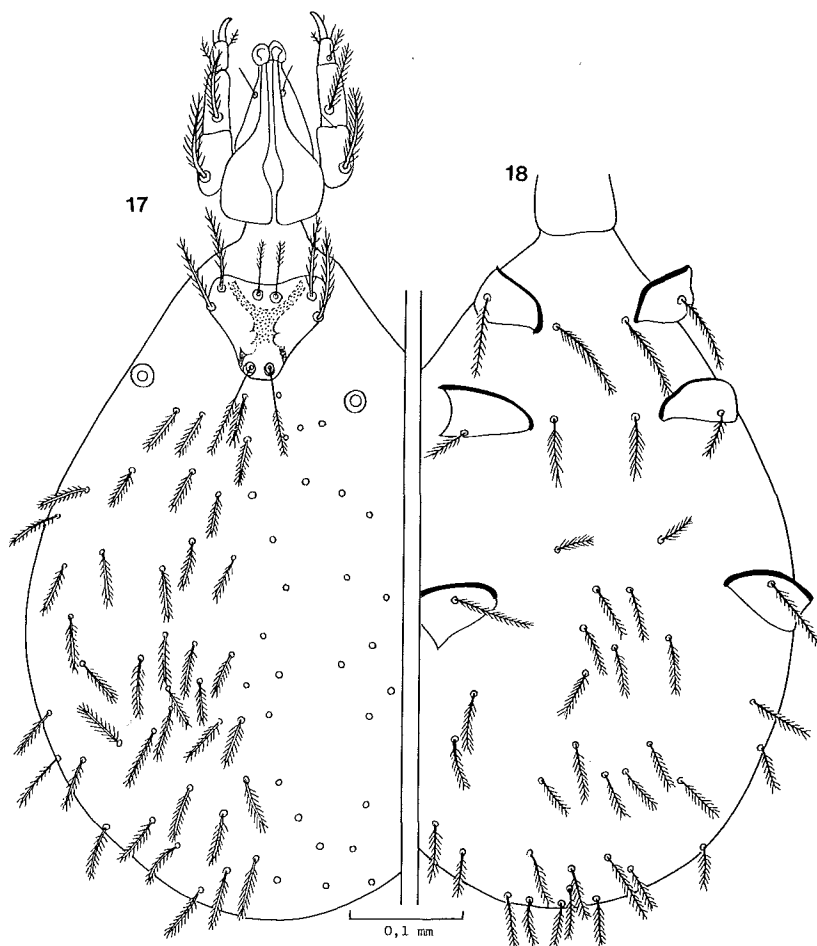
*Gnathosoma*: 174 long.

*Palps*: Femur with one B seta 60 long; genu 66 long, 18 wide and bearing a dorsal crest and one B seta, 53 long; tibia with 2 B setae (one ventral and 1 dorsal) and one bare seta (dorso-apical); tarsus with 6 setae (4 B and 2 bare) and 2 solenidia.

*Legs*: I to III 651, 625, and 724 long, the tarsi, tibia and genu I 132, 168, and 120 long. Number of B setae on legs I to III: coxae 1-1-1; trochanters 1-1-1; basifemora 2-2-1; telofemora 5-5-5; genua 8-8-8; tibiae 14-16-16. Tarsi 26 to 30. Solenidia:  $\omega I$  33;  $\omega II$  16;  $\phi Ia$  21;  $\phi Ib$  45;  $\sigma$  31 (see

Table 1 for standard data).

*Host and locality*: Holotype larva attached to an opilionid (phalangid) *Leiobunum longipes* (female); 2 miles northwest Brazil, Indiana, Clay Co., USA (no. 34), 1 September 1986. Paratypes with the same data but on the following hosts and dates (1986): 1 September [8 paratypes, nos. 22 *Leiobunum nigripes* (female), 23, 24 *Leiobunum vittatum* (male), 30, 32, 33, 35, 36 *Leiobunum* sp. (females)]; 3 September (1 paratype, no. 37 *Leiobunum longipes* [male]); 4 September (7 paratypes, nos. 31, 38, 39, 40, 41, 42, 43 *Leiobunum vittatum* [male]); 5 September (2 paratypes, nos. 45 *Leiobunum vittatum* [male], 48 *Leiobunum* sp.); 8 September (2 paratypes, nos. 52, 53 *Leiobunum* sp.);



Figs 17-18. *Leptus indianensis* n. sp.: 17. Larva in dorsal view; 18. larva in ventral view.

14 September (one paratype, no. 54 *Leiobunum vitatum* [male]); 18 September (2 paratypes, nos. 55 and 56 *Leiobunum nigripes* [female]). Holotype in the U.S. National Museum, Washington, DC. Paratypes in the Institut royal des Sciences naturelles de Belgique and in the British Museum (Nat. Hist.) London.

REMARKS — This species belongs to the *ignotus* group (IV) of Beron. It differs from other known species in this group by the combination of the following characters: 1. Palpal femur, palpal genu and basifemur of leg III with only one B seta. 2. Palpal femur with a dorsal crest. 3. Scutum with a straight anterior margin and anterior corners pointed. 4. Absence of the eupathidia *Eta*; eupathidia *Eti* in para-axial position. 5. Body with numerous setae (94 dorsal, 38 ventral).

## 2. *Leptus indianensis* nov. spec.

HOLOTYPE LARVA (Figs 7-10, 14-18) — Body 801 long, 418 wide. Lengths in 4 paratypes: 1500, 1020, 1000 and 615.

*Dorsum*: Body bearing 82 setae, 44 to 60 long. Scutum with anterior margin distinctly concave, the anterior corners rounded. Sensillae long, barbed in their apical 40%. Diameter of eye lens 21.

*Venter*: With 34 setae, intercoxals I much longer (80 long) than the other setae (33 to 55 long). Setae of coxae I-III of type B and 83, 39, 78 long.

*Gnathosoma*: 201 long, bearing 3 pairs of setae, two ventral (the anterior short, the posterior 60 long and with few barbs) and one dorsal (40 long and barbed). Chelicerae 165 long.

*Palps:* Femur with one B seta 80 long; genu 60 long and 22 wide bearing a dorsal crest and 1 B seta 63 long; tibia with 3 B setae (one ventral and 2 dorsal); tarsus with 6 setae (2 bare and 4 barbed) and 2 thick solenidia.

*Legs:* I to III, 906, 735, 921 long. Including the claws and coxae these lengths are 999, 843 and 1030. Tarsus, tibia and genu I 168, 255 and 174 long. Number of B setae on legs I-III: coxae, trochanters, femora, genua and tarsi as in *L. nearcticus*. Tibiae with 14-15-15 B setae. Solenidia:  $\omega I$  45;  $\omega II$  19;  $\phi Ia$  31;  $\phi Ib$  44;  $\phi Ic$  45;  $\sigma$  45. Eupathidia: *Eti* 8, 5; *Egl* 8 (see Table 1 for standard data).

*Host and locality:* The holotype larva was attached to an opilionid (phalangid), *Leiobunum ventricosum*, taken 9 miles southwest of Crawfordsville, Indiana, Montgomery Co., USA, 9 July 1986 (slide no. 4). Paratypes with same data as holotype but on the following hosts: 7 larvae nos. 3 *Leiobunum nigripes* (male); 5 *Leiobunum nigripes* (female); 6 *Leiobunum speciosum* (male); 7, 8, 9 and 10 *Leiobunum* sp. Two other paratype larvae from *Leiobunum calcar* (female) and *Leiobunum longipes* (male) from 2 miles northwest Brazil, Indiana, Clay Co., USA, 3 July 1986. Holotype in the U.S. National Museum, Washington, DC. Paratypes in the Institut royal des Sciences naturelles de Belgique and in the British Museum (Nat. Hist.) London.

REMARKS — This species differs from all the known species in the genus by the presence of 3 solenidia on tibia I combined with one solenidion on genu I and one B seta on the palpal

femur.

The only species carrying 3 solenidia on tibia I is *L. southcotti* Beron, 1975, but in that species the palpal femur bears 2 B setae and genu I bears 2 solenidia. Therefore we propose a fifth group for this species, the *indianensis* group.

#### ACKNOWLEDGMENTS

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