

565

A FAIN, J. O. WHITAKER,  
B. MCDANIEL & F. LUKOSCHUS

*LISTROPHORUS SYNAPTOMYS*  
A NEW SPECIES FROM  
*SYNAPTOMYS* AND *LEMMUS*  
(ACARINA : LISTROPHORIDAE)

Extrait de  
*ACAROLOGIA*  
Tome XVI, fasc. 2, 1974

DIRECTION  
61, rue de Buffon — 75005 Paris — France

*LISTROPHORUS SYNAPTOMYS* A NEW SPECIES FROM  
*SYNAPTOMYS* AND *LEMMUS* (ACARINA : LISTROPHORIDAE)

BY

A. FAIN, J. O. WHITAKER, Jr., B. McDANIEL and F. LUKOSCHUS

Recently we have discovered a new species of listrophorid mite, genus *Listrophorus*. Numerous specimens were taken from the Bog Lemming *Synaptomys cooperi* BAIRD, in the U.S.A., and the Lemming, *Lemmus lemmus* L. northern Europe. Previously only one species of *Listrophorus* (*L. dicrostonyx* FAIN and HYLAND, 1972, from *Dicrostonyx torquatus* in Canada) had been described from Lemmings. None was known from Bog Lemmings.

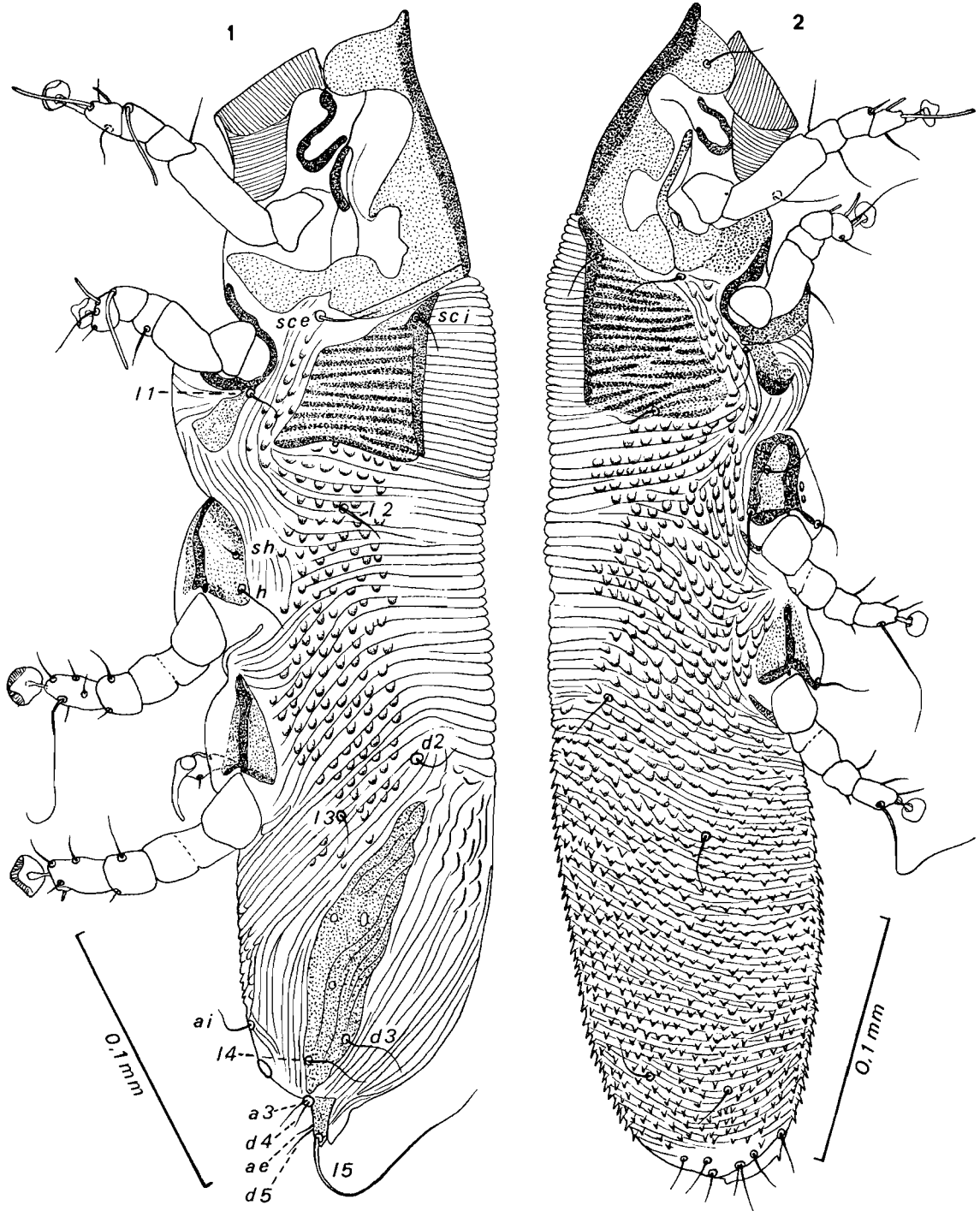
FAIN and HYLAND (in press) have revised the Listrophoroidea in North America. They have shown that the genus *Listrophorus* PAGENSTECHEER is represented in this region by 11 species. Among these 6 are parasitic on the muskrat, *Ondatra zibethicus*; the other species live on various other species of rodents, mostly Cricetidae. A list of the species of *Listrophorus* found in North America is given at the end of this paper.

The North American species of *Listrophorus* (at least the 10 species where males are known) may be divided into two groups according to the structure of the posterior hairs in the male. In one group the posterior extremity carries one pair of membranous foliate hairs while in the other group all the posterior hairs are simple. The first group comprises 3 species living on the muskrat. The second group contains 7 species, 3 on the muskrat and 4 on other rodents. In all the European species of *Listrophorus* except one (*L. dozieri*), the posterior membranous hairs are present. This character is therefore useful in separating the American from the European species of *Listrophorus*.

The new species described here has all the posterior hairs simple. In the male the opisthosomal shields end some distance behind the *d* 2 setae, as is also the case in *L. dicrostonyx* FAIN and HYLAND. The new species differs from the latter by the different shape of the penis which is longer and only slightly curved (curved at 90° in *dicrostonyx*, fig. 6) the longer and narrower shape of the opisthosomal shields and the different shape and larger size of the cuticular scales. The female is clearly distinguished from that of *L. dicrostonyx* by the smaller length of all the dorsal hairs, the *l* 5 measuring 15-20  $\mu$  (in *L. dicrostonyx* the *l* 5 setae are 80  $\mu$  long), the shorter posterior legs, the distinctly larger cuticular scales and the relatively longer dark bands of the postscapular shields.

***Listrophorus synaptomys* spec. nov.**

MALE (holotype) (fig. 1, 3, 4); Length 398  $\mu$ , maximum width in lateral view 114  $\mu$ . Posterior extremity with two small lobes. Postscapular shields with 11-12 dark bands separated from each other by clear bands a little longer than the dark bands. Maximum length of these shields 60  $\mu$ , maximum width 51  $\mu$ . Opisthosomal shields 105-110  $\mu$  long and 27  $\mu$  maximum



FIGS. 1-2. — *Listrophorus synaptomys* sp. n. Male (holotype) (fig. 1) and female (allotype) (fig. 2) in lateral view.

width. The distance from the anterior extremity of this shield to the *d* 2 hairs is 15-18  $\mu$ . Cuticle of the lateral surfaces of the metapodosoma and the region situated between the postscapular shield and legs II with numerous small rounded scales. On the opisthosoma is a small scaly area (rounded scales) ventrally in front of the anus and there are a few very small rounded scales in the lateral regions. On the dorsal surface of the opisthosoma the cuticle is sinuous and bears a few very poorly formed scales. Penis 21  $\mu$  long only slightly curved. Adanal suckers small.

*Chaetotaxy* : Most of dorsal hairs rather short. The *l* 5 and *d* 5 are 70  $\mu$  and 12  $\mu$  long respectively.

FEMALE (allotype) (fig. 2) : Length 462  $\mu$ , maximum width in lateral view 105  $\mu$ . Opisthosoma 190  $\mu$  long. Postscapular shields with 14-16 dark bands ; maximum length 65-68  $\mu$ , maximum width 55  $\mu$ . Cuticle densely covered with small scales which completely cover the opisthosoma ; dorsally and ventrally the scales are triangular and equal or subequal in size ; laterally they are larger but rounded, especially in the anterior part of the opisthosoma. In the region of the metapodosoma the scales are rounded but are present only laterally. A few smaller rounded scales are present between legs II and the postscapular shields. Posterior legs short, not extending beyond the anterior third of the opisthosoma, leg IV 59  $\mu$  long (from base of femur to apex of tarsus). *Chaetotaxy* : body hairs short, not longer than 25  $\mu$  ; the *d* 5 and *l* 5 are 15  $\mu$  long.

*Host and localities* :

On the Lemming *Synaptomys cooperi* BAIRD, from different counties of Indiana, U.S.A. : a) Vigo Co., 5 m. N. Terre Haute, 15.IX.73 (holotype and 6 male paratypes ; 10 female paratypes) (Coll. J. O. WHITAKER, Jr.) ; b) Harrison Co., 10 m. W. Corydon (3.III.1973) (allotype and 1 male paratype ; 1 female and several nymphs ; paratypes (Coll. J. O. WHITAKER, Jr.) ; c) Dearborn Co., 4 mi. Ne Bright. (18-XI. 1968) (Coll. J. O. WHITAKER, Jr. and R. E. MUMFORD). 1 female paratype.

*Types* in the U. S. National Museum, Washington. Paratypes in the collection of the authors.

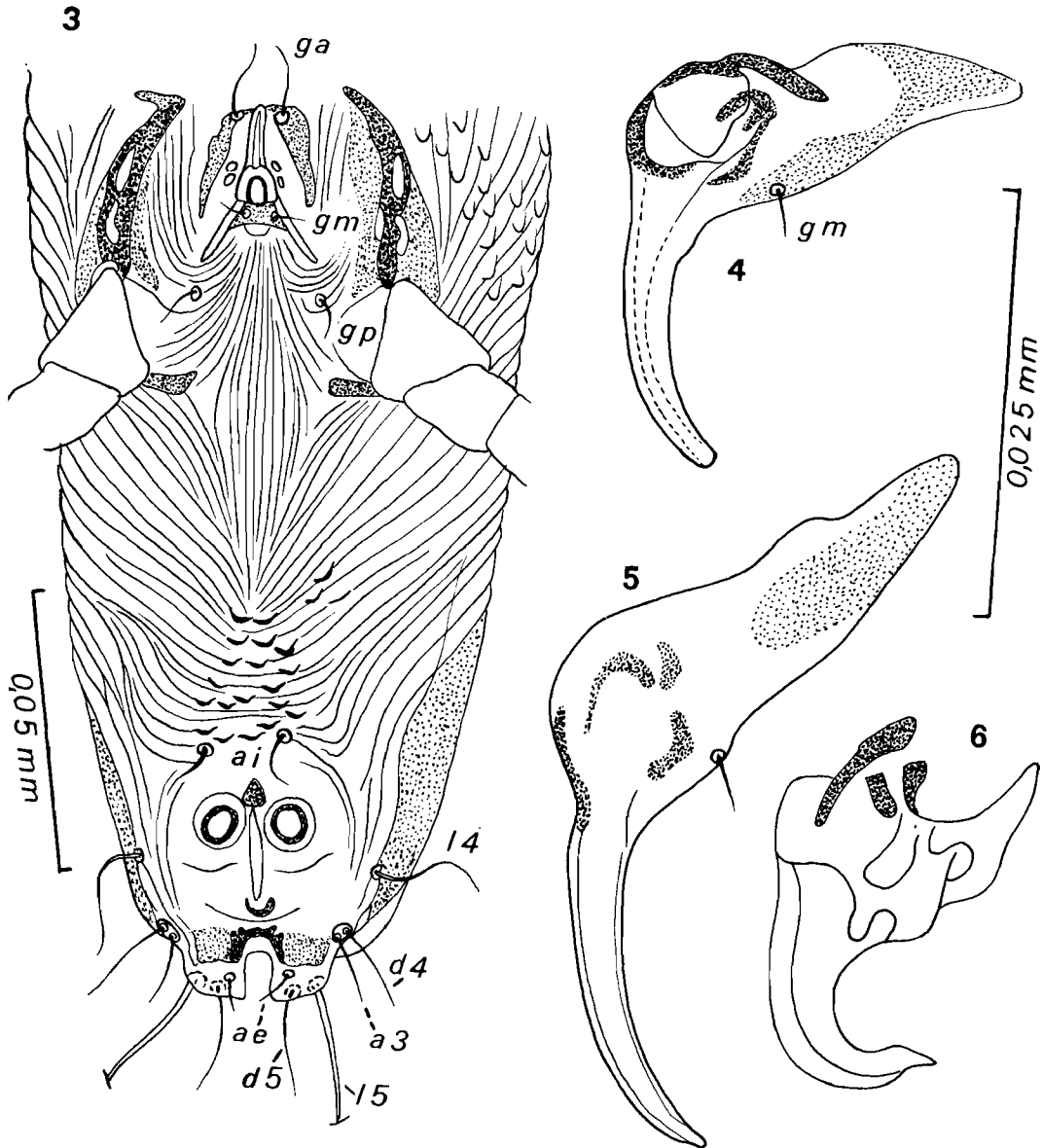
***Listrophorus synaptomys* subsp. *edleri* subsp. nov.**

This subspecies is distinguished from the typical form, in both sexes, by the greater development of the scales on the body and in the male by the longer and relatively narrower penis.

This subspecies is named after Dr A. EDLER, University of Lund, Sweden, who kindly provided us with the parasitized lemmings.

MALE (holotype) (fig. 5) : Length 402  $\mu$ , maximum width 126  $\mu$ . General aspect as in the typical form. The opisthosomal shields are shorter and narrower (84  $\mu$   $\times$  24  $\mu$ ). The distance between these shields and the *d* 2 hairs is 42  $\mu$ . Cuticular scales present in the ventrolateral regions of the opisthosoma and in the anterior region of the dorsal surface of opisthosoma. Penis 29  $\mu$  long, its cylindrical part is long 23  $\mu$  (in *L. synaptomys* this cylindrical part is only 15  $\mu$  long).

FEMALE (allotype) : Length 495  $\mu$ , width 126  $\mu$  (in lateral view). Very similar to the typical form. The chaetotaxy of the body is identical, all posterior hairs are short and very thin. The scales on the anterior part of the opisthosoma are smaller and more triangular than in the typical form and the dark lines on the postscapular shield are 13-14 in number and are slightly narrower. This shield is 60  $\mu$  long and 54  $\mu$  wide.



FIGS. 3-6. — *Listrophorus synaptomys* sp. n. Male (paratype) : opisthosoma in ventral view (fig. 3). Penis of the holotype (fig. 4). *Listrophorus synaptomys edleri* ssp. n. : Penis of the male (holotype) (fig. 5). *Listrophorus dicrostonyx* FAIN and HYLAND : penis of the male (allotype) (fig. 6).

*Host and locality :*

On two lemmings *Lemmus lemmus*, from Vaggevare, district Sitojaure, Lule Lappmark, Sweden, 9. and 16.VI.1966 (holotype and 8 paratypes males, allotype and 5 paratypes females, 5 nymphs and 1 larva paratypes).

*Types* in the University of Lund, Sweden. Paratypes in the collection of the authors.

LIST OF THE SPECIES OF *LISTROPHORUS* IN NORTH AMERICA  
(SEE FAIN AND HYLAND, 1974)  
(N. B. \* = type host)

Species	Host	Order, family and subfamily of the host	Locality
<i>L. validus</i> BANKS, 1910	* <i>Ondatra zibethica zibethica</i> (L.)	RODENTIA : Cricetidae, Microtinae	Canada U.S.A.
<i>L. dozieri</i> RADFORD, 1944	* <i>Ondatra zibethica macrodon</i> (MERRIAM)	Cricetidae, Microtinae	U.S.A.
<i>L. americanus</i> RADFORD, 1944	* <i>Ondatra zibethica macrodon</i> (MERRIAM)	Cricetidae, Microtinae	U.S.A.
<i>L. ondatrae</i> FAIN, KOK and LUKOSCHUS, 1970	* <i>Ondatra zibethica zibethica</i> (L.)	Cricetidae, Microtinae	Canada U.S.A.
<i>L. faini</i> DUBININA, 1972	* <i>Ondatra zibethica</i> (L.)	Cricetidae, Microtinae	U.S.A.
<i>L. kingstownensis</i> FAIN and HYLAND, 1973	* <i>Ondatra zibethica</i> (L.)	Cricetidae, Microtinae	U.S.A.
<i>L. mexicanus mexicanus</i> FAIN, 1970	* <i>Microtus mexicanus</i> (SAUSSURE)	Cricetidae, Microtinae	Mexico
<i>L. mexicanus squamiferus</i> FAIN and HYLAND, 1972	* <i>Clethrionomys gapperi</i> (VIGORS)	Cricetidae, Microtinae	U.S.A.
	<i>Microtus p. pennsylvanicus</i> (ORD)	Cricetidae Microtinae	Canada U.S.A.
	<i>Microtus pennsylvanicus</i> (ORD)	Cricetidae Microtinae	U.S.A.
	<i>Microtus</i> sp.	Cricetidae Microtinae	U.S.A.
	<i>Peromyscus leucopus</i> (FISCHER)	Cricetidae Cricetinae	U.S.A.
<i>L. phenacomys</i> FAIN and HYLAND, 1972	* <i>Phenacomys</i> sp.	Cricetidae, Microtinae	Canada
	<i>Phenacomys inermidius</i> (MERRIAM)	Cricetidae, Microtinae	Canada
<i>L. pitymys</i> FAIN and HYLAND, 1972	* <i>Pitymys pinetorum scalopsoides</i> (AUDUBON and BACHMAN) (= <i>Microtus p. scalopsoides</i> )	Cricetidae, Microtinae	U.S.A.
	<i>Microtus pennsylvanicus</i> (ORD)	Cricetidae, Microtinae	U.S.A.
	<i>Blarina brevicauda</i> (SAY)	INSECTIVORA : Soricidae, Soricinae	U.S.A.
<i>L. dicrostonyx</i> FAIN and HYLAND, 1972	* <i>Dicrostonyx</i> sp.	RODENTIA : Cricetidae, Microtinae	Canada

<i>L. neotomae</i> FAIN and HYLAND, 1973	<i>Neotoma micropus</i> BAIRD	Cricetidae, Cricetinae	U.S.A.
	* <i>Neotoma</i> sp.	Cricetidae, Cricetinae	U.S.A.
<i>L. synaptomys</i> sp. n.	* <i>Synaptomys cooperi</i> BAIRD	Cricetidae Microtinae	U.S.A.

#### SUMMARY

*Listrophorus synaptomys* sp. n. (Acarina : Listrophoridae) is described from the Bog Lemming *Synaptomys cooperi* in U.S.A.

In Sweden this new species is represented by a new subspecies *L. synaptomys* subsp. *edleri* living on the Lemming *Lemmus lemmus*.

#### RÉSUMÉ

Les auteurs décrivent une nouvelle espèce de *Listrophorus*, *L. synaptomys* (Acarina : Listrophoridae) trouvée sur *Synaptomys cooperi* aux U.S.A. Cette espèce est également représentée en Suède sur le Lemming *Lemmus lemmus* mais par une sous-espèce nouvelle *L. synaptomys edleri*.

#### LITERATURE CITED

- FAIN (A.) and HYLAND (K.), 1972. — Description of new parasitic mites from North American mammals (Acarina : Sarcoptiformes). — Rev. Zool. Bot. Afr. **85** (1-2) : 174-176.
- FAIN (A.) and HYLAND (K.), 1974. — The Listrophoroid mites in North America. II. The Family Listrophoridae MEGNIN and TROUËSSART, 1884 (Acarina : Sarcoptiformes). — Bull. Inst. r. Sci. nat. Belg. Entom., **50** (1) : 1-69.
-

