

# New records of fur mites of the subgenus *Listrophoroides* s. str. (Acari: Atopomelidae: *Listrophoroides*) from rats of Vietnam, with description of a new species

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(With 4 figures)

## Abstract

Five fur mite species of the subgenus *Listrophoroides* Hirst, 1923 (Acari: Atopomelidae) have been recorded from several species of rats (Rodentia: Muridae) of Vietnam. One new species, *Listrophoroides* (s.str.) *helenae* sp. n. is described from *Maxomys surifer* (Miller, 1900).

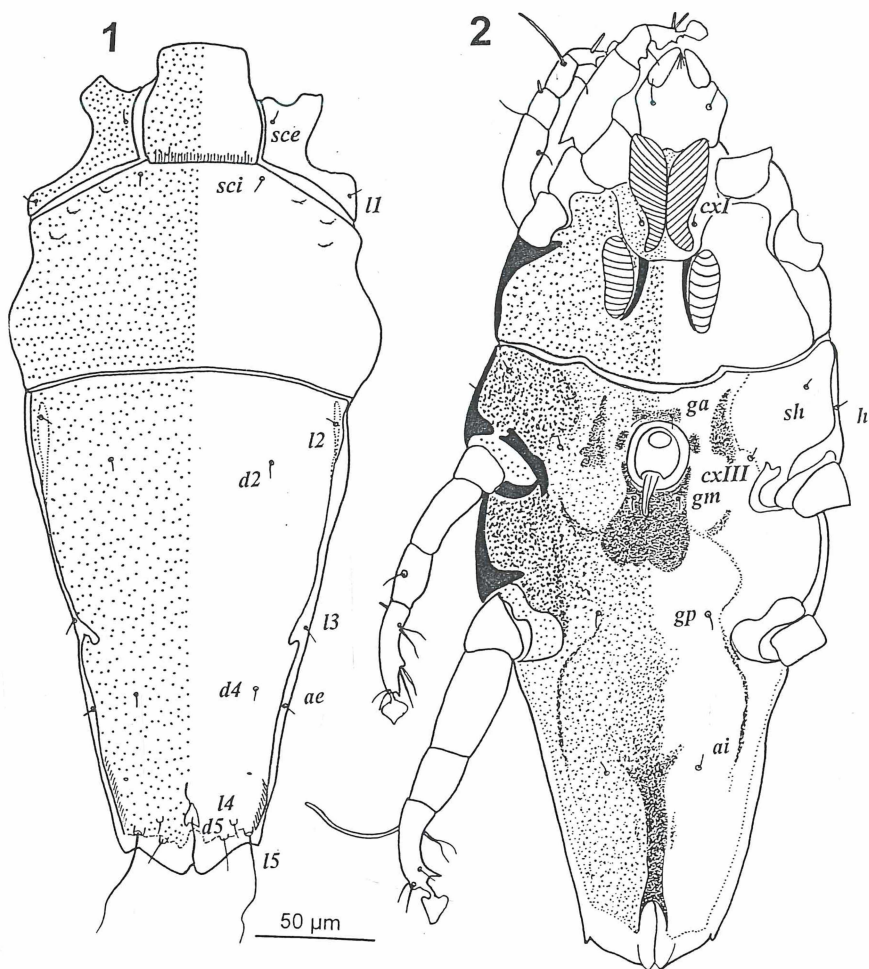
## Introduction

The atopomelid mite subgenus *Listrophoroides* Hirst, 1923 (Acari: Atopomelidae) includes at present 46 species, all associated with tropical rodents of the families Muridae and Cricetidae (Fain 1972a, 1972b, 1981; Fain et al. 1986). Among these, 39 species and one subspecies of this subgenus had been recorded from Muridae of Asia (Fain 1981). Actually, these mites have been poorly investigated in the region of South-East Asia. Up to now, only two species of the subgenus *Listrophoroides* s. str. have been recorded from this area: *Listrophoroides* (L.) *bowersi* Fain, 1979 from *Berylmys bowersi* (Anderson, 1879) (Muridae) and *Listrophoroides* (L.) *vietnamensis* Fain, 1976 from the insectivore host, *Hylomys* sp. (Erinaceomorpha: Erinaceidae) (Fain 1981). It is the only record of a *Listrophoroides* species from an insectivore host, therefore it is quite possible that this host association is the result of an accidental contamination, and that the true host is a rodent.

The present paper gives the description of one new species, *Listrophoroides* (L.) *helenae* sp. n. from *Maxomys surifer* (Miller, 1900), and new records of four atopomelid species of this subgenus collected from rats in Vietnam.

## Material and Methods

The mite material used for the present study was collected by A.V.B. from rats preserved in 70% ethanol. These hosts were collected by the expedition of the Zoological Institute of Russian Academy of Science (St. Petersburg, Russia) in Vietnam in the spring of 2000. All mammalian material is deposited in the Zoological Institute (St. Petersburg).



**Figs 1-2.** *Listrophoroides (L.) helenae* sp. n. (holotype ♂): 1- dorsal aspect of idiosoma; 2- ventral aspect (by A. V. Bochkov).

The description of the new species includes the measurements of the holotype and of 10 paratypes (the latter in parentheses). All measurements are given in micrometers ( $\mu\text{m}$ ). The nomenclature of the idiosomal chaetotaxy and the terminology follow Fain (1972b). Holotype and paratypes are deposited in the Zoological Institute (St. Petersburg: ZISP); some paratypes and other material are deposited in the Zoological Museum Hamburg (ZMH).

## Results

### 1. *Listrophoroides* (*Listrophoroides*) *helenae* sp. n. (Figs 1 - 4)

**MATERIAL EXAMINED.** Holotype male (ZISP coll. No T-At-N1), 30 male and 30 female paratypes, ectoparasitic on *M. surifer* (ZISP coll. No 84884), Vietnam, Ha Tinh Province, Huong Son District, Son Kim Community, 10 km S from Nuoc Sot Village, 180° 22' N, 105° 13' E, altitude 200 m., 15 April 2000, A. Abramov, A. Tikhonov coll. The holotype and 58 paratypes are deposited in ZISP; 6 paratypes - in Hamburg (ZMH Acc. No. A21/01).

**ADDITIONAL MATERIAL.** 9 ♂ and 16 ♀ from *M. surifer* (coll. No 84885 ZISP), the same location as the holotype, 16 April 2000.

**ETYMOLOGY.** The species is named in honour of Dr. Helene V. Dubinina (Zoological Institute, St. Petersburg).

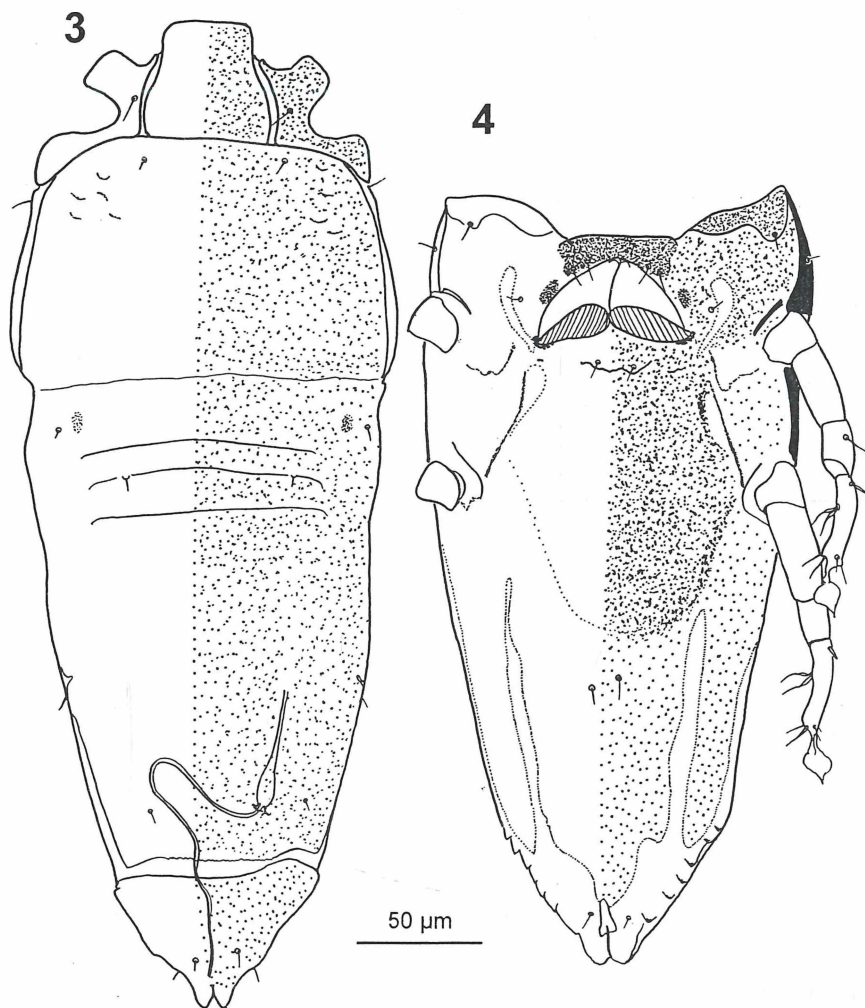
**DESCRIPTION: MALE** (holotype). Body spindle-like; length, including gnathosoma, 365 (355-370 in 10 paratypes), maximum width 145 (140-150).

**Dorsum** (Fig. 1). Postscapular shield without "scutal organs", with 2-3 very short curved furrows in anterior angles (these furrows are absent in some paratypes). Hysteronotum completely covered with the hysteronotal shield. This shield is lacking striations and is clearly separated from the postscapular shield. Posterior border of opisthosoma rounded, with small lateral projections at the bases of setae *l5*. Setae *l5* 63 (58-65) in length.

**Venter** (Fig. 2). Genital organ large, situated at level of coxae III. Penis 22 (15-22) in length. Setae *ga* situated on a small pregenital plate close to the genital organ. Postgenital shield variable in shape, bearing setae *gm*, 24 (22-33) long. Coxae III and IV covered with punctated shields. Anus situated terminal. Posterior part of opisthosoma with a pair of sclerotized lateral bands (stretching from level of setae *gp* to level of setae *ai*) and median bar from level of setae *ai* to anal slit.

**Legs** (Fig. 2). Striated membranes of coxae I normal, membranes of coxae II smaller than these of coxae I, about 25 in length and 13 in width. Epimeres II slightly divergent posteriorly, distance between their median points 10. Legs III excluding pretarsus 105 (100-110) in length, legs IV 120 (120-130) in length. Width of femora III and IV 13 (13-15) and 18 (18-20) respectively. Tarsi IV not bifurcate.

**FEMALE** (10 paratypes). Body spindle-like, length including gnathosoma 410-430, width 135-150.



**Figs 3-4.** *Listrophoroides* (*L.*) *helenae* sp. n. (paratype ♀): 3- dorsal aspect of idiosoma; 4- ventral aspect of hysterosoma (by A. V. Bochkov).

**Dorsum** (Fig. 3). Postscapular shield without "scutal organs", ornamented as in male. Hysteronotum completely covered with hysteronotal shield, with 3 similar long transversal furrows in anterior third. Lengths of these furrows 78-85, distance between them 10-11 (some specimens have additional weakly developed furrow between anterior margin of shield and first furrow). Setae *d2* situated on second furrow. Hysteronotal shield not clearly separated from postscapular shield, median part of its posterior margin multidentate. The distance between posterior margin of hysteronotal shield and body terminus 56-60. Lateral margin of opisthosoma with 6-8 scales. Spermatheca ampulliform. Terminal copulatory papilla absent.

**Venter** (Fig. 4). Propodosoma as in male. Epigynium large, 45-47 in length, 11-12 in width. Vulvar lips well developed. Opisthosoma almost completely sclerotized, without ornamentation. Posterior part of opisthosoma strongly sclerotized forming 3 unequal extensions of which two narrow laterals, about 105-120 in length, and one wide reaching anus. Distance between the tip of the median extension and terminus of the opisthosoma 22-27.

**DIFFERENTIAL DIAGNOSIS.** This new species belongs to the *rajah* species group including 10 species (Fain 1981). In males of this group, the anus is terminal or ventro-terminal, the genital organ is large and situated at level of coxae III; in females, the epigynum and the vulvar valves are well developed. The "scutal organ" is absent in both sexes.

Within this group the new species is most closely related to *Listrophoroides hemistriatus* Fain, 1976 from *M. surifer* and *Maxomys rajah* (Thomas, 1894) from Burma and Malaysia respectively (Fain 1981). *L. helenae* sp. n. is easily distinguished from this species by the following characters. In females of *L. helenae* sp. n., the postscapular shield does not have any transversal striations; the hysteronotal shield is not clearly separated from the postscapular shield and it bears 3 distinct transversal furrows (in some specimens a less distinct additional furrow is present); the proximal part of spermatheca is ampulliform (Fig. 3). In males, the postscapular shield is lacking transversal striations, the penis is 15-22 in length. In females of *L. hemistriatus*, the postscapular shield carries 3 long transversal furrows, the hysteronotal shield bears 4 well-developed transversal furrows and is clearly separated from postscapular shield, the spermatheca is gradually attenuated. In males, the postscapular shield bears transversal furrows, the penis is 30-33 in length [10 specimens examined; 27 in the holotype, according to Fain (1981)].

## 2. *Listrophoroides* (*Listrophoroides*) *hemistriatus* Fain, 1976

**MATERIAL EXAMINED.** 10 ♂, 10 ♀, ectoparasitic on *M. surifer* (ZISP, coll. No 84884), Vietnam, Ha Tinh Province, Huong Son District, Son Kim Community, about 10 km S from village Nuoc Sot, 180° 22' N, 105° 13' E, altitude 200 m., 15 April 2000, A. Abramov, A. Tikhonov coll. 7 ♂ and 8 ♀ from the same host species (ZISP, coll. No 84885) and the same location, 16 April 2000.

This species was originally described from *M. surifer* from Burma and *Maxomys rajah* from Malaysia (Fain 1981), it has never been recollected. The specimens from Vietnam correspond completely to the original description of *L. hemistriatus*.

### 3. *Listrophoroides (Listrophoroides) kinabaluensis* Fain, 1976

MATERIAL EXAMINED. 4 ♀, ectoparasitic on *M. surifer* (ZISP, coll. N 84884), Vietnam, Ha Tinh Province, Huong Son District, Son Kim Community, about 10 km south from village Nuoc Sot, 180° 22' N, 105° 13' E, altitude 200 m., 4 April 2000, A. Abramov, A. Tikhonov coll. 1 ♀ from the same host (ZISP, coll. N 84885) and same location, 16 April 2000.

This species was originally described from *Maxomys whiteheadi* (Thomas, 1894) from Borneo and *Rattus xanthurus* (Gray, 1867) from Celebes (Fain 1981), it has never been recollected. The specimens from Vietnam slightly differ from the original description of *L. kinabaluensis* by the ornamentation of hysteronotum in females. As the examined material is represented by females, it needs additional collection of males from *M. surifer* from Vietnam to decide, either the mites from this area belong to *L. kinabaluensis* or represent a new species.

### 4. *Listrophoroides (Listrophoroides) cremoriventer* Fain, 1976 stat. n.

MATERIAL EXAMINED. 10 ♀, 10 ♂, ectoparasitic on *Niviventer langbianus* (Robinson & Kloss, 1922) (ZISP, coll. N 84887), Vietnam, Ha Tinh Province, Huong Son District, Son Kim Community, about 10 km S from village Nuoc Sot, 180° 22' N, 105° 13' E, altitude 200 m., 22 April 2000, A. Abramov, A. Tikhonov coll. 20 ♂ and 20 ♀ from the same host (ZISP, coll. N 84888) and the same location, 25 April 2000. 10 ♂ and 10 ♀ from *Niviventer* sp. (ZISP, coll. N 84890) from the same location, 13 April 2000. Two specimens (♀♂) in Hamburg: ZMH Acc. No. A22/01.

This species was originally described from *Niviventer cremoriventer* (Miller, 1900) from Malaysia as a subspecies of *Listrophoroides (s.str.) hongkongensis* Fain, 1974 (Fain 1981), it has never been recollected. These two species are distinguished by the following characters. In both sexes of *L. hongkongensis*, the postscapular shield has no ornamentation in its median part; in females, the posterior third of hysteronotal shield is not ornamented; in males, the posterior end of opisthosoma is slightly concave. In both sexes of *L. cremoriventer*, the postscapular shield is ornamented in its median part; in females, the posterior third of hysteronotal shield ornamented; in males, the posterior end of opisthosoma is distinctly concave.

### 5. *Listrophoroides (Listrophoroides) pahangi* Fain, 1974

MATERIAL EXAMINED. 10 ♀, 10 ♂, ectoparasitic on *Leopoldamys sabanus* (Thomas, 1887) (ZISP, coll. N 84877), Vietnam, Ha Tinh Province, Huong Son District, Son Kim Community, about 10 km south from village Nuoc Sot Village, 180° 22' N, 105° 13' E, altitude 200 m., 13 April 2000, A. Abramov, A. Tikhonov coll. 20 ♂ and 20 ♀ from the same host (ZISP, coll. N 84879) and the same location, 17 April 2000. 10 ♂ and 10 ♀ from the same host (ZISP, coll. N 84880) and the same location, 24 April 2000. Two specimens (♀♂) in Hamburg: ZMH Acc. No. A22/01.

This species was originally described from *L. sabanus* and *Leopoldamys edwardsi* (Thomas, 1882) from Malaysia and Thailand respectively (Fain 1981), it has never been

recollected. The specimens from Vietnam correspond perfectly to the original description of this species.

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