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## Notes on Parasitic Mites from some Small Mammals in Liberia

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(with 7 figures)

### Abstract

Parasitic and phoretic mites of several families of the Sarcoptiformes and Trombidiformes incidentally found on some small mammals of Liberia are examined. Two new species: *Orycteroxenus minor* sp.n. and *O. liberiensis* sp.n. are described.

### Introduction

A series of studies on the mites parasitic of wild vertebrates in Africa south of the Sahara have been published during these last years. The countries from which this parasitic fauna is the best known are Zaïre, South Africa, and Angola. Our knowledge of other countries is still incomplete or very scarce. The collection from Liberia is of particular interest for it comes from a part of Africa where only few investigations had been performed until now.

This material has been collected by Dr. J. VOELKER between 1968 and 1971 at his helminthological studies in Liberian mammals and birds at the department of the Tropical Institute of Hamburg in Bongtown near Monrovia. The mites incidentally found were given to the Zoological Institute and Zoological Museum of the University Hamburg wherefore we are very thankful.

Our study includes several families in the Sarcoptiformes and in the Trombidiformes. The Ixodides are examined by H. HOOGSTRAAL. Mesostigmata, Trombiculidae, feather-mites, some Anoetidae and parasitic insects are not yet investigated.

Most of the material described in this paper is deposited in the Zoological Institute and Zoological Museum Hamburg, some paratypes and other specimens in Antwerpen and Nijmegen.

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## List of localities

- Beyantown**: (St. Paulville) at the upper St. Paul-River, road to Zorzor (border Bong Cty.), Lofa Cty.
- Bong - Peak**: highest level of Bong Range, ca. 400 m, Bong Cty.
- Bong Range**: collecting area between Zaweha (mountain, mine) and Bong-Peak.
- Bong - Sea**: (no topographical name) reservoir of waste water of the Bong Mine at the base of Zaweha (mine) near Bongtown.
- Bongtown**: at the western end of Bong Range (Kakata Highway), seat of Bong Mining Co. and the Dept. of Tropical Institute Hamburg, Bong Cty.
- Gengema**: St. Paul-River, above of Doubli Island, opposite to Sambeta, Bong Cty.
- Harbel**: Firestone Plantation (gum plantation), Montserrado Cty.
- Hendi**: end of Kakata Highway at the St. Paul-River opposite to Doubli Island, Bong Cty.; the collecting area extends ca. 4 km upstream til near to Sambeta and includes the region of water-pump-station of the Bong Mining Co. at the river.
- Mabahn - Kaba**: Coast-foreland near Monrovia; grassland with spread clumps of trees, swampy spots and pools; Montserrado Cty.
- Mount Gibi**: ca. 400 m, at the SE end of the Gibi Ridge, highforest, Montserrado Cty.
- Njeble**: near Bongtown, Kakata Highway, Bong Cty.; collecting area extends till Holderfarm included.
- Putu Range**: up to 750 m, Grand Gedeh Cty.; primary high-forest, the collecting area extends in circle of ca. 10 km from Bong-Mine-Camp near Peloken.
- Waidei-Creek**: little waterfalls and rapids 3 miles at the upper part of Sambeta (the Waidei-Creek takes up mountain streamlets of the Bong Range from the north and falls as a little affluent into the St. Paul-River near Sambeta).

**Suborder Trombidiformes****Family Myobiidae MÉGNIN, 1877****Genus *Radfordia* EWING, 1938****1. *Radfordia (Radfordia) brevipilis* FAIN, 1972**

*Radfordia (Radfordia) brevipilis* FAIN, 1972: 149

The species has been described from *Lophuromys* sp. with typical locality Ivory Coast. We could find it in the Liberia-material on *Lophuromys sikapusi* (TEMMINCK, 1852).

**Hosts and localities:**

Host Nr. 281 (♂), Njeble, 16. 10. 1970: 11 ♂, 15 ♀, 33 Trn, 8 Dn, 19 Prn, 14 L; host Nr. 282 (♀), Njeble, 16. 10. 1970: 1 ♀; host Nr. 292 (♂), Gengema, 20. 10. 1970: 2 ♀; host Nr. 392 (♀), Mabahn-Kaba, 6. 1. 1971: 1 ♂.

**2. *Radfordia (Radfordia) praomys* ZUMPT & COFFEE, 1971**

*Radfordia praomys* ZUMPT & COFFEE, 1971: 100

This species has been described from *Rattus natalensis* (SMITH) with typical locality Johannesburg, South Africa. FAIN (1972a) reported this species in his study on Myobiids from Angola from the following hosts: *Rattus morio jacksoni* (DE WINTON), *Rattus natalensis natalensis* (SMITH), *Mus minutoides kasaicus* CABRERA, *Lophuromys flavopunctatus rita* DOLLMAN, *Tatera afra angolae* WROUGHTON, *Grammomys dolichurus surdaster* THOMAS & WROUGHTON, *Rattus chrysophilus dollmani* HATT, *Lemniscomys striatus striatus* LINNÉ, *Mus triton* THOMAS, *Oenomys hypoxanthus hypoxanthus* (PUCHERAN), *Crocidura* sp., *Potamogale velox* (DU CHAILLU).

Because of host specificity of species of the family Moybiidae on typical host or on closely related host species, we may suggest contamination at least in Soricidae and Potamogaleidae hosts.

We have found the species on *Praomys morio* (TROUSSERT, 1881).

Hosts and localities:

Host Nr. 220 (♀), Bong Sea, 31. 8. 1970: 1 ♀; host Nr. 216 (♀), Hendi, 28. 8. 1970: 3 ♂ 3 ♀; host Nr. 375 (♂), Putu Range, 4. 12. 1970: 1 N; host Nr. 438, Waidei-Creek, 21. 4. 1971: 5 ♂ 1 ♀.

Family Psorergatidae DUBININ, 1955

Genus *Psorergates* TYRELL, 1883

1. *Psorergates muricola* FAIN, 1961

*Psorergates muricola* FAIN, 1961: 66

*Psorergates (Psorergates) muricola* FAIN, LUKOSCHUS & HALLMANN, 1966: 259; LUKOSCHUS, FAIN & BEAUJEAN, 1967: 175

The species has been described from *Lophuromys aquilus* (TRUE) from Zaïre and has been found also on *Otomys irroratus elgonis* WROUGHTON and *Hybomys univittatus* PETERS from the same locality. We do not more consider that specimens from *Apodemus sylvaticus* (LINNÉ) and *Mus musculus* LINNÉ belong to this species. In the Liberia-material we found two females on *Lophuromys sikapusi* (TEMMINCK, 1852).

Host and locality:

Host Nr. 281 (♂), Njebale, 16. 10. 1970: 2 ♀.

Suborder Sarcoptiformes

Family Glycyphagidae BERLESE, 1887

Genus *Orycteroxenus* ZACHVATKIN, 1941

*Orycteroxenus* ZACHVATKIN, 1941: 485

*Tenrecoptes* FAIN, 1967: 76; 1969: 33

1. *Orycteroxenus liberiensis* spec. nov. (figs. 1–2)

This species is distinguished from the two other species of *Orycteroxenus* from Potamogalidae by the poor development of the hairs of tibiae III–IV and of genu III. These hairs are rather thin and shortly barbed. It differs from the other species of the genus mainly by the structure of the epimera.

**Hypopus** (holotypus) (figs. 1–2): Length 264  $\mu$ , maximum width 177  $\mu$ . Dorsum uniformly and very fine punctate. Anterior propodosoma long and narrow, noselike. There is a distinct dorsal furrow between podosoma and opisthosoma. Lateral margins of opisthosoma with a pair of hooks directed forward. The posterior ends of the clasping valves bear laterally a pair of recurved hooks. Epimerae I fused in a long sternum. Epimerae II and III free. Epimerae IV incompletely fused with epimerites IV. Antero-internal clasper with 7 ridges. Postero-external clasper with 6–8 ridges. Femora and trochantres IV and trochantres III with lateral or ventrolateral sclerotized projections. A poorly-sclerotized and rounded projection is present on the lateral region of coxa IV. Coxae slightly sclerotized. Anterior legs fairly well sclerotized.

**Chaetotaxy:** dorsum hairs short and thin. Hairs of legs rather short. Hairs of tibiae and genua I–III and of tibiae IV barbed, not particularly inflated. Tarsi III–IV with one strong apical hair much thicker than the other hairs.

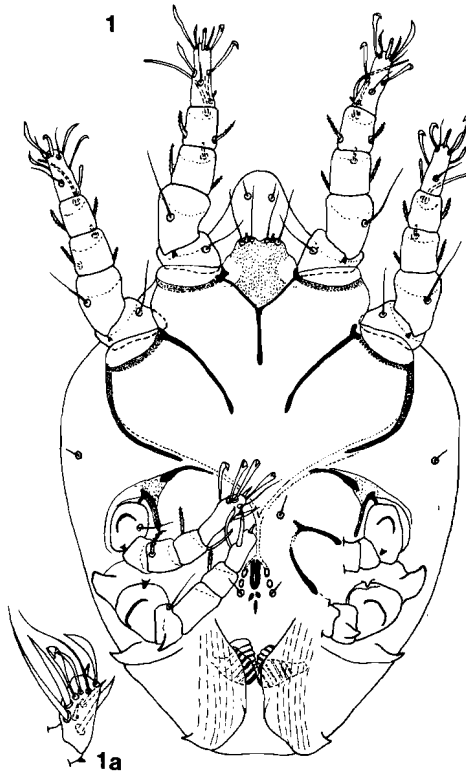


Fig. 1—1a *Orycteroxenus liberiensis* sp.n. Hypopus in ventral view (fig. 1), Tarsus IV (fig. 1a)

#### Host and locality:

On *Micropotamogale lamottei* HEIM DE BALSAC, 1954, host Nr. 401 (♂), Putu Range, Liberia, 15. 1. 1971, J. VOELKER leg. (Holotype and 3 paratypes, hypopi).

Holotype and 1 paratype in the Zoological Institute and Zoological Museum Hamburg, 1 paratype in the Institut de Médecine Tropicale Prince Léopold Antwerpen and 1 paratype in the Zoologisch Laboratorium Nijmegen.

#### 2. *Orycteroxenus minor* spec. nov. (figs. 3-4)

This species presents dorsally on the posterior half of the hysterosoma an incomplete transverse furrow. From the lateral corners of this furrow emerges a strong triangular projection pointed forward at both sides. These structures are also present in *Orycteroxenus micropotamogalei* (FAIN, 1967). Our new species differs from the latter by the smaller size of the body, the much heavier sclerotization of the coxae, the smaller development of the barbed hairs on legs III and IV, especially those of the genua III which are smaller than those of tibiae III.

Hypopus (Holotypus) (figs. 3-4): Length 165  $\mu$ , maximum width 105  $\mu$ . Dorsum well sclerotized. Lateral surfaces of opisthosoma and of coxae IV with forward-directed hooks, less developed than in *O. micropotamogalei*. Ventrally:

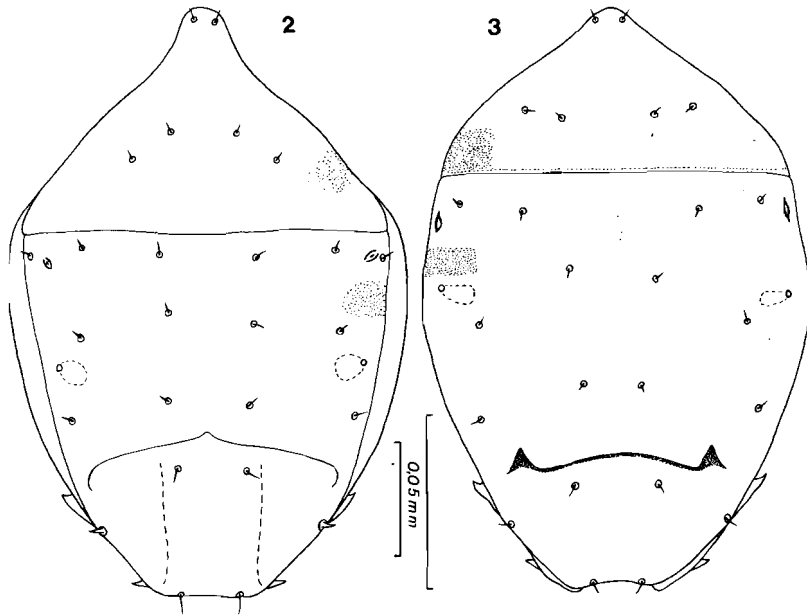


Fig. 2—3 Dorsal view of the hypopi of *Orycteroxenus liberiensis* sp.n. (fig. 2) and *Orycteroxenus minor* sp.n. (fig. 3)

all the coxae are strongly punctate. Epimera, clasp ing organ and legs as in *O. micropotamogalei*. Trochanter and femur III-IV with sclerotized projections directed basally. Palposoma bifid and with anterior margin sclerotized. Palposomal hairs very thin and relatively short.

**Host and locality:**

On *Micropotamogale lamottei* HEIM DE BALSAC, 1954, host Nr. 401 (♂), Putu Range, Liberia, 15. 1. 1971, J. VOELKER leg. (Holotype and 11 paratypes, hypopi).

Holotype and 7 paratypes in the Zoological Institute and Zoological Museum Hamburg, 2 paratypes in the Institut de Médecine Tropicale Prince Léopold Antwerpen and 2 paratypes in the Zoölogisch Laboratorium Nijmegen.

**Genus *Dermacarus* HALLER, 1880**

***Dermacarus oenomys* FAIN, 1967 (fig. 5)**

*Dermacarus oenomys* FAIN, 1967: 65; 1969: 83

This species is known only from the hypopial form. It is widespread in Central Africa and has been found on various species of Muridae (see FAIN, 1967).

In the specimens from Liberia the dorsal surface is partly covered with numerous small rounded scaly-like formations resembling those of *Dermacarus hypudaei japonicus* FAIN, 1969 (fig. 5). This structure had not been mentioned in the original description of *D. oenomys*. A new examination of the original series of this species has shown that this structure also exists in the latter though much less conspicuous. We think therefore that this structure is constant in *D. oenomys* but that it may become indistinct in old preserved specimens.

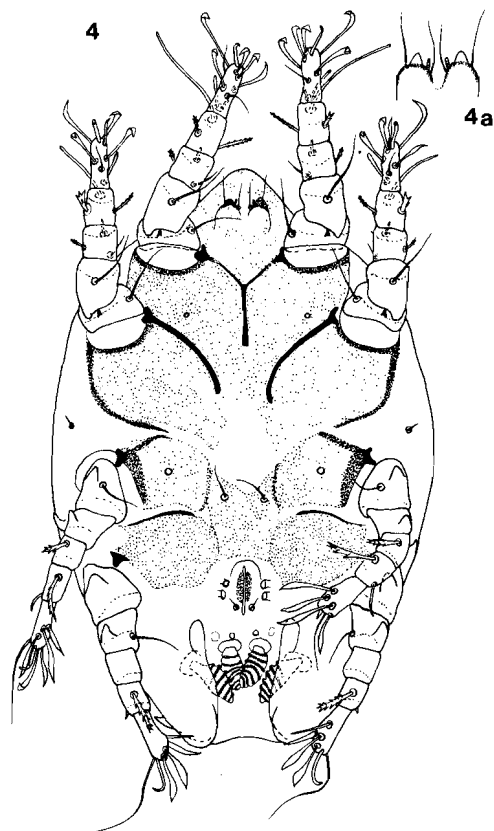


Fig. 4—4a *Orycteroxenus minor* sp.n. Hypopus in ventral view (fig. 4), Palposoma enlarged (fig. 4a)

*D. oenomys* is distinguished from all other species of the genus *Dermacarus* by the presence of two small *a i* setae.

Hosts and localities:

On *Dasymys incomtus* (SUNDEVALL, 1847) host Nr. 387 and 390 (♂), Mabahn-Kaba, 6. 1. 1971: 45 hypopi. On *Lophuromys sikapusi* (TEMMINCK, 1853), host Nr. 281 (♂), Njeble, 16. 10. 1970: 35 hypopi.

This material is deposited in the Zoological Institute and Zoological Museum Hamburg, the Institut de Médecine Tropicale Prince Léopold Antwerpen and the Zoologisch Laboratorium Nijmegen.

Genus *Lophuromyopus* FAIN, 1965

1. *Lophuromyopus* (*Lophurodentopus*) *elongatus* FAIN, 1969

*Lophuromyopus* (*Lophurodentopus*) *elongatus* FAIN, 1969: 188

The species has been found within follicles of tail of *Hybomys univittatus* PETERS from Ivory Coast. We found one hypopus in the Liberia-material on *Dasymys incomtus* (SUNDEVALL, 1847). Adults of this species are still unknown.

## Host and locality:

Host Nr. 262, Harbel, 1. 10. 1970.

## Family Listrophoridae MÉGNIN &amp; TROUËSSART, 1884

## Genus Afrolistrophorus FAIN, 1970

1. *Afrolistrophorus lophuromys lophuromys* (RADFORD, 1940)

*Listrophorus lophuromys* RADFORD, 1940: 102; ZUMPT, 1961: 304

*Afrolistrophorus lophuromys* FAIN, 1970: 282 nov. comb.

*Afrolistrophorus lophuromys lophuromys* FAIN, 1971: 32

The species has been described from *Lophuromys sikapusi* (TEMMINCK) from George Water, Sierra Leone. In his study on African Listrophoridae FAIN (1971) reported the species from typical host from Ivory Coast, Liberia and Camerun, as well as from *Grammomys spec.*, *Hybomys univittatus* PETERS, *Crocidura occidentalis* PUCH, *Rattus rattus* LINNÉ, *Rattus (Mastomys) natalensis* (SMITH), *Uranomys ruddi* DOLLMAN, *Mus musculoides* TEMMINCK, and *Lemniscomys striatus* LINNÉ. Part of them may be caused by contamination.

## Hosts and localities:

On *Lophuromys sikapusi*, the typical host, host Nr. 276 (♀), Bong Peak, 14. 10. 1970: 1 ♂ 2 ♀; host Nr. 277, Bong Peak, 14. 10. 1970: 15 ♂ 26 ♀; host Nr. 281 (♂) Njeble, 16. 10. 1970: 31 ♂ 30 ♀ 5 N; host Nr. 282 (♀), Njeble, 16. 10. 1970: 10 ♂ 15 ♀ 3 N; host Nr. 292 (♂), Gengema, 20. 10. 1970: 23 ♂ 49 ♀ 2 N; host Nr. 392 (♀), Mabahn-Kaba, 6. 1. 1971: 2 ♂ 1 ♀.

On *Praomys morio*, surely by contamination, host Nr. 305 (♂), Mount Gibi, 3. 11. 1970: 2 N.

2. *Afrolistrophorus concinnus* FAIN, 1970

*Afrolistrophorus concinnus* FAIN, 1970: 284; FAIN, 1971: 42

The species has been described from *Mus musculoides* TEMMINCK with typical locality Ivory Coast. It has been reported also from *Rattus (Mastomys) natalensis* (SMITH) and *Lophuromys sikapusi* (TEMMINCK) from Ivory Coast, from *Otomys tropicalis* THOMAS found in Zaïre and *Lemniscomys striatus* LINNÉ from Ivory Coast and Zaïre.

## Host and locality:

We found the species on typical host, *Mus musculoides*, host Nr. 290 (♂), Gengema, 20. 10. 1970: 1 ♂ 2 ♀ 4 N.

3. *Afrolistrophorus dasymys* FAIN, 1970

*Afrolistrophorus dasymys* FAIN, 1970: 283; FAIN, 1971: 47

The species has been described from *Dasymys incomtus bentleyae* THOMAS (Zaïre) and *Dasymys incomtus rufulus* MILLER (Ivory Coast).

## Hosts and localities:

We found this species on the typical host, *Dasymys incomtus*, host Nr. 262, Harbel, 1. 10. 1970: 2 ♂ 2 ♀; host Nr. 387 (♂) Mabahn-Kaba, 6. 1. 1971: 1 ♂ 5 ♀; host Nr. 390 (♂), Mabahn-Kaba, 6. 1. 1971: 5 ♀ 3 ♂.

## Family Atopomelidae GUNTHER, 1942

Genus *Listrophoroides* HIRST, 19231. *Listrophoroides (Listrophoroides) dasymys* RADFORD, 1942 (figs. 6—7)

*Listrophoroides dasymys* RADFORD, 1942: 306

*Listrophoroides (Listrophoroides) dasymys* FAIN, 1972c: 19

The female specimens from Liberia differ from the specimen described by FAIN (1972c) in his revision by the presence of two small sclerotized organs – whose

signification is unknown – on the dorsal surface of the postscapular shield. These organs have not been mentioned in this revision. As a matter of fact the female described by us was not a type nor a paratype but a specimen of our collection. This specimen was in a rather poor condition and flattened and that explains probably that these organs have not been observed. It is not to be noted, however that in our fig. 11 (FAIN, 1972c) we have given a discrete indication of these organs a little behind and laterally of the *sc i* (the posterior scapular) setae.

Since our paper of 1972c we have seen numerous new female specimens of *Listrophoroides* from rats of the genus *Dasymys* and from various localities situated in both Eastern and Western Africa. All these specimens correspond closely with our description of *L. dasymys* except that all present these small organs on the postscapular shield. These organs are more or less sclerotized depending of the specimens. Moreover *L. dasymys* has never been found in rats of another genus than *Dasymys* except for two specimens which were probably accidental contamination (see below). For these reasons we think that the specimens from Liberia belong also to the species of RADFORD.

We give here a new drawing of the postscapular shield in the female, based on a specimen from Liberia (fig. 6). In the lectotype male the posterior extremity is strongly flattened and deformed and we think it is useful to give also a new drawing of this part of the body from a specimen from Liberia (fig. 7).

Hosts and localities:

On *Dasymys incommutus* (SUNDEVALL), host Nr. 262, Harbel, 1. 10. 1970: 31 ♀ 25 ♂ 17 N; host Nr. 387 and 390 (♂), Mabahn-Kaba, 6. 1. 1971: 5 ♀ 5 ♂. On *Praomys*

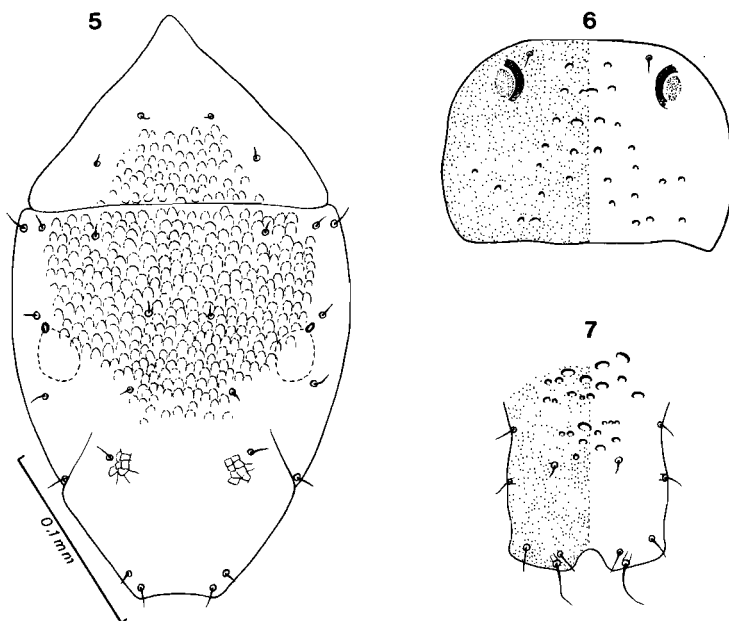


Fig. 5–7 *Dermacarus oenomys* FAIN. Hypopus in dorsal view (fig. 5) (specimen from *Dasymys incommutus* of Liberia). *Listrophoroides (Listrophoroides) dasymys* RADFORD. Postscapular shield of the female (fig. 6) and posterior extremity of the male (fig. 7) (specimens from Liberia)



*morio* (TROUSSERT), host Nr. 383 (♀), Beyantown, 30. 12. 1970: 1 ♂. On *Lophuromys sikapusi* (TEMMINCK), host Nr. 392 (♀), Mabahn-Kaba, 6. 1. 1971: 1 ♂.

2. *Listrophoroides (Olistrophoroides) africanus praomys* FAIN, 1972

*Listrophoroides (Olistrophoroides) africanus praomys* FAIN, 1972c: 68

Typical host is *Praomys tullbergi* (THOMAS) from Ivory Coast. We found the species on *Praomys morio* (TROUSSERT).

Hosts and localities:

Host Nr. 304 (♂), Mount Gibi, 3. 11. 1970: 17 ♂ 19 ♀ 6 N; host Nr. 375 (♂), Putu Range, 4. 12. 1970: 5 ♂ 3 ♀.

3. *Listrophoroides (Afrolistrophoroides) radfordi* FAIN, 1970

*Listrophoroides radfordi* FAIN, 1970: 289

*Listrophoroides (Afrolistrophoroides) radfordi* FAIN, 1972c: 99 tax. nov.

Typical host of this species is *Praomys tullbergi* (THOMAS) from Ivory Coast and Camerun. We found it on *Praomys morio* (TROUSSERT) from several localities in Liberia.

Hosts and localities:

Host Nr. 216 (♀), Hendi, 28. 8. 1970: 4 ♀; host Nr. 304 (♂), Mount Gibi, 3. 11. 1970: 2 ♂; host Nr. 305 (♂), Mount Gibi, 3. 11. 1970: 2 ♂ 1 ♀; host Nr. 375 (♂), Putu Range, 4. 12. 1970: 1 ♀; host Nr. 383 (♀), Beyantown, 30. 12. 1970; 8 ♂ 9 ♀; host Nr. 438, Waidei-Creek, 27. 4. 1971: 12 ♂ 15 ♀.

Family Gastronyssidae FAIN, 1956

Genus *Gastronyssus* FAIN, 1955

*Gastronyssus bakeri* FAIN, 1955

*Gastronyssus bakeri* FAIN, 1955: 683; FAIN, 1959: 4; FAIN, 1972b: 71

This species has been described from the stomach and intestine of the Straw-coloured Fruit-Bat, *Eidolon helvum* (KERR) at Astrida, Ruanda-Urundi. Later it was collected also in the intestine from *Rousettus leachi* (SMITH) in the cave Mahyusa in Kivu, Congo. We could point out this rarely recorded species from the typical host, *Eidolon helvum*. J. VOELKER found the blood-red specimens in the intestine, partly attached.

Host and locality:

Host Nr. 267a (♂), Harbel, 2. 10. 1970: 3 ♂ 5 ♀.

Summary

In material collected between 1968 and 1971 from some small mammals in Liberia 14 species of parasitic and phoretic mites were found. They belong to the families Myobiidae and Psorergatidae of the Trombidiformes and the families Glycyphagidae, Listrophoridae, Atopomelidae and Gastronyssidae of the Sarcoptiformes. Two species are new, *Orycteroxenus liberiensis* and *O. minor*, whose descriptions are given. Also there are given supplementary descriptions and figures of *Dermacarus oenomys* FAIN, 1967 and *Listrophoroides (Olistrophoroides) africanus praomys* FAIN, 1972 based on the Liberian material.

Zusammenfassung

Im Material, das in den Jahren 1968 bis 1971 von einigen Kleinsäugetern in Liberia abgesammelt worden ist, konnten 14 Arten parasitischer und phoretischer Milben festgestellt werden. Sie gehören zu den Familien Myobiidae und Psorergatidae der Trombidiformes und den Familien Glycyphagidae, Listrophoridae, Atopomelidae und Gastronyssidae der Sarcoptiformes. Zwei Arten sind neu für die Wissenschaft, *Orycter-*

*xenus liberiensis* und *O. minor*, deren Beschreibungen gegeben werden. Es werden außerdem ergänzende Angaben und Abbildungen von *Dermacarus oenomys* FAIN, 1967 und *Listrophoroides (Olistrophoroides) africanus praomyis* FAIN, 1972 nach Tieren aus dem Liberianischen Material gebracht.

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