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## OBSERVATIONS ON SOME ASTIGMATID MITES (ACARI) PARASITIC ON RODENTS (RODENTIA) FROM PERU, WITH DESCRIPTION OF THREE NEW SPECIES

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**ABSTRACT** - Three new species of astigmatid mites parasitic on rodents from Peru are described, i.e. *Sclerolistrophorus peruvien-sis* n. sp. and *S. longipes* n. sp. (Listrophoridae) from *Oryzomys* spp. (Sigmodontidae) and *Echimytricalges whitakeri* n. sp. (Lobalgidae) from Echimyidae. Two other species of the genus *Echimytricalges*, i.e. *E. surinamensis* Fain and *E. mesomys* Fain, are recorded for the first time from Peru. The male of *Chirodiscooides proechimys* (Atopomelidae) is described for the first time, also from Peru. Phoretic deutonymphs of *Paralabidophorus peruvien-sis* Fain (Glycyphagidae) are recorded from two new hosts, both from Peru.

**Key words** - Acari, Astigmata, Atopomelidae, Glycyphagidae, Listrophoridae, Lobalgidae, parasitic, rodents, Peru.

### INTRODUCTION

The present paper deals with the study of a small series of astigmatid parasitic mites recovered in 2000 by the junior author from various rodent hosts collected in 1998 in Peru by Chris L. Hice. All rodents originated from Loreto, 25 km south of Iquitos, Peru. This collection includes three new species of which two are in the genus *Sclerolistrophorus* Fain (Listrophoridae), i.e. *S. peruvien-sis* n. sp. and *S. longipes* n. sp. from *Oryzomys* spp. (Muridae: Sigmodontinae), and the other in the genus *Echimytricalges* Fain (Lobalgidae), i.e. *E. whitakeri* n. sp. is from *Proechimys brevicauda* and *P. cuvieri* (Echimyidae). Moreover, two other species of *Echimytricalges*, i.e. *E. surinamensis* Fain and *E. mesomys* Fain, were found for the first time in Peru. We also describe here the male of *Chirodiscooides proechimys* Fain (Atopomelidae), unknown until now. Finally we record the presence of phoretic deutonymphs of *Paralabidophorus peruvien-sis* Fain (Glycyphagidae) from two new hosts from Peru, *Oryzomys yunganus* and *O. megacephalus*.

Chaetotaxy of the body is based on Fain (1963). All measurements are in micrometers (µm).

### Family LISTROPHORIDAE

#### Genus *Sclerolistrophorus* Fain

*Sclerolistrophorus* Fain, 1976: 41.

Type species - *Sclerolistrophorus oxymycterus* Fain, 1976: 41.

This genus previously included three species of which two were from Brazil, i.e. *S. oxymycterus* Fain, 1976 (type species) from *Oxymycterus judex*, and *S. oryzomys* Fain, 1976 from *Oryzomys capito laticeps*. The third species, *S. neacomys* Fain and Lukoschus, 1980 was collected from *Neacomys tenuipes* in Colombia.

The genus *Sclerolistrophorus* is characterized by strong lateral compression and heavy sclerotization of the body and regression of chaetotaxy, most setae very short and thin or lacking in some areas. Another very unusual character is the presence in all species, except *S. longipes* and the male of *S. neacomys*, of an enigmatic organ situated in the posterolateral parts of the opisthosoma. It consists of 10 to 12 pairs of small subcuticular rounded

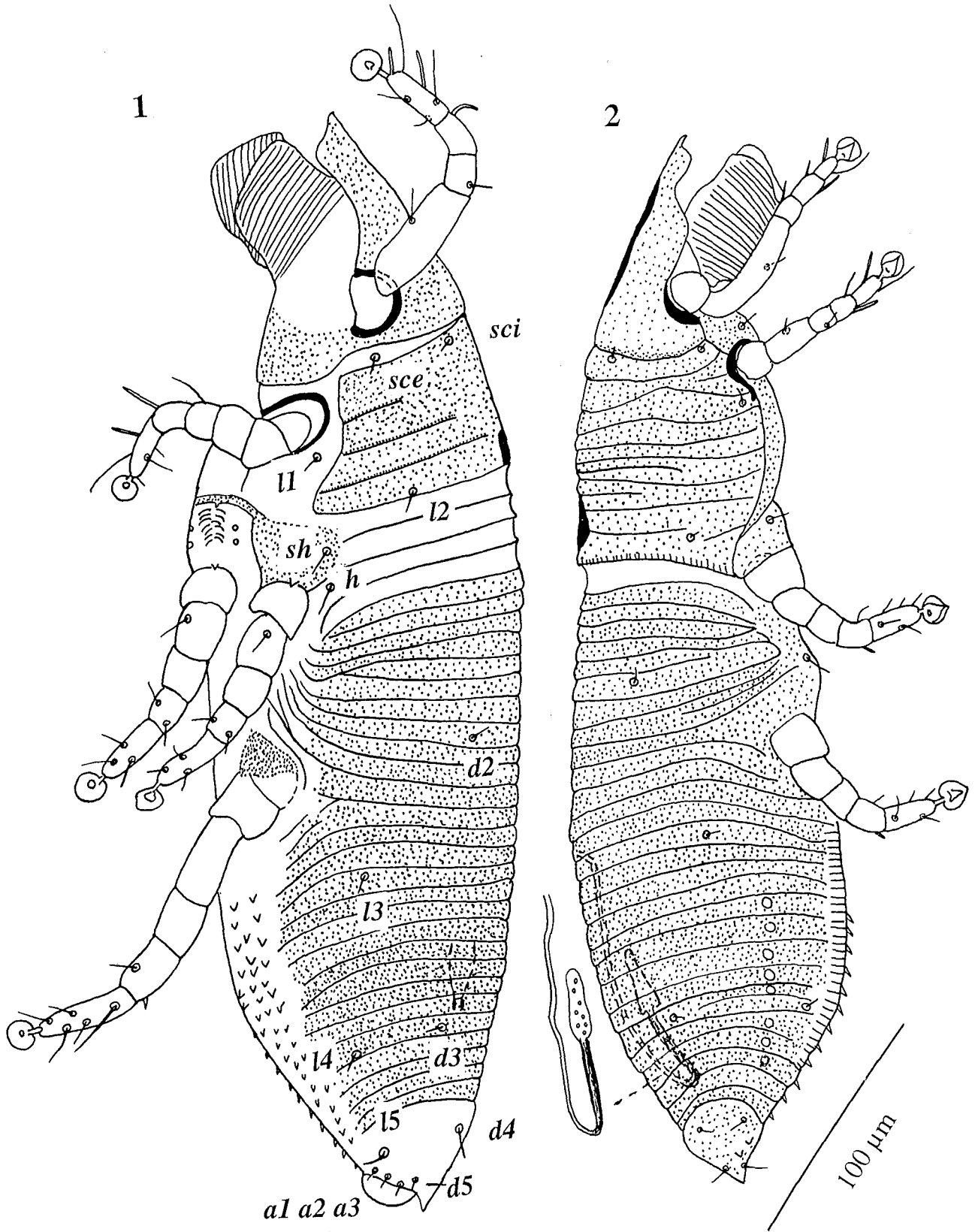


Fig. 1. *Sclerolistrophorus longipes* n. sp. - Holotype female in lateral view. Fig. 2. *Sclerolistrophorus peruviansis* n. sp. - Holotype female in lateral view.

clear spots (one pair per segment). The nature of this organ is unknown.

***Sclerolistrophorus oxymycterus* Fain**

*Sclerolistrophorus oxymycterus* Fain, 1976: 41

We found 7 females of this species from 2 different hosts: 6 from *Oryzomys megacephalus* (hosts no. 2478, 2805 and 2812) and 1 from *Oryzomys yunganus* (host no. 2557).

***Sclerolistrophorus longipes* n. sp.  
(Fig. 1)**

Female, holotype - Body 360 long, 100 wide (in lateral view); in one paratype 330 x 98. *Dorsum*: Body less sclerotized than in other species of genus; soft area separating postscapular from hysterosomal shield longer, with 4 striations. Posterolateral rounded subcuticular clear structures of opisthosoma, present in other members of genus, lacking. All dorsal setae very thin, short but distinct. Postscapular shield with 2 or 3 incomplete dark transverse lines not crossing middle of the dorsum. All tergites of hysteronomum devoid of scales or denticles. *Venter*: Opisthosoma 120 long, with numerous small triangular scales. *Legs*: Leg IV much longer (105 for 4 apical segments) than III (75 long). Bursa copulatrix: 2 small sclerites around opening of spermatheca situated at 60 from posterior end. Bursa poorly sclerotized, opens at posterior extremity on dorsum of anus.

Male - Unknown.

Hosts - Holotype from *Oryzomys megacephalus* (host no. 2805). One paratype female from *O. yunganus* (host no. 2557). Holotype in US National Museum, Washington D.C., USA.

***Sclerolistrophorus peruviansis* n. sp.  
(Fig. 2)**

Female, holotype - Body 420 long, 87 wide (in lateral view); one paratype 415 x 99. *Dorsum*: Setae strongly reduced. Two dorsal shields separated by a very short soft segment. Postscapular shield 90 long, 75 wide (in lateral view), bearing 8 - 10 thin, transverse, dark lines, most of them very long, crossing midline. Opisthonotum 180 long, without denticles on margins of segments. *Venter*: With numerous small triangular scales on opisthogaster and 10 pairs of small clear spots in posterolateral parts of opisthosoma. *Legs* III and IV 72 and 74 long, respectively (for 5 apical segments). Bursa copulatrix well-developed. Opening of spermatheca situated at 70 in front of posterior end. Bursa running backwards from opening of sper-

matheca, turning abruptly in opposite direction after a distance of 45  $\mu$ m until a point situated at 100  $\mu$ m from posterior end on dorsal surface of body. First part of bursa well sclerotized, the rest very poorly sclerotized.

Male - Unknown.

Hosts - Holotype female from *Oryzomys megacephalus* (host no. 2812), paratype female from host no. 2478. Holotype in US National Museum, Washington D.C., USA.

**Key to the genus *Sclerolistrophorus* (Females)**

1. Legs IV (5 apical segments) much longer (105) than legs III (75). Opisthosoma without lateral paired subcuticular clear spots and without denticles on margins of tergites. Soft area between postscapular and hysteronomal shield long.....*S. longipes* n. sp.
- Legs IV (5 apical segments) much shorter and equal or subequal in length to legs III. Opisthosoma with lateral paired subcuticular clear spots. Denticles on margins of tergites present or absent. Soft area between postscapular and hysteronomal shields very short .....2
2. Segments of posterior third of opisthonotum with denticulate margins ..... 3
- Opisthonotum not denticulate ..... 4
3. Opisthogaster with numerous small cuticular scales. Postscapular shield with 6 - 7 short, obliquely directed dark lines ..... *S. oxymycterus* Fain
- Opisthogaster without scales. Postscapular shield not striated ..... *S. neacomys* Fain
4. Postscapular shield with 8 - 10 dark, thin, long and transversely directed lines. Bursa bent in an unequal U, with a short strongly sclerotized proximal arm, 40 long, and a long unsclerotized distal arm ending on dorsal surface at about 120 from posterior end .....*S. peruviansis* n. sp.
- Postscapular shield with 7 very unequal dark lines (most of them very short and not crossing midline) and obliquely directed. Bursa not observed .....  
.....*S. oryzomys* Fain

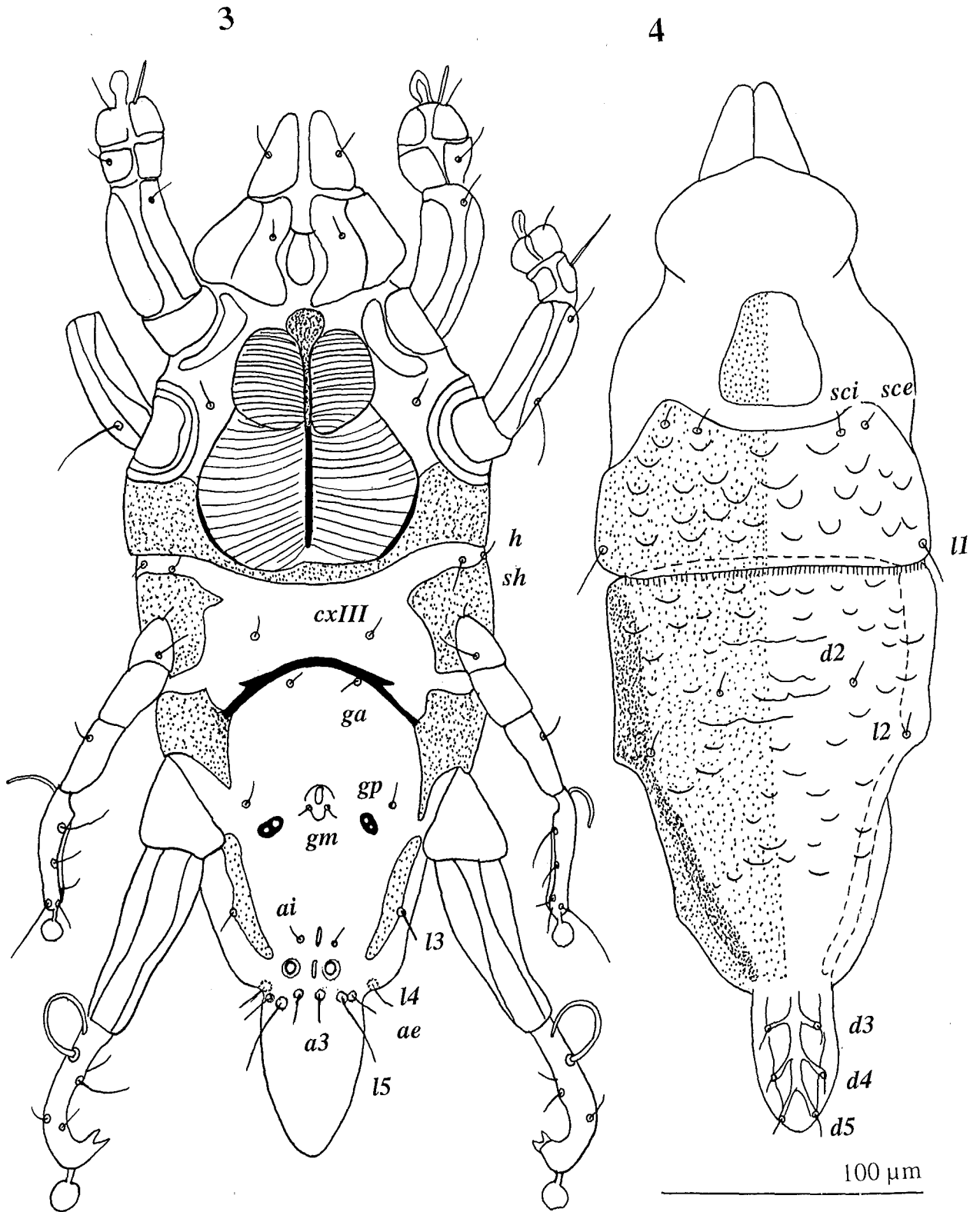
**Family ATOPOMELIDAE**

**Genus *Chirodiscoides* Hirst**

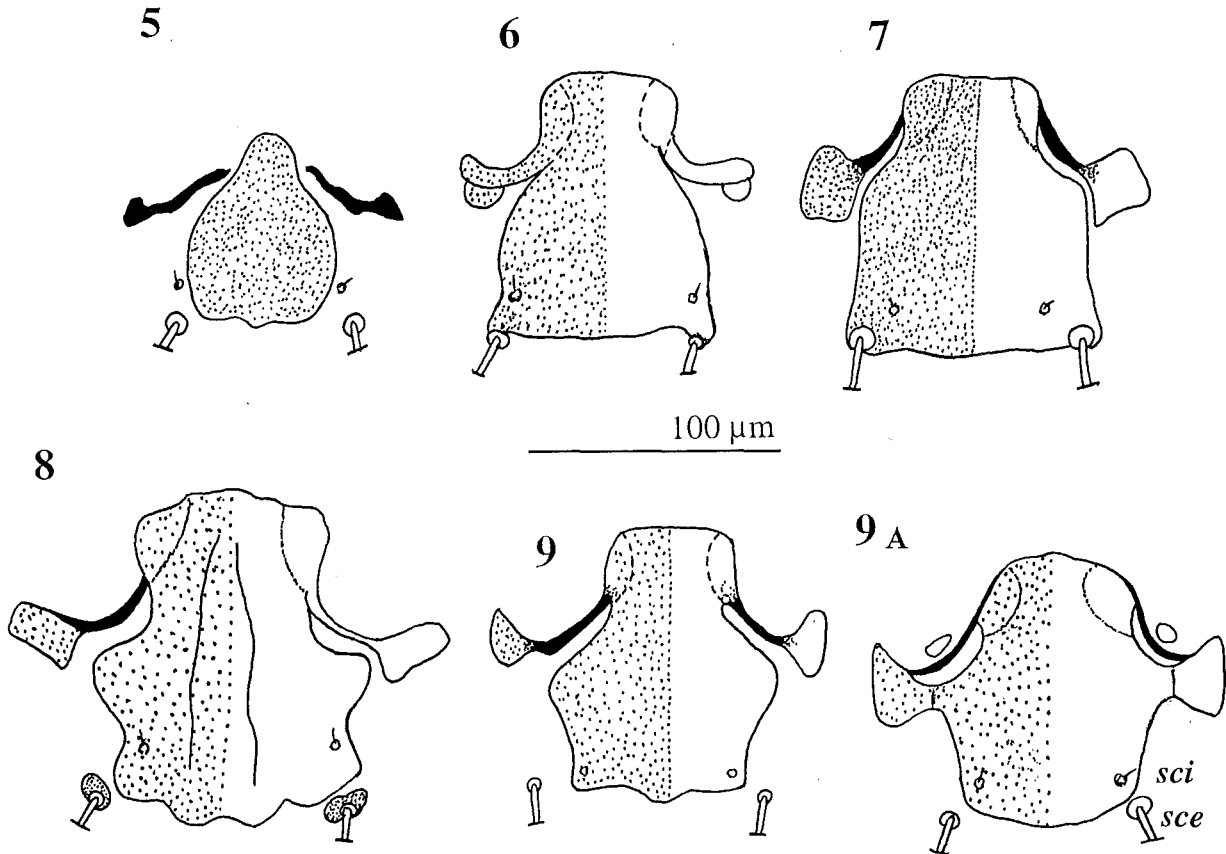
*Chirodiscoides* Hirst, 1917: 431.

Type species - *Chirodiscoides caviae* Hirst, 1917: 431.

The genus *Chirodiscoides* included until now 11 species, 6 are represented only by females. All the species



Figs. 3-4. *Chirodiscoides proechimys* Fain, 1979 (male) - 3. Ventral view, 4. Dorsal view.



Figs. 5-9. Propodonal shield in the males of *Echimytricalges* spp. - 5. *E. whitakeri* n. sp., 6. *E. brasiliensis* Fain, 1970, 7. *E. mesomys* Fain et al., 1982, 8. *E. hoplomys* Fain et al., 1982, 9. *E. guyanensis* Fain, 1970, 9A. *E. surinamensis* Fain and Lukoschus, 1970.

parasitize neotropical mammals, mostly Echimyidae and Caviidae, more rarely marsupials and exceptionally carnivores.

***Chirodiscoides proechimys* Fain  
(Figs. 3-4)**

*Chirodiscoides proechimys* Fain, 1972: 245.

This species was known only from females collected from *Proechimys guyanensis* in Surinam. The females that we collected in Peru correspond perfectly with the typical specimens. The male is described here for the first time.

Male (from *Proechimys brevicauda*) - Body, including gnathosoma, 350 long, maximum width 123. In 2 other specimens 375 x 132 and 355 x 129. *Dorsum*: Two dorsal shields bear cuticular scales. Development of scales varies between individuals. Posterior lobe 54 long, 30 wide. *Venter*: Epimera IV fused in midline. Adanal suckers represented by 2 small rings 4 to 5 in diameter. Gnathosoma 51 long, 66 wide. Tibiotarsus IV abruptly

bent, 53 long (in straight line), bearing a long curved solenidion near its base.

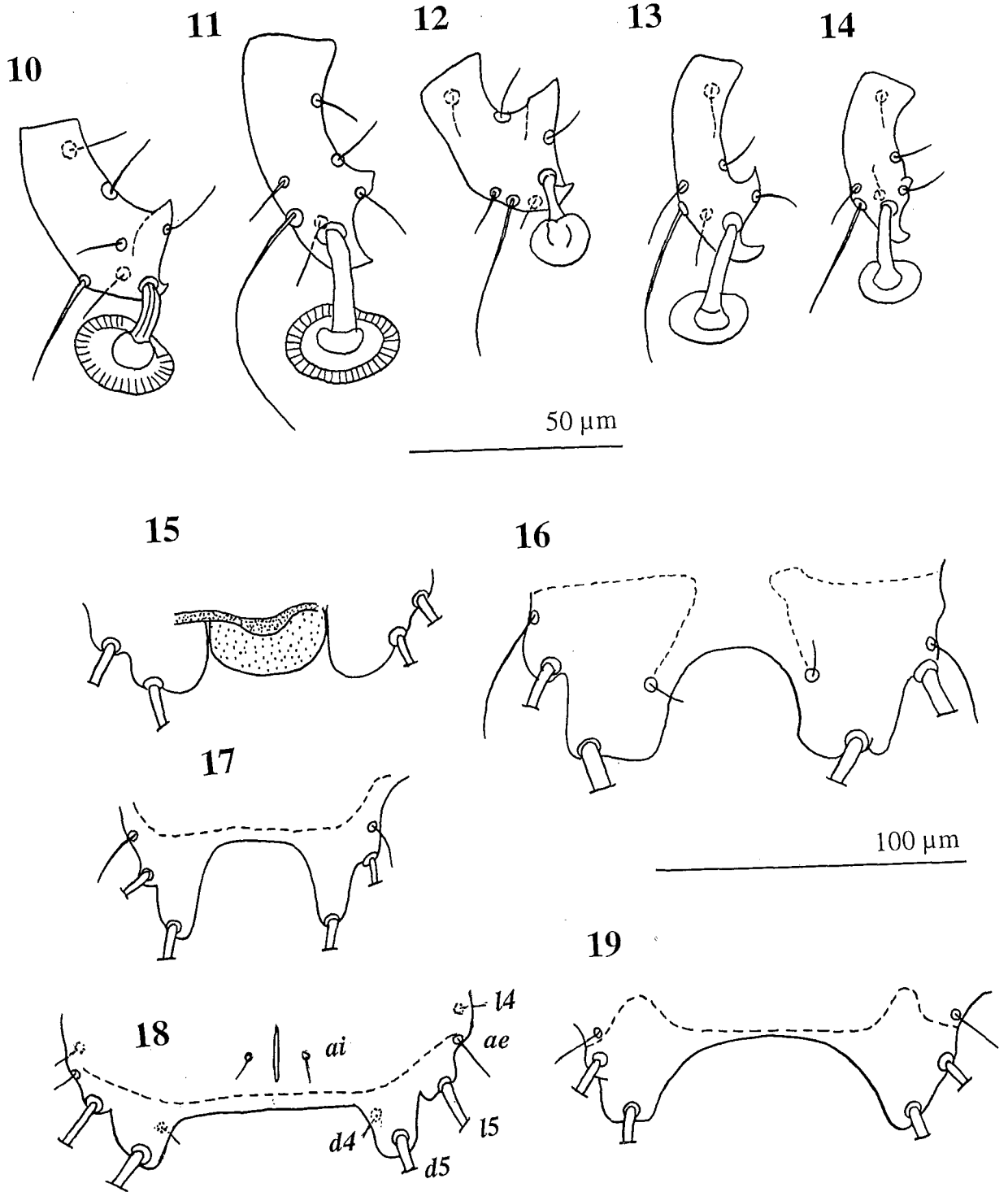
Hosts - Ten males, 18 females and 2 nymphs were collected from 3 different hosts: *Proechimys brevicauda* - 3 females (host no. 2654), 2 males (host no. 2627), 2 females and 2 males (host no. 2629), 1 male (host no. 2792); *Proechimys cuvieri* - 2 females (host no. 2806), 4 males, 4 females and 2 nymphs (host no. 2590); *Proechimys quadriplicatus* - 3 females (host no. 2780), 4 females and 1 male (host no. 2657).

**Family LOBALGIDAE  
Subfamily ECHIMYTRICALGINAE**

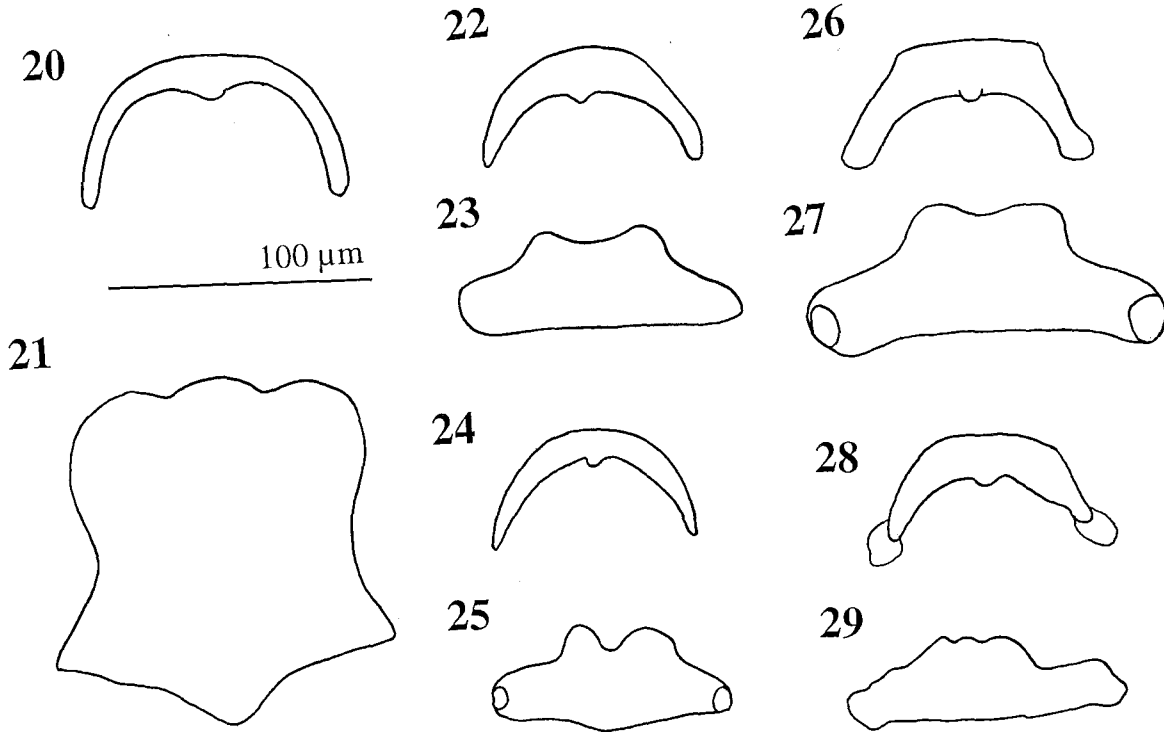
**Genus *Echimytricalges* Fain**

*Echimytricalges* Fain, 1970: 272.

Type species - *Echimytricalges brasiliensis* Fain, 1970: 272.



Figs. 10-14. Tarsi IV in the males of *Echimytricalges* spp. - 10. *E. mesomys*, 11. *E. hoplomys*, 12. *E. brasiliensis*, 13. *E. surinamensis*, 14. *E. whitakeri* n. sp.  
 Figs. 15-19. Posterior extremities of the females of *Echimytricalges* spp. (ventral view) - 15. *E. mesomys*, 16. *E. hoplomys*, 17. *E. whitakeri* n. sp., 18. *E. surinamensis*, 19. *E. brasiliensis*.



Figs. 20-29. Epigynium and mediodorsal shield in the females of *Echimytricalges* spp. - 20-21. *E. mesomys*, 22-23. *E. surinamensis*, 24-25. *E. whitakeri* n. sp., 26-27. *E. brasiliensis*, 28-29. *E. hoplomys*.

Fain (1970), in the family Lobalgiidae, erected a new genus *Echimytricalges* for two new species of mites parasitizing South American mammals, i.e. *E. brasiliensis* Fain, 1970 (type species) from *Echimyris braziliensis* (Echimyridae) from Brazil and *E. guyanensis* Fain, 1970 from *Philander philander*, a marsupial of French Guyana. Owing to some important differences between *Lobalges* and *Echimytricalges* he created a new subfamily Echimytricalginae for the latter. A third species was described in this genus by Fain and Lukoschus, also in 1970, *E. surinamensis*, from *Proechimys g. guyanensis* from Surinam. In 1982, Fain *et al.* described 2 new species from Echimyridae, i.e. *E. hoplomys*, from *Hoplomys gymnurus* from Panama and *E. mesomys* from *Mesomys* sp. from Colombia. They provided in their paper the first drawings of *E. brasiliensis* and *E. guyanensis* and proposed a key to all the known species in this genus.

We describe here a new species in the genus, and provide new records for *E. surinamensis*.

***Echimytricalges guyanensis* Fain  
(Fig. 9)**

*Echimytricalges guyanensis* Fain, 1970: 272.

This species is represented only by the holotype male found on a marsupial, *Philander philander*, in

French Guyana. It differs from the male of *E. surinamensis*, the closest species, mainly by a different shape of propodonotal shield which is lobate laterally and not fused, with lateral punctate areas as in this species (Figs. 9 and 9A).

***Echimytricalges surinamensis* Fain & Lukoschus  
(Figs. 5, 9A, 13, 18, 22, 23)**

*Echimytricalges surinamensis* Fain and Lukoschus, 1970: 58.

This species has now been found in Peru from two new hosts: *Proechimys quadriplicatus* - 2 females (host no. 2657), 5 males and 2 females (host no. 2780) and *Proechimys cuvieri* - 1 female and 1 male (host no. 2590) and 3 females and 1 nymph (no. 2806).

***Echimytricalges mesomys* Fain, Lukoschus & Mendez  
(Figs. 7, 10, 15, 20, 21)**

*Echimytricalges mesomys* Fain, Lukoschus and Mendez, 1982: 127.

This species was described from *Mesomys* sp. (probably *M. hispidus*) from Colombia. We collected 1 female

and 1 male from *Mesomys hispidus* (host no. 2586) collected in Peru.

***Echimytricalges whitakeri* n. sp.**  
(Figs. 5, 14, 17, 24, 25)

Female, holotype - Body 450 long (in midline, gnathosoma included), 180 wide. In 2 paratypes: 438 x 160 and 426 x 165. *Dorsum*: Propodonal shield 96 long, 80 wide. Anterolateral punctate areas poorly developed and widely separated from propodonal shield. Setae *see* set on small punctate plates connected with shield. Mediodorsal shield wider (93) than long (maximum length 93). Paired opisthonotal plates extending on posterior lobes, total length 135, maximum width 45. Distance *15-15* 57. Posterior extremity ending into 2 sclerotized lobes about 30 long and 12 wide in posterior half. Setae *15* 80 long. Setae *h* very thick, 45 long. *Venter*: Sternum very thick, with posterior branches slightly divergent and not reaching epimera II. Epigynium regularly rounded, maximum width 80.

Male - Total length in midline and width in 3 paratypes: 330 x 180, 331 x 185 and 338 x 186. Cuticular striations well developed. Propodonal shield 90 long, 63 wide, with lateral convex margins. The anterolateral punctate areas very small and widely separated from propodonal shield. Hysteronotal shield 120 long, 90 wide (maximum). Diameter of adanal suckers 9 and 33 apart. Distance *15-15* 90. Tarsus IV 42 long, normal in shape and slightly curved apically.

Hosts - All specimens were collected at Loreto, Peru from two different hosts: *Proechimys brevicauda* - holotype female, 2 paratype female and male (host no. 2654); 1 female and 1 male paratypes (host no. 2606); 1 female and 1 male paratypes (host no. 2792); 1 male paratype (host no. 2800); 1 male paratype (host no. 2590); *Proechimys cuvieri* - 1 female paratype (host no. 2806).

This species is named for Prof. John O. Whitaker Jr., Professor of Life Sciences, Indiana State University, USA.

**Key to the genus *Echimytricalges* Fain**

**Females**

1. Sternum fused posteriorly with epimera II. Mediodorsal shield very large, as long as wide (Fig. 21)...  
..... *E. mesomys* Fain *et al.*  
Sternum free posteriorly. Mediodorsal shield much wider than long ..... 2
2. Small species: body 450 long, distance *d5-d5* 52, posterior lobes of body narrow, parallel or subparallel, 30

- long and 12 wide in posterior half (Fig. 17)  
..... *E. whitakeri* n. sp.  
Larger species: body length 550-580 long, distance *d5-d5* 78 - 100 ..... 3
3. Cuticular striations very poorly developed. Posterior lobes 18, thick in posterior half. Distance *d5-d5* 90 (Fig. 19). Lateral opisthonotal shields abruptly and markedly narrower in posterior third.....  
..... *E. brasiliensis* Fain  
Body striations normally developed. Lateral opisthonotal shields progressively and more slightly narrowed in posterior third ..... 4
4. Posterior lobes 30 thick in apical half. Distance *d5-d5* 85 (Fig. 16) ..... *E. hoplomys* Fain *et al.*  
Posterior lobes slightly divergent, 25 long, 18-20 wide in apical half. Distance *d5-d5* 80-85 (Fig. 18).....  
..... *E. surinamensis* Fain and Lukoschus

**Males**

1. Sternum fused with epimera II. Propodonal shield 120 long, 105 wide (Fig. 7) ..... *E. mesomys*  
Sternum free ..... 2
2. Propodonal shield very small (90 long, 63 wide) with lateral margins strongly convex. Anterolateral punctate areas very small and widely separated from median shield (Fig. 5). Tarsus IV normal in shape, 42 long (Fig. 14). Distance *15-15* 78.....  
..... *E. whitakeri* n. sp.  
Propodonal shield 105 - 150 long, 90 - 120 wide, with lateral margins not strongly convex. Anterolateral punctate areas well developed. Tarsus IV longer (51- 61), with a strong apicoventral projection (Figs. 10-13) ..... 3
3. Propodonal shield very large (150 long, 120 wide), with large lateral lobes (Fig. 8). Distance *15-15* 155. Tarsus IV 63 long (Fig. 11). Diameter of adanal suckers 18 ..... *E. hoplomys*  
Propodonal shield much smaller, without lateral lobes ..... 4
4. Tarsus IV 41 long, with a large ventroapical triangular projection (Fig. 12). Distance *15-15* 105. Diameter of adanal suckers 18. Propodonal shield 105 long, 90 wide, not fused with small anterolateral punctate areas (Fig. 6) ..... *E. brasiliensis*  
Tarsus IV 48-55 long, with a much smaller apicoventral projection (Fig. 13). Distance *15-15* 120. Adanal suckers smaller (15-16) ..... 5
5. Propodonal shield with lateral margins free and lobate, widely separated from lateral punctate areas (Fig. 9). Tarsus IV 48 long ..... *E. guyanensis*



Propodonotal shield fused with lateral punctate areas (Fig. 9A). Tarsus IV 55 long (Fig. 13).....  
 ..... *E. surinamensis*

**Family GLYCYPHAGIDAE**  
**Subfamily METALABIDOPHORINAE**

**Genus *Paralabidophorus* Fain**

*Paralabidophorus* Fain, 1969: 139.

Type species - *Paralabidophorus guatemalensis* Fain, 1969: 140.

***Paralabidophorus peruviensis* Fain**

*Paralabidophorus peruviensis* Fain, 1969: 143.

This species was described from *Oryzomys laticeps nitidus* from Central Peru. It is now found in Peru from 2 different hosts: *Oryzomys yunganus* - 2 deutonymphs (host no. 2557) and *Oryzomys megacephalus* - 3 deutonymphs (host no. 2812).

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