

## PARASITIC MITES OF SURINAM

### XI. FOUR NEW SPECIES OF THE GENUS PSORERGATOIDES FAIN, 1959, (PSORERGATIDAE: TROMBIDIFORMES)<sup>1)</sup>

by

F. S. LUKOSCHUS <sup>2)</sup>,

P. G. ROSMALEN <sup>2)</sup>,

and

A. FAIN <sup>3)</sup>

#### ABSTRACT

Four new species of genus *Psorergatoides* Fain, 1959, itch mites of bats are described and figured in detail. *P. glossophagae* sp. n. was collected from *Glossophaga soricina*; *P. indicicola* sp. n. from *Saccopteryx bilineata* and *S. canescens*; *P. artibeii* sp. n. from *Artibeus lituratus fallax* and *P. molossi* sp. n. from *Molossus molossus* and *M. ater*. The most important data for all the known species of the genus are given in several tables. Histological investigations indicate low grade pathogenicity. Host-parasite list is added.

#### INTRODUCTION

This study is a continuation of investigations on Psorergatidae, itch mites of bats from Europe, Africa, Venezuela, New Guinea, and Burma (Fain, 1959a, b, Lukoschus, 1967).

In observations of Surinam bats one of us (F.L.) succeeded in finding new species, deviating in many characteristics from those of the Old World. They are described below.

#### 1. *Psorergatoides glossophagae* spec. nov.

**F e m a l e** (holotype): Shape of body as in other species of genus. Length including gnathosoma 172  $\mu$ , average for 20 paratypes measured 177  $\mu$  (166—191), width 151  $\mu$ , in paratypes  $\emptyset$  153  $\mu$  (143—179). **V e n t e r** (Fig. 1). Cuticle soft. Epimerae I and II fused. Ventral setae (*v s*) 5—6  $\mu$ , distance between ventral setae 15  $\mu$  (15—20). Genital opening (*V u*) 10  $\mu$ , lying between two adanal lobes, each of which carries a pair of terminal setae (*t s*) of 24  $\mu$  (20—25). The legs are inserted ventrolaterally. Legs with five free segments. All trochanters (*T r*) have a small ventral spur, more sclerotized than basal part of segment, and one seta of 8  $\mu$ . Femora (*F e*) of all legs with small prominent ventral spur and only one posterolateral seta of 12  $\mu$  on femora I—III, and 14  $\mu$  on femur IV. Genua (*G*) with a very small postero-lateral seta. Tibiae (*T i*) with a club-like spine antero-ventrally (Fig. 2) and dorso-median seta (Fig. 3). Tarsi (*T a*) with a 16  $\mu$  long dorso-anterior (*d a*) and 16  $\mu$  long dorso-posterior seta (*d p*). Spines on tarsi two-

<sup>1)</sup> Investigation conducted by Dr F. Lukoschus with the aid of Grant W 83—1 by the Netherlands Foundation for the Advancement of Tropical Research (WOTRO).

<sup>2)</sup> Zoological Institute, Catholic University of Nijmegen, the Netherlands.

<sup>3)</sup> Institut de Médecine Tropicale Prince Léopold, Antwerp, Belgium.

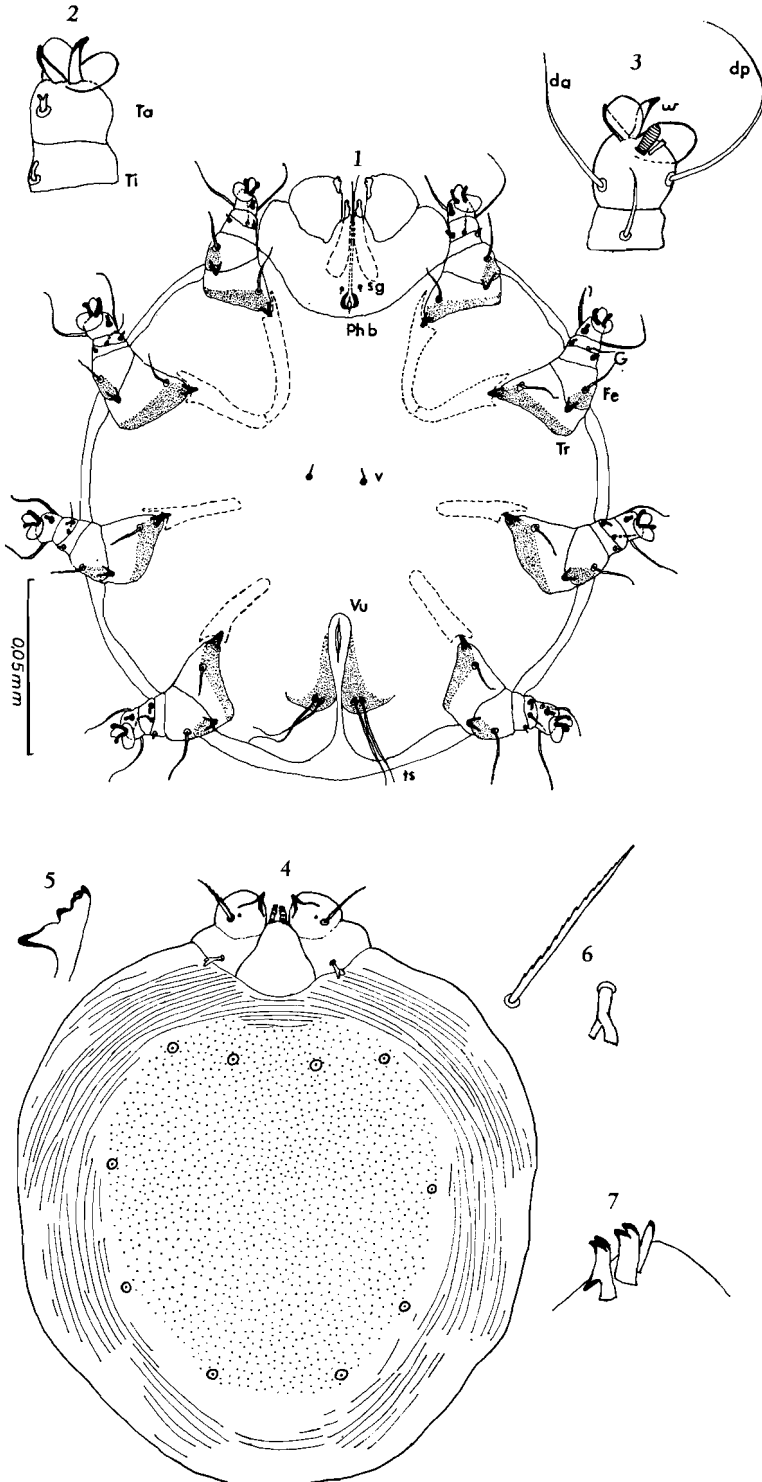


Fig. 1—7. *Psorergatoides glossophagae* sp. n. Female. 1, holotype ventrally; 2, leg I tarsus and tibia ventrally; 3, leg I dorsally; 4, holotype dorsally; 5, chelicera of a squashed paratype in lateral view; 6, gnathosoma and palptibia setae; 7, palptarsus of a squashed paratype

pointed. Two one-pointed claws and two-lobed empodium are inserted ventrally to the end of tarsi. Tarsi I and II dorsally with two solenidia ( $w$ ), the dorsomedial bulbous, lateral solenidion lying inside a fold of the epidermis. **Dorsum** (Fig. 4). Dorsal shield sclerotized and distinctly punctured, soft parts striated. Length of dorsal shield  $117 \mu$ , in paratypes  $\emptyset 118 \mu$  (110—124), width  $103 \mu$ , paratypes  $\emptyset 103 \mu$  (99—106). Four pairs of point-like lateral setae and a pair of antero-paramedian setae on the shield. **Gnathosoma** ventrally with short subgnathosomal setae ( $sg$ ) in front of an oval-shaped pharyngeal bulb, dorsally with two-lobed, dentated  $5-6 \mu$  long gnathosoma setae (Fig. 6). Palps two-segmented. Palptibia dorsally with a strong  $16 \mu$  saw-like posterior seta, point-like anterior seta and conical dorsal spur. Palptarsus with two claws and a spine (Fig. 7) inserted medio-ventrally. Chelicerae with dentated digitus fixus (Fig. 5) directed dorsally and stinging bristles.

**Male** (allotype): Shape and body like in other *Psorergatoides*-species. Length including gnathosoma  $170 \mu$ , average in 20 paratypes  $169 \mu$  (156—179), width  $135 \mu$ , in paratypes  $\emptyset 131 \mu$  (117—140). **Venter** (Fig. 8). Like female, but with only one median tubercle without terminal setae. Setation of legs somewhat shorter than in female, measurements in table II. **Dorsum** (Fig. 9). Dorsal shield sclerotized and distinctly punctured with median longitudinal furrow behind genital opening. Four pairs of point-like lateral setae evenly spaced along lateral border of shield and two pairs of short setae near genital opening, anterior pair  $8 \mu$  apart, posterior  $8 \mu$  apart. Penis simple, pointed,  $24 \mu$  long, in paratypes  $\emptyset 24 \mu$  (19—29); penis sheath  $13 \mu$ , in paratypes  $13-16 \mu$ .

### Developmental stages

**Egg**: Thin-shelled, almost round  $\emptyset 104 \mu$  (97—111).

**Larva** (Fig. 10): Disc-shaped with three pairs of two-segmented legs. Length average in 9 specimens measured  $120 \mu$  (104—143), width  $\emptyset 109 \mu$  (97—127). Cuticle soft, in some specimens with indistinct irregular striation. Epimerae short, indistinct, trochantères without ventral spur, segments femur to tarsus fused, forming a flattened unit with two trifid claws. Ventro-posterior spur of this unit is homologous with femoral spur of adults. Gnathosoma (Fig. 11) almost as large as in adults with palptibia seta of  $8 \mu$ .

**Protonymph** (Fig. 12): Length including gnathosoma (measurements of 6 specimens)  $\emptyset 111 \mu$  (94—123), width  $\emptyset 96 \mu$  (89—114). Disc-shaped like larva, but with four pairs of two-segmented legs. Gnathosoma (Fig. 13) with  $10 \mu$  long palptibia seta.

**Deutonymph** (Fig. 14): Length (measurements of 3 specimens)  $\emptyset 150 \mu$  (142—163), width  $121 \mu$  (116—114). Legs I and II with distinct solenidia. Gnathosoma (Fig. 15) with palp-tibia seta of  $12 \mu$ .

**Type host**: *Glossophaga soricina* (Pallas, 1766).

**Type locality**: Leonsberg, Surinam, 27.XII.1969.

**Pathology**: The mites live in the epidermis of the wing, causing hyperkeratosis and hypertrophy of connective tissues. Parasitized places of wing membrane are uncoloured, thickened and not foldable.

**Deposition of types**: Holotype ♀ and allotype ♂ in Rijksmuseum van Natuurlijke Historie Leiden, coll. nr P 1222—3. Paratype ♀ and ♂: Muséum National d'Histoire Naturelle, Paris, coll. nr 55 J 6—7; British Museum (Natural History) Lon-

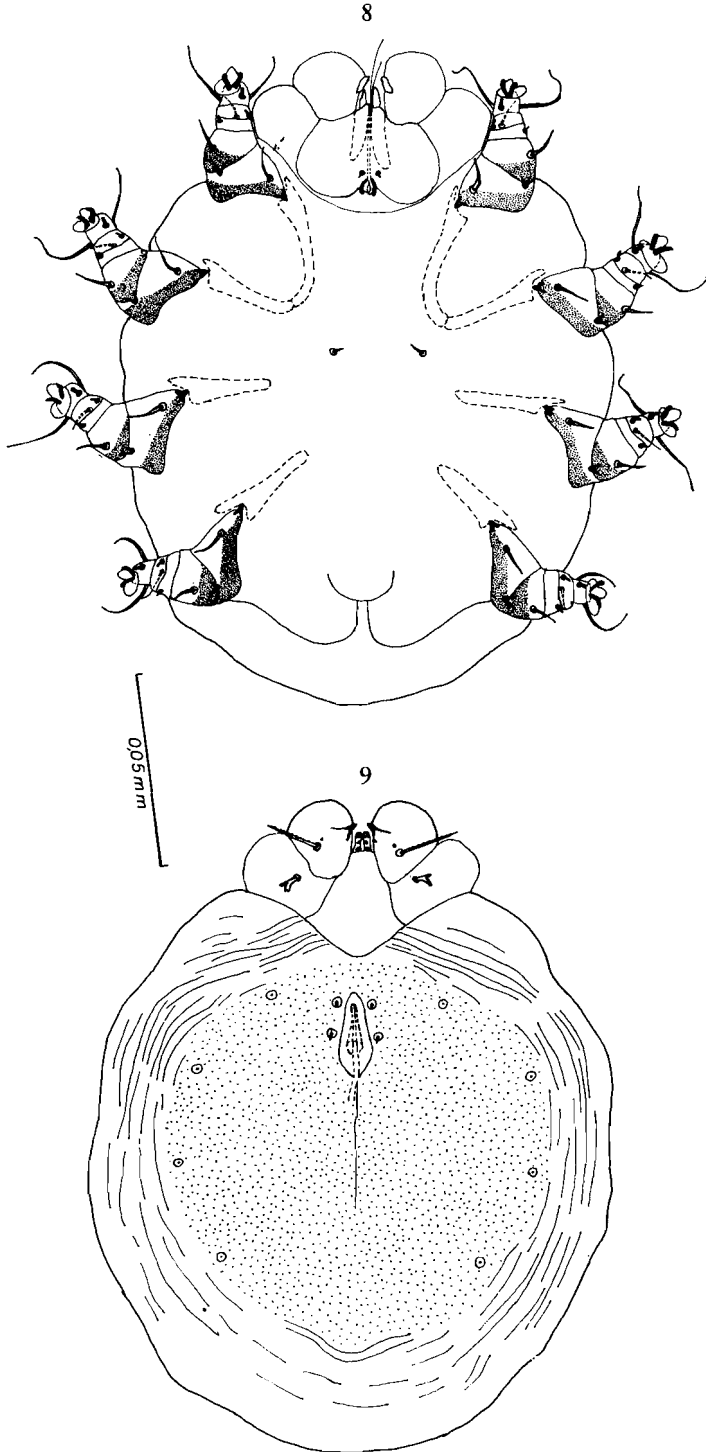


Fig. 8—9. *Psorergatoides glossobagae* sp. n. Male. 8, allotype ventrally and 9, dorsally

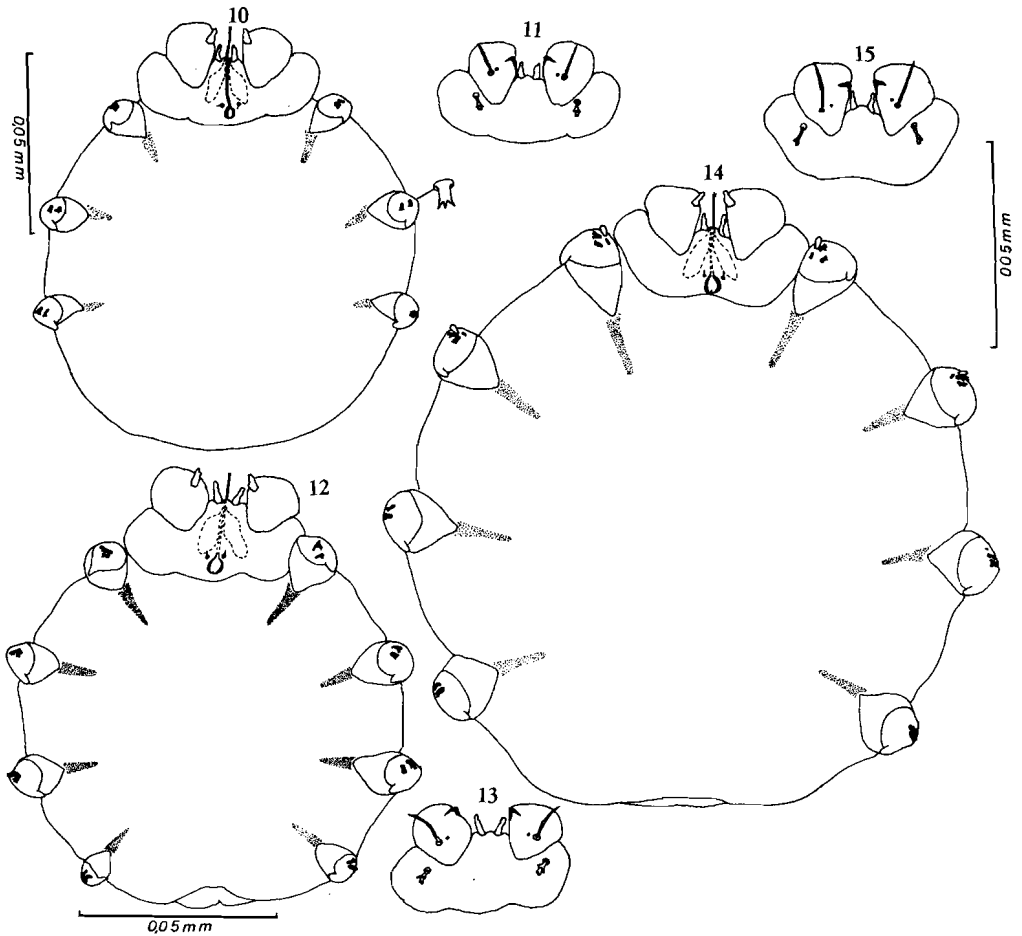


Fig. 10—15. *Psorergatoides glossophagae* sp. n., developmental stages. 10, Larva ventrally; 11, gnathosoma of larva dorsally; 12, protonymph ventrally; 13, gnathosoma of protonymph dorsally; 14, deutonymph ventrally; 15, gnathosoma of deutonymph dorsally

don, coll. nr 1971/169—170; National Collection of Surinam, Paramaribo; Field Museum of Natural History, Chicago; Institute of Acarology, Columbus, Ohio; Smithsonian Institution, U.S. National Museum, Washington; Institut Pasteur, Cayenne 71.04—05.06; Institut de Médecine Tropicale Prince Léopold, Antwerpen; Zoologisches Staatsinstitut und Zoologisches Museum, Hamburg A 28/71; Zoölogisch Laboratorium, Nijmegen.

2. *Psorergatoides indicicola* spec. nov.

Female (holotype): Shape like in other species of genus *Psorergatoides*, however remarkable by the two-pointed tarsal claws and the absence of ventral setae, genu setae and spine of tibiae. Length including gnathosoma 177  $\mu$ , average in 20 paratypes 170  $\mu$  (156—186), width 149  $\mu$ , in paratypes  $\varnothing$  144  $\mu$  (136—154). Venter (Fig. 16). Cuticle soft, unstriated. Epimerae I straight without connection to epimerae II. Ventral

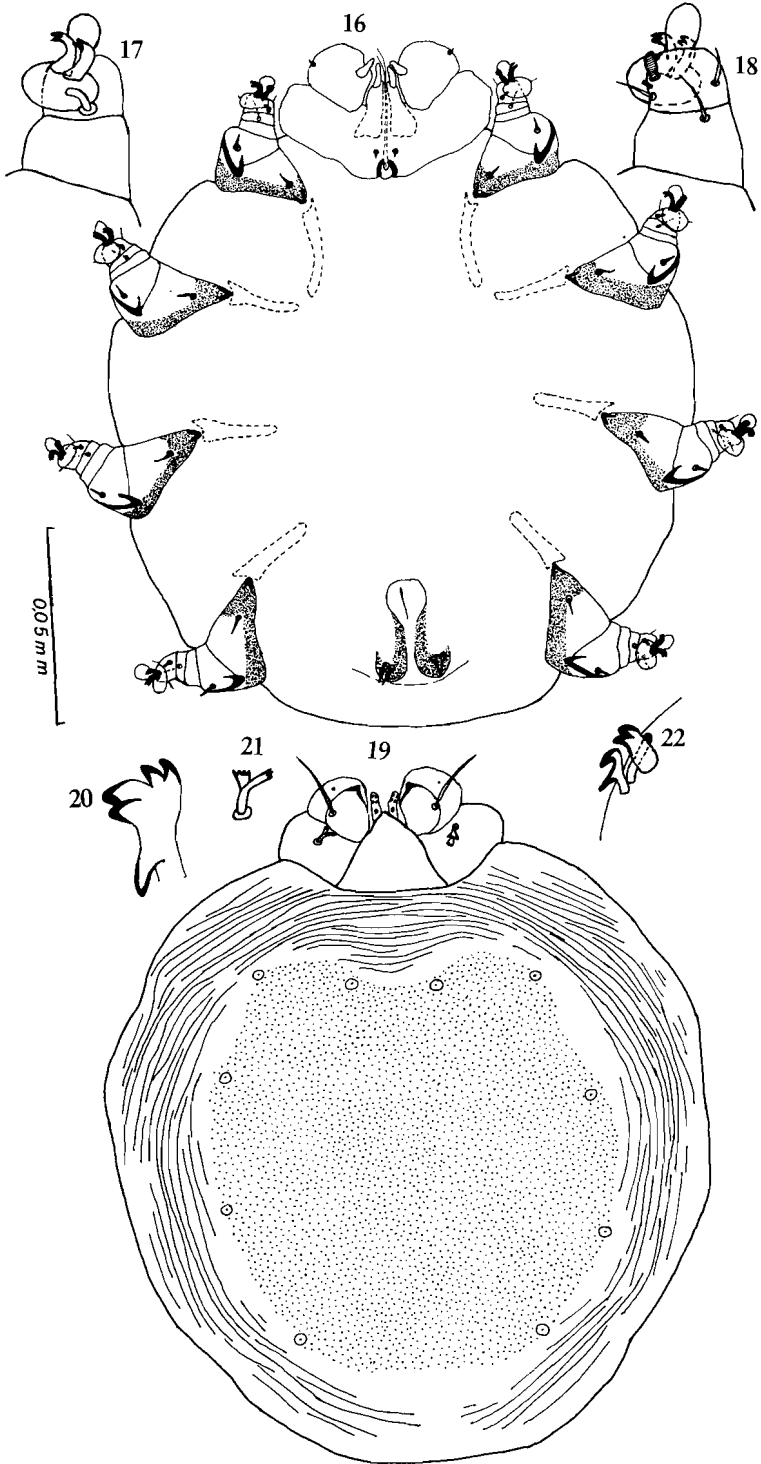
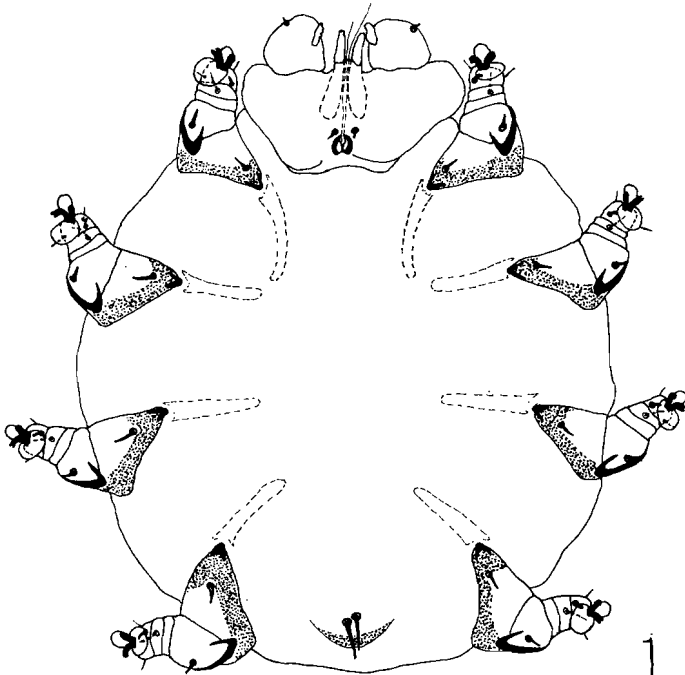


Fig. 16—22. *Psorergatoides indicicola* sp. n. Female. 16, holotype ventrally; 17, leg I ventrally; 18, leg I dorsally; 19, holotype dorsally; 20, chelicera of a squashed paratype in lateral view; 21, gnathosoma seta; 22, palptarsus of a squashed paratype

23



24

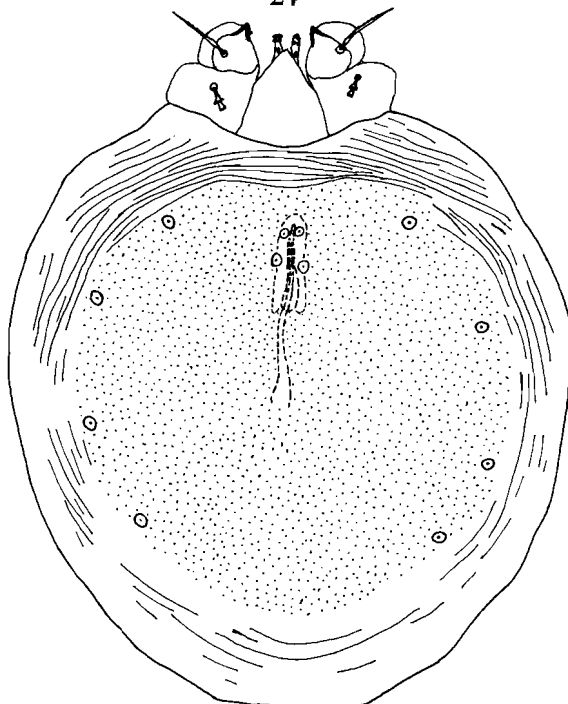


Fig. 23—24. *Psorergatoides indicicola* sp. n. Male. 23; allotype ventrally; 24, dorsally

setae lacking in all paratypes. Trochanteres with very small ventral spur and short ( $4 \mu$ ) seta. Femora with distinct ventrolateral spur and one seta of  $3-4 \mu$ . All genera without seta. Tibiae without spine and  $4 \mu$  long dorsal seta (Fig. 17, 18). Tarsi with short setae  $d a 4$ ,  $d p 4$ , club-shaped tarsal spine (without two points, as usual in genus). Tarsal claws distinctly two-pointed, two-lobed empodium and two solenidia on tarsi I and II. Vulva  $10 \mu$  between two adanal lobes, each carrying a pair of very short ( $4-6 \mu$ ) terminal setae. Dorsum (Fig. 19). Dorsal shield sclerotized and punctured with encaved anterior border. Shield length  $119 \mu$ , in paratypes  $\emptyset 112 \mu$  ( $102-124$ ), width  $108 \mu$ , in paratypes  $104 \mu$  ( $94-113$ ). Five pairs of point-like setae almost evenly spaced along lateral and anterior border. Soft parts of dorsum striated. Gnathosoma like in *P. glossophagae*. Gnathosoma setae (Fig. 21) bilobed with dentated borders,  $6 \mu$ , palptibia seta saw-like  $18 \mu$ . Palptarsi with two two-pointed claws and a blunt spine (Fig. 22). Chelicerae with five-pointed dorsally directed digitus fixus (Fig. 20) and stinging bristles.

Male (allotype) (Fig. 23): Shape like female, but one subterminal sclerotized tubercle with two terminal setae. Length including gnathosoma  $150 \mu$ , width  $130 \mu$ . 20 paratypes measured length  $\emptyset 154 \mu$  ( $143-166$ ), width  $126 \mu$  ( $105-140$ ). Measurements in table II. Dorsum (Fig. 24). Genital opening surrounded by unpunctured shield with two pairs of genital setae. Distance anterior setae  $3 \mu$ , posterior setae  $7 \mu$ . Pointed penis of  $43 \mu$  ( $34-51$ ) with sheath of  $18-22 \mu$ .

Developmental stages like in *P. glossophagae* but larvae and nymphs without femoral spurs.

Egg: almost globular, average of 6 measurements  $103 \mu$  ( $95-116$ ).

Larva: length  $\emptyset$  of 8 specimens  $111 \mu$  ( $93-122$ ), width  $\emptyset 96 \mu$  ( $81-107$ ).

Protonymph: length  $\emptyset 136 \mu$  ( $127-145$ ), width  $\emptyset 109 \mu$  ( $104-119$ ) (6 specimens).

Deutonymph: length  $\emptyset 158 \mu$  ( $150-168$ ), width  $\emptyset 133 \mu$  ( $127-145$ ) (5 species).

Type host: *Saccopteryx canescens* (Thomas, 1901).

Type locality: Lelydorp, Surinam, 25.II.1970.

Pathology: The mites were found only within epidermis around the end of second digit. Epidermis was found uncoloured and strongly thickened.

Deposition of types: Holotype and allotype: Leiden coll. nr P 1224-5. Paratypes: Paris coll. nr 55 J 8-9; London coll. nr 1971/152-3, Hamburg A 30/71; Washington; Antwerpen, Cayenne 71.07, 08, 09, 010, Columbus, Chicago, Paramaribo, Nijmegen.

Specimens from *Saccopteryx bilineata*: On four specimens of the closely related species *Saccopteryx bilineata* (Temminck, 1838) also at the end of the second digit mites were found, which morphologically cannot be separated from *Psorergatoides indicicola*. Measurements for comparison are given in table III. We consider them to be conspecific.

### 3. *Psorergatoides artibeii* spec. nov.

Female (holotype): General shape like *P. glossophagae*, but with remarkable long tarsal setae and extremely long setae on tibia I in females. Length including gnathosoma  $156 \mu$ , in 17 paratypes measured  $\emptyset 151 \mu$  ( $133-179$ ), width  $127 \mu$ , in paratypes  $\emptyset 119 \mu$  ( $108-143$ ). Venter (Fig. 25). Cuticle soft, epimerae I slightly bowed outwards, not connecting with epimerae II. The pair of ventral setae ( $5-6 \mu$ ) very variable in distance



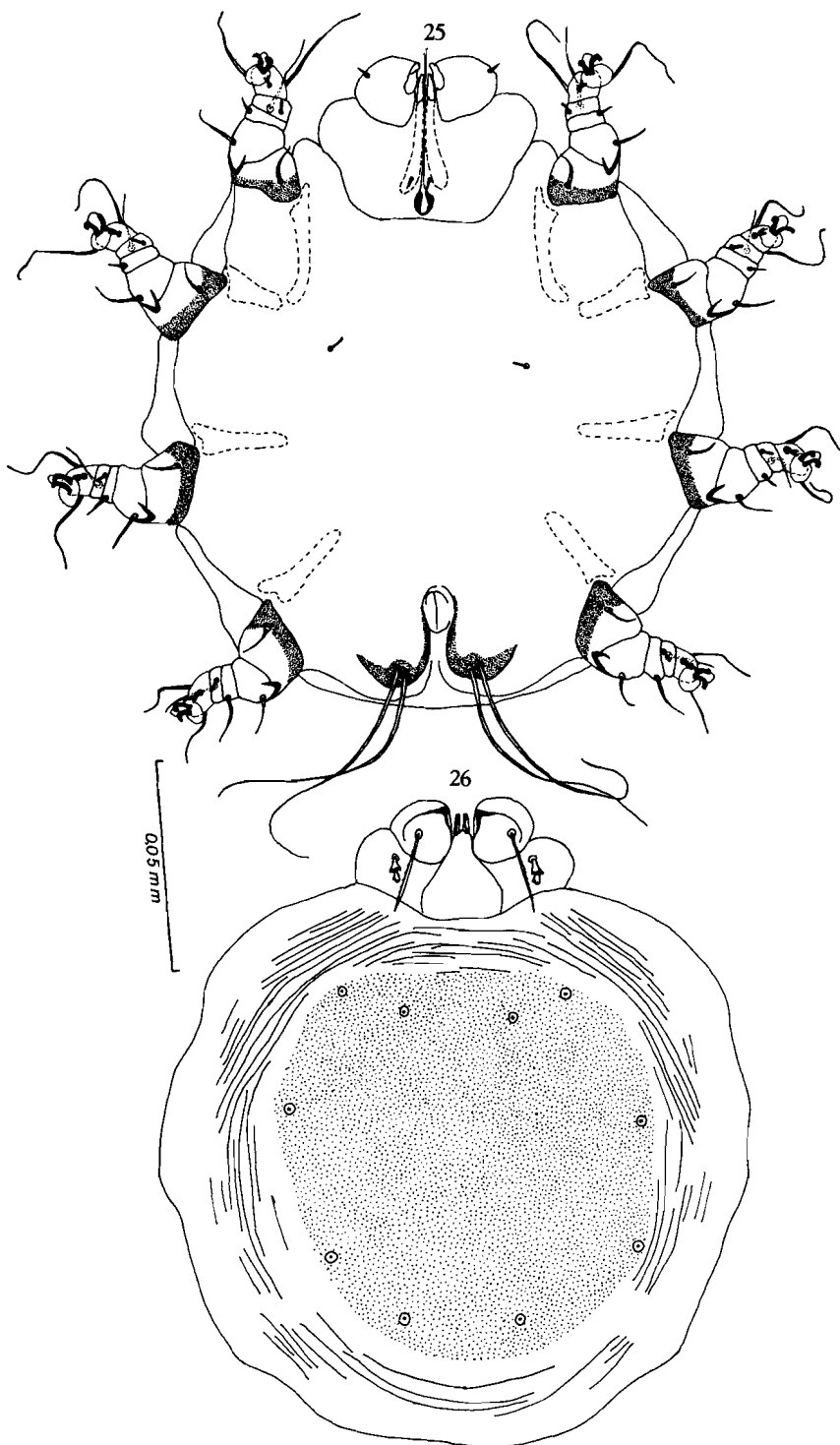


Fig. 25—26. *Psorergatoides artibeii* sp. n. Female. 25, holotype ventrally and 26, dorsally

15—60  $\mu$ . Oval two-valved vula between more sclerotized adanal lobes, which carry the pairs of terminal setae (60—70  $\mu$ ). Trochanteres with seta of 9  $\mu$  without ventral spur. Femora with ventro-posterior seta of same length (11  $\mu$ ) on all legs, and distinct ventro-posterior spur. Genua with posterior seta 15  $\mu$  on genu IV, 6—8  $\mu$  on genua I—III. Tibiae with a club-like ventral spine and dorso-median seta of different length 20  $\mu$  on leg I, 12  $\mu$  on legs II—IV. Tarsi with two-pointed spine, up to 30  $\mu$  long dorsal setae, two-pointed claws and bilobed empodium. Tarsi I and II with bulbous median sclenidion and a smaller one within duplication of epidermis (Fig. 31—32). Dorsum (Fig. 26). Dorsal shield sclerotized and punctured. Length 110  $\mu$ , in paratypes  $\varnothing$  104  $\mu$  (94—121), width 99  $\mu$ , in paratypes  $\varnothing$  95  $\mu$  (81—101). Point-like anterior paramedian setae distinct behind level of first pair of lateral setae. Soft parts of dorsum weakly striated. Gnathosoma like in other species. Gnathosoma setae (Fig. 33) two-lobed, both lobes deeply incised, palptibia setae 19  $\mu$  long saw-like, palptarsus (Fig. 28) with two strongly sclerotized claws and a blunt spine. Digitus fixus of chelicerae (Fig. 29) saw-like dentated with two stronger anterior spines.

Male (allotype): Length including gnathosoma 158  $\mu$ , in 8 paratypes measured  $\varnothing$  144  $\mu$  (127—161), width 119  $\mu$ , in paratypes  $\varnothing$  114  $\mu$  (99—122). Venter (Fig. 27). Like female, but with median transverse subterminal sclerite without terminal setae. Setae on tibia I (15  $\mu$ ) longer than that on tibia IV (9  $\mu$ ). Measurements in table II. Dorsum (Fig. 30). Genital opening oval, relatively far behind posterior border of dorsal shield, 4—5  $\mu$  long. There are two pairs of genital setae equally distant from each other (12  $\mu$ ). Penis pointed 30  $\mu$  (26—32), penis sheath 16—20  $\mu$ . Dorsal shield 102  $\mu$  long,  $\varnothing$  97  $\mu$  in paratype (90—110  $\mu$ ), and 88  $\mu$  wide, in paratype  $\varnothing$  83  $\mu$  (82—90). Gnathosoma like female.

Developmental stages:

Egg: Almost globular, average of 3 measurements 109  $\mu$  (101—116).

Larva: Length  $\varnothing$  of 3 specimens 120  $\mu$  (110—133), width  $\varnothing$  92  $\mu$  (87—113).

Protonymph: Length  $\varnothing$  of 3 specimens 135  $\mu$  (127—145), width 114  $\mu$  (107—122).

Deutonymph: Length  $\varnothing$  of 3 specimens 146  $\mu$  (143—148), width  $\varnothing$  121  $\mu$ .

Type host: *Artibeus lituratus fallax* (Peters, 1865).

Type locality: Paramaribo, Surinam, 7.XII.1969.

Pathology: Mites were found within epidermis of outside of ears, causing hyperkeratosis.

Deposition of types: Holotype and allotype in Leiden, coll. nr P 1226—7; paratypes Paris, coll. nr 55 J 4—5; London 1971/167; Hamburg, coll. nr A 31/71; Washington, Antwerpen, Cayenne 71.01, 02, 03, Columbus, Chicago, Paramaribo, Nijmegen.

#### 4. *Psorergatoides molossi* spec. nov.

Female (holotype): Length including gnathosoma 115  $\mu$ , in 20 paratypes measured  $\varnothing$  120  $\mu$  (115—124), width 96  $\mu$ , in paratypes  $\varnothing$  101  $\mu$  (92—117). Venter (Fig. 34). Cuticle soft. Epimerae I widely separated from epimerae II. Ventral setae 2—3  $\mu$ , lying 14  $\mu$  (12—16) apart. Vulva 8  $\mu$  between adanal lobes carrying pairs of terminal setae of 34  $\mu$  (32—40) length. Legs relatively short with complete but short setation. Trochanteres without ventral spur, femora with distinct small spur and only 2  $\mu$  long almost spine-like seta. Genua with spine-like seta (1—2  $\mu$ ). Tibiae with short (4  $\mu$ )

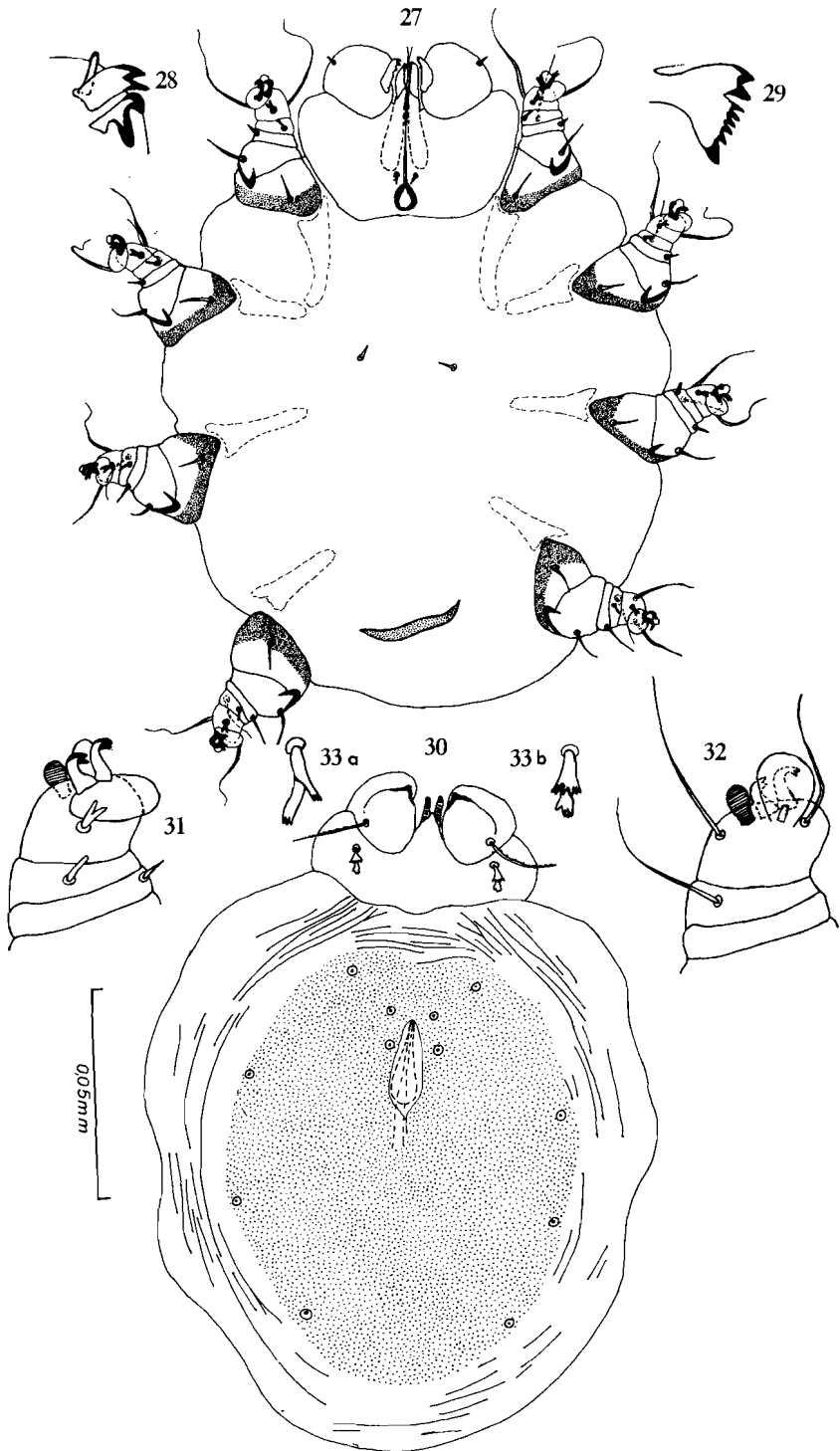


Fig. 27—33. *Psorergatoides artibeii* sp. n. Male. 27, allotype ventrally; 28, palptarsus of a squashed paratype; 29, chelicera of a squashed paratype in ventral view; 30, allotype dorsally; 31, leg I ventrally; 32, leg I dorsally; 33, a, gnathosoma seta in lateral view; 33, b, in dorsal view

dorsal seta and a club-like lateral spine. Tarsi with a two-pointed spine, short dorsal setae (Fig. 37, 38), a bilobed empodium and two simple claws. Tarsi I and II with two solenidia: median bulbous, lateral within duplication of epidermis. *Dorsum* (Fig. 35). Almost round sclerotized and punctured dorsal shield with encaved anterior border. Shield length  $81 \mu$ , in paratypes  $\varnothing 80 \mu$  (76—83), width  $78 \mu$ , average  $80 \mu$  (78—83). Five pairs of point-like setae. Soft parts of dorsum distinctly striated. *Gnathosoma* with furcate, deeply incised gnathosoma setae (Fig. 41). Palptibia with broad dorsal spur,  $14 \mu$  long saw-like posterior seta and point-like anterior seta. Palptarsus with two two-pointed claws and a blunt spine (Fig. 42). *Digitus fixus* of chelicerae (Fig. 40) saw-like with two larger anterior teeth.

*Male* (allotype): Length including gnathosoma  $108 \mu$ , in 20 paratypes measured  $\varnothing 101 \mu$  (92—117), width  $80 \mu$ , average  $91 \mu$  (80—105). *Venter* (Fig. 36). Like female, but without subterminal median protuberant tubercle or sclerit, without terminal setae. *Dorsum* (Fig. 39). Dorsal shield with longitudinal furrow, length  $73 \mu$ , in paratypes  $\varnothing 69 \mu$  (64—81), width  $69 \mu$  (62—69). Genital opening between squarely arranged pairs of genital setae, distance between anterior setae  $8 \mu$ , between posterior  $5 \mu$ . Penis of  $21 \mu$  (18—25), penis sheath  $11 \mu$  (10—15).

*Developmental stages*: like *P. glossophagae* but without femoral spur.

*Egg*: Almost globular, average of 7 specimens  $80 \mu$  (70—93).

*Larva*: Measurements of 10 specimens length  $\varnothing 101 \mu$  (89—110), width  $90 \mu$  (71—101).

*Protonymph*: Measurements of 5 specimens length  $\varnothing 99 \mu$  (96—104), width  $92 \mu$  (81—97).

*Deutonymph*: Measurements of 10 specimens, length  $\varnothing 117 \mu$  (106—132), width  $109 \mu$  (94—133).

*Type host*: *Molossus molossus* (Pallas, 1766).

*Type locality*: Lelydorp, Surinam, 11 hosts parasitized 30.XI.1969—13.II.1970.

*Pathology*: Mites were found within the epidermis of inner and outside of ears, on dorsal surface of wing membrane and tail membrane, and on feet and tail. They cause hyperkeratosis, thickening of wing membrane causing impossibility to fold parasitized parts.

*Deposition of types*: Holotype and allotype in Rijksmuseum van Natuurlijke Historie, Leiden, coll. nr P 1228—9. Paratypes  $\sigma$  and  $\varphi$ . Paris, coll. nr 55 J 10—11; London, coll. nr 1971/150—1; Hamburg A 38/71; Washington, Antwerpen, Columbus, Chicago, Cayenne, 71.11, 12, 13, 14. Paramaribo, Nijmegen.

Specimens from *Molossus ater*: On three bats of the closely related species *Molossus ater* Geoffroy, 1805 from the place Lelydorp, mites were found, which morphologically cannot be separated from *P. molossi*. Measurements for comparison are given in table IV. We consider the mites from the two host species to be conspecific.

#### Comparison with related species

Instead of a key for determination we give measurements and characteristics, tabulated (Table I, II). Males of *P. nycteris* and *P. laviae* are unknown.

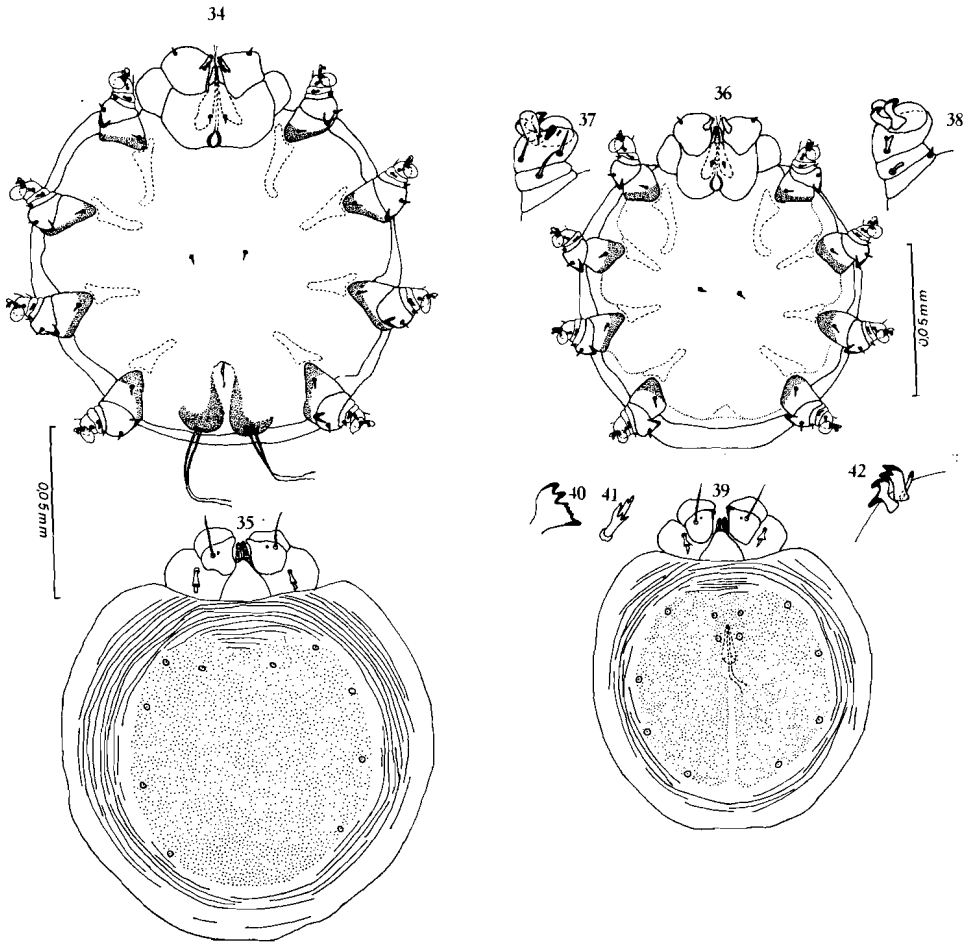


Fig. 34—35. *Psorergatoides molossi* sp. n. Female. 34, holotype ventrally; 35, dorsally. Fig. 36—42. *Psorergatoides molossi* sp. n. Male. 36, allotype ventrally; 37, leg I dorsally; 38, leg I ventrally; 39, allotype dorsally; 40, chelicera of a squashed paratype; 41, gnathosoma seta; 42, palptarsus of a squashed paratype

#### Skin reaction of the host produced by *Psorergatoides* spp.

Sections of parasitized areas in *Molossus molossus*, *Glossophaga soricina* and *Artibeus lituratus* show the same host-parasite-reactions in the epidermis. Therefore these reactions may be described together.

The mites are living between the stratum granulosum and the stratum corneum. The layers of the corneum may be parakerateous or hyperkerateous. At the place of active mites normal epidermal development is disturbed: the stratum germinativum is activated, showing more mitoses than usual, thus forming small rings around mites, which seem to be mostly immobile. The cells of the Malpighi layer often show sickle-shaped nuclei; in

these layers production of melanin is prevented in contradiction to non-parasitized regions. Beneath moulting specimens underlying epidermis forms a thick corneum layer, which seems to eliminate parasite in moulting. Newly hatched stages are able to pierce through thick layers. Hypertrophy of connective tissue is observed especially in the wing membrane, resulting in the impossibility to fold this membrane. Gravid females contain never more than one mature egg.

These reactions of host skin are similar to those in hosts of the *Psorergates dissimilis*-group (Lukoschus, 1967).

#### BIBLIOGRAPHY

- Fain, A., 1959a. — Les Acariens psoriques parasites des Chauves-souris. III. — Le genre *Psorergates* Tyrell (Trombidiformes: Psorergatidae). — Bull. Ann. Soc. Roy. Ent. Belg. 95: 54—69.
- , 1959b. — Les Acariens psoriques parasites des Chauves-souris. IX. Nouvelles observations sur le genre *Psorergates* Tyrell. — Bull. Ann. Soc. Roy. Ent. Belg. 95: 232—245.
- Lukoschus, F. S., 1967. — Kratzmilben an Spanischen Kleinsäugern (*Psorergatidae*: Trombidiformes). — Rev. Iber. Parasitol. 27: 203—228.

TABLE I - Comparative data of *Psorergatooides* species (measurements in microns)  
Females

<i>Psorergatooides</i> spp.	nycteris	keri- voulae	indici- cola	hippo- sideros	loncho- rhina	molossi	glosso- phagae	rhino- lophi	laviae	emba- lonurae	artibei
Setae on femora I-III	2	2	1	1	1	1	1	1	1	1	1
Points on tarsal spine	2	2	1	1	2	2	2	2	2	2	2
Points on tarsal claw	1	1	2	1	1	1	1	1	1	1	2
Length setae											
genu IV	1-2	12	absent	1	1-2	2	2	absent	4	1-2	15
genua I-III	1-2	1-2	absent	1	1-2	2	2	absent	4	1-2	6-8
femora I-III	6	15-20	3	15-18	1-2	2	12	12-15	15	10	11
tarsi	9	20	4	10-15	5-10	4	16	12	30	12	30
palptibia	6	15	18	15-18	12	14	16	20	21	12	19
gnathosoma	4	3-4	6	5	2	6	5-6	3	4	4	6-8
terminals	25-30	75-80	5	45-60	20-30	32-40	20-25	45-60	50	8-10	60-70
Tibial spine	+	narrow	absent	+	narrow	+	+	narrow	+	+	+
Distance ventral setae	12	16	absent	12	9	12-16	15-20	15-18	15	absent	15-50
Body length ♂	188	178	170	136	105	120	177	128	188	149	151
minimum	175	170	156	117	102	115	166	120	166	138	133
maximum	205	186	186	150	118	124	191	138	190	153	179
Body width ♂	169	156	144	135	100	101	153	114	153	149	119
minimum	160	148	136	108	80	92	143	110	140	135	108
maximum	180	162	154	142	112	117	179	125	165	150	143
Dorsal shield											
length	135	130	112	84	88	80	118	79	120	107	104
width	130	126	94	85	78	80	103	72	116	91	99

TABLE II - Comparative data of *Pseoregatoidea* species (measurements in microns)

## Males

<i>Pseoregatoidea</i> spp.	keri- voulas	indioi- oola	hippo- sideros	loncho- rhina	molossi	glosso- phagus	rhino- lophi	emba- lonurae	artibe
Setae on femora I-III	2	1	1	1	1	1	1	1	1
Points on tarsal spine	2	1	1	2	2	2	2	2	2
Points on tarsal claw	1	2	1	1	1	1	1	1	2
Length setae									
genus IV	8-9	absent	absent	absent	1	2	absent	absent	15
genus I-III	1-2	absent	absent	absent	1	2	absent	absent	6-8
femora I-III	12-15	3	11	1-3	2	8	10	13	7
tarsi	15-20	3	7-10	7	3	15-18	11	5-10	23-30
palptibia	13	13	10	12	10-12	14	12	8	19
gnathosoma	4	6	4	4	5-6	6	3	3	8
terminals	absent	5-10	25-30	absent	absent	absent	60-70	15-20	absent
Distance ventral setae	18	absent	4-5	5	12	18	5	absent	15-35
genitals ant.	4-5	2-3	6-7	8-9	8	7-8	10-11	11	12
genitals post.	4-5	7	10-11	9-10	5	7-8	14-15	11	12
Length penis	52	34-51	42	29	18-25	19-29	26	50	26-32
penis sheath	22	18-22	14	14	10-15	13-16	12	22	16-20
Body length $\phi$									
minimum	185	154	100	99	101	169	99	111	144
maximum	186	143			92	156	96		127
		166			117	179	105		161
Body width $\phi$									
minimum	145	126	84	90	91	131	82	99	114
maximum	147	105			80	117	81		99
		140			105	140	86		122
Dorsal shield									
length	120	103	78	69	69	101	78	88	97
width	90	96	61	69	69	79	70	81	83



TABLE III - Comparative measurements of *Psorergatoides indicicola* specimens from two host species (in microns)

Specimens measured ex host <i>Saccopteryx</i>	20 ♀♀ <i>canescens</i>	15 ♀♀ <i>bilineata</i>	20 ♂♂ <i>canescens</i>	11 ♂♂ <i>bilineata</i>
Length $\phi$	170	178	154	152
minimum	156	161	143	127
maximum	186	188	166	165
Width $\phi$	144	140	126	119
minimum	136	124	105	100
maximum	154	161	140	128
Shield length $\phi$	112	129	103	111
width $\phi$	104	119	96	101
Terminal setae	5	5	7	5
Penis			43	41
Penis sheath			25	30

TABLE IV - Comparative measurements of *Pseorergatoides molossi*  
specimens from two host species (in microns)

Specimens measured ex host <i>Molossus</i>	20 ♀♀ <i>molossus</i>	20 ♀♀ <i>ater</i>	20 ♂♂ <i>molossus</i>	5 ♂♂ <i>ater</i>
Length $\phi$	120	128	101	109
minimum	115	106	92	106
maximum	124	145	117	115
Width $\phi$	109	115	91	96
minimum	99	92	80	89
maximum	113	145	105	101
Dorsal shield				
length	80	81	69	71
width	80	82	65	66
Length terminal setae	37	30	-	-
Distance ventral setae	15	14	12	11-15
Penis length			11	18-25
Penis sheath			6	8-12

TABLE V — Host list of *Psorergatoides* spp.

Species	Host	Family and subfamily of the host	Locality
<i>P. nycteris</i> Fain, 1959a	<i>Nycteris</i> sp.	Nycteridae	Ruanda Urundi
	<i>Nycteris macrotis</i> Dobson	Nycteridae	Congo
<i>P. rhinolophi</i> Fain, 1959a	<i>Rhinolophus clivosus zuluensis</i> And.	Rhinolophidae	Congo
	<i>Rhinolophus hildebrandti</i> Peters	Rhinolophidae	Congo
	<i>Rhinolophus aethiops</i> Peters	Rhinolophidae	Angola
	<i>Rhinolophus ferrumequinum</i> (Schreber)	Rhinolophidae	Belgium, France
	<i>Rhinolophus hipposideros</i> (Bechstein)	Rhinolophidae	Belgium
	<i>Rhinolophus affinis</i> Horst.	Rhinolophidae	Birma
	<i>Rhinolophus euryale</i> Blasius	Rhinolophidae	Italy, Spain
	<i>Rhinolophus mehelyi</i> Matschie	Rhinolophidae	Italy
<i>P. hipposideros</i> Fain, 1959b	<i>Hipposideros abae</i> Allen	Hipposideridae	Congo
	<i>Hipposideros caffer centralis</i> And.	Hipposideridae	Congo
<i>P. emballonurae</i> Fain, 1959b	<i>Emballonura nigriscens</i> (Gray)	Emballonuridae	New Guinea
<i>P. indicicola</i> sp. n.	<i>Saccopteryx canescens</i> Thomas	Emballonuridae	Surinam
	<i>Saccopteryx bilineata</i> Temminck	Emballonuridae	Surinam
<i>P. lonchorhinae</i> Fain, 1959b	<i>Saccopteryx canina</i> Wied	Emballonuridae	Venezuela
	<i>Lonchorhina aurita</i> Tomes	Phyllostomidae, Phyllostominae	Venezuela
<i>P. glossophagae</i> sp. n.	<i>Glossophaga soricina</i> Pallas	Phyllostomidae, Glossophaginae	Surinam
<i>P. artibeii</i> sp. n.	<i>Artibeus literatus fallax</i> Peters	Phyllostomidae, Stenodermatinae	Surinam
<i>P. kerivoulae</i> Fain, 1959a	<i>Kerivoula cuprosa</i> Thomes	Vespertilionidae	Congo
	<i>Kerivoula barrisoni</i> Aellen	Vespertilionidae	Congo
	<i>Myotis muricola</i> Gray	Vespertilionidae	Borneo
	<i>Myotis bocagei</i> Peters	Vespertilionidae	Côte d'Ivoire
	<i>Plecotes auritus</i> (L.)	Vespertilionidae	Belgium
<i>P. laviae</i> Fain, 1959a	<i>Lavia frons</i> Geoff.	Megadermatidae	Ruanda Urundi
<i>P. molossi</i> sp. n.	<i>Molossus molossus</i> Pallas	Molossidae	Surinam
	<i>Molossus ater</i> Geoffrey	Molossidae	Surinam