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New observations on the Harpirhynchidae DUBININ, 1957 (Acari: Prostigmata). II. On some new or little-known taxa in the Harpirhynchinae

by A. FAIN

Summary

The nominotypical subgenus *Harpirhynchus* MEGNIN, 1877 (Harpirhynchidae: Acari) is revised. Two other subgenera of this genus, i.e. *Neharpyrhynchus* FAIN, 1972 and *Anharpyrhynchus* FAIN, 1972, are elevated to the genus rank and revised. Four species are recognized in the genus *Neharpyrhynchus*, i.e. *N. plumaris* (FRITSCH, 1954) nov. comb., *N. pilirostris* (BERLESE & TROUESSART, 1889) nov. comb., *N. trochilinus* (FAIN, 1972) nov. comb. and *N. squamiferus* (FAIN, 1972) nov. comb. The genus *Metharpyrhynchus* includes four species, i.e. *M. macrophallus* FAIN, 1972, *M. jynx* FAIN, 1972, *M. mossi* nov. spec. ex *Prinia subflava graueri*, from Rwanda, and *M. namibiensis* nov. spec., from *Philetairus socius* from Namibia. A lectotype female is designated for *Neharpyrhynchus pilirostris*. Three new genera and one new species are described, i.e. *Ralliharpirhynchus* nov. gen. (type species *Metharpyrhynchus porphyrio* FAIN, 1972), *Cypsharpirhynchus* nov. gen. (type species *Metharpyrhynchus cypsiuri* FAIN, 1972) and *Trichorhynchiella* nov. gen. (type species *T. paddae* nov. spec.) from *Padda oryzivora*.
Key words: Systematics. Revision. Harpirhynchidae. Acari. Parasites. Birds.

Résumé

Le sous-genre nominatif *Harpirhynchus* MEGNIN, 1877 (Harpirhynchidae: Acari) est revisé. Deux autres sous-genres, inclus jusqu'ici dans ce genre, c'est-à-dire *Neharpyrhynchus* FAIN, 1972 et *Anharpyrhynchus* FAIN, 1972, sont élevés au rang de genre et revisés. Quatre espèces sont reconnues dans le genre *Neharpyrhynchus*, ce sont *N. plumaris* (FRITSCH, 1954) nov. comb., *N. pilirostris* (BERLESE & TROUESSART, 1889) nov. comb., *N. trochilinus* (FAIN, 1972) nov. comb. et *N. squamiferus* (FAIN, 1972) nov. comb. Le genre *Metharpyrhynchus* comprend quatre espèces: *M. macrophallus* FAIN, 1972, *M. jynx* FAIN, 1972, *M. mossi* nov. spec. ex *Prinia subflava graueri*, du Rwanda, et *M. namibiensis* nov. spec., ex *Philetairus socius*, de Namibie. Un lectotype femelle est désigné pour *Neharpyrhynchus pilirostris*. Trois nouveaux genres et une espèce nouvelle sont décrits: *Ralliharpirhynchus* nov. gen. (espèce type *Metharpyrhynchus porphyrio* FAIN, 1972), *Cypsharpirhynchus* nov. gen. (espèce type *Metharpyrhynchus cypsiuri* FAIN, 1972) et *Trichorhynchiella* nov. gen. (espèce type *T. paddae* nov. spec.) trouvée sur *Padda oryzivora*.
Mots clés: Systématique. Revision. Harpirhynchidae. Acari. Parasites. Oiseaux.

Introduction

In a previous paper (FAIN, 1994), I have revised the subgenus *Harpirhynchus (Harpyrhynchoides)* FAIN, 1972. The present paper is a revision of the nominotypical subgenus *Harpirhynchus* MEGNIN, 1877. This subgenus includes three species: *H. (Harpirhynchus) nidulans* NITZSCH, 1818), *H. (H.) agapornis* FAIN, 1972 and *H. (H.) cylindripalpus* FRITSCH, 1954.

Moreover, two other subgenera are elevated to the genus rank: i.e. *Harpirhynchus (Neharpyrhynchus)* FAIN, 1972 and *H. (Anharpyrhynchus)* FAIN, 1972.

Neharpyrhynchus FAIN, 1972, nov. stat., includes, at present four species: *N. plumaris* (FRITSCH, 1954) (type species), *N. pilirostris* (BERLESE & TROUESSART, 1889), *N. trochilinus* (FAIN, 1972) and *N. squamiferus* (FAIN, 1972). The last three species are redescribed and depicted. *Metharpyrhynchus* FAIN, 1972, includes presently the following species: *M. macrophallus* FAIN, 1972 (type species), *M. jynx* FAIN, 1972, *M. mossi* n. sp., ex *Prinia subflava graueri*, from Rwanda and *M. namibiensis* n. sp., ex *Philetairus socius*, from Namibia. These four species are described or redescribed and depicted for the first time. In addition, three new genera and one new species are described, i.e. *Ralliharpirhynchus* nov. gen. (type species *Metharpyrhynchus porphyrio* FAIN, 1972), *Cypsharpirhynchus* nov. gen. (type species *Metharpyrhynchus cypsiuri* FAIN, 1972) and *Trichorhynchiella* nov. gen. (type species *T. paddae*, from *Padda oryzivora*).

I use herein the metric data and the abbreviations proposed in my previous paper (1994), and I add the length and the characteristics of the seta situated on the dorsal surface of palp tibia behind the palpalae (seta *pts*) and the term PP which represents an additional palpala only present in *Metharpyrhynchus mossi* n. sp. It should also be noted that in all the species of Harpirhynchinae the tarsi I and II bear two and one relatively long cylindrical eupathidia respectively. I also will recall here that the length of the body includes the gnathosoma until the tip of the palptibia and not only the idiosoma as it was the case in our paper of 1972.

All the measurements are given in micrometers (μm).

Abbreviations: IRSNB = Institut royal des Sciences naturelles de Belgique; MRAC = Musée royal de l'Afrique Centrale, Tervuren.

FAMILY HARPIRHYNCHIDAE
SUBFAMILY HARPIRHYNCHINAE

DEFINITION OF THE GENERA

1. *Harpirhynchus* MEGNIN, 1877

Female: Body circular or subcircular, covered by a large shield. Legs I and II well developed inserted marginally, with five free segments and bearing a pair of claws and a ciliated empodium. Legs III and IV inserted marginally, leg III with either one or two free segments, leg IV with only one free segment. Setae *ve, sce, sci, h* and *sh* long and barbed; the setae *ve, sci* and *sce* well separated from each other.
This genus includes two subgenera, separated from each other by the characters of the males:
Harpirhynchus Megnin, 1877 (nominotypical subgenus): sexual aperture situated in the anterior half of the dorsal shield, penis or sheath of penis originating in the posterior part of the body.

Type species: Sarcoptes nidulans NITZSCH, 1818. Other species *H. agapornis* FAIN, 1972 and *H. cylindripalpus* Fritsch, 1954.
Harpyrhynchoides FAIN, 1972: sexual aperture situated in the posterior half of the dorsal shield, penis or sheath of penis originating in front of the sexual orifice and directed backwards.

Type species: Harpirhynchus (Harpyrhynchoides) squamosus FAIN, 1972. The subgenus includes 27 other species.

2. *Perharpyrhynchus* FAIN, 1972

Female: Body as in *Harpirhynchus*. Legs I-II broad, inserted marginally, with four free segments (genu and femur fused). Legs III with 2 segments normally developed. Legs IV completely lacking. Setae *ve* and *sh* lacking. Setae *sci, sce* and *h* short, thin and smooth. Tarsi I and II with claws and ciliated empodium.

Male: Body, legs and setae *ve, sh, sci, sce* and *h* as in female. Sexual aperture situated in the posterior third of the dorsal shield. Penis or sheath of the penis originating behind the sexual orifice.

Type species: Perharpyrhynchus jacana FAIN, 1972. This genus includes a second species, *P. recurvirostra* FAIN, 1976.

3. *Ralliharpirhynchus* nov. gen.

Female: Body circular or subcircular. Dorsal shield very broad. Legs I and II strongly reduced in size; legs I slightly ventral, with two or three free segments; legs II marginal with two free segments; tarsi I and II lacking claws and empodium. Legs III and IV very small, unisegmented, bearing short and thin setae. Palpalae strong, heavily pectinate. Setae *ve, sci, sce, h* and *sh* short and pectinate.

Male: Genital opening close to posterior margin of dorsum, flanked with three pairs of very small setae. Sheath of penis originating a little behind the middle of dorsal shield and directed backwards. Tarsi I and II with claws and a ciliated empodium.

Type species: Metharpyrhynchus porphyrio FAIN, 1972, from *Porphyrio porphyrio* (Rallidae). This genus includes a second species, *R. limnocorax* (FAIN, 1972), from *Limnocorax flaviceps*, also a Rallidae.

4. *Neharpyrhynchus* FAIN, 1972, nov. stat.

Female: Body elongate, sacciform. Dorsal shield well developed. Legs I-II moderately reduced in size. Legs I ventral, with two to four free segments, legs II as by I but more ventral and with two or three free segments, both legs with two claws and a ciliated empodium. Legs III with one or two free segments, legs IV with one segment, both legs bearing long and strong setae. Setae *ve, sci* and *sci* set close to each other.

Male: Sexual aperture situated slightly behind the middle of the dorsal shield. Penis short originating behind the genital aperture (from FRITSCH, 1954).

Type species: Harpirhynchus plumaris FRITSCH, 1954. This genus includes three other species.

5. *Metharpyrhynchus* FAIN, 1972

Female: Body as in *Neharpyrhynchus*. Legs I ventral, strongly reduced and with only one very short segment bearing or not a pair of claws but without ciliated empodium. Legs II either as leg I or completely lacking. Legs III and IV as in *Neharpyrhynchus*. Setae *ve, sci, sce* situated close to each other.

Male: Sexual aperture situated in front of setae *sci*. Penis very long originating in the posterior region of the dorsum.

Type species: Metharpyrhynchus macrophallus FAIN, 1972. This genus includes three other species.

6. *Harpyrhynchiella* FAIN, 1972

Female: Body wider than long, with two broad lateral lobes in its anterior third and regularly narrowed behind these lobes. Legs I and II reduced in size, inserted ventrally, with indistinct segmentation. Both legs bearing a

pair of claws. Legs III represented by small platelets or tubercles bearing a few very short setae, legs IV completely lacking. Palptibia with only two palpalae (PE is lacking). Setae *sci* and *sce* are very short spinelets. With two pairs of *g* setae. Dorsum partly striated, without distinct shield. Venter with verrucose striations in its anterior half.

Male: Sexual aperture and penis as in *Metharpyrhynchus macrophallus.*

Type species: Harpirhynchus reductus FRITSCH, 1954.

7. *Cypsharpirhynchus* nov. gen.

Female: Body wider than long, with two voluminous lobes in the middle of the lateral margins. Dorsum with two distinct lateral elongate shields. Venter with in anterior half a sinuous verrucose band extending over all the width of the dorsum; absence of paramedian lobes in posterior part of the body. Legs I and II marginal, strongly reduced in size, with three and two free segments respectively. Tarsi I and II lacking claws and empodium. Legs III and IV only represented by three and two very short and thin setae respectively. Palpalae PA and PI normally developed, PE and *pts* lacking. With two pairs of *g* setae.

Male: Unknown.

Type species: Metharpyrhynchus cypsiuri FAIN, 1972. This genus is close to *Harpyrhynchiella*, from which it can be distinguished by the following characters: *sci* and *sce* normally developed (not spinelets), lateral lobes of body more posterior, legs I and II marginal (not ventral) and lacking claws, legs IV represented by two setae.

8. *Anharpyrhynchus* FAIN, 1972, nov. stat.

Female: Body dome-shaped, its posterior margin straight with laterally two voluminous lobes carrying the small legs III and six pairs of thin and short setae. Posterior third of the dorsum with two very large paramedian lobes (? legs IV) each bearing 20 to 25 strong setae. Dorsal shield much wider than long. Vulva very anterior. Legs I-II moderately reduced, with three free segments inserted marginally and oriented in dorsal position, they bear a pair of claws and a ciliated empodium.

Male: Sexual aperture and origin of penis as in *Metharpyrhynchus macrophallus.*

Type species: Harpirhynchus monstrosus FRITSCH, 1954.

9. *Trichorhynchiella* nov. gen.

Female: Body rounded. All the legs inserted marginally. Dorsum without a shield but with several verrucose areas. Posterior margin of body with two large membranous lobes. Legs I and II with three distinct free segments and ending in paired claws and a cilated empodium. Legs III and IV with two and one free segments respectively, the apical segments being 11/2 times (leg III) or twice (leg IV) as long as wide; apical segments with six and ten pairs of long setae respectively, all these setae inserted apically. The three palpalae are thin, flexible, shortly pectinate and longer than the palptibia.

Male: Unknown.

Type species: Trichorhynchiella paddae nov. spec.

KEY TO THE SUBFAMILY HARPIRHYNCHINAE (Females)

1. – All palpalae piliform, shortly pectinate, longer than the palptibia. Legs I and II reduced in size, bearing claws and empodium ..... *Trichorhynchiella*
   – Palpalae PA and PI never piliform nor rodlike but rigid and shorter than palptibia, with generally strong teeth or pectinations. PE either similar to other palpalae or rodlike and shortly pectinate 2
2. – Body circular or subcircular. Legs I and II well developed, with five free segments, inserted marginally; tarsi bearing a pair of claws and a ciliated empodium. Legs III with two free segments, legs IV with either one or two free segments, both ending in long setae ..... *Harpirhynchus*
   – Body variable in shape, either rounded, elongate or wider than long. Legs I-II reduced in size, with at maximum four free segments. Other characters variable 3
3. – Body rounded or circular 4
   – Body variable in shape, but not circular. Legs I-II distinctly reduced in size, inserted ventrally or marginally. Legs I with one to four free segments; legs II with one to three free segments or completely lacking 5
4. – Dorsal shield small. Legs I and II slightly reduced in size, with only four free segments (genu and femur fused) and inserted marginally; tarsi I-II with claws and ciliated empodium. Legs III normally shaped. Legs IV completely lacking. Setae *sci, sce* and *h* short, thin and smooth; setae *ve* and *sh* lacking ..... *Perharpyrhynchus*
   – Dorsal shield very large. Legs I and II strongly reduced in size, lacking claws and empodium; legs I slightly ventral, legs II marginal. Legs III and IV very small, unisegmented. Setae *ve, sci, sce, h* and *sh* pectinate ..... *Ralliharpirhynchus*
5. – Body elongate, sacciform. Dorsal shield well developed. Legs I and II inserted ventrally. Setae *ve, sci* and *sce* set close to each other 6
   – Body not sacciform but either dome-shaped or wider than long and narrowed posteriorly. Dorsal shield variable. Insertion of legs I-II variable 7

6. – Legs I-II moderately reduced in size. Legs I with two to four free segments. Legs II with two to three free segments. Both legs with a pair of claws and a ciliated empodium ..... *Neharpyrhynchus*
   – Legs I-II strongly reduced: legs I with only one very short segment bearing or not claws and an empodium. Legs II either similar to legs I or completely lacking ..... *Metharpyrhynchus*
7. – Body dome-shaped, with two postero-lateral cuticular lobes carrying the small legs III and six pairs of thin and short setae. Dorsal shield much wider than long. Posterior third of dorsum with two very large paramedian lobes (legs IV) bearing each 20-24 strong setae. Legs I-II inserted marginally with three free segments; tarsi I-II with claws and ciliated empodium. Palptibia with three palpalae .... *Anharpyrhynchus*
   – Body wider than long, with two broad lateral lobes, behind these lobes the body is regularly narrowed. Dorsum without median shield. Ventral surface without a pair of voluminous lobes bearing 20 to 25 pairs of strong setae. Palptibia with two palpalae 8
8. – Setae *sci* and *sce* modified into very short spinelets. Lateral lobes situated in the anterior third of body. Legs I and II ventral and bearing claws and empodium ..... *Harpyrhynchiella*
   - Setae *sci* and *sce* are normal and pectinate. Lateral lobes situated in the middle of the body. Legs I and II marginal and lacking claws and empodium .... *Cypsharpirhynchus*

DESCRIPTIONS OF THE SPECIES

Genus *Harpirhynchus* MEGNIN, 1877

= *Harpirhynchus* MEGNIN, 1877: clxix; 1878: 424, 428, 431, 436, 437, 438, 439, 440, 441, pl. XXX; BERLESE & TROUESSART, 1889: 137.
Harpyrhynchus MEGNIN, 1877: 429; DUBININ, 1954: 94; FRITSCH, 1954: 177; LAWRENCE, 1959c: 177; MOSS *et al.*, 1968: 377, FAIN, 1972: 49.
Harpyrynchus MEGNIN, 1878: 421.
Harpirhyncus OUDEMANS, 1907: 75.
Sarcoborus OUDEMANS, 1907: 75.

The name *Harpirhynchus* is derived from two Greek words: harpe = hook and rhunchos = bill (MEGNIN, 1878, p. 421).
The type species of this genus is *Sarcoptes nidulans* NITZSCH, 1818, not MEGNIN, 1877.
This genus includes at present two subgenera, i.e. the nominotypical subgenus and the subgenus *Harpyrhynchoides* (see above).The subgenus *Harpyrhynchoides* FAIN, 1972 has been revised by FAIN, 1994. I redescribe here the three species known in the nominotypical subgenus.

1. *Harpirhynchus (Harpirhynchus) nidulans* (NITZSCH, 1818)

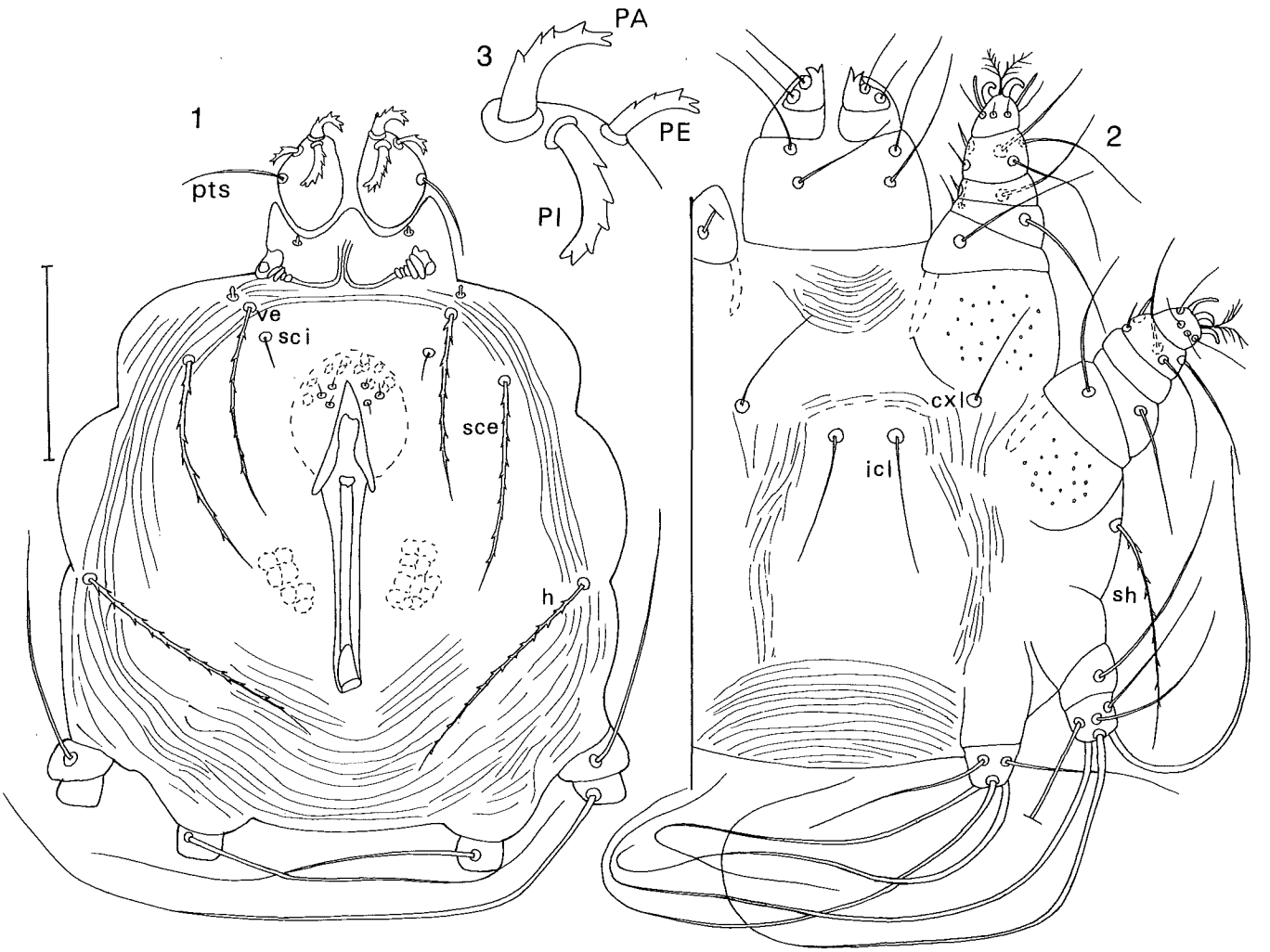
Sarcoptes nidulans NITZSCH, 1818: 250.
Harpirhynchus nidulans MEGNIN, 1877: clxix; 1878: 429.
Harpirhynchus megnini HEIM, 1892: cxxxiii.
Harpyrhynchus nidulans FRITSCH, 1954: 180; DUBININ, 1957: 95.

We give here a description of this species based on specimens found in sebaceous cysts situated at the bases of the wings in the typical host *Chloris chloris*, from Switzerland.

Male (figs 1-3): L 350; W 280; LS 225; WS 220; LG 105; WG 110; *ve* 105; *sci* 18 (thin, smooth); *sce* 110; *h* 130; *sh* 130; *g1* 3; *g2* 5; *g3* 6; *cxI* 48; *icI* 60; *ωI* and *ωII* thin, slightly narrowed towards the apex and 20 long; sheath of penis about 150 long. Genital setae very thin. Lengths of palpalae in a flattened specimen: PA 24; PI 35; PE 18-20. Legs III with 2, legs IV with one free segments. Tarsus of legs III with 5 to 7 long setae (generally 7); tibia of legs III with 2 long setae; tarsus of leg IV with 4 to 6 long setae.

Female (figs 4-5): Measurements of a large non-ovigerous female: L 460; maximum width 350; LG 140; WG 110; *ve* 110; *sci* 120; *sce* 125; *h* 125; *sh* 120; *cxI* 55; *icI* 50; *ωI* 18; *ωII* 20; PA 30; PI 35; PE 25. Legs as in the male. On legs I and II the genua generally bear a thin dorsal seta 40 long, this seta is lacking in some specimens. Setae *icIII* are lacking in both sexes. Measurements in a large ovigerous female: L 540; W 375. Others characters as in the non-ovigerous female. In a very young female: L 390; W 325.

Hosts and localities:
Nitzsch (1818) described this species from specimens found in yellowish skin tumors located on the wings in a Greenfinch, *Chloris chloris* (L.) (= *Fringilla chloris*), Fringillidae. This mite was recorded again by several authors. MEGNIN (1877 and 1878) redescribed and depicted it from specimens found in skin tumors in an "Alouette" (= Lark) (Alaudidae), in France. In spite of minor differences with the drawings of Megnin I think that the specimens that I have seen from *Chloris chloris* from Switzerland also belong to this species, they were found in skin cysts. BERLESE (1884) confused the species with *Neharpyrhynchus pilirostris* (see below, our discussion about this species). FRITSCH (1954) redescribed and depicted this species from specimens found in skin tumors in *Coccothraustes coccothraustes* in Germany. DUBININ (1957) depicted all the developmental stages of *H. nidulans*.
This species is probably able to parasitize several families of Passeriformes. Until now it has been found only in skin tumors located at the bases of the wings.



Figs 1-3. – *Harpirhynchus (Harpirhynchus) nidulans* (NITZSCH). Male: dorsal view (1); ventral view (2); palpalae, enlarged (3). Scale line 100 μm (figs 1-2).

2. *Harpirhynchus (Harpirhynchus) agapornis* FAIN, 1972

Male, holotype (figs 6-7): L 189, W 148; LS 96; WS 105; LG 52; WG 66; *ve* 48; *sci* 4, very thin; *sce* 64; *h* 59; *sh* 78; *g1* 1,5; *g2* 8,5; *g3* 9,6; *icI* 48; *icIII* 45-55; *cxI* 50-60; PA 25-30 with 10-11 teeth; PI about 25, with 16-19 teeth; PE about 19-22, with 12-15 teeth and thinner than PI; *ωI*, 12; *ωII* 8,5; both solenidia slightly curved and ending in a very thin and short point, the *ωI* thicker (2,2) then *ωII*.

Male aperture situated at 45 from anterior margin and at 54 from posterior margin of dorsal shield; sheats 60 long, originating in posterior region of body and slightly curved. Apical segment of legs III-IV with 5 and 4 long setae respectively; preapical segment of leg III with 2 long setae.

Female (figs 8-9): L 279; W 220; LS 111; WS 135; LG 63; WG 82; *ve* 60; *sci* 72; *sce* 75; *h* 81; *sh* 87; *g* 7, very thin; *l5* 42. PA 20 long, with 11 teeth; PI much thinner, 25 long, with 15-16 teeth; PE thinner than PI, 20 long, with 8-9 teeth; *ωI* 9,5; *ωII* 7,2, shaped as in the male; legs III and IV as in the male; cuticle striated without scales.

Host and locality:

Holotype male from *Agapornis roseicollis*, originating from South Africa and which died during its quarantine in the Zoo of Antwerp. Paratypes: 9 females, 1 male and 7 nymphs, with the same data as the holotype (February and March 1965). Other specimens from *Agapornis pullarius* (13 September 1963): 4 females; and from *Agapornis nigrigenis* (13 March 1964): 5 females. The mites were embedded in the superficial corneous layers of the skin.

Holotype male and 4 paratypes female in MRAC; 2 paratypes male, 5 paratypes female and 7 nymphs in IRSNB.

Remarks:

This species is clearly distinguished from *H. nidulans*, in both sexes by the much smaller size of the body. In addi-

Fig. 4. – *Harpirhynchus (Harpirhynchus) nidulans* (NITZSCH). Female in dorsal view. Scale line 100 μm.

tion the male differs from it by the more posterior situation of the genital aperture and the shorter penis. In the female the body is more rounded, the setae ic III and *g* are present, the dorsal shield is much narrower, the *l5* are shorter and thinner and the apical segments of legs III and IV bear only five and four setae respectively.

3. *Harpirhynchus (Harpirhynchus) cylindripalpus* FRITSCH, 1954

Harpyrhynchus cylindripalpus FRITSCH, 1954: 183.

This species is known only from the female and the larva found "subcutan" on *Fringilla coelebs*. It is provisionally included in the nominotypical subgenus until the male is described. The female is distinguished from all the other species in the genus by the elongation of the palptibia. According to the drawings and the description of Fritsch the palpalae are not pectinate nor dentate, the palptarsis is lacking a bifid claw and the legs III and IV bear 8 and 6 apical long hairs.

I have collected a female, two larvae and a deutonymph of this species, from *Passerina ciris*, which died in the Zoo of Antwerp (28 June 1964). In this female the palpalae are pectinate in their apical two thirds, the palptarsus has an usual bifid claw and the single segment of tarsus III bears seven and that of tarsi IV five to six long setae. The legs I and II have only four free segments (genu and femur fused) and their tarsi bear a pair of claws and a ciliated empodium.

Genus *Neharpyrhynchus* FAIN, 1972 nov. status

= *Harpirhynchus (Neharpyrhynchus)* FAIN, 1972: 50.

Definition: See above.

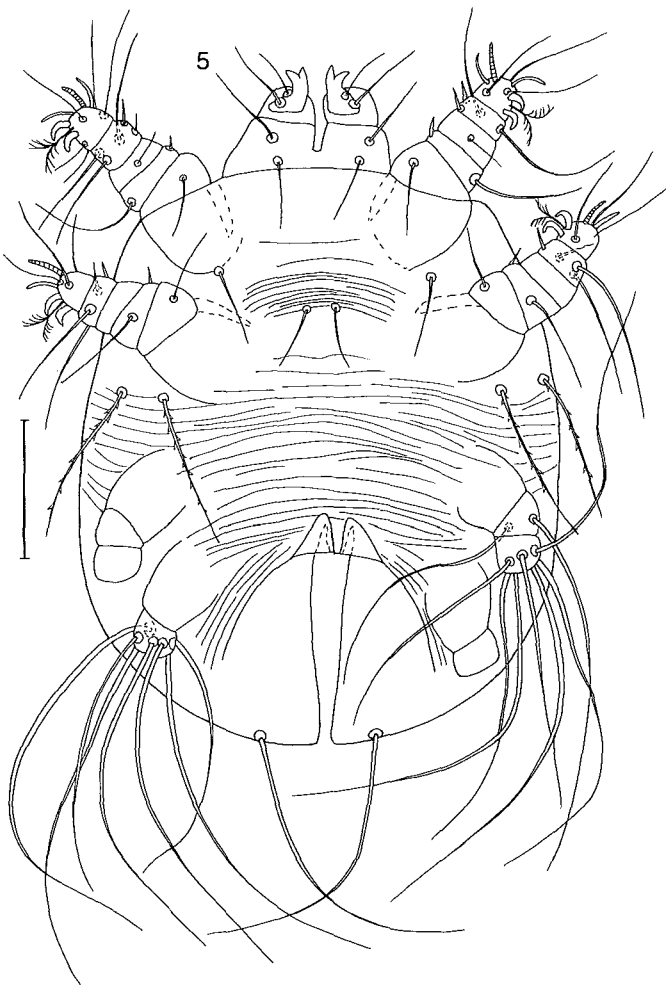
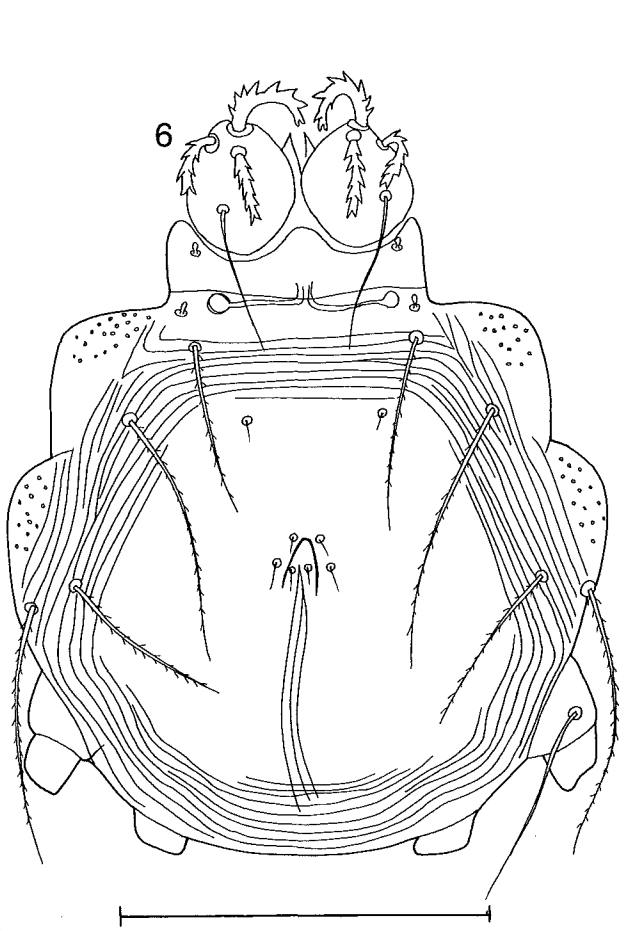


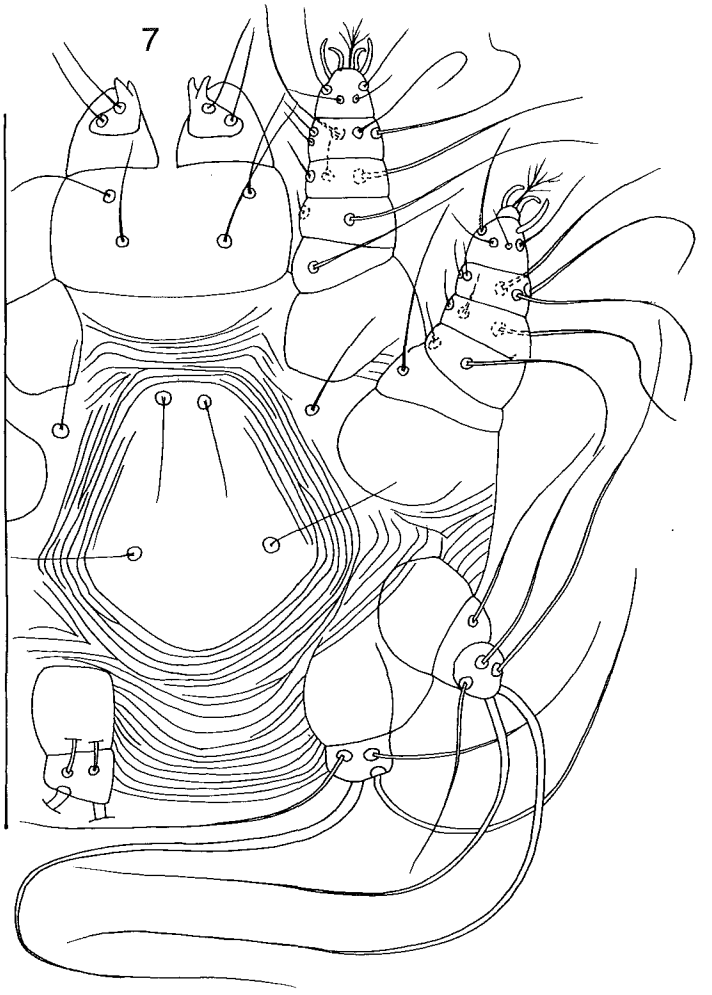
Fig. 5. – *Harpirhynchus (Harpirhynchus) nidulans* (NITZSCH). Female in ventral view. Scale line 100 μm.

KEY TO THE SPECIES OF THE GENUS *NEHARPYRHYNCHUS*

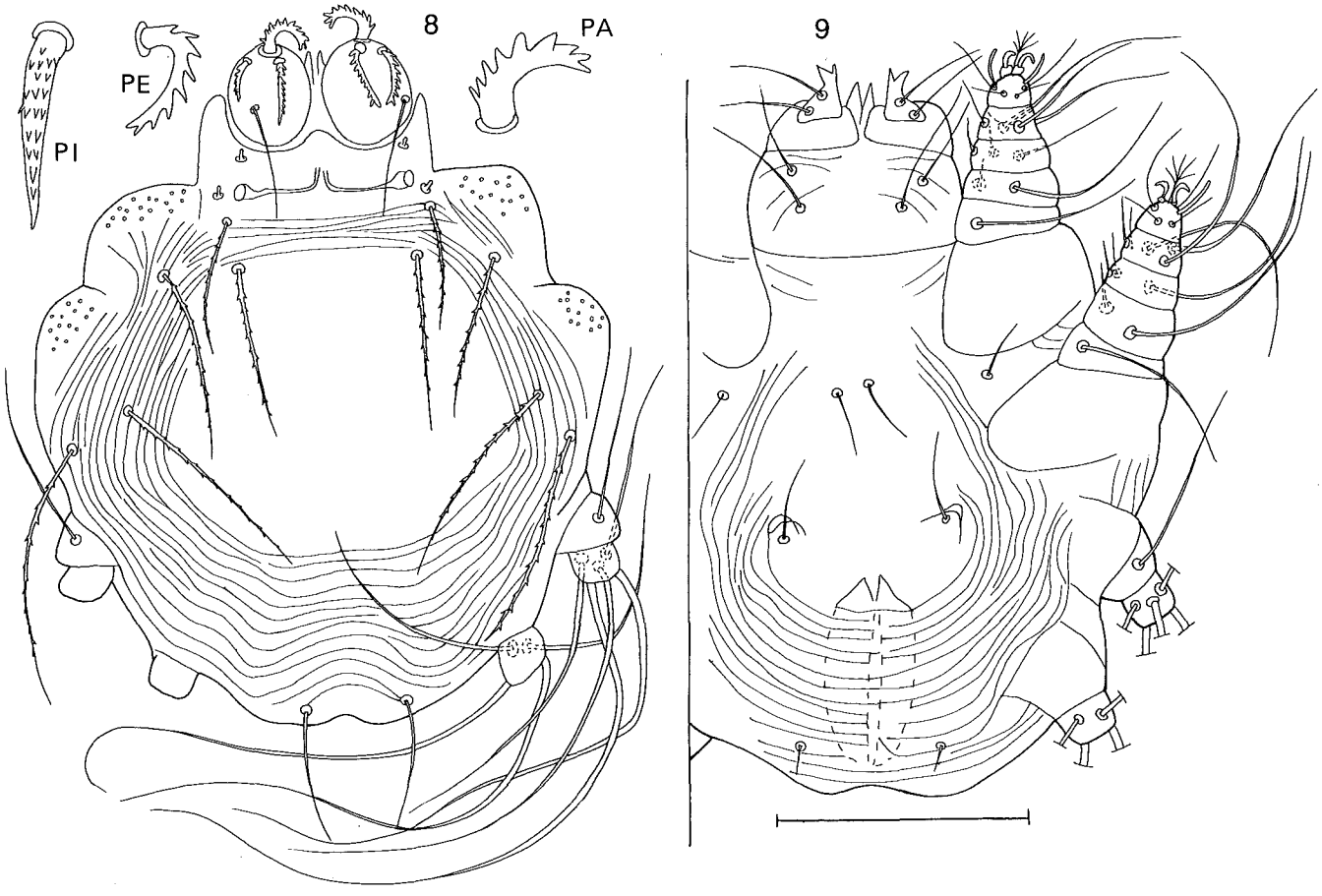
(Females)

1. – Anterior region of propodonotum with four to five transverse rows of cuticular productions, either rounded verrucosities or triangular scales 2
   – Anterior region of propodonotum without cuticular productions 3
2. – Anterior region of propodonotum with numerous, flat, rounded or elongate verrucosities. Venter without scales. Legs I-II with two short free segments. Legs III with one free segment. Legs I with strongly developed lobes at their bases .... *N. pilirostris*
   – Anterior region of propodonotum with triangular scales. Region behind legs II with numerous scales. Legs I with four free segments. Legs III with two free segments. Lobes at bases of legs I absent or poorly developed ..... *N. squamiferus*
3. – Dorsal shield deeply excavated in midline. The seta *pts* is pectinate. Legs I longer and narrower, with four distinct free segments. Lobes at bases of legs I short, rounded ..... *N. trochilinus*
   – Dorsal shield with anterior margin slightly concave. The seta *pts* is smooth. Leg I shorter and thicker, with two or three distinct free segments. Lobes at bases of legs I longer ..... *N. plumaris*





Figs 6-7. – *Harpirhynchus (Harpirhynchus) agapornis* FAIN. Holotype male, in dorsal view (6) and ventral view (7). Scale line 100 μm.



Figs 8-9. – *Harpirhynchus (Harpirhynchus) agapornis* FAIN. Female in dorsal view (8) and ventral view (9). Scale line 100 μm.

1. *Neharpyrhynchus squamiferus* (FAIN, 1972) nov. comb.

Harpirhynchus (Neharpyrhynchus) squamiferus FAIN, 1972: 55.

Female, holotype (figs 10-16): L 630; W 410 (maximum width); LG 114; WG 150; LS 165; WS 360; *sci, sce* and *ve* barbed, strongly curved, approximately 100 to 120 long; *h* and *sh* 15; *l5* strong, 225; PA short and very thick at its base, with strong teeth; PI 32 long and 8 thick at base, with about 10-12 teeth; PE about 9 thick at its base and shorter than PI, with about 9-10 teeth; *ωI* and *ωII* cylindrical, short and narrow.
Anterior region of the dorsum with several rows of triangular scales. The region behind the shield with striations very sinuous and scaly. Venter with scaly areas behind the legs II and inside the legs III. Legs I narrow, partly ventral, relatively narrow and with 4 free segments. Legs II shorter than legs I, with 2 distinct segments. Tarsi I-II with 2 claws and a ciliated empodium. Legs III ventrolateral with 2 free segments, a subapical bearing 4 long setae and an apical bearing 5 long setae; legs IV unisegmented bearing 4 long setae.

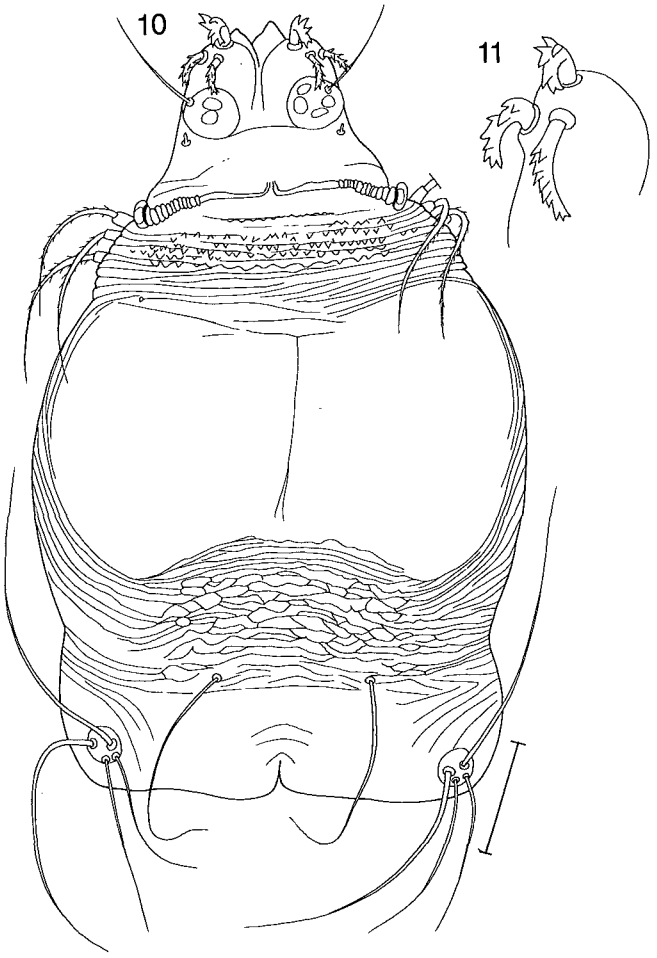
Male: Unknown.

Host and locality:
Holotype and only known specimen, taken from *Temenuchus pagodarum* from India. This bird died in the Zoo of Antwerp during its quarantine (25 May 1962). Holotype in IRSNB.

2. *Neharpyrhynchus trochilinus* (FAIN, 1972) nov. comb.

Harpirhynchus (Neharpyrhynchus) trochilinus FAIN, 1972: 55.

Female, holotype (figs 17-19): L 465; W maximum 305; LG 102; WG 115; LS 118; WS 290; *ve* 180; *sci* 160; *sce* 150. Palpalae relatively long and narrow, the PA slightly thicker than PI. PE about 25-28; PI 30-33; PA about 30. The seta *pts* is distinctly serrate. Setae *l5* strong, about 250 long. Legs I with 4 clearly defined free segments; legs II with only 3 free segments. Tarsi I-II with 2 claws and a ciliated empodium. Lobes at the bases of legs I poorly



Figs 10-11. – *Neharpyrhynchus squamiferus* (FAIN). Holotype female in dorsal view (10); palpalae (11). Scale line 100 μm (fig. 10).

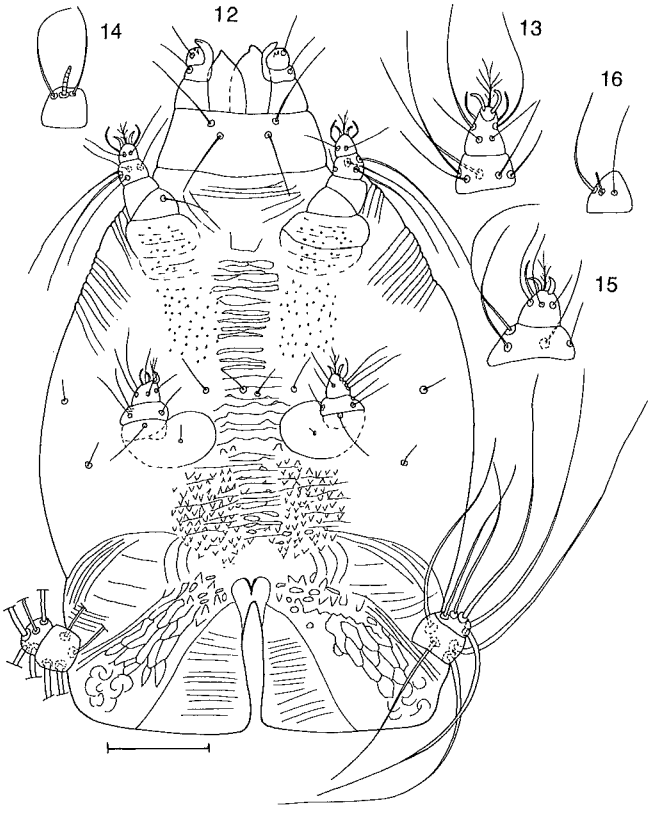
to moderately developed. Legs III and IV with only one free segment bearing 5 long setae.

Male (figs 20-25): L 235; W (maximum) 189; LS 156; WS 168; LG 60; WG 62; *ve* 90; *sci* 21 very thin and smooth; *sce* 100; *ωI* and *ωII* subcylindrical, very narrow, 12 long; setae *pts* long and pectinate. Palpalae with long teeth; approximative length in a paratype: PA 25-30, PI 28-30, PE 18-21. Male aperture slightly closer to the anterior border of shield than to the posterior border. Sheath of penis 30 long, originating in posterior region of the shield, not curved. Male opening surrounded by 3 pairs of very short setae, the two posterior pairs set close to each other. Legs III and IV formed of one segment bearing 5 long setae.

Host and locality:
Holotype female from an Hummingbird (Colibri) (Trochilidae) originating from South America and which died in the Zoo of Antwerp during its quarantine (12 September 1963). Paratypes: 4 females and 1 male with the same data as holotype; 2 females, 1 male and 6 larvae from unidentified Colibri (31 January 1958); 1 male, 5 ovigerous female and 2 nymphs from *Chrysolampis moschitus* (19 November 1963). All these birds originated from South America and died in the Zoo of Antwerp during their quarantine. Holotype in IRSNB.

3. *Neharpyrhynchus pilirostris* (BERLESE & TROUESSART, 1889) nov. comb.

= *Harpirhynchus pilirostris* BERLESE & TROUESSART, 1889: 137-138.
= *Sarcopterus pilirostris* (BERLESE & TROUESSART, 1889) BERLESE, 1894, fasc. 73, tav. 5, figs 1-5; nec *Sarcopterus nidulans* NITZSCH, 1818.
= *Harpyrhynchus ovalis* FRITSCH, 1957: 193, fig. 10; LAWRENCE, 1959: 424 (deutonymph).



Figs 12-16. – *Neharpyrhynchus squamiferus* (FAIN). Holotype female in ventral view (12); leg I in ventral view (13) and in dorsal view (14); leg II in ventral view (15) and dorsal view (16). Scale line 100 μm (fig. 12).

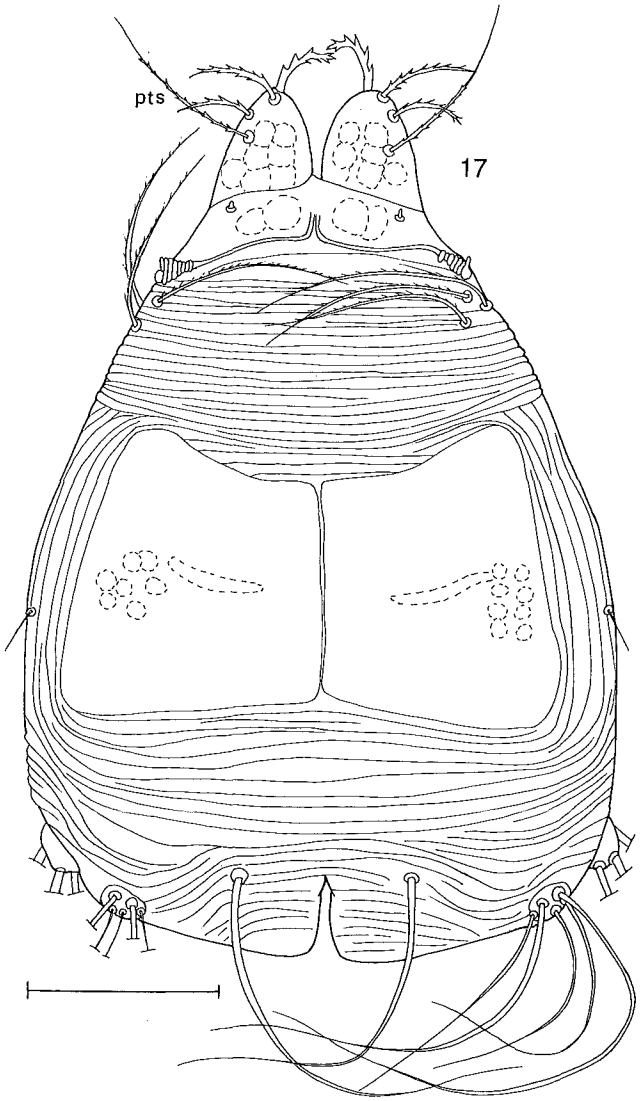


Fig. 17. – *Neharpyrhynchus trochilinus* (FAIN). Female in dorsal view. Scale line 100 μm.

Review of the literature

In a preliminary note, without figures, BERLESE and TROUESSART (1889) described three new species of *Harpirhynchus* Megnin, 1877. Among them two were collected from *Passer domesticus*: one, *H. pilirostris*, was taken from the skin of the head of a bird collected in France; the other, *H. holopus*, was found in the skin at the base of the wing, the locality of the bird was not precised. The third species, *H. crista-galli*, was collected from *Colius striatus*, from South Africa.

In their description of *H. pilirostris*, the authors noted that this species clearly differed from *H. nidulans* (Nitzsch) by the following characters: in the ovigerous female the body was elongate and sacciform, the anterior legs were inserted ventrally and the palps carried three setae as long as the palps themselves and curved apically; the male of *H. pilirostris* had a smaller size and its penis was more posterior than in *H. nidulans*.

In their description of *H. holopus* the authors noted that, in both sexes, all the legs are equally long and end in two claws separated by a small brush that they call *pulvillum*. The gnathosoma is small but the palps are thick and short ending in two small spines with a pointed apex, the preapical segment bears three small, short, straight and simple setae. In the male the penis is strongly curved and the genital opening situated at the level of legs IV.

BERLESE (1893), rejected the name *Harpirhynchus*, given by MEGNIN (1877) for *Sarcoptes nidulans* NITZSCH (1818), and replaced it by the name *Sarcopterus* GIEBEL, 1871, ignoring that this name was preoccupied and homonymus with *Sarcopterus* RAFINESQUE, 1814 (Mollusca). He proposed the following key for these four species:

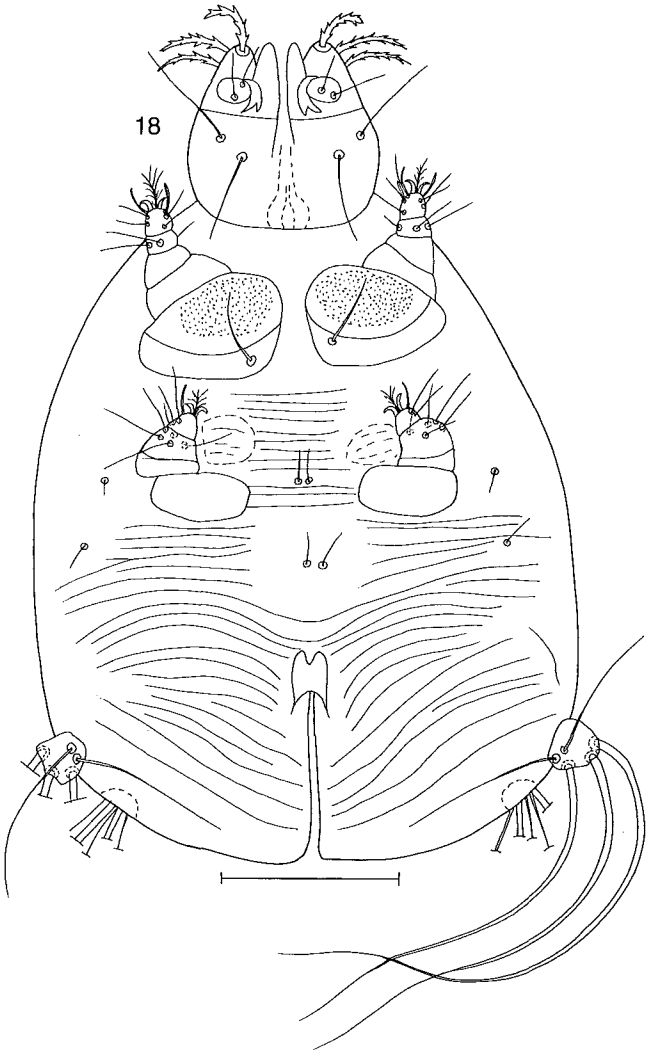


Fig. 18. – *Neharpyrhynchus trochilinus* (FAIN). Female in ventral view. Scale line 100 μm.

1. – Palptibia bearing three strong backwardly recurved hooks 2
   – Palptibia without hooks but bearing backwardly recurved setae 3
2. – Palptibial hooks (= *ungues*) moderately developed, with margins only slightly serrated ... *S. nidulans*
   – Palptibial hooks strong and deeply serrated .... *S. crista-galli*
3. – Legs III-IV well developed and with well distinct ambulacra ..... *S. holopus*
   – Legs III-IV short, "mucronate", without ambulacra and bearing setae ..... *S. pilirostris*

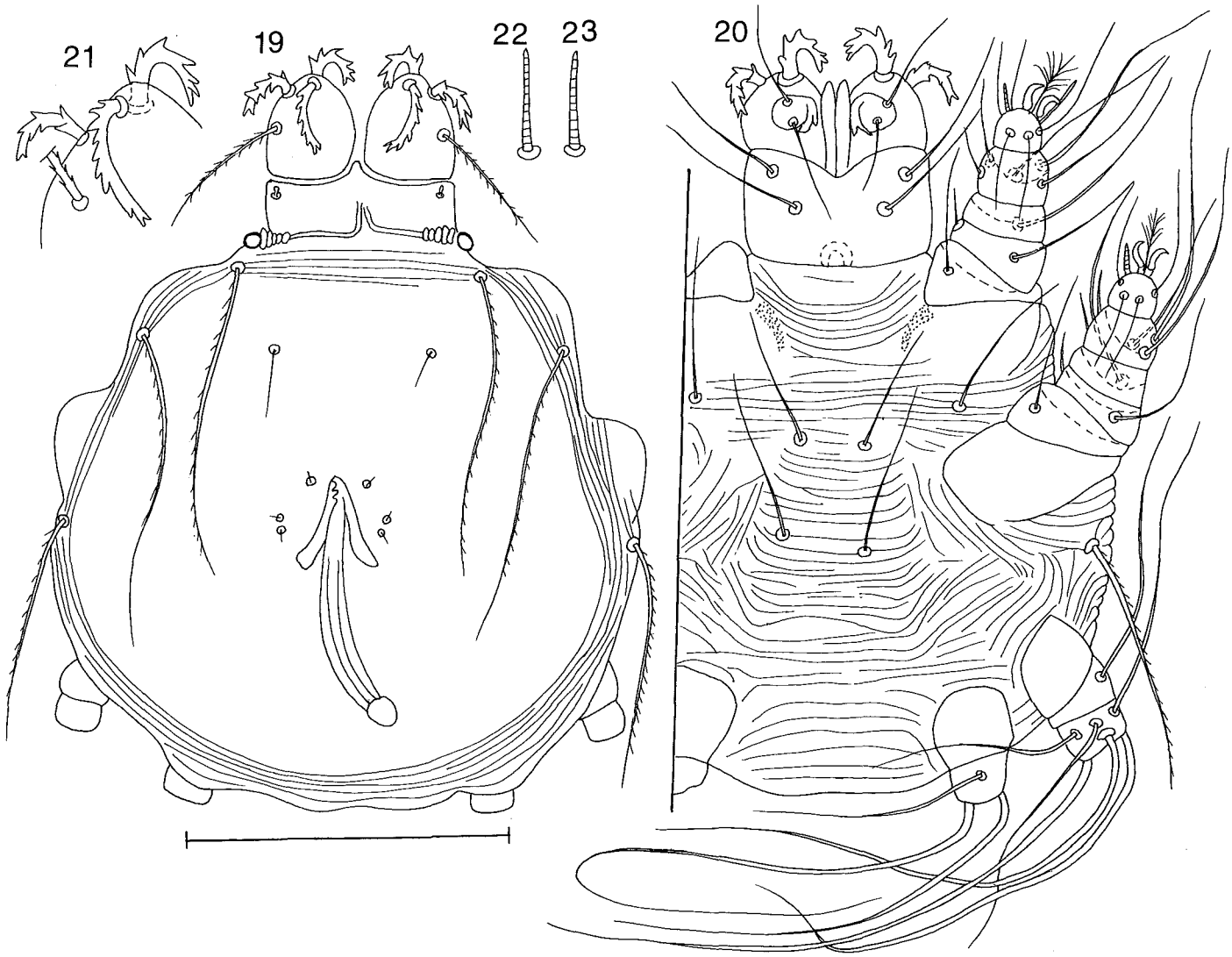
In this key BERLESE did not mention the elongate, sacciform aspect of the body and the ventral situation of the anterior legs in *S. pilirostris*, as it appeared in the original description. In a following paper, BERLESE (1894, p. 118 and 119) completed the description of these species and provided the first figures of three of them. In the Fasc. 73, Tav. n° 5, figs 1 to 5, he depicted the female of a mite that he named "*S. nidulans*" but which in fact corresponded closely to the original description of *H. pilirostris* by BERLESE & TROUESSART (see above).

FRITSCH (1954), probably mislead by the errors of BERLESE, did not recognize the close affinities existing between his *H. plumaris* and *H. pilirostris*. His new species, *H. ovalis*, described from *Passer domesticus*, was not a female, as he believed but a deutonymph, as shown by LAWRENCE (1959a). In fact, *H. ovalis*, could also be a deutonymph of *H. plumaris*.

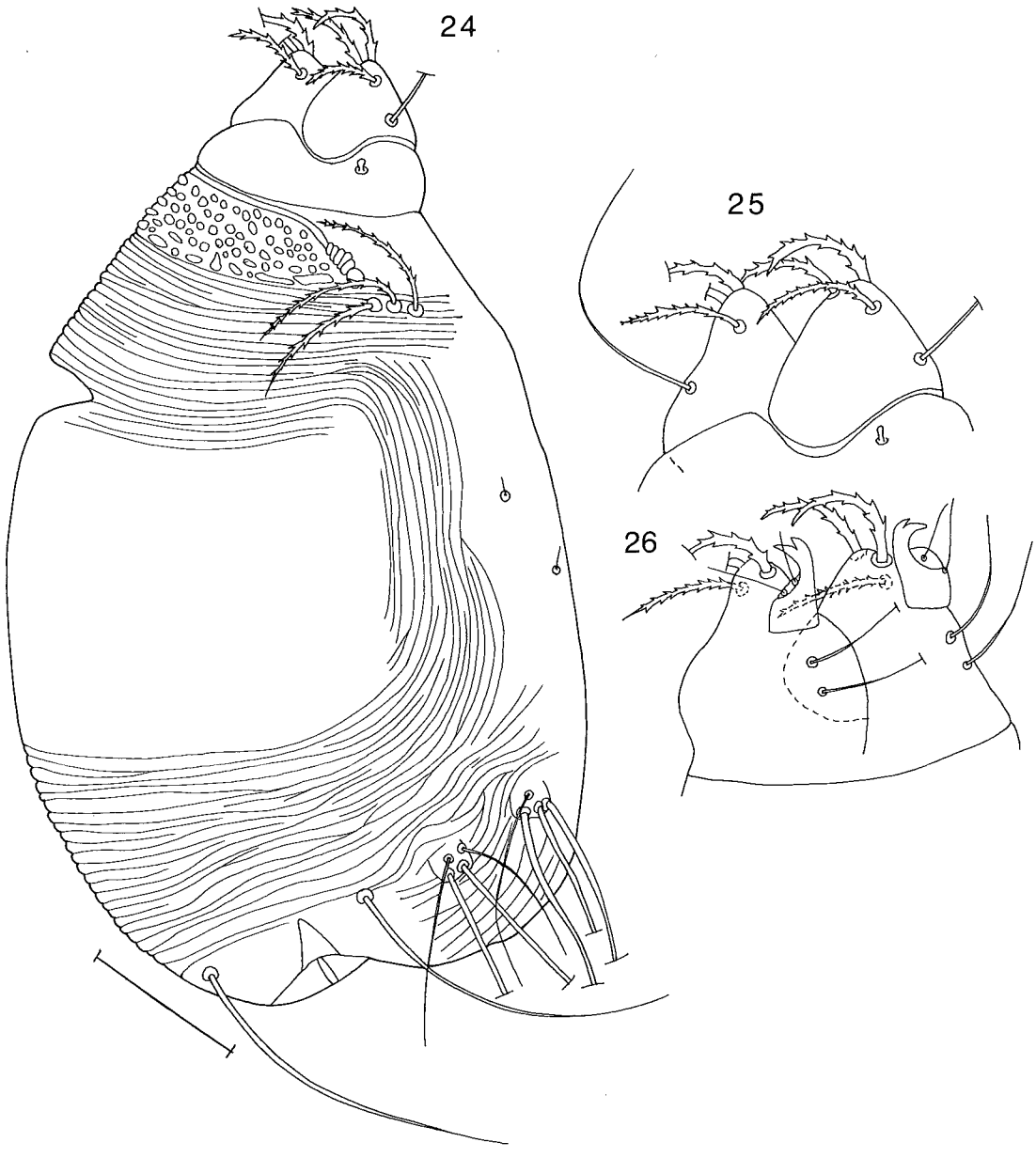
LAWRENCE (1959b) has examined the original material of *H. pilirostris* and provided good figures of the palpalae and the antero-dorsal setae of *H. pilirostris*.

Description of *N. pilirostris* and designation of a lectotype

I have examined two slides of the typical material of this species. They contain on total eight females and one deutonymph. They are labelled "*Sarcopterus (Harpirhyn-*



Figs 19-23. – *Neharpyrhynchus trochilinus* (FAIN). Male, in dorsal view (19) and in ventral view (20); palpalae (21); *ωI* (22); *ωII* (23). Scale line 100 μm (figs 19-20).



Figs 24-26. – *Neharpyrhynchus pilirostris* (BERLESE & TROUESSART). Lectotype female, in dorso-lateral view (24); gnathosoma in dorso-lateral view (25) and in ventro-lateral view (26). Scale line 100 μm (fig. 24).

chus) pilirostris Trouessart & Berlese. Sur le Moineau *Passer domesticus*, France" (slides n° 12 I 14 and 12 I 15). I have selected one female as the *lectotype* of this species. No male was present in this material, but according to Prof. Y. Coineau (*in litt.*) the slide containing the male had been loaned abroad and had not been returned.

Lectotype female (slide n° 12 I 15) (figs 24-29): This specimen is mounted in oblique position: L 549; W (in the middle of the body) 345; LS 160 (in midline); WS 240; LG 96; *ve* 135; *sce* 180; *sci* 135; *h* 8; *sh* 8; *l5* 240; *cxI* 25; *icl* 8; PE 50; PI 60 (thicker than PE); PA thicker than PI and 55 long (? incomplete). Setae *ic III* and *g* lacking. Legs I and II with 2 free segments; tarsi with 2 claws and a ciliated empodium. Anterior region of dorsum with 4 to 5 transverse rows of rounded or elongate flat verrucosities. This structure seems to be characteristic for this species.

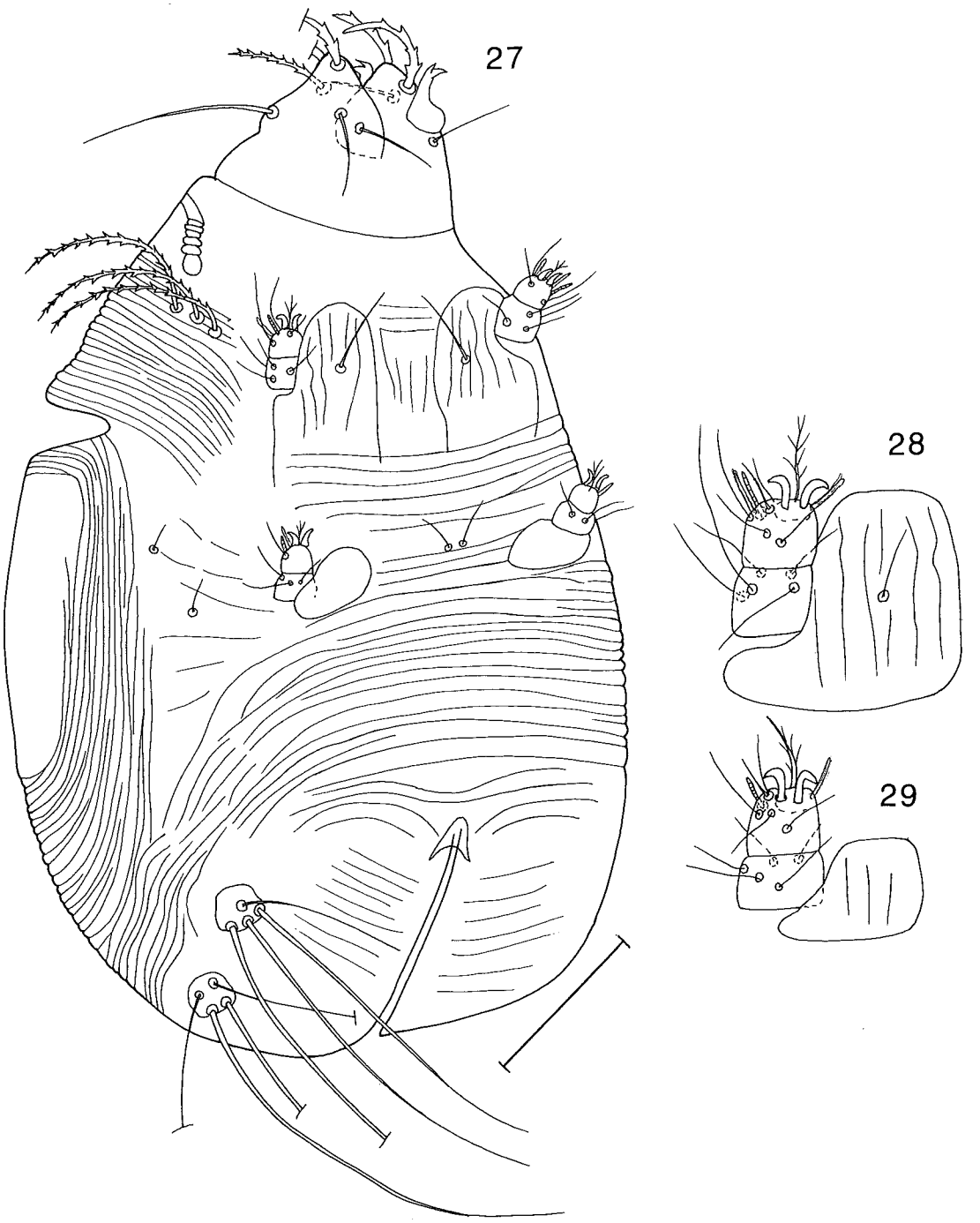
Host and localities:

1. Lectotype and 7 paralectotypes female from *Passer domesticus*, France. Material deposited in the Museum d'Histoire Naturelle, Paris.
2. I have seen a female specimen of this species from the typical host from LAWRENCE, Douglas Co, Kansas, USA, 23.V.1965 (received from Dr W. MOSS).
3. LAWRENCE (1959b) recorded *H. pilirostris* from *Passer domesticus* from Germany and South Africa.

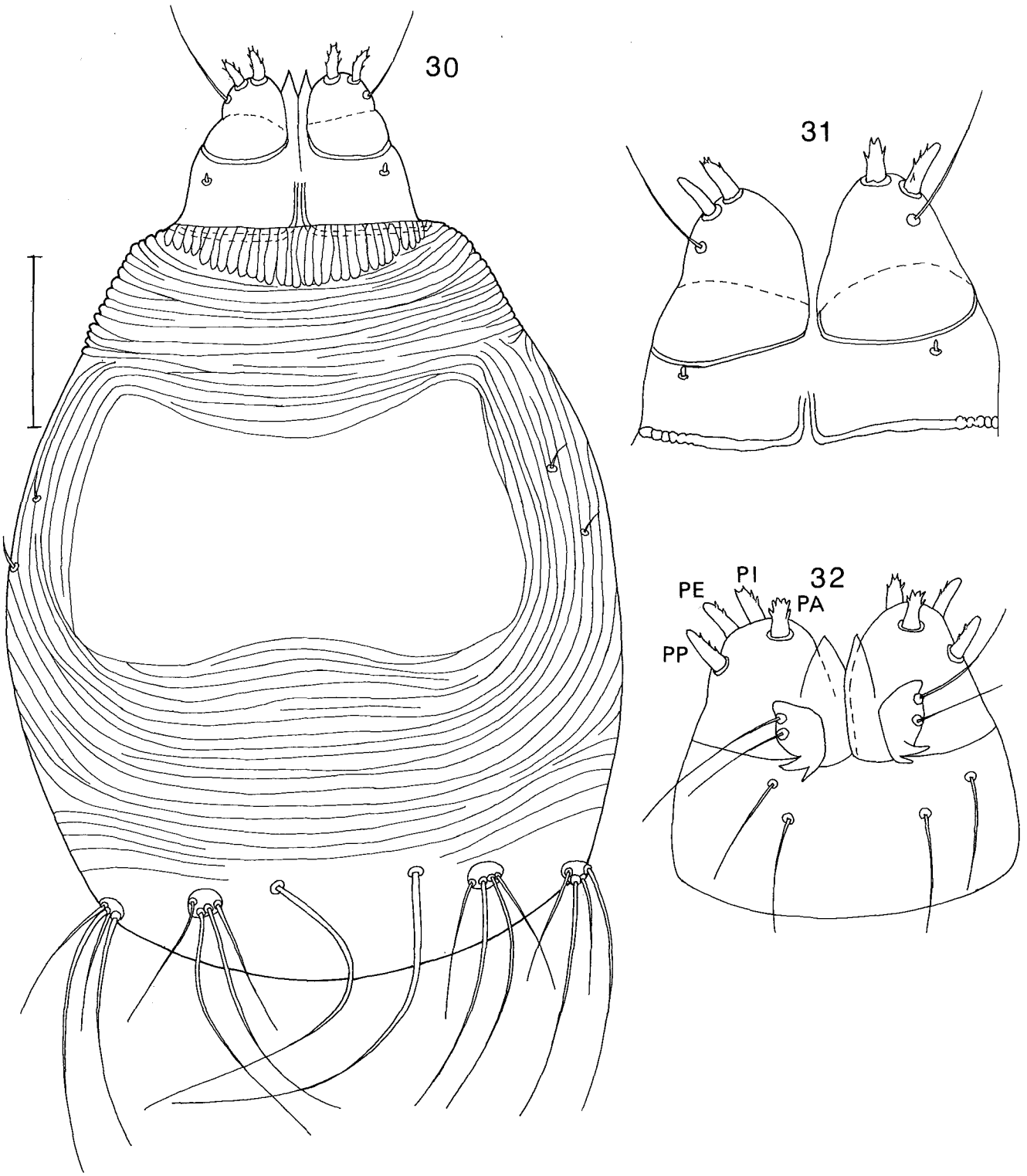
4. *Neharpyrhynchus plumaris* (FRITSCH, 1954) nov. comb.

= *Harpyrhynchus plumaris* FRITSCH, 1954: 193.
= *Harpyrhynchus ovalis* FRITSCH, 1954: 192; LAWRENCE, 1959b: 108.
=? *Harpirhynchus novoplumaris* MOSS *et al.*, 1968: 377.

We have not seen specimens of *N. plumaris*.
FRITSCH (1954) described this species from several passeriform birds from Germany, i.e. *Fringilla coelebs, Chloris chloris, Carduelis cannabina, Muscicapa striata* and *Nyroca ferina*. The mites were attached to the base of the feathers and the eggs remained attached to the female forming a string with a double row of eggs.
The holotype of *H. novoplumaris* MOSS *et al.* (1968) was described from *Certhia familiaris* (Passeriformes: Certhiidae), from USA. Other hosts in USA were *Parus bicolor* (Paridae), *Pipilo fuscus, Amphispiza bilineata* and



Figs 27-29. – *Neharpyrhynchus pilirostris* (BERLESE & TROUESSART). Lectotype female, in ventro-lateral view (27); legs I (28) and II (29). Scale line 100 μm (fig. 27).



Figs 30-32. – *Metharpyrhynchus mossi* n. sp. Female in dorsal view (30); gnathosoma in dorsal view (31) and in ventral view (32). Scale line 100 μm (fig. 30).

Spizella passerina (Fringillidae) and *Campylorhynchus brunnei-capillus* (Troglodytidae).

MOSS *et al.* recognized the very close resemblance of their species with *N. plumaris* but they believed, however, that these species could be separated from each other by the following characters, based mainly on the figures given by FRITSCH:

1. Seta PA thicker and shorter than PE and PI (in *N. plumaris* the three palpalae are thinner, longer and subequal).
2. Lobes at the bases of legs I-II more developed in *N. novoplumaris*.
3. Presence of an empodium in *N. novoplumaris*.

I think that these differences could be explained by some inaccuracies of the figures given by Fritsch. Therefore it should be necessary to examine new specimens from European birds before to decide if *N. novoplumaris* is a valid species.

Genus *Metharpyrhynchus* FAIN, 1972

Definition: See above.

KEY TO THE SPECIES OF THE GENUS *METHARPYRHYNCHUS*

(Female)

1. – Palpalae short or very short and thick, with a few small teeth mainly located in their apical third. Legs II very short, with a pair of small inconstant claws. Legs III and IV consisting of one very small segment bearing 4 or 5 long setae 2
   – Palpalae PI and PE much longer than wide. Legs II completely lacking. Legs III and IV consisting of one large segment 3
2. – With 4 pairs of palpalae (PA, PI, PE and an additional PP). Anterior region of dorsum with a transverse band longitudinally striated. Leg I with only one short segment without claws .... *M. mossi* nov. spec.
   – With 3 pairs of palpalae (PP is lacking). Anterior region of dorsum without longitudinal striations. Leg I with a pair of claws .... *M. namibiensis* nov. spec.
3. – With numerous triangular scales behind the dorsal shield. Anterior region of dorsum with a band formed of numerous sinuous longitudinal striations. Legs III and IV bearing 9 and 10 long setae respectively ..... *M. macrophallus*
   – Body without scales. Anterior region of dorsum with a few thick longitudinal or oblique striations. Legs III and IV with 4 long setae ..... *M. jynx*

1. *Metharpyrhynchus mossi* nov. spec.

This species named for Dr. W.W. MOSS, in recognition of his valuable contribution to the knowledge of the Harpirhynchidae.

Female, holotype (figs 30-37): L 545; W (maximum) 175; LG 105; WG 136; LS 90; WS 210; *ve* about 100; *sci* and *sce* 75 to 90; *sh* and *h* 5-10; *l5* 240; PA 12 long and 7 wide; PI 15 long and 4 wide; PE 13 long and 3 to 4 wide; PP (an additional posterior palpala) 12 long and 3,5 wide. Palpalae with denticulations mostly restricted to their apical part. Anterior region of dorsum with a transverse band of longitudinal striations, this band is 30-35 long in its median part. Legs I formed of one short segment, devoid of claws. Legs II of one short segment bearing or not 2 claws. Legs III and IV with one segment bearing 4 long setae.

Male: unknown.

Host and locality:
Holotype female from *Prinia subflava graueri*, from river Akanyaru, Eastern region of Rwanda (coll. A. FAIN, January 1956). Paratypes: 8 females, 7 nymphs with the same data as the holotype; 1 female and a larva in the molting stage, from Runinya (Eastern Rwanda). Holotype in MRAC, paratypes in IRSNB.

2. *Metharpyrhynchus namibiensis* nov. spec.

Female, holotype (figs 38-44): L 605; W (maximum) 470; LS 150; WS 450; *ve*, *sci* and *sce* 130 to 150; *sh* and *h* 8 to 12; *l5* about 250; PA 18 x 8 to 9; PI 24 x 11; PE 15 x 6-7; all the palpalae are straight and bear a few small teeth on their apical third or half. Anterior region of dorsum without longitudinal striations. Legs I with one segment incompletely divided in two. Both legs I and II with a pair of claws but a ciliated empodium has not been observed.

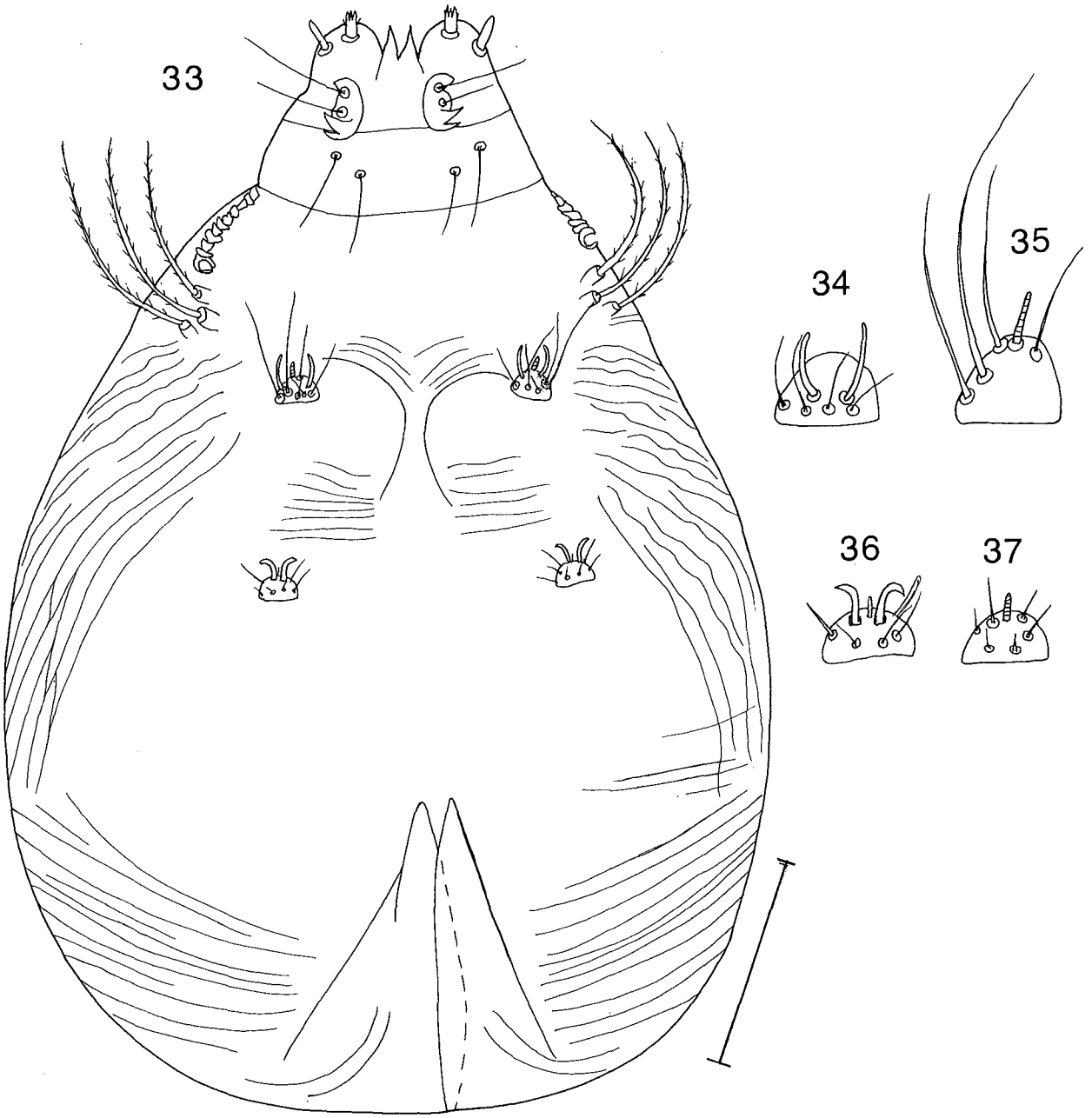
Male: unknown.

Host and locality:
Holotype female from *Philetairus socius*, from Arab, Namibia (coll. F. Lukoschus, 20.X.1980). Paratypes: 12 females, 4 nymphs, 2 larvae, with the same data as the holotype. Holotype in MRAC, paratypes in IRSNB.

3. *Metharpyrhynchus macrophallus* FAIN, 1972

Female, holotype (figs 45-47): L 460; W (maximum in oblique view) 340; LS 140; LG 93; *ve*, *sci* and *sce* 75 to 100; *sh* and *h* 18; *l5* 180 to 200; PA 15-17; PI 29; PE 19 to 25. Posterior region of dorsum with numerous triangular scales; anterior region with a transverse band with numerous very thin, slightly sinuous longitudinal striations. Leg I consisting of a very short segment without claws but bearing 2 eupathidia and a short solenidion. Legs II completely lacking. Legs III with 10, leg IV with 9 long and strong setae.

Male (figs 48-52): L 249; W 205; LS (maximum length in lateral parts of the shield) 120; WS 150; LG 60; WG 78; *ve* 80; *sci* 85; *sce* 82; *h* 90; *sh* 90. Sexual aperture situated on the base of the gnathosoma, there are 2 pairs of genital setae: *g1* very short, *g2* 10-12. Penis and sheath very long (180). PA strongly curved, with long teeth; PI narrower, slightly curved 20; PE narrower than PI and



Figs 33-37. – *Metharpyrhynchus mossi* n. sp. Female in ventral view (33); leg I ventrally (34) and dorsally (35); leg II ventrally (36) and dorsally (37). Scale line 100 μm (fig. 33).

18 long. Basal segment of leg III with one long seta, apical segment with 5 long setae; leg IV with 4 long setae.

Host and locality:
Holotype female from the head of *Padda oryzivora*. This bird died in the Zoo of Antwerp during quarantine (8 May 1962). Paratypes: 2 females, 2 males, nymph and larvae with the same data as the holotype. From the same host species but at other dates: 2 females (6 January 1958); 1 female, nymphs and larvae (14 May 1961); 3 females, 1 male and 1 DN (January 1963).

4. *Metharpyrhynchus jynx* FAIN, 1972

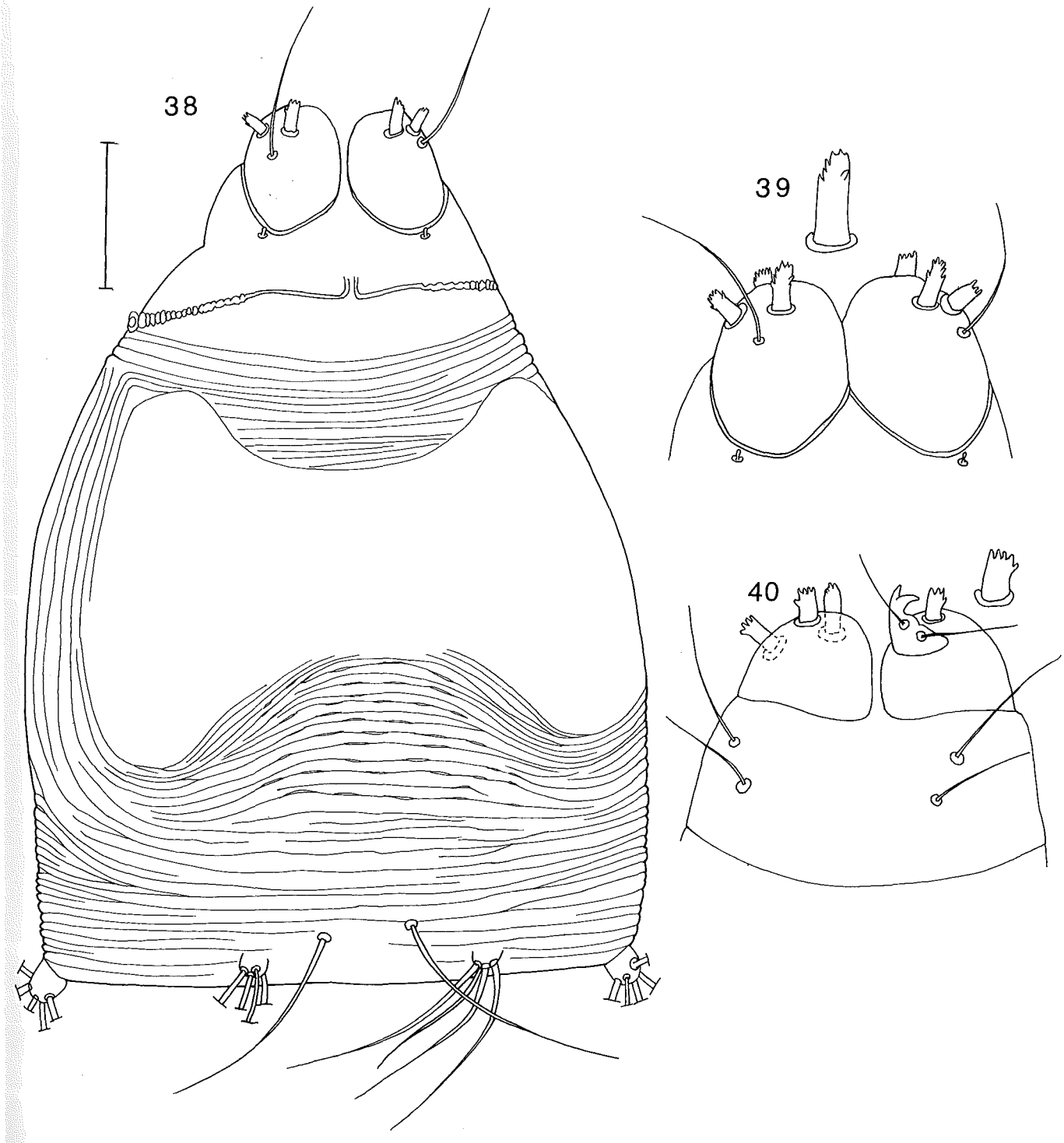
Female, holotype (figs 53-56): L 450; W (maximum) 350; LS 130; WS 210; LG 75; WG 120; *ve*, *sci* and *sce* 95 to 115; *sh* and *h* very short; *l5* thick, 210 long; PA 12 x 5 to 7, with 6 small apical teeth; PI 30, thinner then PA, with 8 teeth; PE 22, with 5-6 teeth. Legs I unisegmented, without claws. Legs II completely lacking. Legs III and IV with one segment bearing 4 strong and long setae.

Male: not known.

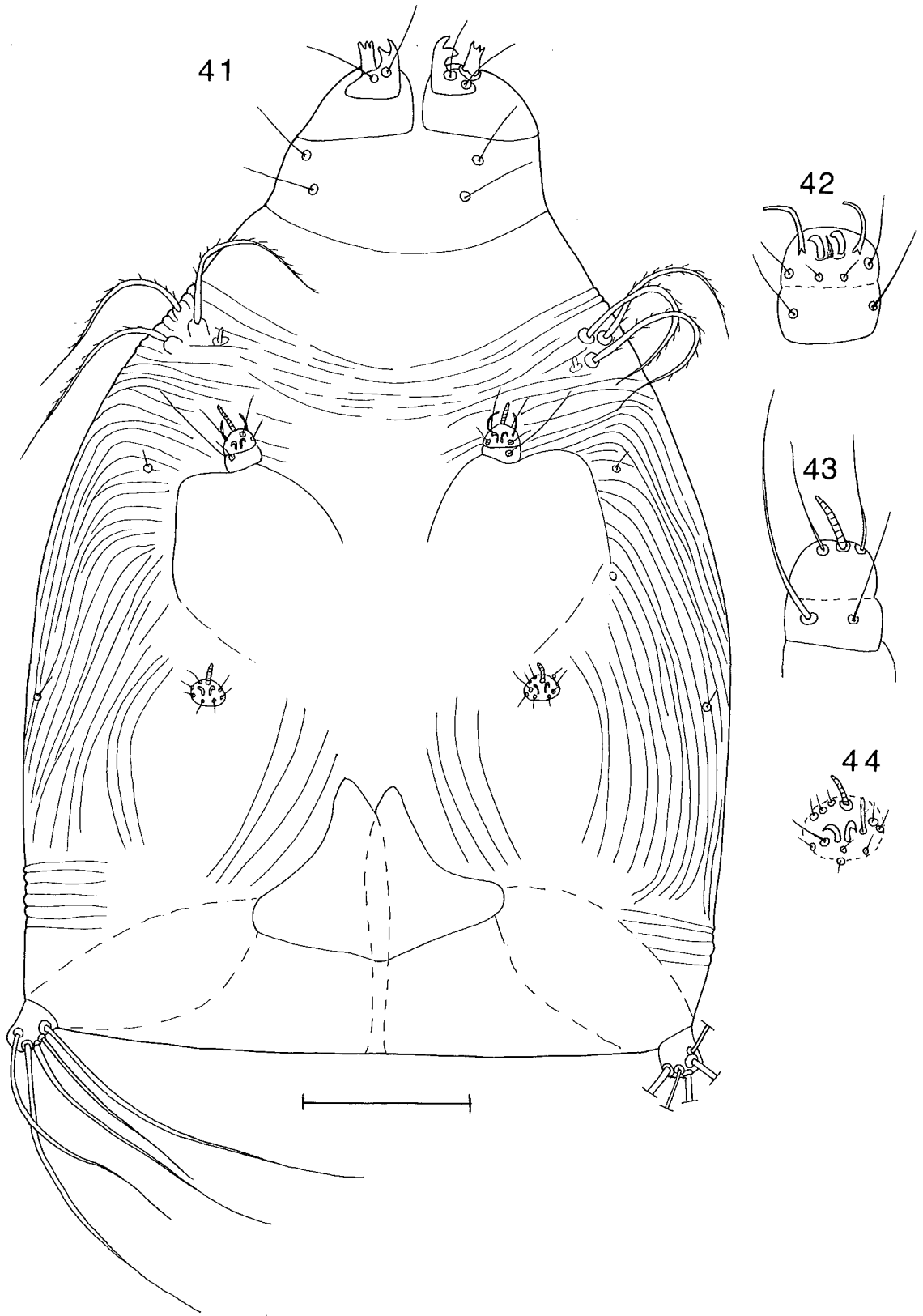
Host and locality:
Holotype female from *Jynx ruficollis*, near River Akanyaru, Rwanda (coll. A. Fain, 3 December 1955). Paratypes: 4 nymphs and 3 larvae with the same data as the holotype. Holotype in MRAC.

Genus *Perharpyrhynchus* FAIN, 1972

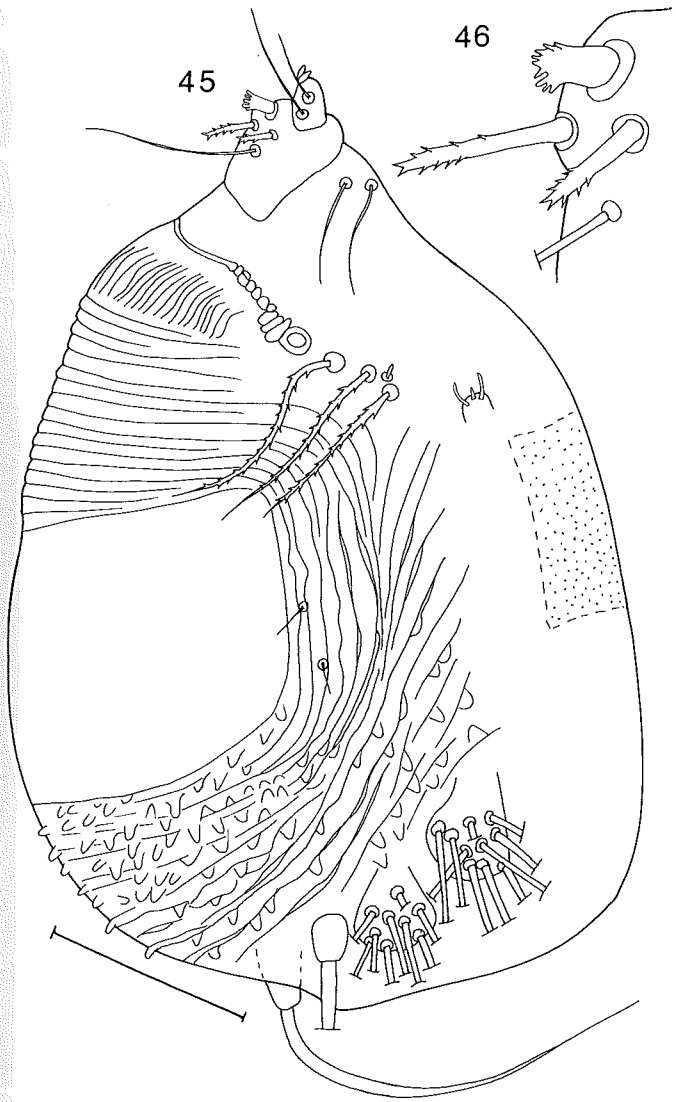
Definition: See above.



Figs 38-40. – *Metharpyrhynchus namibiensis* n. sp. Female in dorsal view (38); palptibiae in dorsal view (39); gnathosoma in ventral view (40). Scale line 100 μm (fig. 38).



Figs 41-44. – *Metharpyrhynchus namibiensis* n. sp. Female in ventral view (41); leg I in ventral view (42) and in dorsal view (43); leg II in ventral view (44). Scale line 100 μm (fig. 41).



Figs 45-46. – *Metharpyrhynchus macrophallus* FAIN. Female in dorso-lateral view (45); palpalae (46). Scale line 100 μm (fig. 45).

1. *Perharpyrhynchus jacana* FAIN, 1972

Male, holotype: L 180; W 130; LS 99; WS 96; LG 48; WG 57; *sci* and *sce* very thin, apparently smooth, 18 and 25 long respectively; *h* very thin, 30 long; *vi* and *sh* lacking. PA relatively long and thick, strongly curved, with 8-10 blunt teeth; PI 18-20, pectinate, thinner than PA; PE short (6), pectinate; *pts* very thin, 13 long. Male opening situated in posterior half of scutum, flanked by 2 pairs of short (4 to 7) setae; sheath of penis 30, originating behind the genital orifice and directed forwards. Legs I-II with 4 free segments (genu and femur fused); legs III well developed with 2 free segments. Legs IV completely lacking. Venter with a few transverse striations behind the level of legs III.

Female, paratype: L 234; W 175, LS 105; MS 123; LG 60; WG 65; dorsal setae very thin; *sci* 27; *sce* 30; *h* 30; *l5* 15. *Venter:* cuticle as in the male, setae *g* lacking.

Host:
Holotype male from *Jacana spinosa intermedia*. This bird died in the Zoo of Antwerp, during quarantine (17.XI.1969). Paratypes: 6 females and 1 larva, with same data as holotype. Holotype in MRAC.

2. *Perharpyrhynchus recurvirostra* FAIN, 1976

This species has been described and depicted previously. We complete here this description and recall some important characters.

Male, holotype: L 300; W 255; LS 150; WS 149; LG 98; WG 105; *sci* 12, very thin; *ve* and *sh* lacking; *h* very thin, 30. Male opening and sheath of penis as in *P. jacana* but longer (50 long). Legs much larger then in *P. jacana*. PA thinner than in *P. jacana*, with 6-7 teeth; PI thinner than PA, 19 long, with small pectinations; PE 10, narrow.

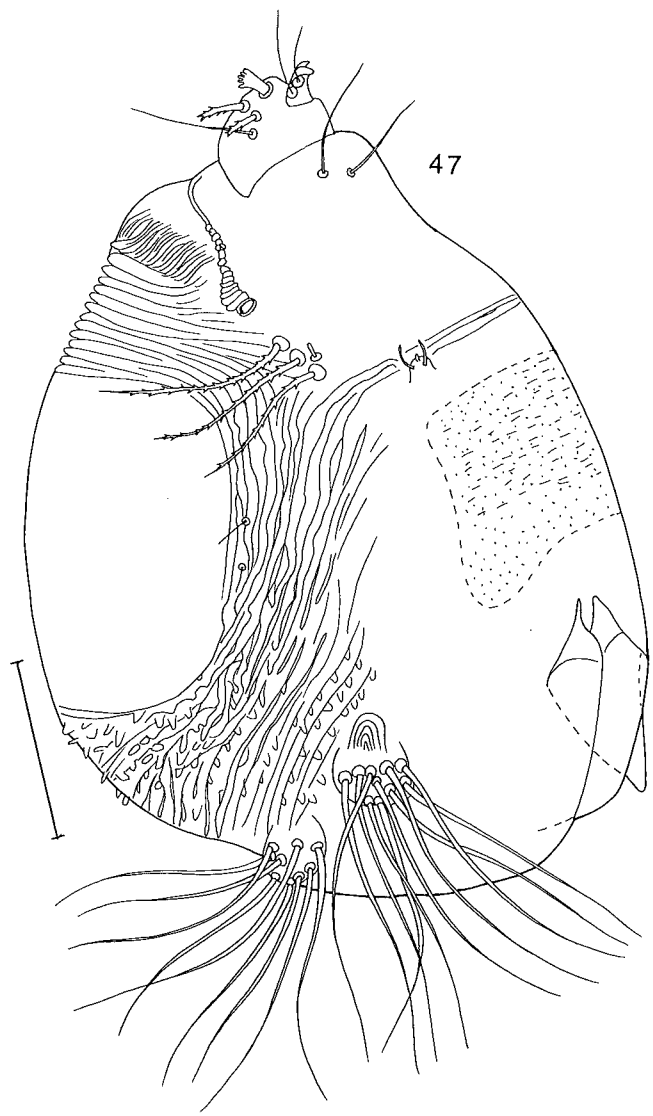
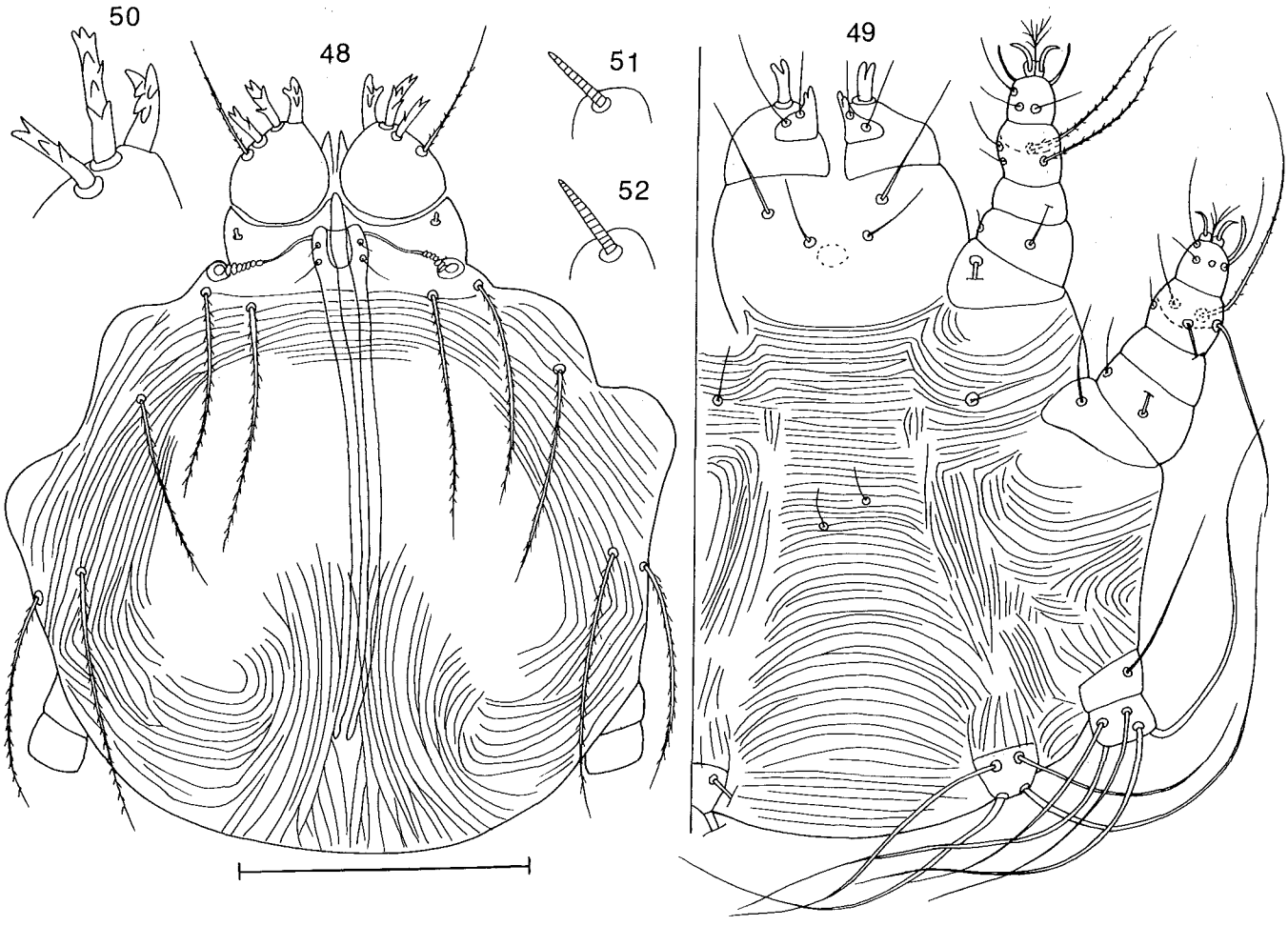


Fig. 47. – *Metharpyrhynchus macrophallus* FAIN. Female in ventro-lateral view. Scale line 100 μm.



Figs 48-52. – *Metharpyrhynchus macrophallus* FAIN. Male in dorsal view (48) and in ventral view (49); palpalae (50); *ωI* (51) and *ωII* (52). Scale line 100 μm (figs 48-49).

Female: L 390; W 315; LS 150; WS 195; LG 90; WG 126; *sci* 18; *sce* 21, both very thin; *h* 48; *l5* 35; setae *ve* and *g* lacking. In our paper of 1976 the setae *g* had been depicted by mistake. Palpalae stronger then in the male. This species differs from *P. jacana*, in both sexes, mainly by the much larger size of most of the organs and the leg chaetotaxy (see below):

Number of setae on legs I and II

	P. jacana		*P. recurvirostra*	
	Male	Female	Male	Female
Genu-femur I	2	2	3	3
Genu-femur II	2	1	3	3
Trochanter I	1	1	0	0
Trochanter II	1	0	0	0

Host:
Holotype male from *Recurvirostra avocetta*. This bird died in the Zoo of Antwerp during quarantine (4 July 1966). Paratypes: 4 females and 5 nymphs. Holotype male and 1 paratype female in MRAC, other specimens in IRSNB.

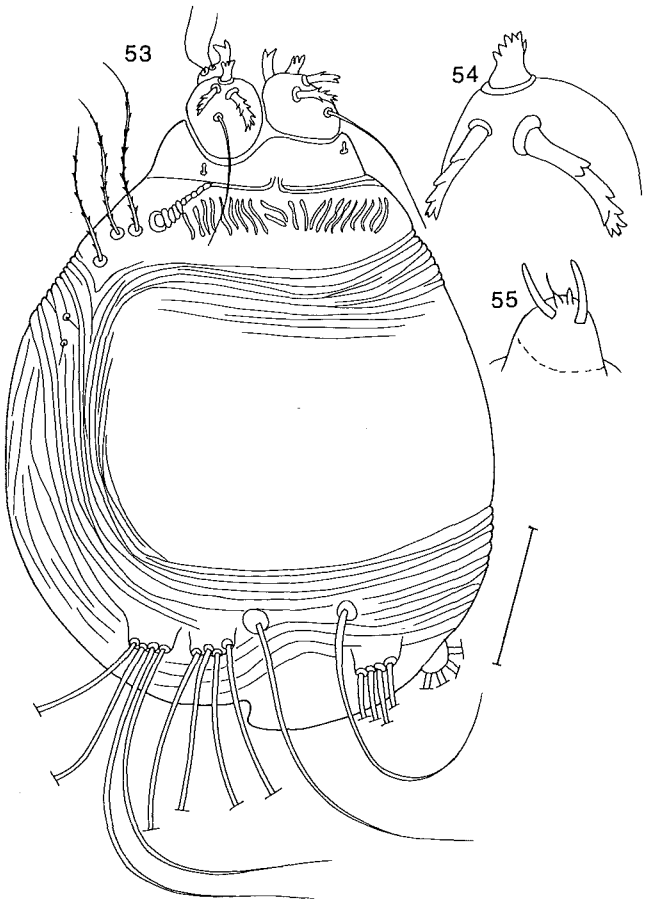
Genus *Ralliharpirhynchus* nov. gen.

Definition: See above.

1. *Ralliharpirhynchus porphyrio* (FAIN, 1972) nov. comb.

Metharpyrhynchus porphyrio FAIN, 1972: 56.

Female, holotype (figs 57-62): L 324; W 305; LS 180 (in midline); WS 300; LG 75; WG 75; *ve* 33; *sci* 39; *sce* 40; *h* 25; *sh* 25; *l5* 45; *g* lacking; PA with 6-7 teeth, approximately 12-15 long; PI 16-22 long; PE thinner, about 18-20. Venter without scales but with very irregular striations in the lateral regions. Epimera I-II very thick. Leg I with 3 free segments, the tarsus however partly fused with the tibia. Leg II with 2 free segments. Claws and empodium lacking on anterior tarsi. Legs III-IV as defined for genus.



Figs 53-55. – *Metharpyrhynchus jynx* FAIN. Female in dorsal view (53); palpalae (54); leg I (55). Scale line 100 μm (fig. 53).

Male, paratype (figs 63-66): L 249; W 171; LS 180; WS 126; LG 69; WG 72; *ve* 35; *sci* 25; *sce* 39; *h* 34; *sh* 33. Dorsal striations with district punctations in the posterior and postero-lateral regions. Genital opening close to posterior margin of body, flanked by 3 pairs of very small setae. Sheath of penis about 70 long, originating in front of genital opening, slightly curved and directed backwards. Legs I-II with 5 free segments; legs III with 2 and legs IV with 1 free segments; apical segments with 5 and 2 long setae respectively, preapical segment of leg III with 1 long seta. Tarsi I-II with paired claws and a ciliated empodium. Palpalae thick, with strong teeth; *ωI* 7,2 long and 4,6 wide; *ωII* 12 long and 2,2 wide at its base.

Host:
Holotype female from *Porphyrio porphyrio* (Rallidae), this bird died in the Zoo of Antwerp during quarantine (2 May 1967). Paratypes: one female and one male, with the same data as for holotype. Holotype in MRAC, paratypes in IRSNB.

2. *Ralliharpirhynchus limnocorax* (FAIN, 1972) nov. comb.

Metharpyrhynchus limnocorax FAIN, 1972: 56.

Male, holotype: L 195; W 140; LS 150; WS 114; LG 53; WG 54; genital opening and genital setae as in *R. porphyrio*; sheath of penis 45 long; *ve* pectinate 24; *sci* smooth, very thin, 10 long; setae *sce, h* and *sh* pectinate and 30, 33 and 29 long respectively. Cuticle of posterior region of dorsum with punctate striations. Legs I-IV and palpalae as in *R. porphyrio*.

Female, paratype (figs 61-62): L 330; W 260; LG 70; WG 75; *sci* 60; *sce* 50; *ve* not observed. Legs I distinctly shorter than in *R. porphyrio* with 3 district free distinct, the tarsus bears apically 3 very short cylindrical setae which one lacking in *R. porphyrio*.

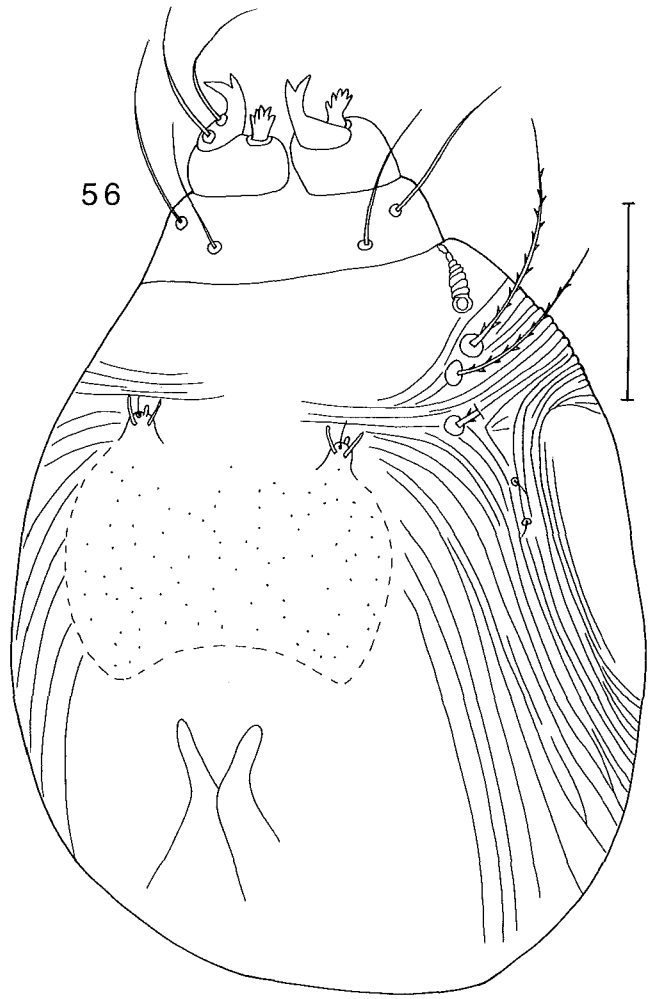
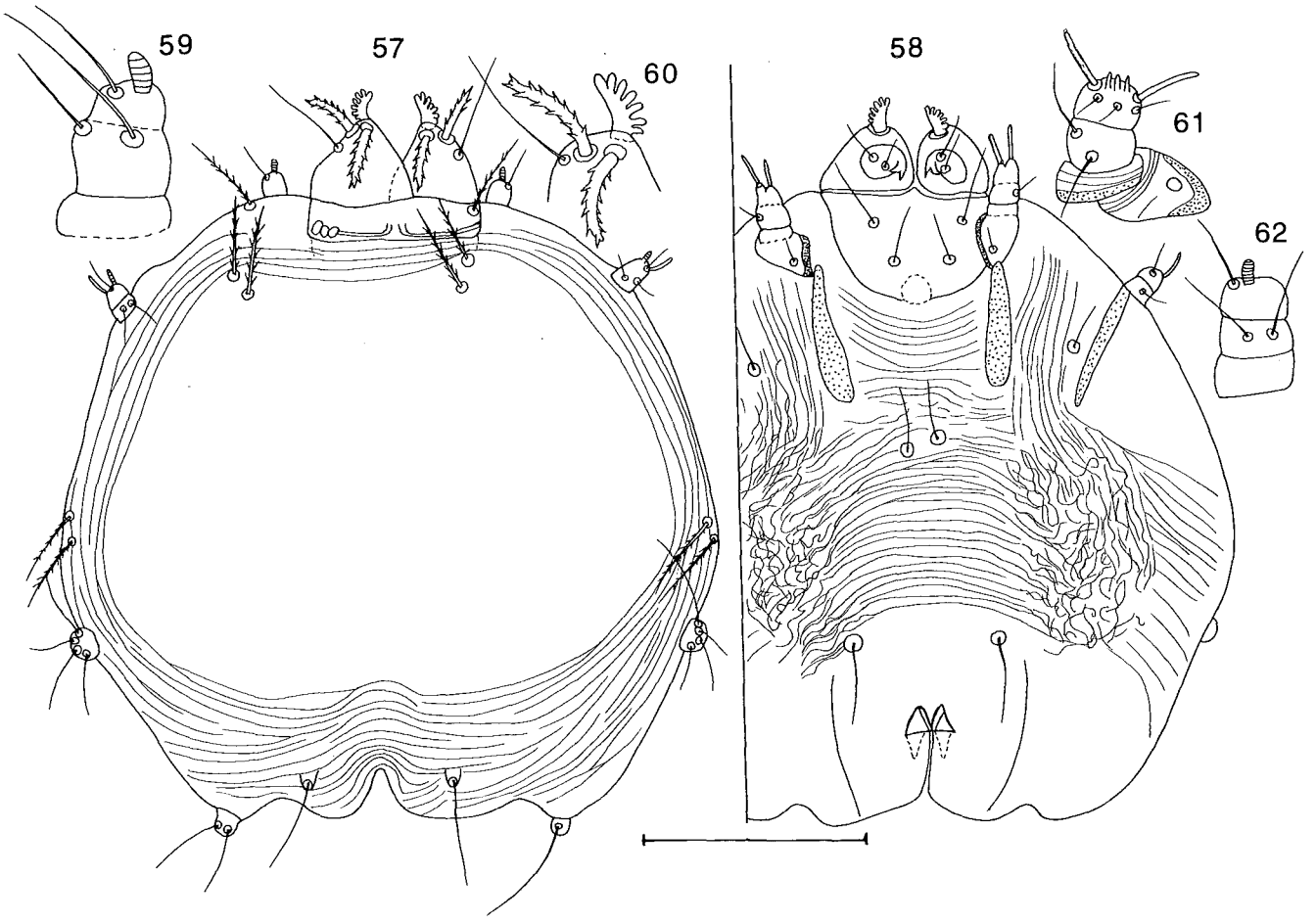


Fig. 56. – *Metharpyrhynchus jynx* FAIN. Female in ventral view. Scale line 100 μm.



Figs 57-62. – *Ralliharpirhynchus porphyrio* (FAIN). Female in dorsal view (57) and in ventral view (58); leg I in dorsal view (59); palpalae in dorsal view (60). Scale line 100 μm (figs 57, 58).*Ralliharpirhynchus limnocorax* (FAIN). Leg I in ventral view (61) and in dorsal view (62).

Host and locality:
Holotype male and one paratype female from *Limnocorax flavipes* (Rallidae). The bird and the mites were collected by the author in Kinshasa, Zaire (4 June 1968). Holotype in MRAC.

Genus *Harpyrhynchiella* FAIN, 1972

Definition: See above.

Harpyrhynchiella reductus (FRITSCH, 1954)

Harpyrhynchus reductus FRITSCH, 1954: 196.
Harpyrhynchiella reductus (FRITSCH, 1954); FAIN, 1972: 56.

This species is redescribed here from specimens collected from the typical host *Apus apus*, from The Netherlands.

Female (Figs 67-72): L 340; W (maximum) 325; LG 90; WG 87; *ve* 30; *sci* and *sce* are very short spinelets; *g1* 50; *g2* very thin, 40 long; *l5* strong, 200 long; PA 13 long, 6 wide at base with 6-7 blunt teeth; PI pectinate, narrow, 25-28 long; PE and *pts* lacking. *Dorsum* with two small paramedian more or less verrucose areas and a pair of legs III, represented by 2 ringlets bearing 3 short setae. Leg IV absent. *Venter* with numerous striations in front of vulva. These striations bear numerous small verrucosities. Legs I-II forming large segments with indistinct segmentations. Tarsi I-II with claws but no ciliated empodium. Postero-median region of venter with 2 large membranous lobes.

Male (fig. 73): L 273; W 230; LS about 75; WS about 45; LG 60; WG 75; *ve* 38; *sci* is a short spine, 5 long; *sce* 65; *h* 65; *sh* 60; PA 12 long and 5 wide at base; PI 15 long, 3 wide; PE 32 long and 2,5 wide. *Dorsum*: almost completely striated. In the anterior half and in the median part of posterior fifth of dorsum this striation is punc-

tate or finely verrucose. Genital opening on the dorsal surface of gnathosoma, it is flanked by 2 pairs of short setae. Penis long but poorly distinct. Legs I-II normally developed but relatively small, bearing claws and a ciliated empodium. Legs III with 2 free segments, the preapical with a long seta, the apical with 5 long setae; legs IV with only one segment bearing 4 long setae.

Hosts:
The typical host is *Apus apus*, from Germany. Our specimens were collected from the same host in Leeuwaerden, The Netherlands (coll. F. Lukoschus, 29 June 1981).

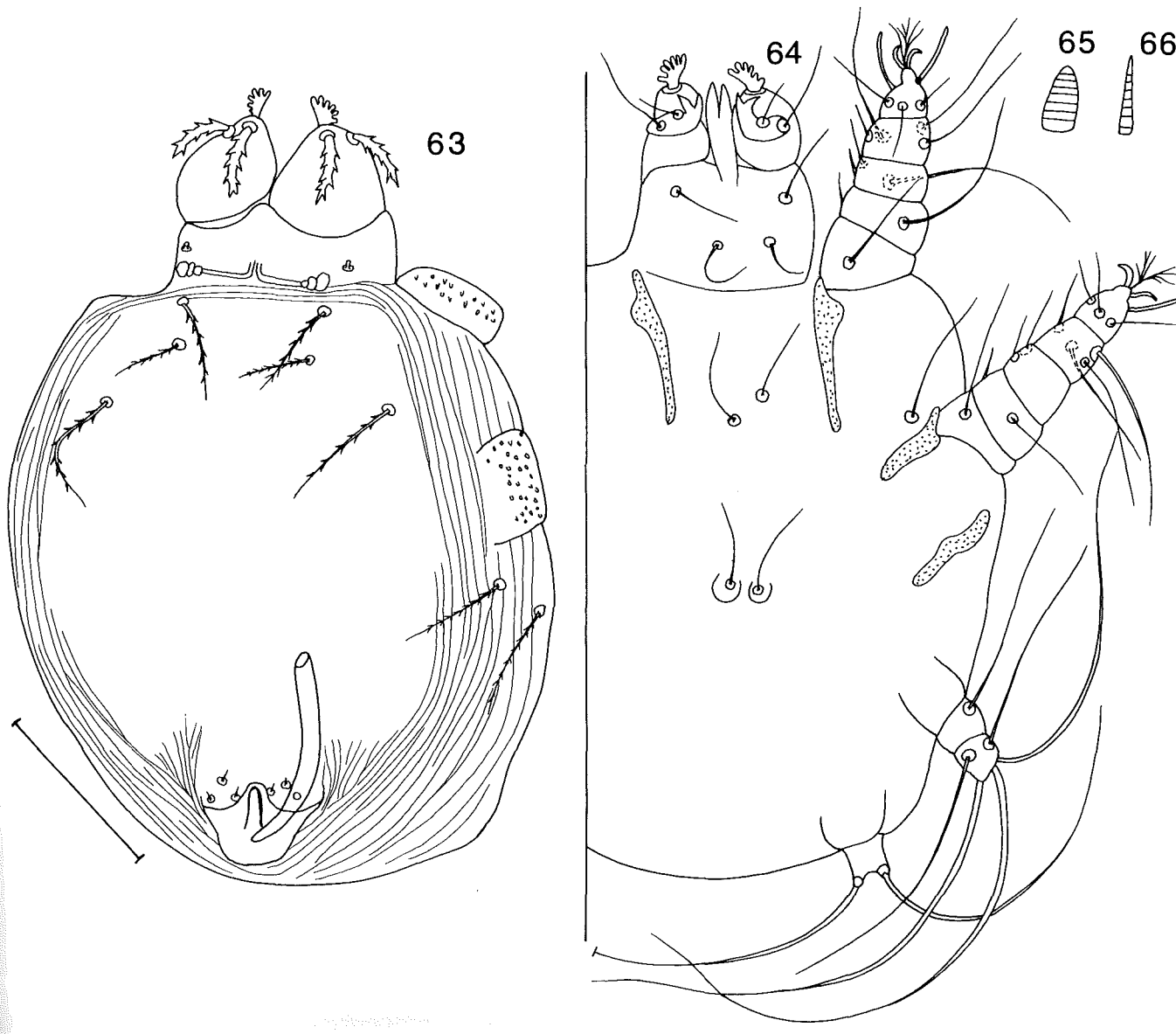
Genus *Cypsharpirhynchus* nov. gen.

Definition: See above.

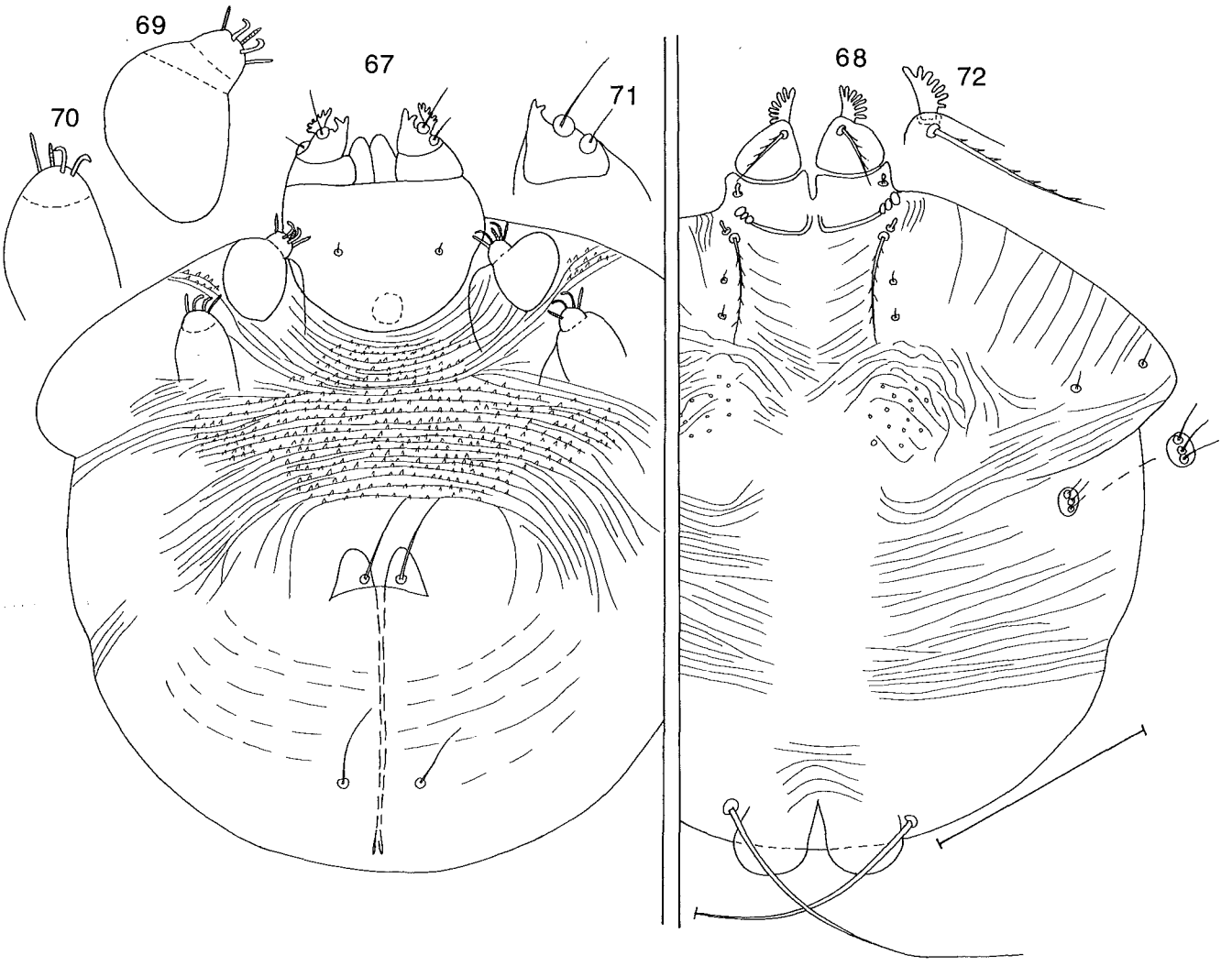
1. *Cypsharpirhynchus cypsiuri* (FAIN, 1972) nov. comb.

Metharpyrhynchus cypsiuri FAIN, 1972: 57.

Female, holotype (figs 74-80): L 275; W (maximum) 285; LG 70; WG 67; *ve* and *sci* very thin and short (6 to 12), in some specimens, still in the molting stage, these setae are 18-23 long; *sce* 25; *g1* 35; *g2* 30 (very thin); *l5* 200



Figs 63-66. – *Ralliharpirhynchus porphyrio* (FAIN). Male in dorsal (63) and ventral view (64); *ωI* (65); *ωII* (66). Scale line 100 μm (figs 63, 64).



Figs 67-72. – *Harpyrhynchiella reductus* (FRITSCH). Female in ventral view (67) and in dorsal view (68); legs I (69) and II (70); palptarsus (71); PA and PI (72). Scale line 100 μm (figs 67, 68).

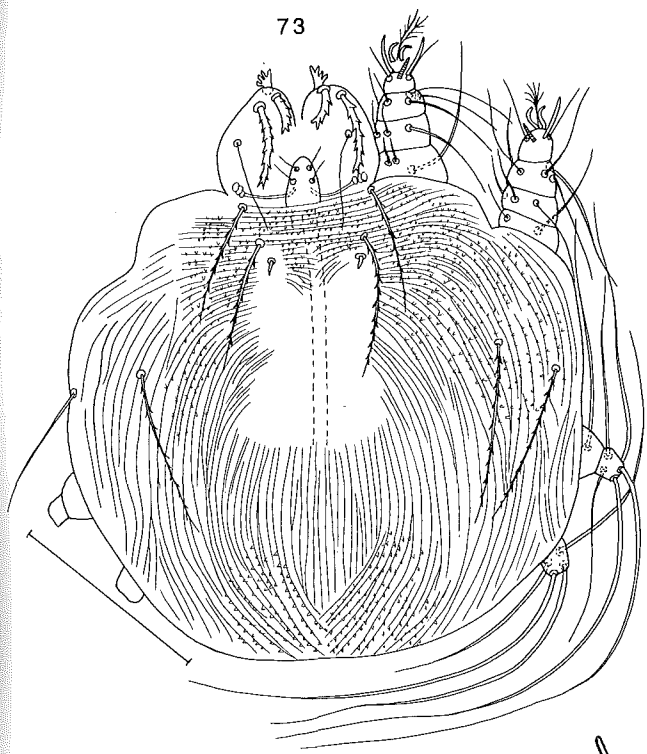
(very thin); PA short, with a wide base, bearing 6 blunt teeth; PI relatively thin, 20-22; PE and *pts* lacking. *Dorsum:* mainly striated transversely, except in two areas, i.e. two antero-lateral areas wider than long; and the median region in the posterior half of the body, which are bare. The median striations at the level of the scapular setae are punctate. In the anterior third of the ventral surface there in a sinous band of verrucose striations extending over all the width of the body. Legs I-II reduced in size, inserted marginally; leg I distinctly longer than leg II. Both legs with 3 distinct free segments, lacking claws and empodium but with relatively long eupathidia. Legs III and IV vestigial, represented leg 3 and 2 pairs of very short setae arising directly from the soft cuticle.

Male: Unknown.

Hosts and localities:
Holotype female from *Cypsiurus parvus*, from Kananga (= Luluabourg), Province of Kasaï, Zaire. Bird collected by M. De Roo (7 July 1965), the mites by A.F. The mites were found embedded in the corneous layer of the skin. Paratypes: 1) With the same data as holotype (12 female and 4 deutonymphs); 2) From *Apus affinis*, Kananga, Zaire (3 female); 3) From *Cypsiurus parvus*, Togo, West-Africa, 21.XI.1968 (9 female, 5 deutonymphs). Holotype and paratypes in MRAC; paratypes in IRSNB.

Genus *Anharpyrhynchus* FAIN, 1972 nov. stat.

Definition: See above.

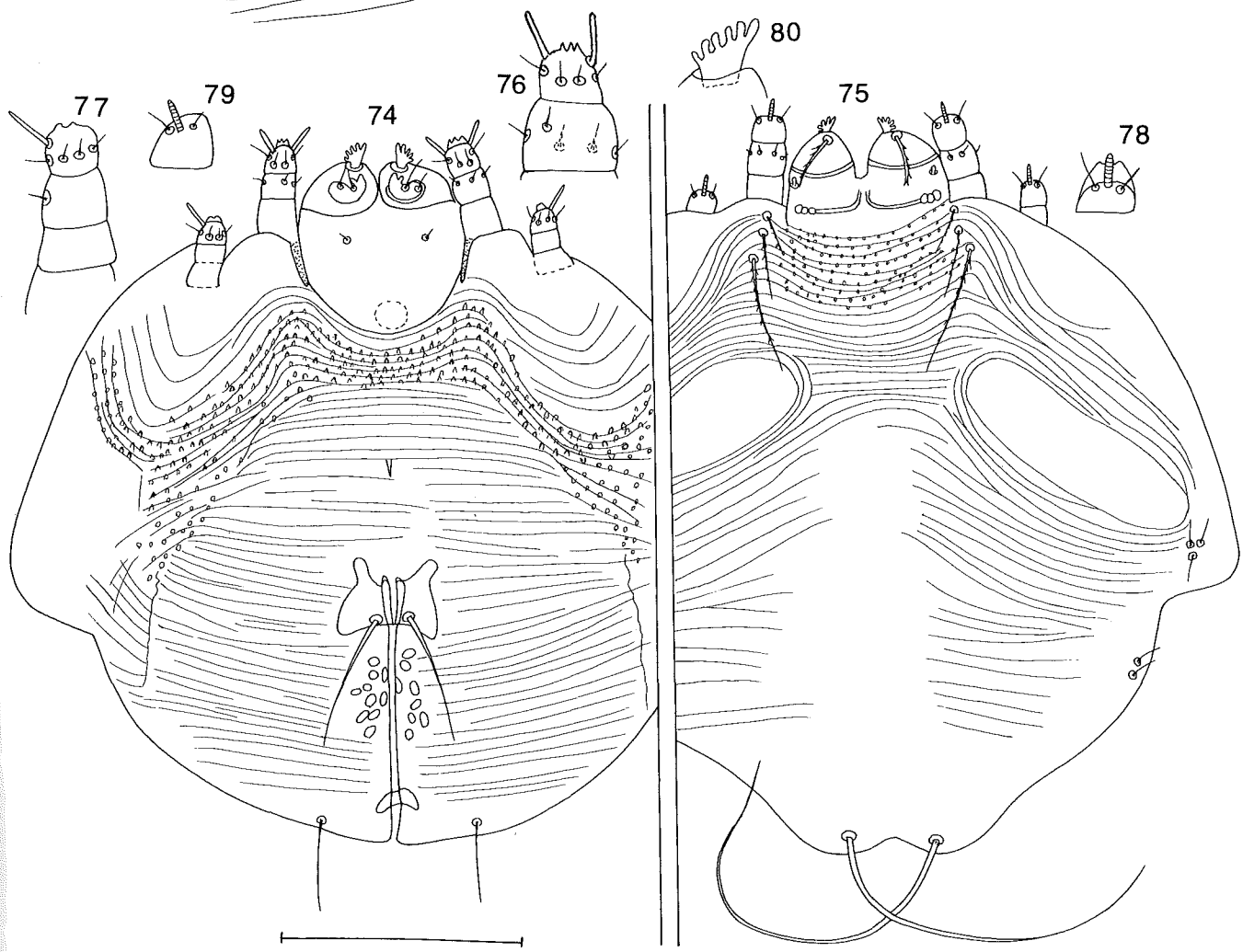


1. *Anharpyrhynchus monstrosus* (FRITSCH, 1954) nov. comb.

Harpyrhynchus monstrosus FRITSCH, 1954: 188.
Harpyrhynchus (Anharpyrhynchus) monstrosus FAIN, 1972: 55.
Anharpyrhynchus fritschi (FAIN, 1972): 55, **nov. syn.**.

Fritsch, in his original description of *H. monstrosus*, did not mention the punctate-verrucose aspect of the striations of the dorsum. My description of *H. fritschi* was based mainly on this character.
Recently I collected several specimens of the species of Fritsch from the typical host, *Garrulus glandarius*, in Germany. These specimens are not separable from my species and I consider therefore both species are synonymous. I describe here a female of this species:

◁ Fig. 73. – *Harpyrhynchiella reductus* (FRITSCH). Male in dorsal view. Scale line 100 μm.



Figs 74-80. – *Cypsharpirhynchus cypsiuri* (FAIN). Female in ventral view (74) and in dorsal view (75); leg I in ventral view (76); leg II in ventral view (77); tarsus I in dorsal view (78); tarsus II in dorsal view (79); PA (80). Scale line 100 μm (figs 74, 75).

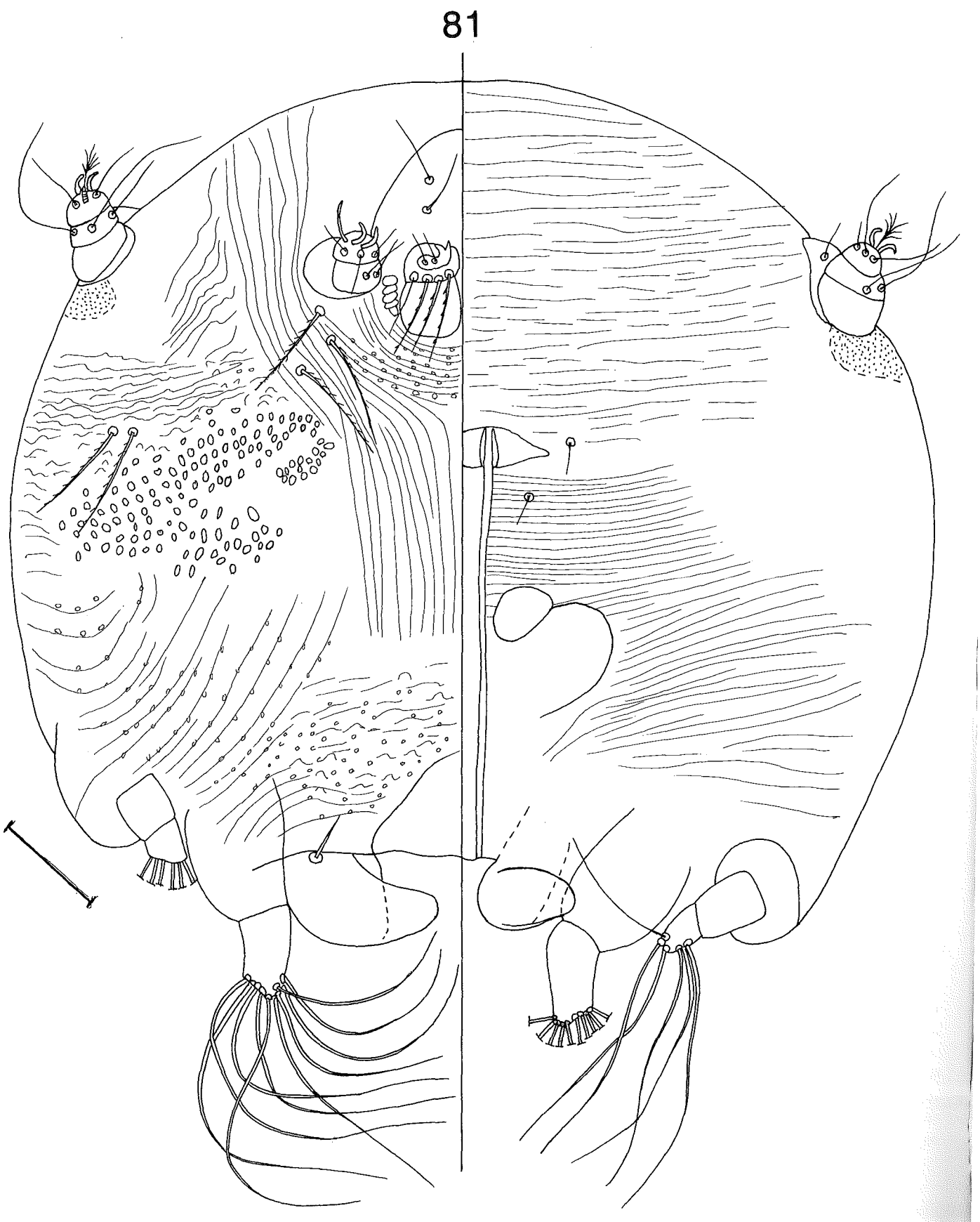
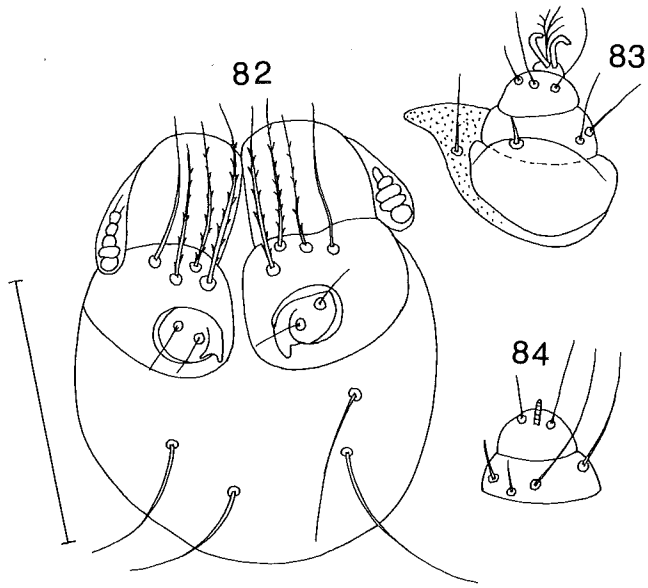


Fig. 81. – *Trichorhynchiella paddae* n. sp. Female in dorsal view (to the left) and ventral view (to the right). Scale line 100 μm.

Female: Body dome-shaped: L 510; W 495; LG 100; WG 132; LS 123; WS 390; *ve, sci, sce* thin and smooth; 36, 27 and 29 long respectively. PA 15 long and 6 wide; PI recurved, about 25 long; PE 13; *pts* thin, 18 long. Legs I and II arising from broad lobes, their apical segments turned dorsally, they consist of 3 free segments bearing claws and a ciliated empodium. Leg III dorsal, formed of a small segment arising from a large membranous lobe, it bears 4 setae about 60-80 long; legs IV (the two very large paramedian and heary dorsal lobes) bearing 20 to 26 strong setae 80 to 100 long.

Hosts:
The typical series was collected from *Garrulus glandarius*, from Germany. Our series (6 females) was taken from the same host, from Ubach, near Worms, Germany (coll. F. Lukoschus, 15 November 1972). In the collection of IRSNB there are 3 females from the same host collected at Schilde, near Antwerp, Belgium (coll. J. de Bliecx, 3 July 1949) and identified by J. Cooreman.
A. fritschi was collectd from *Cyanocorax yncas* (Corvidae). This bird died in the Zoo of Antwerp during quarantine (coll. A. Fain, 28 April 1966).
Domrow (1991) recorded *A. monstrosus* from the following birds in Australia: *Gliciphila indistincta, Meliornis novaehollandiae, Myzantha flavigula* and *Myzomela pectoralis.*



Figs 82-84. – *Trichorhynchiella paddae* n. sp. Female: Gnathosoma (82); leg II in ventral view (83) and tarsus and tibia II in dorsal view (84). Scale line 100 μm (fig. 82).

Genus *Trichorhynchiella* nov. gen.

Definition: See above.

1. *Trichorhynchiella paddae* nov. spec.

Female, holotype (figs 81-84): During the mounting of this specimen the gnathosoma has accidentally turned in dorsal position. L 744; W 756; *vi, sci, sce, h* and *sh* with short pectinations and 73, 90, 80, 83 and 80 long respectively. Palpalae flexible, thin, with short pectinations and longer than the palptibia: PA 60; PI 65; PE 48. The *pts* is smooth and 50 long. Setae *icIII, g* and *l5* short and thin. Apical segment of leg III 45 long and 30 wide, with 6 setae about 150 long. Apical segment of leg IV 90 long, 45 wide with 10 pairs of long setae (150 to 200 long). *Dorsum:* with 2 large lateral areas wider than long covered with conspicuous rounded or oval verrucosities. There are 2 other areas (one behind the gnathosoma, the other in postero-lateral regions of dorsum) where the striations bear small rounded punctations. *Venter* mostly transversely striated.

Male: Unknown.

Host and locality:
Holotype and only known specimen from the base of a feather of *Padda oryzivora*, which died in the Zoo of Antwerp, during quarantine (28 June 1963). Holotype in IRSNB.

On two insufficiently known species in the Harpirhynchinae

1. *Harpirhynchus longipilus* BANKS, 1905

Harpirhynchus longipilus BANKS, 1905a: 20 (fig. 19).
Sarcopterus longipilis BANKS, 1905b: 135.

This species was described from a tumor under the wing of a crossbill (*Loxia* sp.) from U.S.A. Only the female and a larva were described. From the original pictures (Banks, 1905a, fig. 19) it appears that the three palpalae are very thick and subequal. The dorsal shield is much longer than wide and carries five or six pairs of setae, of which one pair is situated in the posterior half of the shield. This combination of characters is not encountered in any other known species of Harpirhynchinae. The name *longipilus* used in his "Treatise" (1905a) was published before the description (1905b) and has, therefore, priority over *longipilis.*

2. *Harpirhynchus brevis* EWING, 1911

Harpirhynchus brevis EWING, 1911: 38; MOSS *et al.*, 1968: 391.

This species was described from *Coccothraustes vespertina.* The locality was not mentioned.

The author did not precise if the specimen that he described was a male or a female. He gave only a very small microphotograph of the mite and no drawing. This description do not give any useful character which could aid to recognize the species.This species was also reported from several other birds in the U.S.A., i.e. the Wilson's Trush, the Eastern Song Sparrow, the Red-Winged Blackbird (MORLEY & SHILLINGER, 1937) and the Rusty Blackbird (CHADDOCK, 1941). In the Red-Winged Blackbird the mites were found in extensive tumorous growths.
Moss *et al.* (1979) recorded it again from about 25 species of passeriform birds from U.S.A.

Acknowledgements

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