New species of mites parasitic on the skin of birds
(Acari Epidermoptidae and Dermationidae)

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Summary

Two new epidermoptid (Epidermoptidae) and seven dermationid (Dermationidae) species belonging to five different genera are described here: *Rallepidennoptes rallicola* sp. n. from *Gallinula chloropus* (Gruiformes: Rallidae) from the Netherlands, *Myialges (Metamicrolichus) pelecani* sp. n. from *Pelecanus occidentalis* (Pelecaniformes: Pelecanidae) from Galapagos Islands (Epidermoptidae); *Passeroptes lamprotornis* sp. n. from *Lamprotornis purpureoterus* (Passeriformes: Stanuridae) from Africa, *Passeroptes ampeliceps* sp. n. from *AmpeIiceps coronaIus* (Passeriformes: Stanuridae) from Thailand, *Passeroptes turdoles* sp. n. from *Turdoles jardinei* (Passeriformes: Orthonymidae) from South Africa, *Passeroptes hirundophilus* sp. n. from *Hirundo nigrita* and *Riparia cineta* (Passeriformes: Hirundinidae) from Democratic Republic Congo, *Passeroptes oenanthe* sp. n. from *Oenanthe oenanthe* (Passeriformes: Prunellidae) from the Netherlands, *Paradermation collii* sp. n. from *ColIus striatus* (Coliiformes: Coliidae) from Rwanda and *Psittophagoides brotogeris* sp. n. from *Brotogeris versicolorus* (Psittaciformes: Psittacidae) from Brazil (Dermationidae). The type series of *Passeroptes dennicola* (TROUSSART, 1886), type species of the genus *Passeroptes* FAIN, 1964, is re-examined and redescribed and the two subspecies *P. dermicola cyanerpis* FAIN, 1965 and *P. dermicola* *lamprocolii* FAIN, 1965 are raised here to the species level.

Keywords: Taxonomy. Acari. Epidermoptidae. Dermationidae. Birds.

Introduction

Astigmatid parasitic mites of the families Epidermoptidae and Dermationidae are permanent parasites living on the skin of birds. Mites of these families have been recorded from all major groups of recent birds except ratites (FAIN, 1965; GAUD & AYEO, 1996). Some representatives of these families cause various mange-like diseases in their hosts (FAIN, 1965). These families, commonly referred together with the family Knemidokoptidae to as the epidermoptid complex, form a clear monophyletic branch within the feather mite superfamily Analoidea (DABERT & MIRONOV, 1999).

A complete revision and the creation of a new taxonomic concept of the epidermoptoid mites were made by FAIN (1965). This taxonomic system was almost completely accepted in the recent generic revision of feather mites of the World with only a few additions (GAUD & AYEO, 1996). Recently, a new subfamily, Otocoptoidinae, with the single genus *Otocoptoides* FAIN et BOCHKOV, 2001 has been established within the Epidermoptidae (FAIN & BOCHKOV, 2001).

The family Epidermoptidae at the present time includes three genera and about 35 species. These mites display a great diversity in their morphological appearances and in the forms of parasitism that they cause. The females of some taxa of this family use other parasites of birds, louse flies (Diptera: Hippoboscidae) and chewing lice of the families Menoponidae and Laemo-bothriidae (Mallophaga) for their transportation. This phoresy on fast moving or flying parasitic insects allows epidermoptids to reach the bodies of new hosts and by this way to extend their geographical range.

The family Dermationidae presently includes eight genera and about 45 species. These mites are rather motile parasites. They are well adapted for attaching at the skin by means of relatively large ambulacral discs and various hook-like structures on the ventral surface of their legs (FAIN, 1965). At the present time, only 80 species of these two
families have been recognized. It is worthy of note that only a few papers dealing with epidermoptoid mites have been published after the publication of the FAIN’s monograph (1965) i.e., (LUKOSCHUS et al., 1969; FAIN & ATYEO, 1975; FAIN et al., 1973; FAIN & GAUD, 1975; FAIN et al., 1987).

The examination of material deposited in the collection of the Institut royal des Sciences naturelles de Belgique, Bruxelles allows us to discover also two new epidermoptid and seven dermationid species belonging to five genera. The present paper deals with the descriptions of these species. In addition, the type series of Passeroptes dermicola (TROUSSART, 1886), type species of the genus Passeroptes FAIN, 1964 is re-examined and the two subspecies P. dermicola cyanerpis FAIN, 1965 and P. dermicola lamprocolii FAIN, 1965 are raised here to the species level.

The nomenclature of idiosomal setae follows FAIN (1965). All the measurements in descriptions are given in micrometres (μm). The Latin names of birds follow the checklist of HOWARD and MOORE (1991). Deposition of typical material: In the Musée royal de l’Afrique Centrale (Tervuren, Belgium) for the mites from Afrotropical birds and in the Institut royal des Sciences naturelles de Belgique (Bruxelles) for those from other countries.

Systematics

FAMILY EPIDERMOPHIDAE TROUSSART, 1892

Genus Rallepidermoptes FAIN, 1965

1. Rallepidermoptes rallicola sp. n. (Figs 1, 2)

Female (holotype). Total length 285 (gnathosoma included). Gnathosoma with very

Fig 1. Female of Rallepidermoptes rallicola n. sp. in dorsal view. Scale line 100 μm.
Fig 2. Female of *Rallepidermoptes rallicola* n. sp. in ventral view. Scale line 100 μm.

**Male.** Unknown.

**DIFFERENTIAL DIAGNOSIS:** This new species is closely related to *Rallepidermoptes schoutedeni* (FAIN, 1965) from *Laterallus melanophalus* (Gruiformes: Rallidae) from South America. In the female of both species, hysteronotal shield is flanked by a pair of small plates. It differs from *R. schoutedeni* by the proportions of these plates (length/width 4 : 1) and by the length of posterior median incision of the hysterosomal shield (20 long), the tip of this incision remains far from the level of oil gland orifices. In *R. schoutedeni*, the ratio length/width of plates flanking the hysterosomal shield is 1.2 : 1, the median incision of hysterosomal shield is 65 long and it is situated in front of the orifices of oil glands.

**MATERIAL EXAMINED:** Female holotype from *Gallinula chloropus* (Gruiformes: Rallidae), the Netherlands, Nijmegen, 13. 1. 1967 (Coll. F.S. LUKOSCHUS).

**ETYMOLOGY:** The species name *rallicola* refers to the family name of the host.

**Genus** *Myialges* TROUESSART, 1906

**Subgenus** *Metamicriclichus* FAIN, 1965

2. *Myialges* (*Metamicriclichus*) *pelecani* sp. n.

(Figs 3-4)


**Female.** Unknown.

**DIFFERENTIAL DIAGNOSIS:** The male of this new species differs from all the other species of the subgenus *Metamicriclichus* by the large paired hysterosomal shields.

**MATERIAL EXAMINED:** Male holotype and a single male paratype from *Pelecanus occidentalis* (Pelecaniformes: Pelecanidae), Galapagos Islands, no other data.

**ETYMOLOGY:** The species name *pelecani* refers to the generic name of the host.

**FAMILY** *DERMATIONIDAE* FAIN, 1965

**Genus** *Passeroptes* FAIN, 1965

3. *Passeroptes dennicola* (TROUESSART, 1886)

(Figs 5-10)

**MATERIAL EXAMINED.** Lectotype female, 4 female and 2 male paralectotypes from *Passer domesticus* (Passeriformes: Ploceidae), France (Coll. E. TROUESSART). Female from the type host, Louvain-la Neuve, Belgium (Coll. A. FAIN). Female from the type host, Zoo of Antwerp (Coll. A. FAIN).

**REMARKS.** In the revision of the family Epidermoptidae (FAIN, 1965), the species *Passeroptes dennicola* was described from the typical material (5 females and 2 males housed in the Museum d'Histoire Naturelle, Paris). This species had been collected from *Passer domesticus*.
in France, from an unknown locality.

In the monograph of Fain (1965) a lectotype female and an allotype male (= paralectotype) were designated among this typical material. The allotype male was redescribed and redepicted (Figs 142 and 144). The lectotype female was redescribed but not depicted owing to the poor condition of this specimen (loss of some setae). The female that was depicted in this monograph did not belong to the type series but was a specimen that we had taken from a Passer domesticus, which died in the Zoo of Antwerp, Belgium (and not in the “City” of Antwerp as related in the monograph). This female was in very good

Figs 3-4. Myialges (Metamicrolichus) pelecani n. sp. Male in dorsal view (3) and in ventral view (4). Scale line 100 μm.
condition and resembled very closely the lectotype in all the characters (e.g. shape and size of dorsal shields, chaetotaxy of idiosoma, shape of epimera and of coxae etc ...). It differed only by the presence of the setae i2 (lacking in the 4 typical females) and the slightly longer tarsi (see below).

We have examined numerous passeriform birds of different families, which died during their quarantine or had spent some time in the Zoo. A part of them were parasitized by a *Passeroptes* sp.
Fig. 6. Paralectotype male of *Passeroptes dermicola* TROUSSART in ventral view. Scale line 0.05 mm (From FAIN, 1965: Fig. 142).
Figs. 7-8. *Passeroptes dermicola* Trouessart. Female in dorsal view (from a sparrow that died in the Zoo of Antwerp) (7); paralectotype male in dorsal view (8). Scale line 0.05 mm (From Fain, 1965: Figs. 143 and 144).
very close to *P. dermicola*. Generally the *l2* were represented but many of them were devoid of these setae. We think therefore that this character is of low importance in the identification of that species.

We also give here the main measurements in 3 females of *P. dermicola*. The first measurements are those of the paralectotype n° 2, the second (into brackets) are from a female collected from a domestic sparrow in Louvain-la Neuve, Belgium, and the third are those from a female which died in the Zoo (into brackets):

- Total length of body including gnathosoma: 204 (200, 220); maximum width of idiosoma 125 (120, 140). Hysteronotal shield: length in midline 78 (81, 80), maximum width 54 (60, 56), minimum width 40 (43, 46). Distance between bases of setae *sce* 48 (45, 52). Length of setae: *sce* 42 (45, 54), *sci* 14 (9, 12), *h* 120 (95, 90), *sh* 30 (33, 39), *ai* 23 (25, 17), *ae* 30 (30, 35), *d4* 16 (18, 19), *d5* 45 (30, 38) and *l5* 160 (150, 170). Length of tarsi I-IV 18, 18, 21, 21 (18, 18, 20, 20 and 21, 21, 28, 28). The females from the type series and from Louvain-La Neuve were devoid of *l2* setae, that from the sparrow of the Zoo bear these setae.
Figs 11-14. Male hysterosoma of *Passeroptes* spp. *P. cyanerpis* FAIN: ventral view (11) and dorsal view (12); *P. lamprocolius* FAIN: ventral view (13) and dorsal view (14). Scale line 100 μm.

4. *Passeroptes cyanerpis* FAIN, 1965 stat. n. (Figs 11-12)

**Material Examined**: Male holotype, 10 female and 3 male paratypes from *Cyanerpes cyanea* (Passeriformes: Coerebidae), Brazil, died in Antwerp Zoo. V. 1963 (Coll. A. FAIN).

**Remarks**: This species differs from *P. derrmicola* in both sexes, by the constant presence of the setae 12; in the female, by the fusion of the epimeres III and IV; in the male, by the shape of interlobar membrane (Fig. 11-12), the more oblique shape of the postero-lateral incisions of the hysterosomal shield and by the elongate and distinctly bent internally apex of the tarsi IV.

5. *Passeroptes lamprocolii* FAIN, 1965

(Figs 13-14)

**Material Examined**: Female holotype, 5 female and 4 male paratypes from *Lamprocolius*
Figs 15-20. *Passeroptes lamprotornis* n. sp. Female in dorsal view (15); opisthosoma of female in ventral view (16); hysterosoma of male in ventral view (17) and dorsal view (18); tarsus IV of male in lateral view (19); end of male opisthosomal lobe in dorsal view (20). Scale lines 100 μm (Figs 15-18) and 50 μm (Figs 19-20).
Figs 21-22. Female of *Passeroptes ampeliceps* n. sp. Dorsal view (21); opisthosoma in ventral view (22). Scale line 100 μm.

**Remarks.** This species differs from *P. dermicola* in both sexes, by the constant presence of the setae *ai*; in the female, by the fusion of the epimeres III and IV; in the male, by the shape of interlobar membrane (Fig. 13-14).

**6. Passeroptes lamprotornis** sp. n. (Figs 15-20)

**Female** (holotype). Total length, including gnathosoma, 280 (260-285 in 12 paratypes). *Idiosoma* 260 (250-270) long and 180 (170-185) wide. All shields devoid of ornamentations. *Dorsum*. Propodosomal shield 65 long in median line, maximum width 85. Setae *ai* and *ae* both situated on posterior lateral projections of the propodosomal shield. There is a pair of small additional propodosomal plates, triangular in shape. Hysterosomal shield rectangular, widened in its anterior fourth, maximum length 115, width 90. Setae *l2* present. *Venter*. Epimeres III completely joined to epimeres IV by a narrow chitinous band. Anal shields well sclerotized and developed, setae *d4, d5* related 260 (250-270) long and 180 (170-185) wide. All shields devoid of ornamentations.


**7. Passeroptes ampeliceps** sp. n. (Figs 21-24)

**Male** (holotype). Total length, including gnathosoma, 250, 245 (in one paratype). *Idiosoma* 225 long (220) and 150 (145) wide. All shields devoid of ornamentation. *Dorsum*. Maximum length of propodosomal shield 50 in median line, maximum width 60. Metapodosomal part of the hysterosomal shield with anterior border straight; its posterolateral incisions bulbous (Fig. 24). Setae *l2* present. *Venter*. Epimeres II to IV free. Aedeagus short not protruding through the genital aperture. There are 2 pairs of adanal shields. Opisthosomal lobes well developed, 40 long. Shape of interlobar membrane as in Fig. 24. Lengths of setae: *sce* 50, *sci* 10, *h* 125, *sh* 35, *l1* 9, *l2* 5, *l5* 200, *d4* 20, *d5* 30, *ai* 10 and *ae* 20. Legs. Legs III and IV subequal in length, about 125 long. Retrorse processes on femora III weakly developed; the femora IV devoid of such processes. Tarsi IV straight, their apices elongated and distinctly bent internally. Solenidion *omega* I of tarsi I lacking.

**Female**. Total length, including gnathosoma, 280-290 (in 6 paratypes). *Idiosoma* 260-270 long and 175-185 wide. All shields devoid of ornamentations. *Dorsum*. Length of propodosomal shield 60 in median line, maximum width 85. Setae *ai* and *ae* both situated on posterior lateral projections of the propodosomal shield. There is a pair of small triangular propodosomal additional plates. Hysterosomal shield rectangular, widened in its anterior fourth, maximum length 105, width 90. Setae *l2* present. *Venter*. Epimeres III completely joined to epimeres IV by means of a narrow chitinous band. Anal shields well sclerotized and developed, setae *d4, d5* and *l5* all situated on these shields, setae *ai* situated off these shields. Lengths of setae: *sce* 30-35, *sci* 5, *h* 140, *sh* 35, *l1*
8, 12 7, l5 230, d4 15, d5 40, ai 25 and ae 30. Legs. Femora III and IV with 2 relatively small backwardly-directed processes, one dorsal and one intero-ventral. Trochanters I and II without processes. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I lacking.

**DIFFERENTIAL DIAGNOSIS:** This new species is closely related to *Passeroptes cyanerpis* and *P. lamprocolli* by the fusion of the epimeres III and IV in the female and by the presence of the setae l2 in both sexes. It differs from these species in the male, by the bulbous-like lateral incisions of the hysterosomal shield and by the two pairs of adanal shields; in the female, by the short (30-35) setae sce and by the place of setae ai off the anal shields.

**MATERIAL EXAMINED:** Male holotype, 6 female and one male paratypes from *Ampeliceps coronatus* (Passeriformes: Sturnidae), Thailand, died in Antwerp Zoo, 3. III. 1967 (Coll. A. FAIN).

**ETYMOLOGY:** The species name *ampeliceps* refers to the generic name of the host.

8. **Passeroptes turdoides** sp. n. (Figs 25-28)

**Female** (holotype). Total length, including gnathosoma, 225 (200-225 in 3 paratypes). **Idiosoma** 200 (180-200) long and 150 (150-155) wide. All shields devoid of ornamentations. **Dorsum.** Length of propodosomal shield 65 in median line, maximum width 60. Setae sce and sce very short, both situated on posterior lateral projections of the propodosomal shield. There is a pair of small additional triangular propodosomal plates. Hysterosomal shield roundly rectangular, widened in its anterior third, maximally 100 long and 75 wide. Setae l2 lacking. **Venter.** Epimeres III completely joined with epimeres IV by a narrow chitinous band. Anal shields well sclerotized and developed, setae ai, ae d4, d5 relatively short and l5 -whip-like all situated on these shields. Lengths of setae: sce 8, sci 6, h 70, sh 25, l1 6, l5 130, d4 5, d5 30, ai 15 and ae 20. **Legs.** Femora III and IV with well developed retrorse processes on their ventral side and poorly developed rounded processes on dorsal side. Length of this ventral process 15, ratio between its and the femora III-IV lengths 1.5 : 1. Trochanters I and II with a very small conical process. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I lacking.

**Male.** Total length 190 (gnathosoma included). **Idiosoma** 165 long and 125 wide. All shields devoid of ornamentation. **Dorsum.** Propodosomal shield as in the female. Length of propodosomal shield 45 in median line, maximum width 55. Metapodosomal part of the hysterosomal shield with lateral border
strongly convex, and deep posterior incisions. Setae l2 lacking. Venter. Epimeres III completely joined with epimeres IV by means of a narrow chitinous band. Aedeagus relatively short not protruding through the genital aperture. There are 2 pairs of adanal shields, the first pair of these shields
represented by small sclerotized patches, the second one - in shape of relatively narrow bands enlarged in their posterior parts with widely rounded angles.

Opisthosomal lobes well developed, 35 long and widely spreading as in Fig. 27. Lengths of setae: \( sce 7, sci 5, h 65, sh 25, l1 4, l5 130, d4 15, d5 25, \)
ai 3 and ae 15. Legs. Legs IV 65 long, a little shorter but distinctly thicker than legs III 70 long. Retrorse processes on femora III slightly smaller than in the female; the femora IV devoid of such processes. Tibia IV with a strong subbasal chitinous process directed apically. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I lacking.

DIFFERENTIAL DIAGNOSIS: This new species is closely related to Passeroptes eulabis FAIN, 1965 from Eulabes javana (Passeriformes: Sturnidae) from Indonesia. In the females of both species, the setae sce and d5 are very thin and short (less than 10), the femora III and IV carry well-developed backwardly directed processes. In the males, the legs IV are much thicker than the legs III and there are two pairs of a canal shields. It differs from P. eulabis by the following characters. In the female P. turdoides, the ventral processes on the femora III and IV are extremely large, the setae 12 are lacking, and the anal shields are well developed and bear the setae ai. In the male, the setae 12 are lacking, the tibiae IV bear a strong process. In the female P. eulabis, the ventral processes on the femora III and IV are large but not hypertrophied, the setae 12 are present and the anal shields are relatively short, the setae ai are situated off these shields. In the male, the setae 12 are present, the tibiae IV are devoid of process.

MATERIAL EXAMINED: Female holotype, 3 female and one male paratypes from Turdoides jardineii (Passeriformes: Orthonychidae), South Africa, Transvaal Zeerust, VI. 1967 (Coll. F. ZUMPT).

ETYMOLOGY: The species name turdoides refers to the generic name of the host.

9. Passeroptes hirundipilus sp. n. (Figs 29-32)

Female (holotype). Total length 205 (gnathosoma included). Idiosoma 195 long and 150 wide. All shields devoid of ornamentations. Dorsum. Length of propodosomal shield 45 in median line, maximum width 60. Setae sce and sci situated on very narrow posterior lateral projections of the propodosomal shield. There is a pair of small additional propodosomal triangular plates. Hysterosomal shield roundly rectangular, with slightly excavated margins, 85 long and 55 wide. Setae 12 present. Venter. Epimeres II to IV free. Anal shields well sclerotized and developed, setae ai, ae d4, d5 relatively short and 15 -whip-like all situated on these shields. Lengths of setae: sce 50, sci 6, h 110, sh 35, I1 8, I2 6, I5 165, d4 4, d5 10, ai 6 and ae 18. Legs. Femora III and IV with a well developed retrorse process on their ventral side and a poorly developed rounded process on dorsal side. Trochanters I and II with distinctly developed conical process. Coxae II with a small finger-like projection directed apically. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I present, very small.

The male specimen described below was found on another swallow species than the female. However, we think that all these specimens belong to one species because some other common characters: the presence of short solenidion omega 1 on the tarsi I, the distinctly developed conical processes of the trochanters I and II, the finger-like projections of the coxae II and the hypertrophied processes of the femora III.

Male. Total length 165 (gnathosoma included). Idiosoma 150 long and 95 wide. All shields devoid of ornamentation. Dorsum. Propodosoma as in the female. Length of propodosomal shield 35 in median line, maximum width 37. Metapodosomal part of the hysterosomal shield with lateral border much sinuous, and deep posterior incisions secondarily divided into an anterior large incision and a posterior much smaller. Setae 12 present. Venter. Epimeres II free, epimeres III and IV connected by weakly sclerotized band. Aedeagus relatively short not protruding through the genital aperture. There is a single pair of narrow adanal shields in shape as in Fig. 31. Opisthosomal lobes as in Fig. 31, well developed, 35 long. Lengths of setae: sce 40, sci 4, h 115, sh 35, II and I2 4, I5 150, d4 10, d5 20, ai 3 and ae 15. Legs. Legs III and IV subequal in length (about 85), but the legs IV little thicker. Ventr al retrorse processes on the femora III very strong, femora IV devoid of such processes. Tibia IV without processes. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I present, very small.

DIFFERENTIAL DIAGNOSIS: This new species is closely related to Passeroptes cecropis FAIN, 1965 from Cecropis abyssinica unaitatis (Passeriformes: Hirundinidae) from Rwanda (only females are known). In the females of both species, the anterior surface of the trochanters I and II with a chitinous finely a tenuated p rocess. The female of this new species differs from P. cecropis by the following characters. In P. hirundipilus sp. n., the anterior surface of the coxae II bears a finger-like process directed apically, the setae ae and d5 are short, about 18 and 20 long, respectively, the ventral retrorse process of the femora III and IV is hypertrophied. In P. cecropis, the anterior surface...
ETYMOLOGY: The species name hirundiphilus refers to the family name of the host.

10. Passeroptes oenanthe sp. n. (Figs 33-37)

Male (holotype). Total length 205 (gnathosoma included). Idiosoma 190 long and 120 wide. All shields devoid of ornamentation. Dorsum. Length

of the coxae II is devoid of processess, the setae ai and d5 are long, about 35 and 150 long, respectively, the ventral retrorse process of femora III and IV are well developed, but not hypertrophied.

Finally, this new species is also closed to Passeroptes temenuchi FAIN, 1965 from Temenuchus pagodarum and Sturnus vulgaris (Passeriformes: Sturnidae) from India and USA, respectively, by the presence of finger-like process on the coxae II and a small solenidion omega 1 on the tarsi I. It differs from P. temenuchi in both sexes, by the larger process of the femora III and by the free epimeres III and IV; in the male, by a single pair of adanal shields and by the absence of process on the tibia IV. In both sexes of P. temenuchi, the process of the femora III is not hypertrophied, the epimeres III and IV are connected by the sclerotized band; in the male, there are two pairs of adanal shields and the process on the tibia IV is present.


ETYMOLOGY: The species name hirundiphilus refers to the family name of the host.
Figs 31-32. Male of *Passeroptes hirundiphilus* n. sp. Dorsal view (31); ventral view (32). Scale line 100 μm.

Figs 31-32. Male of *Passeroptes hirundiphilus* n. sp. Dorsal view (31); ventral view (32). Scale line 100 μm.

of propodosomal shield 50 in median line, maximum width 45. Metapodosomal part of the hysterosomal shield with lateral border much sinuous. Setae I2 lacking. Venter. Epimeres II-IV free. Adeagus 35 long, protruding through the genital aperture. There is a single pair of narrow analan shields in shape as in Fig. 34. Opisthosomal lobes as in Fig. 37, well developed and widely separated from each other, 35 long. Lengths of setae: sce 50, sci 5, h 100, sh 25, lI 6, l5 165, d4 25, d5 35, ai 15 and ae 25. Legs. Legs III and IV subequal in length (about 95). Ventral retrorse processes on the femora III poorly developed, femora IV devoid of such processes. Tibia IV without processes. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I present, very small.

**Female.** Total length, including gnathosoma, 225-240 (in 7 paratypes). Idiosoma 200-215 long and 140-160 wide. All shields devoid of ornamentations. Dorsum. Length of propodosomal shield 50 in median line, maximum width 45. Setae sce and sce situated on very narrow posterior lateral projections of the propodosomal shield. There is a pair of small additional propodosomal plates, triangular in shape. Hysterosomal shield almost roundly rectangular, with relatively parallel lateral margins and slightly excavated transversal margins, maximally 80 long and 60 wide. Setae I2 lacking. Venter. Epimeres II to IV free. Anal shields well sclerotized and developed, narrowed in their anterior parts, setae ai, ae d4, d5 relatively short and l5 -whip-like all situated on this shields. Lengths of setae: sce 60, sci 5, h 100, sh 5, lI 10, l5 200, d4 8, d5 20, ai 16 and ae 25. Legs. Femora III and IV with very short retrorse process on their ventral and dorsal sides. Trochanters I and II and coxae II without projections. Chaetotaxy typical for the genus. Solenidion omega 1 of tarsi I present, very small.

**DIFFERENTIAL DIAGNOSIS:** This new species is closely related to *Passeroptes temenuchi* by the
Figs 33-34. Passeroptes oenanthe n. sp. Female in dorsal view (33); male in dorsal view (34). Scale line 100 μm.

presence of a small solenidion omega 1 on the tarsi I. It differs from P. temenuchi in both sexes, by the absence of the setae l2, the small ventral process of the femora III and by the free epimeres III and IV; in the male, by a single pair of adanal shields and by the absence of process on the tibia IV. It also differs from P. hirundiphilus sp. n. by the absence of small apical projections on ventral surface of the trochanters I and II in both sexes.

MATERIAL EXAMINED: Male holotype and 7 female paratypes from Oenanthe oenanthe (Passeriformes: Prunellidae), the Netherlands, Nijmegen, 24. VIII. 1966 (Coll. F. Lukoschus).

ETYMOLOGY: The species name oenanthe refers to the generic name of the host.

Genus Paradennation Fain, 1964

11. Paradennation colii sp. n. (Figs 38-41)

Female (holotype). Total length 230 (gnathosoma included). Gnathosoma with a pair of small lateral spines. Idiosoma 205 long and 155 wide. All shields devoid of ornamentations. Dorsum. Length of propodosomal shield 65 in median line, maximum width 60, its posterior margin almost triangular with a small median incision. Setae sce and sce situated on this shield. There is a pair of small additional propodosomal plates. Hysterosomal shield with an irregular posterior border, maximum length 65, width 75. There is a pair of two small hysterolateral plates. Venter. Epimeres II to IV free. Anal shields well sclerotized and developed, setae ai, ae d4, d5 and l5 all situated on these shields. Lengths of setae: sce 85, sci 15, h 105, sh 50, l1 40, l2 50, l3 25, l5 150, d4 35, d5 75, ai 25 and ae 25. Leg rather slender and long. Posterior tarsi narrow with a small interno-basal process. Tibia I and II with delicate transparent spine on the ventral surface. All genua and femora with a small ventral retrorse process. Trochanters I and II with distinctly developed conical process on the ventral surface. Coxae II with a small finger-like projection directed apically. Chaetotaxy typical for the genus.

Male. Total length 205 (gnathosoma included). Idiosoma 190 long and 140 wide. All shields devoid of ornamentation. Dorsum. Propodosomal as in the female. Length of propodosomal shield 50 in median line, width 45. Anterior part of the hysterosomal shield with the anterior corners prolonged laterally into rounded projections, the anterior border excavated. Setae l2 and l3 present. Venter. Epimeres II to IV free. Aedeagus relatively short not protruding through the genital aperture. There is a single pair of narrow adanal shields as in
Fig. 35. Female of *Passeroptes oenanthe* n. sp. Ventral view. Scale line 100 μm.

Fig. 38. Opisthosomal lobes as in Fig. 39, well developed, and converging to each other, 50 long. Lengths of setae: sce 70, sci 7, h 130, sh 60, l2 70, l3 30, l5 165, d4 30, d5 35, ai 10 and ae 20. Legs. As in the female, except tibia III and IV without ventral retrorse processes and tibia, genua and femora III and IV with a small triangular crest on their antero-lateral surface.

**Differential Diagnosis:** This new species is closely related to *Paradermation intercalatum* FAIN, 1965 from *Richmondena cardinalis* (Passeriformes: Fringillidae) from Central America. In the females of both species are almost not distinguished from each other, their hysteronotum bears one large median shield and two small lateral plates. The male of this new species differs from *P. intercalatum* by the following characters. In *P. colius* sp.n., the adanal
shields are narrow, with rounded angles, the opisthosomal lobes are converging to each other and the tibiae I and II bear a small retrorse process. In *P. intercalatum*, the adanal shields are triangular in shape, the opisthosomal lobes are widely separated from each other (Fig. 42) and the tibiae I and II are devoid of retrorse processes.

**Material Examined:** Female holotype and male paratype from *Colius striatus* (Coliiformes: Coliidae), Rwanda, Butare, 17.IV.1966 (Coll. A. FAIN).

**Etymology:** The species name *coli* refers to the generic name of the host.

**Genus Psittophagoides FAIN, 1964**

13. *Psittophagoides brotogeris* sp. *n.*
(Figs 43-46)

**Male** (holotype). Total length 215, including gnathosoma (200-220 in 5 paratypes). *Idiosoma* 210 (200-210) long and 130 (125-140) wide. All shields covered with distinct punctuation. *Dorsum*. Length of propodosomal shield 35 in median line,
maximum width 40. Lateral projections of this shield horizontally directed. Additional propodosomal shields lacking. Setae sci situated on this shield, immediately behind the setae sce. Hysterosomal shield well developed, its posterior part ornamented. Setae l3 lacking. Venter. Aedeagus short not protruding through the genital aperture. There is a single pair of well-developed adanal shields (Fig. 45). Opisthosomal lobes as in Fig. 44, well developed, with well-developed membranes, 55 long. Posterior apices of interlobar membrane festooned. Lengths of setae: sce 65, sci 15, h 115, sh 65, l1 12, l5 150, d4 and d5 about 35, ai 12 and ae 20. Legs. Ratio between length of the legs III and IV 1 : 1.7. Legs III much broader than legs IV, tarsi not reduced. Epimera III and IV fused by chitinous bands. Hooks or retrorse processes lacking on the legs, only ventral surface of the tibiae I and II with a delicate and transparent process and tarsi III with 2 re-curved claw-like processes.

Female. Total length, including gnathosoma, 215-235 (in 12 paratypes). Gnathosoma with a pair of small lateral spines. Idiosoma 190-215 long and
Fig. 40. Female of *Paradermation colii* n. sp. In ventral view. Scale line 100 μm.
Figs 41-42. Males of *Paradermation* spp. *P. colii* in ventral view (41); opisthosomal lobes of *P. intercalatum* FAIN in ventral view (42). Scale lines 100 μm (Fig. 41) and 50 μm (Fig. 42).

155-165 wide. All shields devoid of ornamentations but distinctly punctated. *Dorsum.* Length of propodosomal shield 60 in median line, maximum width 85, its posterior projections horizontally directed. Additional propodosomal shields vestigial or lacking. Setae *sci* situated on this shield, immediately behind the setae *see*. Maximum length of hysterosomal shield 110, width 70. Setae *l2* and *l3* lacking. *Venter.* Epimeres II to IV free. Anal shields poorly developed, not reaching the setae *at*, only setae *d4* and *l5* situated on this shields.


**DIFFERENTIAL DIAGNOSIS:** This new species is closely related to *Psittophagoides agapomis* FAIN, 1964 from *Agapornis roseicollis* (Psittaciformes: Psittacidae) from South Africa. In both species, the setae *see* are situated anteriorly and only very
Figs 43-44. *Psittagoides brotogeris* n. sp. Female in dorsal view (43); male in dorsal view (44). Scale line 100 μm.

slightly external to *sci*. In the female, the posterior margin of the hysterosomal shield is entire. It differs from *P. agapornis* by the following characters. In both sexes of *P. brotogeris* s.p. n., the posterior lateral projections of propodosomal shield are directed transversely. In male, the posterior part of hysterosomal shield is covered with ornamentation, the opisthosomal lobes are as in Fig. 44, the epimeres III and IV are fused. In both sexes of *P. agapornis*, the posterior lateral projections of propodosomal shield are retrorse. In the male, the posterior part of hysterosomal shield is devoid of ornamentation, the opisthosomal lobes as in Figs 47-48, the epimeres III and IV are free.

**Material examined**: Male holotype, 12 female and 5 male paratypes from *Brotogeris versicolorus* (Psittaciformes: Psittacidae), Brazil, died in Antwerp Zoo, 28.IX.1965 (Coll. A. FAIN).
Fig. 45. Female of *Psittophagoides brotogeris* n. sp. in ventral view. Scale line 100 μm.
Figs 46-48. Males of *Psittophagoides* spp. *P. brotogeris* n. sp. in ventral view (46); opisthosomal lobes of *P. agapornis* FAIN in dorsal view (47) and in ventral view (48). Scale line 100 μm.

**Etymology**: The species name *brotogeris* refers to the generic name of the host.

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**References**


Zoogéographie et écologie des Melittidae ouest-paléarctiques,
étude d’un cas particulier dans les Pyrénées-Orientales (France)

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Résumé


S’intéressant de plus près à la faune espagnole et française, on remarque que les Pyrénées jouent un rôle de barrière semi-perméable pour la faune de Melittidae. En effet, apparentemment, la totalité des espèces recensées en France le sont aussi en Espagne. Au contraire, plusieurs espèces localisées en Espagne semblent incapables de franchir la chaîne de montagne. Pour comprendre cette dynamique, des prospections ont été entreprises dans la région des Pyrénées-Orientales. Elles confirment la plupart des données déjà acquises et en apportent de nouvelles éclairant la problématique de cette dynamique.

Abstract

Like all Apoidea, the Melittidae have a key position in the ecosystems. They contribute mainly to the pollination of entomophilous plants. The Melittidae are particularly remarkable to their specific floral choice. Indeed, many species of this taxon are oligolectic to monolectic. In this case, the coevolution plant-insect are evident. Unfortunately, this family isn’t well known. Before any analysis, we have to synthesize bibliographies and museums data’s taxon. With this data, several tools are constructed. A determination key is made to the all species of ouest-palaearctic Melittidae and a catalog with synonyms, origin data, lands where the species are listed and biology data, is also made. The study lead to c on 3 g enera and 38 species in the Ouest-Palaearctic region : *Melitta* (17spp.), *Macropis* (3spp.) et *Dasypoda* (18spp.). To the understanding of their dynamics, a distribution map is realised for all species. Moreover, a map