FEATHER MITES OF THE GENUS MONTESAURIA OUDEMANS (ASTIGMATA: PROCTOPHYLLODIDAE) ASSOCIATED WITH STARLINGS (PASSEIFORMS: STURNIDAE) IN THE INDO-MALAYAN REGION, WITH NOTES ON THE SYSTEMATICS OF THE GENUS

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ABSTRACT: Species of the feather mite genus Montesauria Oudemans, 1905 associated with starlings (Sturnidae) in the Indo-Malayan region are reviewed. Montesauria acridothera sp.n. is described from the common myna Acridotheres tristis (Linnaeus); two previously known species, M. mainati (Trouessart, 1885) from the hill myna Gracula religiosa Linnaeus and M. pachypa (Gaud, 1968) from the Rennell starling Aplonis insularis Mayr, are redescribed. Based on the examination of most known species of Montesauria, a subdivision of the genus into species groups is proposed for the first time. The genus Montesauria in current taxonomic limits consists of two major species complexes characterized by the presence or absence of lateral idiosomal setae f2 in both sexes; in turn, each complex includes several species groups. The species complex characterized by the presence of setae f2 includes the heterochacta, papillo, emberizae, dolichodectina, and listroprocta groups; the complex characterized by the absence of setae f2 includes the cylindrica, pachypa, merulae and jesionowski groups. All recognized groups are provided with uniform morphological diagnoses. Species composition of Montesauria in the sense of Park and Atyeo (1971) is partly revised: Montesauria holothyra (Gaud, 1952) is moved to the genus Alaudicola Mironov, 1996 and given a valid name Alaudicola holothyra (Gaud, 1952) comb. n.; and M. trulla (Trouessart, 1885) is suggested to return to the genus Pterodecetes Robin, 1877.

KEY WORDS: Analgoidea, Proctophyllodidae, Montesauria, systematics, Sturnidae, Indo-Malayan region

INTRODUCTION

The feather mite genus Montesauria Oudemans, 1905 (Proctophyllodidae) is the most species-rich genus within the subfamily Pterodecetinae. To date this genus includes 51 species (Park and Atyeo 1971; Mironov 1996a; Mironov and Kopij 1996a, 1996b, 1997; Mironov and Fain 2003; Kuroki et al. 2006). As for all proctophyllodid mites, the members of this genus are typical representatives of the feather mite morphotype adapted to inhabit feathers with large vanes, the flight feathers, the tail feathers and the large upper wing coverts (Mironov 1987, 1999; Dabert and Mironov 1999). Representatives of this morphotype are located in narrow corridors on ventral surface of the vane and in general appearance are commonly characterized by a strongly flattened body, large and heavily sclerotized dorsal shields and significant reduction of idiosomal chaetome in size of setae. The morphological peculiarities of most pterodectines, including the genus Montesauria, are a torpedo-shaped body and loss of terminal filament in caudal macrochaetae h2 in females, the adaptations which are probably related with their primary location in distal part of vanes. Representatives of Montesauria are mainly associated with passerines; a few records of species from Musopagiformes and Pici-formes are questionable and may be the result of contamination (Park and Atyeo 1971; Mironov and Fain 2003).

The genus Montesauria was originally established by Oudemans (1905) for two species, Montesauria cylindrica (Robin, 1877) (type species) and M. corvincola Oudemans, 1905. Although this genus was established at the very beginning of the 20th century, until the end of the 1960s subsequent authors described all species, actually belonging to Montesauria, as members of the genus Pterodecetes Robin, 1877 (Sugimoto 1941; Gaud 1952, 1953, 1968; Till 1954, 1957; Gaud and Mouchet 1957; Gaud and Till 1961). The main reason for this was the absence of a clear definition of this genus to separate it from Pterodecetes. Till (1954) formally synonymized it with the genus Pterodecetes; later, Vassilev (1959) restored it, but this did not solve the situation. As a matter of fact, almost all pterodecites (in recent sense) found in that period were described as Pterodecetes species. Only very clearly distinct or odd pterodecines were referred to new genera, particularly Anisodiscus Gaud et Mouchet, 1957 and Proterothrix Gaud, 1968.

Park and Atyeo (1971) carried out a generic revision of the Pterodecetinae and gave uniform diagnoses based on 32 characters for the 12 genera they recognized within this subfamily. Within Pterodecetinae, the genus Montesauria, along with the seven more genera, Anisodiscus, Dolichodecetes Park et Atyeo, 1971, Megalodectes Park et Atyeo, 1971, Neodecetes Park et Atyeo, 1971, Pedano-
dectes Park et Atyeo, 1971, Proterothrix, and Pterodectes, were referred to the Pterodectes generic group, which the authors characterized as having solenidion σ1 much shorter than solenidion σ3 on legs I, and tarsal setae we moved distally from setae ra and la on tarsi I, II. Discussing morphological peculiarities of the genus Montesauria, Park and Atyeo (1971) noted that this genus includes “at least 5 major species complexes plus many species that cannot be placed with these groups”. However, these authors named only the bilobata group and gave just a few diagnostic characters for it: the males have a small genital arch and the females have setae h2 setiform and long. Only the latter character discriminated this group clearly from other species of the genus, which have spindle- or blade-like setae h2. Thus, the concept of these authors regarding characteristics and species content of any other groups remained unknown. Further complicating matters, Mironov (1996a) removed M. bilobata (Robin, 1877), the basis of the bilobata group, and two more species, to a new genus Alaudicola Mironov 1996. Finally, in describing new Montesauria species from African passerines, Mironov and Fain (2003) gave brief characteristics to two new species groups, heterocaule and papillo.

The present work represents a part of investigation devoted to systematics and biodiversity of feather mites associated with passerines of tropical areas (e.g. Mironov and Fain 2003; Mironov and Wauthy 2005a, b, 2006). In the course of the study focused at the family Proctophyllodidae, most Montesauria species described by previous authors were examined and also a number of new species were recovered. The present paper deals with Montesauria species associated with starlings (Sturnidae) in the Indo-Malayan region and includes redescriptions of two previously known species and description of one new species. Taking in consideration that the intrageneric structure of Montesauria, the most species-rich genus of its subfamily, was still unclear, it seemed an appropriate opportunity to set up a taxonomic structure within this genus that would be helpful for future investigators of pterodectine mites. Therefore, full diagnoses for all species groupings within Montesauria that have been currently recognized, and partial correction of the species contents of this genus, are also provided.

**MATERIAL AND METHODS**

The majority of the material (slides with mite specimens) used in the study belongs to the feather mite collection of the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia); some specimens were examined in the Musée royal de l’Afrique Central (Tervuren, Belgium) and Muséum National de l’Histoire Naturelle (Paris, France). In total, 47 of 51 species referred currently to the genus Montesauria were examined (Table). In those cases when the collection material of particular species was inaccessible or not found, data from respective descriptions were used to refer a species to a certain species group.

**Table**

Arrangement of all currently named Montesauria species into groups, with their type hosts and locations.

<table>
<thead>
<tr>
<th>Species groups having setae h2</th>
<th>Type host</th>
<th>Host family</th>
<th>Location</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>heterocaule</strong></td>
<td></td>
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<tr>
<td>M. bacillus (Trouessart, 1885)</td>
<td>Ortygospiza atricollis (Vieillot)</td>
<td>Estrildidae</td>
<td>Ethiopia (Abyssinia)</td>
<td>Trouessart 1885; Gaud 1952</td>
</tr>
<tr>
<td>M. heterocaule (Gaud et Mouchet, 1957)</td>
<td>Nigrita canicapillus (Strikland)</td>
<td>Estrildidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td>M. lanceolatus (Sugimoto, 1941)</td>
<td>Lorchura malacca fomosana Swinhoe</td>
<td>Estrildidae</td>
<td>Taiwan</td>
<td>Sugimoto 1941</td>
</tr>
<tr>
<td>M. nesocharis Mironov et Fain, 2003</td>
<td>Nesocharis ansorgei (Hartert)</td>
<td>Estrildidae</td>
<td>Rwanda</td>
<td>Mironov and Fain 2003</td>
</tr>
<tr>
<td>M. olfgostica (Gaud et Mouchet, 1957)</td>
<td>Lagonostictarubricata (Lichtenstein)</td>
<td>Estrildidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td>M. stictothyra (Gaud, 1953)</td>
<td>Uraeginthus bengalus (Linnaeus)</td>
<td>Estrildidae</td>
<td>Sudan</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td>M. synostorna (Gaud et Mouchet, 1957)</td>
<td>Spermophaga haemmatina (Vieillot)</td>
<td>Estrildidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
</tbody>
</table>
Feather mites of the genus *Montesauria*

<table>
<thead>
<tr>
<th>Mite species and species group</th>
<th>Type host</th>
<th>Host family</th>
<th>Location</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>papillo</strong></td>
<td></td>
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</tr>
<tr>
<td><em>M. brachycaulus</em> (Gaud et Mouchet, 1957)</td>
<td>Malimbus coronatus Sharpe</td>
<td>Ploceidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. cisticolor</em> Mironov et Fain, 2003</td>
<td>Cysticola ayesii Hartlaub</td>
<td>Cisticolidae</td>
<td>Rwanda</td>
<td>Mironov and Fain 2003</td>
</tr>
<tr>
<td><em>M. dispar</em> (Gaud, 1953)</td>
<td>Ploceus nigricollis brachypterus (Swainson)</td>
<td>Ploceidae</td>
<td>Burkina Faso (Upper Volta)</td>
<td>Gaud 1953; Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. eucyrta</em> (Gaud, 1953)</td>
<td>Ploceus cucullatus (Status Muller)</td>
<td>Ploceidae</td>
<td>Cameroon</td>
<td>Gaud 1953; Mironov and Fain 2003</td>
</tr>
<tr>
<td><em>M. euplectes</em> Mironov et Fain, 2003</td>
<td>Euplectes axillaries (Smith)</td>
<td>Ploceidae</td>
<td>Rwanda</td>
<td>Mironov and Fain 2003</td>
</tr>
<tr>
<td><em>M. eurycaley</em> (Gaud, 1964)</td>
<td>Cysticola brachyptera Sharpe</td>
<td>Cisticolidae</td>
<td>Congo</td>
<td>Gaud 1964; Mironov and Fain 2003</td>
</tr>
<tr>
<td><em>M. gigas</em> (Gaud et Mouchet, 1957)</td>
<td>Amblyospiza albigrons saturata Sharpe</td>
<td>Ploceidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. navicula</em> (Trouessart, 1899)</td>
<td>Ploceus nelicouiri (Scopolii)</td>
<td>Ploceidae</td>
<td>Madagascar</td>
<td>Trouessart 1899</td>
</tr>
<tr>
<td><em>M. papillo</em> (Gaud et Petitot, 1948)</td>
<td>Ploceus hypoxanthus (Sparman)</td>
<td>Ploceidae</td>
<td>Vietnam</td>
<td>Gaud et Petitot 1948</td>
</tr>
<tr>
<td><em>M. pardalis</em> (Gaud et Mouchet, 1957)</td>
<td>Malimbus coronatus Sharpe</td>
<td>Ploceidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
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<tr>
<td><strong>embrisæ</strong></td>
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<tr>
<td><em>M. stephanocaulus</em> (Gaud, 1953)</td>
<td>Vidua paradisea (Linnaeus)</td>
<td>Viduidae</td>
<td>Senegal</td>
<td>Gaud 1953</td>
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<tr>
<td><strong>dolichodectina</strong></td>
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<tr>
<td><em>M. agriocerca</em> (Gaud et Mouchet, 1957)</td>
<td>Pycnonotus simplex (Hartlaub)</td>
<td>Pycnonotidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. amphiæcera</em> (Gaud et Mouchet, 1957)</td>
<td>Chloropeta natalensis batesi Sharpe</td>
<td>Sylviidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. dolichodecina</em> Mironov et Fain, 2003</td>
<td>Acrocephalus rufescens (Sharpe et Bouvier)</td>
<td>Sylviidae</td>
<td>Rwanda</td>
<td>Mironov and Fain 2003</td>
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<tr>
<td><strong>listroprocta</strong></td>
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<tr>
<td><em>M. listroprocta</em> (Gaud et Mouchet, 1957)</td>
<td>Picathartes oreas Reichenow</td>
<td>Picathartidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><strong>Species groups without setae P</strong></td>
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<tr>
<td><strong>cylindrica</strong></td>
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</tr>
<tr>
<td><em>M. acotylura</em> (Gaud et Mouchet, 1957)</td>
<td>Vidua macroura (Pallas)</td>
<td>Viduidae</td>
<td>Cameroon</td>
<td>Gaud and Mouchet 1957</td>
</tr>
<tr>
<td><em>M. belozerni</em> Mironov et Kopij, 1996</td>
<td>Creatophora cinerea (Meuschen)</td>
<td>Sturnidae</td>
<td>South Africa</td>
<td>Mironov and Kopij 1996a</td>
</tr>
<tr>
<td><em>M. buphagi</em> (Till, 1957)</td>
<td>Buphagus erythrorhynchus (Stanley)</td>
<td>Sturnidae</td>
<td>S.Rhodesia</td>
<td>Till 1957</td>
</tr>
<tr>
<td><em>M. cylindrica</em> (Robin, 1877)</td>
<td>Pica pica (Linnaeus)</td>
<td>Corvidae</td>
<td>Europe</td>
<td>Robin and Megnin 1877; Berlese 1886; Park and Ateyo 1971</td>
</tr>
</tbody>
</table>
In diagnoses of species groups and in description of species, the general morphological terms and leg and idiosomal chaetotaxy follow Gaud and Atyeo (1996). Descriptions of species are given in the standard form used for pterodectine taxa (Park and Atyeo 1973; Fain and Mironov 2003; O’Connor et al. 2005). All measurements in the descriptions are given in micrometres (μm). Measuring techniques for particular structures:
(i) distance between different pairs of setae is the shortest distance between the transverse levels formed by setae of respective pairs;
(ii) prodorsal shield length is measured along midline, and width is greatest width at posterior margin;
(iii) hysterosoma is measured from the level of sejugal furrow to bases of setae h3;
(iv) hysteronotal shield length in males is the greatest length from the anterior margin to bases of setae h3; width is measured at anterior margin;
(v) anterior hysteronotal shield length in females is the length along midline from the anterior margin to transverse furrow or thin stria separating this shield from lobar shield; width is measured at anterior margin.
Specimen depositories and reference accession numbers are given using the following abbreviations: TRT — Collection of E. Trouessart in Muséum National d’Histoire Naturelle, Paris, France; ZISP — Zoological Institute of the Russian

<table>
<thead>
<tr>
<th>Mite species and species group</th>
<th>Type host</th>
<th>Host family</th>
<th>Location</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>M. oxyphylia</em> (Gaud et Petitot, 1948)*</td>
<td><em>Corvus macrorhynchos</em> Wagler</td>
<td>Corvidae</td>
<td>Vietnam</td>
<td>Gaud and Petitot 1948</td>
</tr>
<tr>
<td><em>M. punctata</em> Mironov et Kopij, 1996</td>
<td><em>Spero bicolor</em> (Gmelin)</td>
<td>Sturnidae</td>
<td>South Africa</td>
<td>Mironov and Kopij 1996a</td>
</tr>
</tbody>
</table>

**pachypa**

- *M. acridothera* sp. n.
  - Host families: Sturnidae, Reunion Island
  - Location: Present study
- *M. diplotrema* (Gaud et Mouchet, 1957)
  - Host families: Sturnidae, Cameroon
  - Location: Gaud and Mouchet 1957
- *M. mainati* (Trouessart, 1885)
  - Host families: Sturnidae, Indonesia
  - Location: Trouessart 1885
- *M. pachympa* Gaud, 1968
  - Host families: Sturnidae, Rennell Island
  - Location: Gaud 1968
- *M. zumpti* (Till, 1954)
  - Host families: Sturnidae, Mozambique
  - Location: Till 1954

**merulae**

- *M. aurea* Kuroki, Nagahori et Mironov, 2006
  - Host families: Zoothera aurea toratugumi (Momiyama)
  - Location: Turdidae, Japan
  - Reference: Kuroki et al. 2006
- *M. centrumpa* (Gaud et Mouchet, 1957)
  - Host families: Trachylaemus purpuratus (Verreaux et Verreaux E.)
  - Location: Lybiidae, Cameroon
  - Reference: Gaud and Mouchet 1957
- *M. dicruri* (Gaud et Mouchet, 1957)
  - Host families: Dicnurus atripennis
  - Location: Dicnuridae, Cameroon
  - Reference: Gaud and Mouchet 1957
- *M. holostica* (Gaud et Mouchet, 1957)
  - Host families: Pycnonotus barbatus gabonensis Sharpe
  - Location: Pycnonotidae, Cameroon
  - Reference: Gaud and Mouchet 1957
- *M. hyperstica* (Gaud et Mouchet, 1957)
  - Host families: Bleda eximius notatus
  - Location: Pycnonotidae, Cameroon
  - Reference: Gaud and Mouchet 1957
- *M. leiolax* (Gaud et Mouchet, 1957)
  - Host families: Cassypha cyanocamptera
  - Location: Muscicapidae, Cameroon
  - Reference: Gaud and Mouchet 1957
- *M. merulae* (Gaud, 1957)
  - Host families: Turdus menula Linnaeus
  - Location: Turdidae, Morocco
  - Reference: Gaud 1957
- *M. sabiensis* (Till, 1954)
  - Host families: Prionops plumatus (Shaw)
  - Location: Laniidae, S.Rhodesia
  - Reference: Till 1954
- *M. sibirica* Kuroki, Nagahori et Mironov, 2006
  - Host families: Zoothera sibirica davisoni (Hume)
  - Location: Turdidae, Japan
  - Reference: Kuroki et al. 2006

**jesionowskii**

- Montesauria jesionowskii
  - Host families: Apalis thoracica (Shaw)
  - Location: Cisticolidae, South Africa
  - Reference: Mironov and Kopij 1997

**species inquerenda**

- *M. reticulifera* (Trouessart et Neumann)*
  - Host families: Eremophila alpestris (Linnaeus) (?)
  - Location: Alaudidae, USA: California
  - Reference: Trouessart and Neumann 1888

(* — materials on marked mite species were unavailable for the present study; (?) — questionable host association.)
Feather mites of the genus *Montesauria*


**Family Proctophyllodidae**

Trouessart et Mégnin, 1884

**Subfamily Pterodectinae** Park et Atyeo, 1971

**Genus Montesauria** Oudemans, 1905

In the generic revision of the subfamily Pterodectinae, Park and Atyeo (1971) gave uniform generic diagnoses including 32 characters. Based on the detailed diagnosis proposed by these authors and subsequent reduction of the species composition of *Montesauria* (Mironov 1996a), the combination of features differentiating this genus from all other pterodectine genera is as follows: in both sexes, prodorsal shield entire (i.e. not split at level of scapular setae), solenidion \( \sigma 1 \) of genu I small and much shorter than solenidion \( \omega 3 \) of tarsus I, ventral seta \( wa \) of tarsi I, II moved anterior from setae \( ra, la \), solenidion \( \sigma \) of genu III present, dorso-median idiosomal setae \( c1, d1, e1 \) present, setae \( ps1 \) present; in males, setae \( ps3 \) lateral or posterior to anal suckers, setae \( g \) and \( ps3 \) in trapezoidal arrangement, genital papillae posterior to genital arch and poorly distinct or invisible, opisthosoma distinctly bilobate, opisthosomal lobes well developed, noticeably elongated, situated dorsally on anterolateral angles of hysteronotal shield. Male: setae \( h1 \) anterior to terminal cleft; setae \( ps1 \) on margins of terminal cleft; opisthosomal lobes well developed, noticeably elongated, attenuate to apex; setae \( h3 \) lanceolate or foliform with acute apex, relatively short, not longer than width of opisthosoma; genital arch small; sternum not connected to epimerites II, coxal fields III open, coxal fields IV without large sclerotized areas; legs III, IV without ventral apophyses. Female: setae \( ps1 \) near margins of terminal cleft; anterior hysteronotal shield and lobar shield separated; legs I, II not modified.

The group is restricted to Estrildidae (Passeroidea).

**papillo group**

Both sexes: setae \( f2 \) present; coxal fields I, II without large sclerotized area; setae \( c2 \) situated ventrally or laterally and off hysteronotal shield. Male: setae \( h1 \) anterior to terminal cleft; setae \( ps1 \) on margins of terminal cleft or dorsally (in *M. buttikeri* and *M. gigas*); opisthosomal lobes short, distal margin blunt or oblique, with poorly developed extensions at base of lobar setae; setae \( h3 \) long and setiform or narrowly lanceolate with apical filament; genital arch variable in size, if large it is commonly provided with angle-like lateral projections (wings); sternum not connected to epimerites II; coxal fields III open, coxal fields IV without large sclerotized areas; legs III, IV without ventral apophyses. Female: setae \( ps1 \) closer to margins of terminal cleft than to outer margin of opisthosomal lobes, anterior hysteronotal shield and lobar shield separated; legs I, II not modified.

Representatives of the group occur on Passeridae, Ploceidae (Passeroidea), and Cisticolidae (Syloidea).

**emberizae group**

Both sexes: setae \( f2 \) present, coxal fields I, II without large sclerotized area, setae \( c2 \) situated dorsally on anterolateral angles of hysteronotal shield. Male: setae \( h1 \) anterior to terminal cleft, setae \( ps1 \) on margins of terminal cleft; opisthosomal lobes well developed, slightly elongated, commonly with oblique posterior margin and with short rounded extension at bases of setae \( h2 \) and \( h3 \); setae \( h3 \) lanceolate or narrowly lanceolate with thread-like apex; genital arch small, without lateral wings; sternum free or connected with epimerites II, coxal fields III open, inner margins of epimerites IVa in most species with finger-like projection directed backward; legs III, IV without ventral apophyses. Female: setae \( ps1 \) equidistant from inner and outer margins of opisthosomal lobe or closer to inner
ventral apophyses. Female: setae on inner margins of epimerites IIIa; legs III, IV without IVa and also may have sclerotized projections on closed or open; coxal fields IV with large epimerites I connected with epimerites II, coxal fields III open, coxal fields IV without large sclerotized areas, epimerites IVa absent or very small; legs III, IV without ventral apophyses. Female: setae ps1 closer to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield separated by narrow transverse furrow or only demarked from each other by thin transverse stria; legs I, II not modified.

Representatives of this group mainly occur on birds of the families Sturnidae (Muscicapoidea) and Corvidae (Corvoidea); one species, *Montesauria acotylura* (Gaud et Mouchet, 1957) is known from Viduidae (Passeroidae).

**pachypa group**

Both sexes: setae f2 absent, coxal fields I, II without large sclerotized area, setae c2 situated dorsally on soft tegument. Male: setae h1 situated at level terminal cleft, near bases of setae ps2; setae ps1 on margins of terminal cleft; opisthosomal lobes short, roughly rounded, commonly with pair of short extensions at base of setae h3 and with one extension at base of seta h2; setae h3 setiform or narrowly lanceolate with thread-like apex; genital arch small, without lateral wings; posterior ends of epimerites I free or connected with epimerites II, coxal fields III open, coxal fields IV without large sclerotized areas, epimerites IVa absent or very small; legs III, IV without ventral apophyses. Female: setae ps1 closer to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield separated by narrow transverse furrow or only demarked from each other by thin transverse stria; legs I, II not modified.

Representatives of this group mainly occur on birds of the families Sturnidae (Muscicapoidea) and Corvidae (Corvoidea); one species, *Montesauria acotylura* (Gaud et Mouchet, 1957) is known from Viduidae (Passeroidae).

**Merulae group**

Both sexes: setae f2 absent; coxal fields I, II without large sclerotized area, setae c2 situated dorsally, off hysteronotal shield. Male: setae h1 situated anterior to terminal cleft; setae ps1 situated dorsally, slightly anterior to bases of setae h2; opisthosomal lobes short, roughly rounded, with pair of short extensions on posterior margin; setae h3 setiform or narrowly lanceolate; genital arch small, without lateral wings; posterior ends of epimerites I free from epimerites II, coxal fields III with one extension at base of seta h2; setae h3 setiform or narrowly lanceolate with thread-like apex; genital arch small, without lateral wings; posterior ends of epimerites I free or connected with epimerites II, coxal fields III open, coxal fields IV without large sclerotized areas, epimerites IVa absent or very small; legs III, IV without ventral apophyses. Female: setae ps1 closer to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield separated by narrow transverse furrow or only demarked from each other by thin transverse stria; legs I, II not modified.

Species groups without setae f2

**cylindrica group**

Both sexes: setae f2 absent, coxal fields I, II without large sclerotized area, setae c2 situated dorsally, off hysteronotal shield. Male: setae h1 situated at level of terminal cleft, near bases of setae ps2; setae ps1 on margins of terminal cleft; opisthosomal lobes short, roughly rounded, commonly with pair of short extensions at base of setae h3 and with one extension at base of seta h2; setae h3 setiform or narrowly lanceolate with thread-like apex; genital arch small, without lateral wings; posterior ends of epimerites I free or connected with epimerites II, coxal fields III open, coxal fields IV without large sclerotized areas, epimerites IVa absent or very small; legs III, IV without ventral apophyses. Female: setae ps1 closer to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield separated by narrow transverse furrow or only demarked from each other by thin transverse stria; legs I, II not modified.

Representatives of the group are associated with Emberizidae, Estrildidae, and Viduidae (Passeroidea).
open, coxal fields IV without large sclerotized areas, epimerites IVa present or absent; genu of legs IV with ventral apophyses. Female: setae ps1 closer to outer margins of opisthosomal lobes than to margin of terminal cleft; anterior hysteronotal shield and lobar shield clearly separated; legs I, II not modified.

Representatives of this group are mainly associated with various higher passerine families: Muscicapidae, Turdidae (Muscicapoidae), Pycnonotidae (Sylvioidae), Corvidae, Laniidae (Corvoidae). One species, *M. centroprocta* (Gaud et Mouchet, 1957), is known from the African barbets (Piciformes: Lybiidae).

**jesionowskii group**

Both sexes: setae f2 absent; coxal fields I, II without large sclerotized area; setae c2 situated dorsally, off hysteronotal shield. Male: setae h1 situated anterior to terminal cleft; setae ps1 situated dorsally, anterior to bases of setae h3; opisthosomal lobes short, with oblique posterior margin; setae h3 long and setiform; genital arch small, without lateral wings; posterior ends of epimerites I free from epimerites II, coxal fields III open in most anterior end, coxal fields IV without large sclerotized areas, epimerites IVa present; legs III, IV without ventral apophyses. Female: setae ps1 situated anteriorly, almost at level of setae h2; anterior hysteronotal shield and lobar shield clearly separated; legs I, II not modified.

The sole species forming this group, *M. jesionowskii* Mironov et Kopij, 1997, is known from cisticolids (Sylvioida: Cisticolidae).

**Remarks.** The position of *Montesauria reticulifera* (Trouessart et Neumann, 1888) within the genus *Montesauria* remains unclear, until its type series or new specimens recollected from the type host, the horned lark *Eremophila alpestris* (Linnaeus), are examined. This species is so incompletely described that it is unclear whether this species actually belongs to *Montesauria*. This mite has never been recollected from its type host, even though Palaearctic species of larks, Alaudidae, have been examined relatively thoroughly (Shumilo and Tikhon 1972; Mironov 1996b). Taking into consideration that among pterodectines the genus *Alaudicola* is specific to larks, it is quite likely that finding of *M. reticulifera* in that host was the result of an accidental contamination.

Two species, *Montesauria holothyra* (Gaud, 1952) and *M. trulla* (Trouessart, 1885), treated by Park and Atyeo (1971) as representatives of *Montesauria*, should be removed from this genus. *Pterodectes holothyra* Gaud, 1952, described from *Mirafra hova* Hartlaub in Madagascar (Gaud 1952), actually belongs to the genus *Alaudicola*. The valid name of this species is now *Alaudicola holothyra* (Gaud, 1952) **comb. n.** This conclusion is based on the examination of specimens from *Mirafra rufocinannomea buckleyi* (Shelley) from Ghana (ZISP 10 256), which I consider to be conspecific to the mite species described by Gaud from *Mirafra hova*.

Examination of syntypes of *Pterodectes trulla* Trouessart, 1885 described from *Turaco macrorhynchus* (Fraser) in Gabon (TRT 30B7) shows that this species belongs to the genus *Pterodectes*. As for its host association with musophagids (Musophagiformes), this is quite likely an accidental contamination, because no other proctophyllodid species are known from this bird order.

**Group pachypa**

*Montesauria acridothora* sp. n.

Figs. 1–4.

**Type material.** Male holotype, 3 female paratypes (ZISP 10 391) ex *Acridotheres tristis* (Linnaeus, 1766), Ile La Réunion, 20 May 1980, N. Barre; 2 female paratypes (ZISP 10 390), same data.

**Differential diagnosis.** Differs from other species of the *pachypa* group by the following combination of characters. In males, prodorsal and hysteronotal shields separated by narrow band of soft tegument bearing a pair of additional sclerites; setae h3 narrowly lanceolate, about 60–63 long and 10 wide; setae ps2 thickened in basal part and filiform in apical part; aedeagus not extending to anterior margin of anal suckers; pair of small anal sclerites posterior to setae g present, epimerites IVa absent. In female, epimerites I fused as Y, dorsal crest of tibia I with rounded proximal margin, dorsal crest of genu IV rounded, hysteronotal shield demarcated into anterior and lobar fragments by thin transverse striae, terminal cleft 62–70 long, extended to level of setae h2.

**Description.** Male (holotype). Length of idiosoma 432, width 205, length of hysterosoma 272. Prodorsal shield: 121 in length along median line, 126 in width at posterior margin, with lateral margins entire, posterior margin almost straight, surface with small circular pit-like lacunae; scapular setae se separated by 82. Humeral shields small, setae cp off these shields. Setae c2 situated dorsally, on soft tegument. Subhumeral setae c3 lanceolate, 22 long, 8.5 wide. Hysteronotal shield: greatest length 278, width in anterior part 146, anterior
margin slightly convex, surface with numerous small pit-like lacunae as on prodorsal shield. Prodorsal and hysteronotal shields separated by band of soft tegument bearing pair of small additional sclerites (Fig. 1A). Opisthosomal lobes short, posterior margin roughly rounded, with small extension at base of setae h2 and with pair of short extensions at base of setae h2; terminal cleft V-shaped with rounded anterior end, 17 long, distance between bases of setae h3 situated on lobar apices 35 (Fig. 2A). Setae f2 absent. Setae h1 antero-mesal to bases of setae ps2. Setae h3 lanceolate, with acute tips, 60–63 long, 10 wide; setae ps2 85–88 long, slightly thickened in basal part, apical part filiform; setae ps1 filiform, about 10 long, situated on margins of terminal cleft slightly anterior to level of setae h3. Distance between bases of dorsal setae and setal pairs: se:c2 86, c2:d2 112, d2:e2 102, e2:h3 44, d1:d2 30, e1:e2 33, h1:ps2 15, h2:h2 62, h3:h3 38, ps2:ps2 84.

Epimerites I fused as Y, posterior end of sternum connected to medial part of epimerites II (Fig. 1B). Lateral half of coxal fields I, II without sclerotized areas. Coxal fields II, III not closed. Coxal fields IV without lateral sclerotized areas. Epimerites IVa absent. Genital arch small, with acute tips directed laterally, 20 long, 46 wide; basal sclerite of genital apparatus small, semicircular; aedeagus

Fig. 1. Montesauria acridothera, male. A — dorsal view, B — ventral view.
Feather mites of the genus *Montesauria* straight, sword-shaped, 84 long, not extending to anterior margin of anal suckers, genital acetabulae poorly visible. Genital shield absent. Pair of small adanal sclerites situated posterolateral to setae *g* present. Anal suckers 15 in diameter, corolla without indentations. Opisthoventral shields narrow, inner margins of these shields at level of anal suckers with angular extension bearing setae *ps3*. Distance between ventral setae: 3b:3a 35, 3a:4a 42, 4a:g 34, g:ps3 51, ps3:ps3 84, ps3:h3 36. Legs I slightly thicker and longer than legs II. Genua I, II with narrow dorsoapical crest, tibiae I with narrow dorsal crest, femur II with ventrobasal crest. Solenidion *σ1* of genu I short, stick-like, about 6 long, seta *cGI*

Fig. 2. *Montesauria acridothera*, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — leg I, antaxial view, D — leg II, leg I, antaxial view, E — leg III, paraxial view, F — leg IV, paraxial view. cg — dorsal crest of genu I, ct — dorsal crest of tibia I, vb — ventrobasal crest of femur II.
thin spiculiform, about 9 long, seta cG II setiform, about 11 (Fig. 2C). Genu III with narrow dorsal crest. Tarsus IV 27 in length, with small apical claw-like process; modified setae d, e button-like.

Female (5 paratypes). Length of idiosoma excluding terminal appendages 620–646, width 236–246, length of hysterosoma 420–435. Prodorsal shield: general form as in the male, except for convex posterior margin, posterior part with small pit-like lacunae, 200–215 long, 204–212 wide, setae se separated by 98–104. Humeral shields as in the male, not encompassing setae cp. Setae c2 situated dorsally, on soft tegument. Setae c3 lanceolate, 22–24 × 8.5–9. Prodorsal and hysteronotal shields almost touching. Anterior and lobar parts of hysteronotal shield delimited from each other just by narrow transverse groove (Fig. 3A). Anterior hysteronotal fragment slightly enlarged in anterior part, anterior margin straight, greatest length 334–345, width at anterior margin 208–214, surface with small pit-like lacunae dispersed mainly in anterior 3/4. Length of lobar region excluding terminal appendages 82–95, width at level of setae h2 122–125. Terminal cleft as narrow V, 62–70 long. Lateral margins of opisthosomal lobes posterior to setae h2 membranous. Setae f2 absent. Setae h1 on

Fig. 3. Montesauria acridothera, female. A — dorsal view, B — ventral view.

S. V. Mironov
Feather mites of the genus *Montesauria*


Epimerites I fused as Y, posterior end of sternum with acute extensions directed laterally but not connected with epimerites II. Lateral parts of coxal fields I without heavy sclerotized areas, lateral third of coxal fields II with sclerotized area (Fig. 3B). Epimerites IVa absent. Translobar apodemes of opisthosomal lobes present, lateral part of this apodemes fused with ventral sclerotization of lobar region and posterolateral margins of anterior hysteronotal shield with extensions reaching ventral side of idiosoma. Head of spermatheca poorly sclerotized, primary spermaduct with ball-shaped sclerotized enlargement situated about 12 from head of spermatheca, outer surface of this spermaduct smooth; secondary spermaducts 2–2.5 times longer than distance between enlargement of primary spermaduct and spermatheca (Fig. 4F). Distance between ventral setae: $ps_2:ps_2$ 76–78, $ps_3:ps_3$ 24–26, $ps_2:ps_3$ 22–26.

Legs I hypertrophied, tibia and genu I strongly inflated on dorsal side, heavily sclerotized and about 2.5–3 times thicker than respective segments.

Fig. 4. *Montesauria acridothera*, details of female. A — leg I, antaxial view, B — tibia, genu and femur I, paraxial view, C — leg II, antaxial view, D — leg III, paraxial view, E — leg IV, paraxial view, F — spermatheca.

of legs II (Fig. 4). Tibia I with well-developed dorsal crest, its proximal part rounded with indentations; distal part of genu I with large angular paraxial crest and with narrow antaxial crest. Tibia and genu II with narrow dorsal crest (Fig. 4C). Femur II with small ventro-basal crest. Solenidion \( \sigma_1 \) of genu I thin spine-like. Seta \( cGI \) thin spiculiform, about 9 long, setae \( cGII \) setiform about 11 long. Genu IV with rounded dorsobasal crest (Fig. 4E).

**Etymology.** The specific epithet derives from the generic name of the host and is a noun in apposition.

**Montesauria pachypa (Gaud, 1968)**

*Figs. 5–7.*

*Pterodectes pachypus* Gaud, 1968: 134, figs. 4c, 6c, 7b.


**Material examined.** 12 males and 10 females (ZISP 10 386–10 389, 4 slides) ex *Aplonis insularis* Mayr, 1931 [written: *Aplonis feadensis* (Ram-say, 1882)], Rennell Island, 23 August 1962, coll. unknown. 7 males, 1 female (ZISP 11 373–11 378, 11 389, 7 slides) ex *A. minor* (Bonaparte, 1850),
Feather mites of the genus *Montesauria*

Philippines, Mindanao, Davao del Norte, Baracat- an, Mt. Apo, 19 May 1977 J.M. Sotto. 7 males, 11 females (TRT 25G10) ex *A. panayensis* (Scopoli, 1786), Philippines, no other data.

**Differential diagnosis.** Differs from other species of the *pachypa* group by the following combination of characters. In males, prodorsal and hysteronotal shields almost touching; setae *h3* narrowly lanceolate, 46–50 × 4.5–5; setae *ps2* 78–85 long, noticeably thickened along all their length, aedeagus extending to midlevel of anal suckers, pair of small adanal sclerites posterior to setae *g* present, epimerites IVa absent. In female, epimerites I fused as Y, dorsal crest of tibia I with rounded proximal margin, dorsal crest of genu IV rounded, hysteronotal shield demarcated into anterior and lobar fragments by thin transverse stria; terminal cleft 80–87 long, extended beyond the level of setae *h2*.

**Description.** Male (12 specimens from type host). Length of idiosoma 374–383, width 168–175, length of hysterosoma 232–240. Prodorsal shield: 126–138 in length along median line, 140–144 in width at posterior margin, with lateral margins entire, posterior margin almost straight, surface with small pit-like lacunae (Fig. 5A); scapular setae *se* separated by 74–78. Humeral shields small, setae *cp* off these shields. Setae *c2* situated dorsally, on soft tegument. Subhumeral setae *c3* lanceolate, 26–28 long, 9–10 wide. Hysteronotal shield: greatest length 244–254, width in anterior part 138–144, anterior margin slightly concave, surface with numerous small pit-like lacunae as on prodorsal shield. Prodorsal and hysteronotal shields almost touching. Opisthosomal lobes short, posterior margin roughly rounded, with small extension at base of setae *h2* and with pair of short extensions at base of setae *h3*; terminal cleft V-shaped with rounded anterior end, 22–24 long, distance between bases of setae *h3* situated on lobar apices 38–40 (Fig. 6A, B). Setae *f2* absent. Setae *h1* antero-mesal to bases of setae *ps2*. Setae *h3* narrowly lanceolate, with acute tips, 46–50 long, 4.5–5 wide; setae *ps2* 78–85 long, noticeably thickened along all their length; setae *ps1* filiform, about 10 long, situated on margins of terminal cleft slightly anterior to level of setae *h3*. Distance between bases of dorsal setae and setal pairs: *se:c2* 68–75, *c2:d2* 87–90, *d2:e2* 84–93, *e2:h3* 46–50, *d1:d2* 20–26, *el:e2* 29–37, *h1:ps2* 6–9, *h2:h2* 60–64, *h3:h3* 38–42, *ps2:ps2* 80–84.

Epimerites I fused as Y, posterior end of sternum connected to medial part of epimerites II (Fig. 5B). Lateral half of coxal fields I, II without large sclerotized areas. Coxal fields II, III not closed. Coxal fields IV without lateral sclerotized areas. Epimerites IVa absent. Genital arch small, with acute tips directed laterally, 20–24 long, 40–42

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**Fig. 6.** *Montesauria pachypa*, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — tibia, genu and femur I, D — tibia, genu and femur II.
S. V. Mironov


Fig. 7. Montesauria pachypa, female. A — dorsal view, B — leg I, antaxial view, C — tibia, genu and femur II, antaxial view, D — genu and femur III, antaxial view, E — spermatheca.

9.5. Anterior and lobar parts of hysteronotal shield delimited from each other by narrow transverse groove (Fig. 7). Anterior hysteronotal shield slightly enlarged in anterior part, anterior margin slightly concave, greatest length 328–335, width at anterior margin 192–198; surface with small pit-like lacunae as in prodorsal shield. Length of lobar region excluding terminal appendages 115–122, width at level of setae h2 124–133. Terminal cleft as narrow V, 80–86 long. Lateral margins of opisthosomal lobes posterior to setae v, 80–86 long. Lateral margins of opisthosomal d2:e2 intermediate dorsal setae: about 1/5 of terminal appendages. Distance between ventral setae: distance between that enlargement and spermatheca, outer surface of this spermaduct smooth; enlargement situated about 15 from head of spermatheca, aedeagus not extending to or extending only slightly beyond posterior margin of anal suckers, epimerites IVa present.

Epimerites I fused as Y, posterior end of sternum with acute extensions directed laterally but not connected with epimerites II. Lateral parts of coxal fields I without heavy sclerotized areas, lateral third of coxal fields II with sclerotized area. Epimerites IVa absent. Translobar apodemes of opisthosomal lobes present, lateral part of these apodemes fused with ventral sclerotized area of lobar region and posterolateral margins of anterior hysteronotal shield. Head of spermatheca poorly sclerotized, primary spermaduct with ball-shaped sclerotized shield. Head of spermatheca poorly sclerotized, secondary spermaducts 1.5–2 times longer than respective segments of legs II. Tibia I with well-developed dorsal crest, its proximal part rounded with indentations; distal part of genu I with large angular paraxial crest and with narrow antaxial crest. Tibia and genu II with narrow dorsal crest. Femur II with small ventro-basal crest. Solenidion r1 of genu I thin spine-like, 9–10 long. Setae cGI and cGII setiform, 13–14 and 11–13 long, respectively. Genu IV with rounded dorsobasal crest.

**Remarks.** Gaud (1968) originally described *M. pachyopa* from the Rennell starling, *Aplonis pachypa* Gould. The type host and type location, which we examined, was granted to the collection of the Zoological Institute personally by J. Gaud and quite probably represents a part of the type series, although the slides do not bear any formal marks. According to the note in the original description, the type specimens are deposited in the Museum of Zoology of Copenhagen (Denmark).

Findings of *M. pachyopa* on *Aplonis minor* and *A. panayensis* are new host records; this mite species is probably specific to starlings of the genus *Aplonis* Gould.

**Montesauria mainati** (Trouessart, 1885)

Figs. 8–10.

*Proctophyllodes (Pterodectes) mainati* Trouessart, 1885: 81.

*Proctophyllodes mainati* Canestrini, Kramer, 1899: 126.

**Montesauria mainati**: Park, Atyeo, 1971: 60.

*Dermaleichus eulabis* Buchholz, 1869: 21, taf. II, fig. 9 (in part, female) syn. n.

*Pterocolus eulabis*: Haller, 1878: 539 (in part).

**Trouessartia eulabis**: Canestrini, Kramer, 1899: 121 (in part).

**Montesauria eulabis**: Park, Atyeo, 1971: 59.

**Material examined.** Lectotype male, 2 male and 8 female paralectotypes (TRT 37H14) ex *Gracula religiosa* Linnaeus, 1758 [written: *Eulabes javanicus*], Java, Sumatra, Malacca, no other data; lectotype designated in the present work. 17 males, 31 females (ZISP 10 375–10 380, 6 slides) ex *Gracula robusta* Salvadori, 1887, Sumatra, no other data.

**Differential diagnosis.** Differs from other species of the *pachyopa* group by the following combination of characters. In males, prodorsal and hysteronotal shields almost touching; setae h3 distinctively lanceolate and relatively short, 40–44 × 12–14, setae ps2 thickened in basal part and filiform in apical part, aedeagus not extending to or extending only slightly beyond posterior margin of anal suckers, anal sclerites absent, epimerites IVa present. In female, dorsal crest of tibia I with right or acute angle, dorsal crest of genu IV with right angle, hysteronotal shield demarcated into anterior and lobar fragments by pair of thin striae on flanks of opisthosoma, terminal cleft 68–75 long, extended beyond level of setae h2.

at posterior margin, with lateral margins entire, posterior margin almost straight, surface with numerous small pit-like lacunae; scapular setae se separated by 68–86 (68). Humeral shields small, setae cp off these shields. Setae c2 situated dorsally, on soft tegument. Subhumeral setae c3 lanceolate, 20–22 (20) in long, 7.5–9 (8) wide. Hysteronotal shield: greatest length 235–250 (238), width in anterior part 134–150 (135), anterior margin straight, surface with numerous small pit-like lacunae as on prodorsal shield. Prodorsal and hysteronotal shields almost touching each other. Opisthosomal lobes short, posterior margin roughly rounded, with pair of small extensions at base of setae h3 and with extensions at base of setae h2; terminal cleft V-shaped with rounded anterior end, 18–22 (18) long (Fig. 1). Setae f2 absent. Setae h1 antero-mesal to bases of setae ps2. Setae h3 lanceolate, with acute tip, 40–45 (42) long, 11–14 (12) wide; setae ps2 75–88 (85) long, thickened in basal part and with filiform apical part; setae ps1 filiform, about 10 long, situated on margins of terminal cleft slightly anterior to level of setae h3. Distance between bases of dorsal setae and setal pairs: se:c2 55–68 (67), c2:d2 87–90 (89), d2:e2 80–93 (81), e2:h3 45–51 (46), d1:d2 30–33 (32), e1:e2 26–31 (26), h1:ps2 3–5 (4), h2:h2 58–68 (59), h3:h3 30–37 (31), ps2:ps2 80–95 (82).

Epimerites I fused as Y, posterior end of sternum connected to medial part of epimerites II.
Feather mites of the genus *Montesauria*

Lateral part of coxal fields I, II without large sclerotized areas. Coxal fields II, III not closed. Coxal fields IV without large lateral sclerotized areas. Epimerites IVa present. Genital arch small, 18–22 (18) long, 24–28 (24) wide; basal sclerite of genital apparatus small, semicircular; aedeagus straight, sword-shaped, 88–93 (92) long, extending to or beyond posterior margin of anal suckers, genital acetabula poorly visible. Genital and adanal shields absent. Anal suckers 15.5–17 (17) in diameter, corolla without indentations. Opisthoventral shields narrow, with short extension bearing setae ps3 at level of posterior margin of anal suckers. Distance between ventral setae: 3b:3a 20–26 (20), 3a–4a 31–34 (32), 4a–g 55–62 (56), g–ps3 28–31 (28), ps3–ps3 75–77 (76), ps3:h3 32–35 (35).

Legs I noticeably thicker and longer than legs II. Genua I, II with narrow dorso-apical crest, tibiae I, II with narrow dorsal crest, femur II with short ventro-basal crest. Solenidion σ1 of genu I a short and thin spine, about 7–8 (7) long; setae cGI and cGII spine-like, 7–9 (7) and 9–11 (10) long, respectively; genu III with narrow dorsal crest (Figs. 9C–E). Tarsus IV 26–27 (27) long, with small apical claw-like process; modified setae d, e button-like.


Epimerites I fused as Y, posterior end of sternum with acute extensions directed laterally but not connected with epimerites II. Lateral parts of coxal

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**Fig. 9. Montesauria mainati**, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — tibia, genu and femur I, D — tibia, genu and femur II.
fields I without large sclerotized areas, lateral third of coxal fields II with sclerotized area. Epimerites IVa absent. Translobar apodemes of opisthosomal lobes present, lateral part of these apodemes fused with ventral sclerotized area of lobar region and posterolateral margins of anterior hysteronotal shield. Head of spermatheca poorly sclerotized, primary spermaduct with ball-shaped sclerotized enlargement situated about 10 from head of spermatheca, outer surface of this spermaduct smooth; secondary spermaducts 2–2.5 times longer than distance between that enlargement and spermatheca. Distance between ventral setae: ps2:ps2 76–92, ps3:ps3 25–31, ps2:ps3 22–24.

Legs I hypertrophied, tibia and genu I strongly inflated on dorsal side, heavily sclerotized and 2.5–3 times thicker than respective segments of legs II. Tibia I with well-developed dorsal crest, its proximal part forming rectangle or acute angle; distal part of genu I with large angular paraxial crest and with narrow antaxial crest. Tibia and genu II with narrow dorsal crest. Femur II with small ventro-basal crest. Solenidion $\sigma_1$ of genu I thin spine-like, 10–11 long. Setae cGI and cGII spine-like, 11–13

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Fig. 10. Montesauria mainati, female. A — dorsal view, B — leg I, antaxial view, C — genu and femur I, paraxial view, D — tibia, genu and femur II, paraxial view, E — tibia, genu and femur III, antaxial view, F — spermatheca.
Feather mites of the genus Montesauria

and 11–12, respectively. Genu IV with dorsal crest forming acute angle.

Remarks. Trouessart (1885) described Pterodectes mainati from G. religiosa from Indonesia and noticed that the male and female of Dermaleichus eulabis described by Buchholz (1869) from the same host represented mites of two different families; the male actually belonged to Trouessartiidae, and the female to Proctophyllodidae. Trouessart (1885) also clearly pointed out that the female treated by Buchholz as D. eulabis corresponded to the new species Pterodectes mainati; it means that Trouessart considered that the name D. eulabis should be retained by the species represented by the male. For unclear reasons, Park and Atyeo (1971) did not take into account the remark of Trouessart and considered Montesauria eulabis (Buchholz, 1869) and M. mainati (Trouessart, 1885) as two different and valid species. In the revision of the genus Trouessartia Canestrini 1879, the name D. eulabis Buchholz, 1869 was finally fixed as the species represented by the male; its recent valid name is Trouessartia eulabis (Buchholz, 1869) (see: Santana 1976).

The finding of M. mainati on Gracula robusta is a new host record; this mite species is probably specific to mynas of the genus Gracula Linnaeus.

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REFERENCES


Mironov, S.V. 1987. [Morphological adaptations of feather mites to different types of plumage and skin of birds]. Parazitologicheskii Shbornik, Zoologicheskiy Institut AN SSSR, Leningrad, 34: 114–132. [In Russian]


Mironov, S.V. 1996b. [Feather mites of the passerines in the North-West of Russia]. Parazitologiya, 30: 521–539. [In Russian]

Mironov, S.V. 1999. Feather mites: general morphological adaptations, phylogeny and coevolution-


