

FEATHER MITES OF THE GENUS *MONTESAURIA* OUDEMANS (ASTIGMATA: PROCTOPHYLLODIDAE) ASSOCIATED WITH STARLINGS (PASSERIFORMES: 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 *f*₂ in both sexes; in turn, each complex includes several species groups. The species complex characterized by the presence of setae *f*₂ includes the *heterocaula*, *papillo*, *emberizae*, *dolichodectina*, and *listroprocta* groups; the complex characterized by the absence of setae *f*₂ 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 *Pterodectes* 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 Pterodectinae. 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 *h*₂ 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 *Pterodectes* 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 *Pterodectes*. Till (1954) formally synonymized it with the genus *Pterodectes*; later, Vassilev (1959) restored it, but this did not solve the situation. As a matter of fact, almost all pterodectines (in recent sense) found in that period were described as *Pterodectes* species. Only very clearly distinct or odd pterodectines 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 Pterodectinae and gave uniform diagnoses based on 32 characters for the 12 genera they recognized within this subfamily. Within Pterodectinae, the genus *Montesauria*, along with the seven more genera, *Anisodiscus*, *Dolichodectes* Park et Atyeo, 1971, *Megalodectes* Park et Atyeo, 1971, *Neodectes* 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 $\sigma 1$ much shorter than solenidion $\omega 3$ on legs I, and tarsal seta *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, *heterocaula* 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 redescription 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

Mite species and species group	Type host	Host family	Location	Reference
Species groups having setae <i>f2</i>				
<i>heterocaula</i>				
<i>M. bacillus</i> (Trouessart, 1885)	<i>Ortyospiza atricollis</i> (Vieillot)	Estrildidae	Ethiopia (Abyssinia)	Trouessart 1885; Gaud 1952
<i>M. heterocaula</i> (Gaud et Mouchet, 1957)	<i>Nigrita canicapillus</i> (Strikland)	Estrildidae	Cameroon	Gaud and Mouchet 1957
<i>M. lanceolatus</i> (Sugimoto, 1941)	<i>Lonchura malacca</i> <i>formosana</i> Swinhoe	Estrildidae	Taiwan	Sugimoto 1941
<i>M. nesocharis</i> Mironov et Fain, 2003	<i>Nesocharis ansorgei</i> (Hartert)	Estrildidae	Rwanda	Mironov and Fain 2003
<i>M. olygosticta</i> (Gaud et Mouchet, 1957)	<i>Lagonosticta rubricata</i> (Lichtenstein)	Estrildidae	Cameroon	Gaud and Mouchet 1957
<i>M. stictothyra</i> (Gaud, 1953)	<i>Uraeginthus bengalus</i> (Linnaeus)	Estrildidae	Sudan	Gaud and 1953
<i>M. synostema</i> (Gaud et Mouchet, 1957)	<i>Spermophaga haematina</i> (Vieillot)	Estrildidae	Cameroon	Gaud and Mouchet 1957

Feather mites of the genus *Montesauria*

Mite species and species group	Type host	Host family	Location	Reference
<i>papillo</i>				
<i>M. brachycaulus</i> (Gaud et Mouchet, 1957)	<i>Malimbus coronatus</i> Sharpe	Ploceidae	Cameroon	Gaud and Mouchet 1957
<i>M. buttikeri</i> (Till, 1954)	<i>Ploceus ocularis</i> Smith A.	Ploceidae	Mozambique	Till 1954
<i>M. cisticolae</i> Mironov et Fain, 2003	<i>Cysticola ayresii</i> Hartlaub	Cysticolidae	Rwanda	Mironov and Fain 2003
<i>M. delicatula</i> (Till, 1957)	<i>Passer griseus</i> (Vieillot)	Passeridae	Mozambique, S.Rhodesia	Till 1957
<i>M. dispar</i> (Gaud, 1953)	<i>Ploceus nigricollis</i> <i>brachypterus</i> (Swainson)	Ploceidae	Burkina Faso (Upper Volta)	Gaud 1953; Gaud and Mouchet 1957
<i>M. eucyrta</i> (Gaud, 1953)	<i>Ploceus cucullatus</i> (Stadius Muller)	Ploceidae	Cameroon	Gaud 1953; Mironov and Fain 2003
<i>M. euplectes</i> Mironov et Fain, 2003	<i>Euplectes axillaries</i> (Smith)	Ploceidae	Rwanda	Mironov and Fain 2003
<i>M. eurycalyx</i> (Gaud, 1964)	<i>Cysticola brachyptera</i> Sharpe	Cysticolidae	Congo	Gaud 1964; Mironov and Fain 2003
<i>M. gigas</i> (Gaud et Mouchet, 1957)	<i>Amblyospiza albifrons</i> <i>saturata</i> Sharpe	Ploceidae	Cameroon	Gaud and Mouchet 1957
<i>M. navicula</i> (Trouessart, 1899)	<i>Ploceus nelicourvi</i> (Scopoli)	Ploceidae	Madagascar	Trouessart 1899
<i>M. papillo</i> (Gaud et Petitot, 1948)	<i>Ploceus hypoxanthus</i> (Sparman)	Ploceidae	Vietnam	Gaud and Petitot 1948
<i>M. pardalis</i> (Gaud et Mouchet, 1957)	<i>Malimbus coronatus</i> Sharpe	Ploceidae	Cameroon	Gaud and Mouchet 1957
<i>M. priniae</i> Mironov et Kopij, 1997	<i>Prinia subflava</i> (Gmelin)	Cysticolidae	South Africa	Mironov and Kopij 1997
<i>emberizae</i>				
<i>M. emberizae</i> Mironov et Kopij, 1997	<i>Emberiza tahapisi</i> Smith A.	Emberizidae	South Africa	Mironov and Kopij 1997
<i>M. stephanocaulus</i> (Gaud, 1953)	<i>Vidua paradisaea</i> (Linnaeus)	Viduidae	Senegal	Gaud 1953
<i>M. tetralobula</i> Mironov et Kopij, 1996	<i>Pytilia melba</i> (Linnaeus)	Estrildidae	South Africa	Mironov and Kopij 1997
<i>dolichodectina</i>				
<i>M. agriocerca</i> (Gaud et Mouchet, 1957)	<i>Pycnonotus simplex</i> (Hartlaub)	Pycnonotidae	Cameroon	Gaud and Mouchet 1957
<i>M. amblycerca</i> (Gaud et Mouchet, 1957)	<i>Chloropeta natalensis</i> <i>batesi</i> Sharpe	Sylviidae	Cameroon	Gaud and Mouchet 1957
<i>M. dolichodectina</i> Mironov et Fain, 2003	<i>Acrocephalus rufescens</i> (Sharpe et Bouvier)	Sylviidae	Rwanda	Mironov and Fain 2003
<i>listroprocta</i>				
<i>M. listroprocta</i> (Gaud et Mouchet, 1957)	<i>Picatharthes oreas</i> Reichenow	Picathartidae	Cameroon	Gaud and Mouchet 1957
Species groups without setae f_2				
<i>cylindrica</i>				
<i>M. acotylura</i> (Gaud et Mouchet, 1957)	<i>Vidua macroura</i> (Pallas)	Viduidae	Cameroon	Gaud and Mouchet 1957
<i>M. belozeroi</i> Mironov et Kopij, 1996	<i>Creatophora cinerea</i> (Meuschen)	Sturnidae	South Africa	Mironov and Kopij 1996a
<i>M. buphagi</i> (Till, 1957)	<i>Buphagus erythrorhynchus</i> (Stanley)	Sturnidae	S.Rhodesia	Till 1957
<i>M. cylindrica</i> (Robin, 1877)	<i>Pica pica</i> (Linnaeus)	Corvidae	Europe	Robin and Megnin 1877; Berlese 1886; Park and Atyeo 1971

Mite species and species group	Type host	Host family	Location	Reference
<i>M. oxyphylla</i> (Gaud et Petitot, 1948)*	<i>Corvus macrorhynchos</i> Wagler	Corvidae	Vietnam	Gaud and Petitot 1948
<i>M. punctata</i> Mironov et Kopij, 1996	<i>Spreo bicolor</i> (Gmelin)	Sturnidae	South Africa	Mironov and Kopij 1996a
pachypa				
<i>M. acridothera</i> sp.n.	<i>Acridotheres tristis</i> (Linnaeus)	Sturnidae	Reunion Island	Present study
<i>M. diplotrema</i> (Gaud et Mouchet, 1957)	<i>Poeoptera lugubris</i> Bonaparte	Sturnidae	Cameroon	Gaud and Mouchet 1957
<i>M. mainati</i> (Trouessart, 1885)	<i>Gracula reigiosa</i> Linnaeus	Sturnidae	Indonesia	Trouessart 1885
<i>M. pachypa</i> Gaud, 1968	<i>Aplonis insularis</i> Mayr	Sturnidae	Rennell Island	Gaud 1968
<i>M. zumpti</i> (Till, 1954)	<i>Lamprotornis corruscus</i> (Nordmann)	Sturnidae	Mozambique	Till 1954
merulae				
<i>M. aurea</i> Kuroki, Nagahori et Mironov, 2006	<i>Zoothera aurea toratugumi</i> (Momiyama)	Turdidae	Japan	Kuroki et al.2006
<i>M. centropa</i> (Gaud et Mouchet, 1957)	<i>Trachylaemus purpuratus</i> (Verreaux J.et Verreaux E.)	Lybiidae	Cameroon	Gaud and Mouchet 1957
<i>M. dicruri</i> (Gaud et Mouchet, 1957)	<i>Dicrurus atripennis</i> Swainson	Dicruridae	Cameroon	Gaud and Mouchet 1957
<i>M. holosticta</i> (Gaud et Mouchet, 1957)	<i>Pycnonotus barbatus gabonensis</i> Sharpe	Pycnonotidae	Cameroon	Gaud and Mouchet 1957
<i>M. hypersticta</i> (Gaud et Mouchet, 1957)	<i>Bleda eximius notatus</i> (Cassin)	Pycnonotidae	Cameroon	Gaud and Mouchet 1957
<i>M. leioplax</i> (Gaud et Mouchet, 1957)	<i>Cossypha cyanocampter</i> (Bonaparte)	Muscicapidae	Cameroon	Gaud and Mouchet 1957
<i>M. merulae</i> (Gaud, 1957)	<i>Turdus merula</i> Linnaeus	Turdidae	Morocco	Gaud 1957
<i>M. sabiensis</i> (Till, 1954)	<i>Prionops plumatus</i> (Shaw)	Laniidae	S.Rhodesia	Till 1954
<i>M. sibirica</i> Kuroki, Nagahori et Mironov, 2006	<i>Zoothera sibirica davisoni</i> (Hume)	Turdidae	Japan	Kuroki et al.2006
jesionowskii				
<i>Montesauria jesionowskii</i> Mironov et Kopij, 1997	<i>Apalis thoracica</i> (Shaw)	Cisticolidae	South Africa	Mironov and Kopij 1997
species inquerenda				
<i>M. reticulifera</i> (Trouessart et Neumann)*	<i>Eremophila alpestris</i> (Linnaeus) (?)	Alaudidae	USA: California	Trouessart and Neumann 1888

(*) — materials on marked mite species were unavailable for the present study, (?) — questionable host association.

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; OConnor 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

Academy of Sciences, Saint Petersburg, Russia. Systematics and scientific names of birds follow Dickinson (2003).

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 σ 1 of genu I small and much shorter than solenidion ω 3 of tarsus I, ventral seta *wa* of tarsi I, II moved anterior from setae *ra*, *la*, solenidion σ 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 short or moderately elongated; in females setae *h2* blade-like or spindle-like (i.e. without apical filament).

Based on the character presence/absence of setae *f2* in both sexes, species of *Montesauria* can be subdivided into two major species complexes. Potentially these complexes may represent subgenera or even separate genera; however this should be examined in the context of a thorough revision of all pterodectines or at least of the *Pterodectes* generic group; this is the goal of subsequent steps of the study. In turn, several species groups are recognized within each complex of *Montesauria* species, diagnoses of which are given below. Species content of each group, respective type hosts of each species, and reference to suitable descriptions are given in Table. A few species, material of which was not examined or descriptions of which were not sufficient to refer them to certain species group, are treated as species inquirenda within *Montesauria*.

Species groups having setae *f2*

***heterocaula* group**

Both sexes: setae *f2* present; lateral part of coxal fields I, II with relatively wide and heavily sclerotized area; setae *c2* situated dorsally and off

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 (Sylvioidea).

***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

margins; anterior hysteronotal shield and lobar shield separated; legs I, II not modified.

Representatives of the group are associated with Emberizidae, Estrildidae, and Viduidae (Passeroidea).

***dolichodectina* group**

Both sexes: setae *f2* present, coxal fields I, II without large sclerotized area, setae *c2* situated dorsally on soft tegument. Male: setae *h1* anterior to terminal cleft; setae *ps1* on margins of terminal cleft; opisthosomal lobes short, with rounded posterior end, setae *h3* lanceolate; genital arch small, without lateral wings; sternum or posterior ends of epimerites I connected with epimerites II, coxal fields III closed or open; coxal fields IV with large epimerites IVa and also may have sclerotized projections on inner margins of epimerites IIIa; legs III, IV without ventral apophyses. Female: setae *ps1* closer to margins of terminal cleft than to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield clearly separated; legs I, II not modified.

Representatives of the group are known from Pycnonotidae and Sylviidae (Sylvioidea).

***listroprocta* group**

Both sexes: setae *f2* present; coxal fields I, II without large sclerotized area; setae *c2* situated laterally and off hysteronotal shield. Male: setae *h1* anterior to terminal cleft; setae *ps1* situated dorsally; opisthosomal lobes well developed, slightly elongated, with oblique posterior margin and with short rectangular extensions at bases of setae *h2* and *h3*; setae *h3* wide foliaform with rounded distal margin; genital arch small; sternum not connected to epimerites II; coxal fields III open, coxal fields IV without large sclerotized areas; genu of legs IV with ventral apophyses. Female: setae *ps1* situated dorsally, approximately equidistant from to inner and outer margins of opisthosomal lobes, anterior hysteronotal shield and lobar shield clearly separated; legs I, II not modified.

The sole species forming this group, *M. listroprocta* (Gaud et Mouchet, 1957), is known from bald crows (*Corvida incerta sedis*: Picathartidae).

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 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 (Passeroidea).

***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 setae *h2*; setae *h3* lanceolate or thick and setiform with short apical filament; genital arch small, without lateral wings; posterior end of sternum connected with epimerites II, coxal fields III open, coxal fields IV without sclerotized areas, epimerites IVa absent or very small; legs III, IV without ventral apophyses. Female: setae *ps1* close to outer margins of opisthosomal lobes; anterior hysteronotal shield and lobar shield demarked from each other by thin transverse furrow or even single stria; tibia and genu of legs I strongly thickened and heavily sclerotized, tibia I with large dorsal crest, genu I with large triangular paraxial crest and with narrow antaxial dorsal crest, tibia and genu II with narrow dorsal crest.

This group is very close to the previous group and is restricted to Sturnidae (Muscicapoidea).

***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

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 (Muscicapoidea), Pycnonotidae (Sylvoidea), Corvidae, Laniidae (Corvoidea). One species, *M. centropa* (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. jesionowski* Mironov et Kopij, 1997, is known from cisticolids (Sylvoidea: 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 holothyrsus* (Gaud, 1952) and *M. trulla* (Trouessart, 1885), treated by Park and Atyeo (1971) as representatives of *Montesauria*, should be removed from this genus. *Pter-*

odectes holothyrsus Gaud, 1952, described from *Mirafranhova* 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 *Mirafranhova rufocinnamomea buckleyi* (Shelley) from Ghana (ZISP 10 256), which I consider to be conspecific to the mite species described by Gaud from *Mirafranhova*.

Examination of syntypes of *Pterodectes trulla* Trouessart, 1885 described from *Turaco macro-rhynchus* (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 acridothera 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 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 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

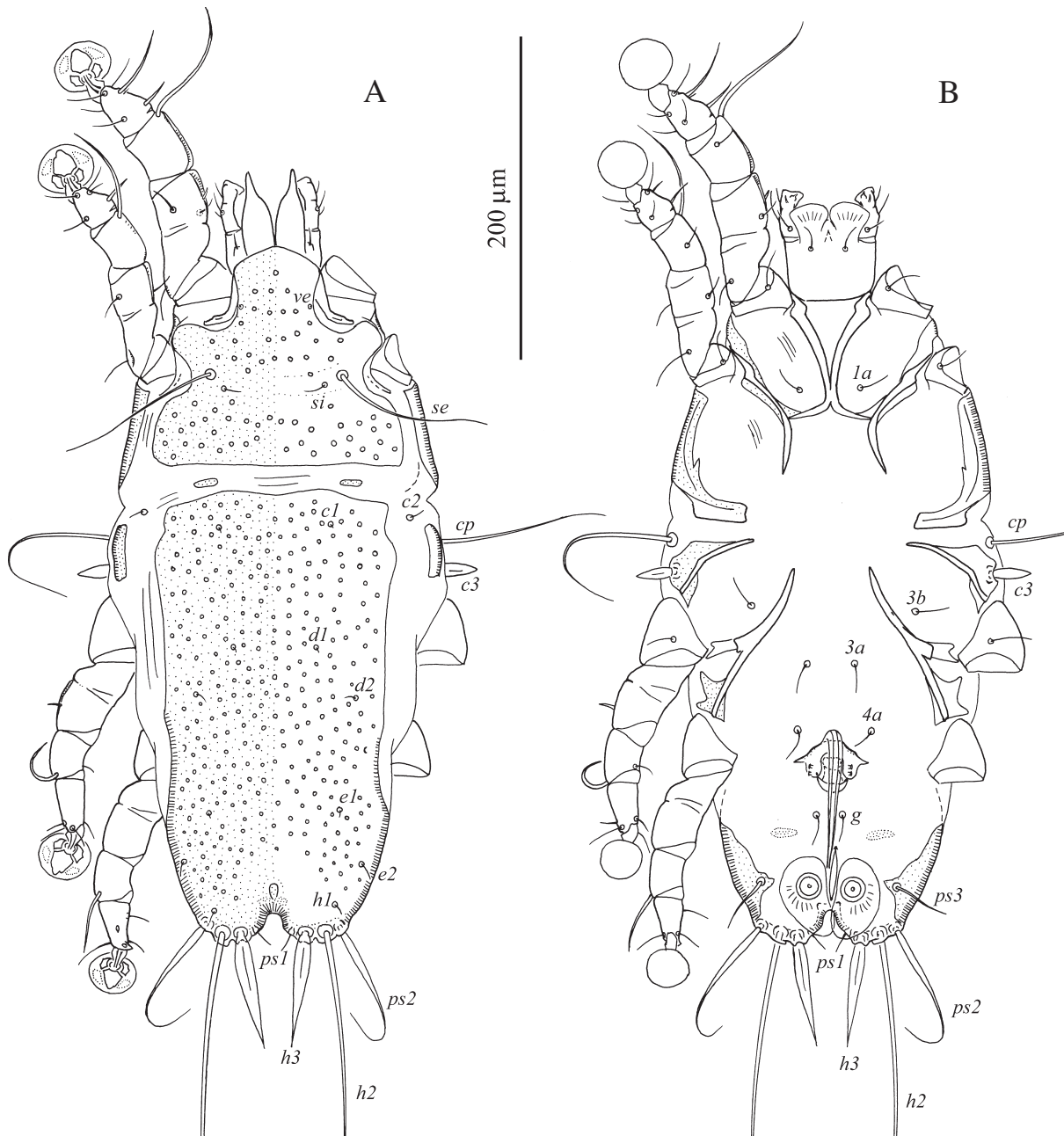


Fig. 1. *Montesauria acridothera*, male. A — dorsal view, B — ventral view.

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

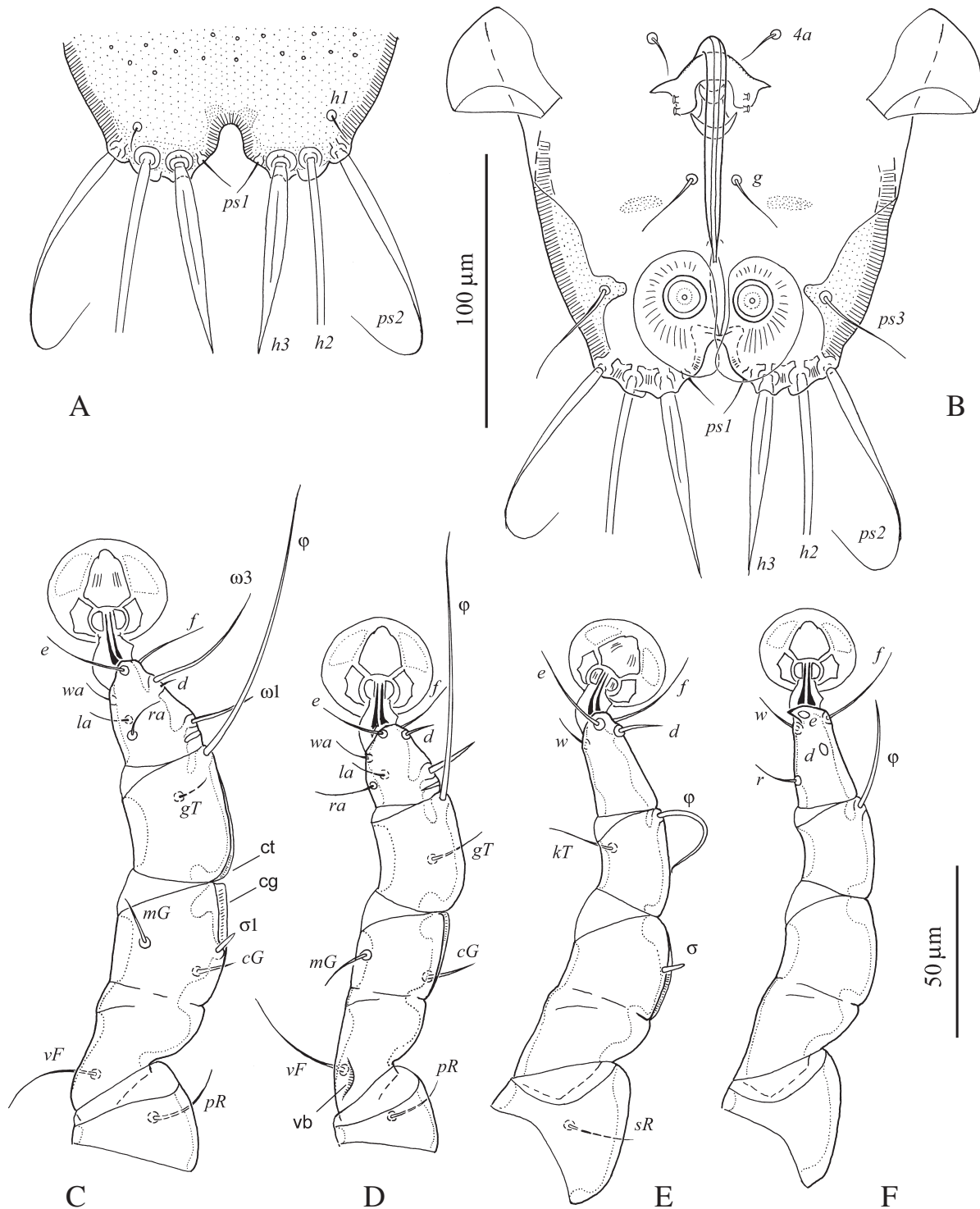


Fig. 2. *Montesauria acridothera*, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — leg I, antaxial view, D — leg II, leg I, antaxial view, E — leg III, paraxial view, F — leg IV, paraxial view. cg — dorsal crest of genu I, ct — dorsal crest of tibia I, vb — ventrobasal crest of femur II.

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 $\sigma 1$ of genu I short, stick-like, about 6 long, seta *cGI*

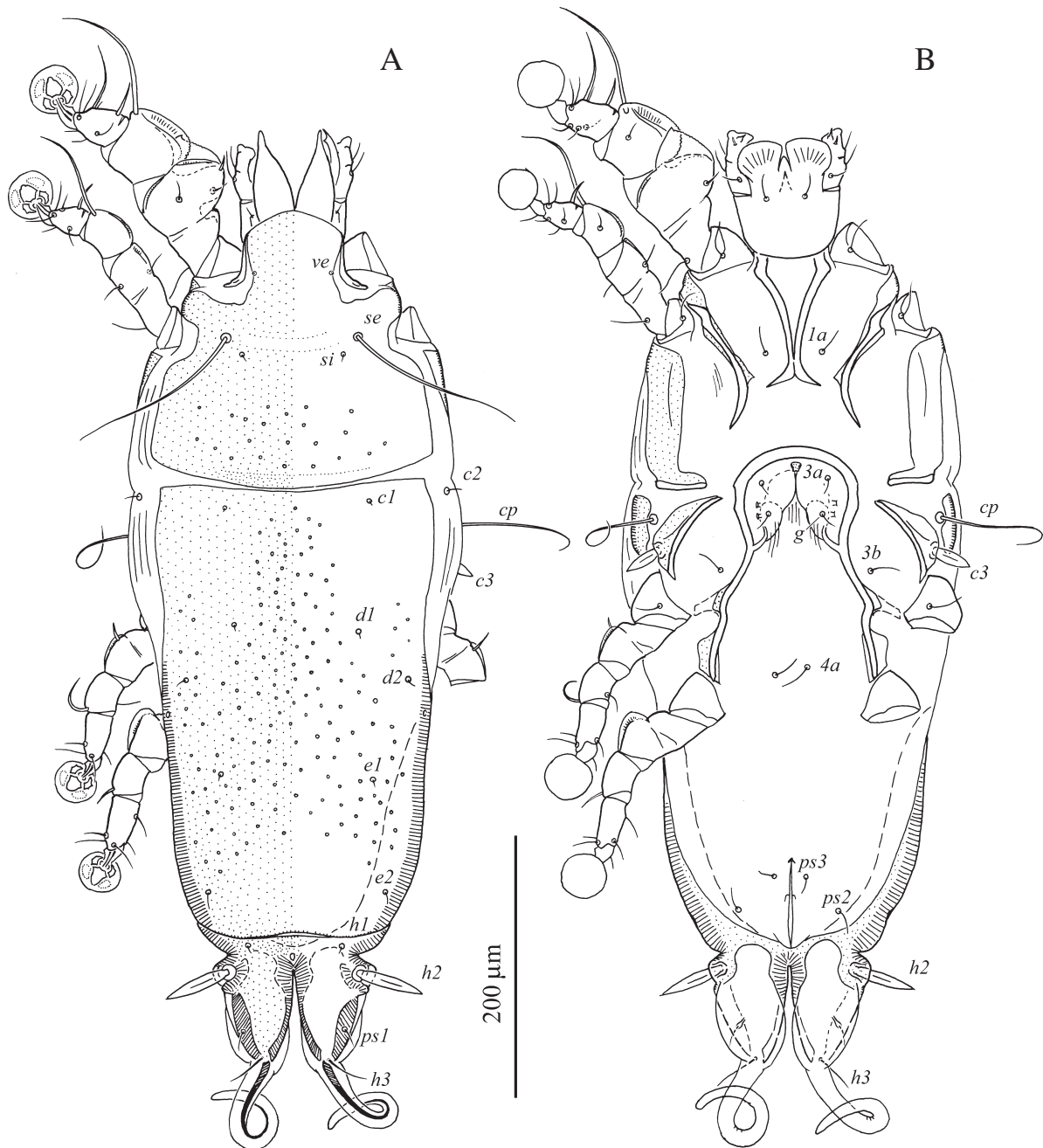


Fig. 3. *Montesauria acridothera*, female. A — dorsal view, B — ventral view.

thin spiculiform, about 9 long, seta *c*GII 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 *c*2 situated dorsally, on soft tegument. Setae *c*3 lan-

ceolate, 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 *h*2 122–125. Terminal cleft as narrow V, 62–70 long. Lateral margins of opisthosomal lobes posterior to setae *h*2 membranous. Setae *f*2 absent. Setae *h*1 on

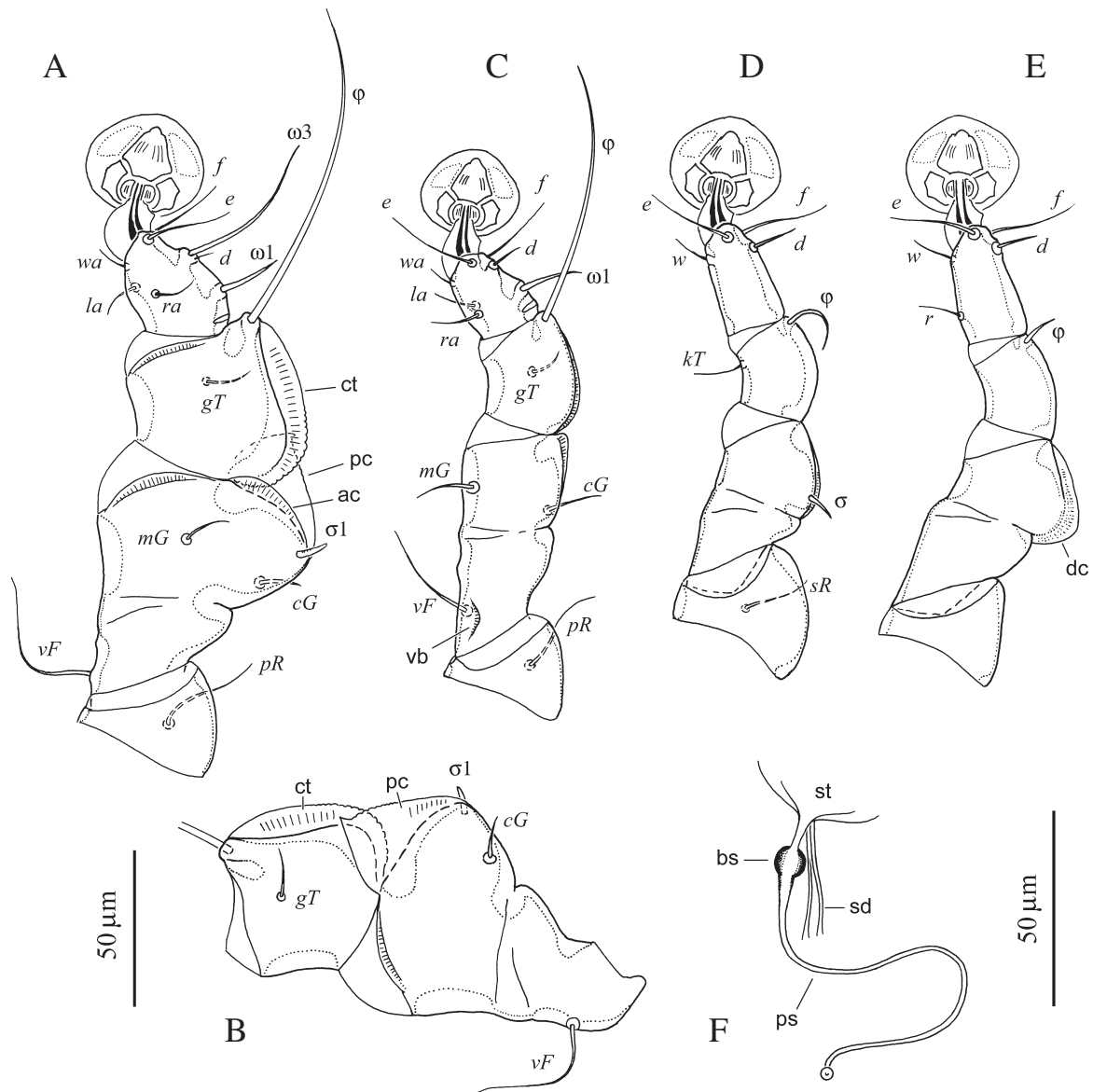


Fig. 4. *Montesauria acridothera*, details of female. A — leg I, antaxial view, B — tibia, genu and femur I, paraxial view, C — leg II, antaxial view, D — leg III, paraxial view, E — leg IV, paraxial view, F — spermatheca.

ac — antaxial crest of genu I, bs — ball-shaped swelling of primary spermaduct, dc — dorsal crest of genu IV, ct — dorsal crest of tibia I, pc — paraxial crest of genu I, ps — primary spermaduct, sd — secondary spermaducts, st — spermatheca.

lobar shield. Setae *h2* spindle-like, 48–52 long, 8.5–9.5 long. Setae *ps1* closer to lateral margins of opisthosomal lobes than to margin of terminal cleft. Setae *h3* 30–33 in length, about 1/4 of terminal appendages. Distance between dorsal setae: *se:c2* 120–126, *c2:d2* 135–144, *d2:e2* 160–162, *e2:h2* 55–62, *h2:h3* 53–66, *d1:d2* 36–44, *e1:e2* 82–86, *h1:h2* 20–22, *h1:h1* 70–72, *h2:h2* 98–100, *h3:h3* 40–48.

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 hysterontal 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: *ps2:ps2* 76–78, *ps3:ps3* 24–26, *ps2:ps3* 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

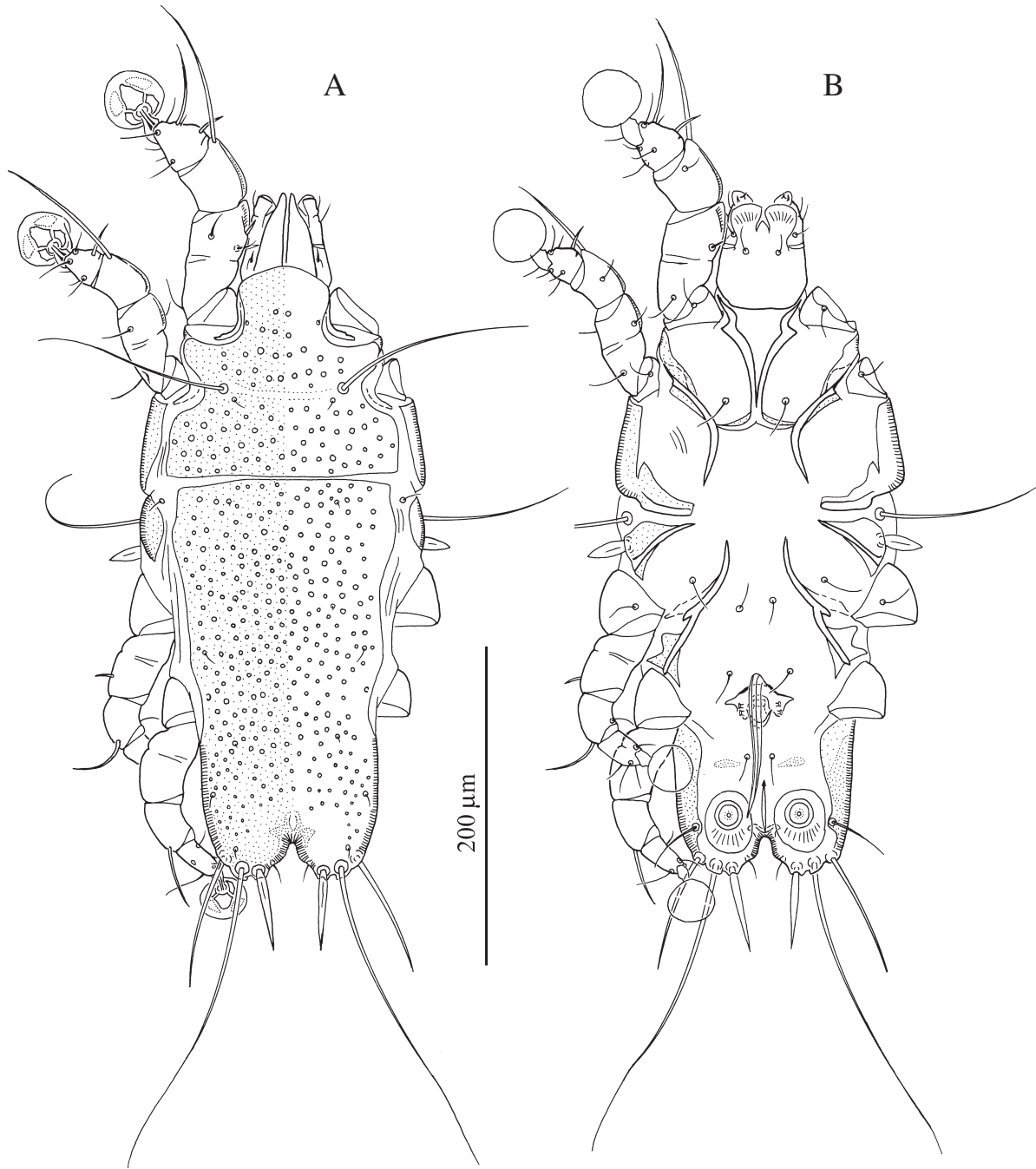


Fig. 5. *Montesauria pachypa*, male. A — dorsal view, B — ventral view.

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 σ 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.

Montesauria pachypa: Park, Atyeo, 1971: 60.

Material examined. 12 males and 10 females (ZISP 10 386–10 389, 4 slides) ex *Aplonis insularis* Mayr, 1931 [written: *Aplonis feadensis* (Ramsay, 1882)], Rennell Island, 23 August 1962, coll. unknown. 7 males, 1 female (ZISP 11 373–11378, 11 389, 7 slides) ex *A. minor* (Bonaparte, 1850),

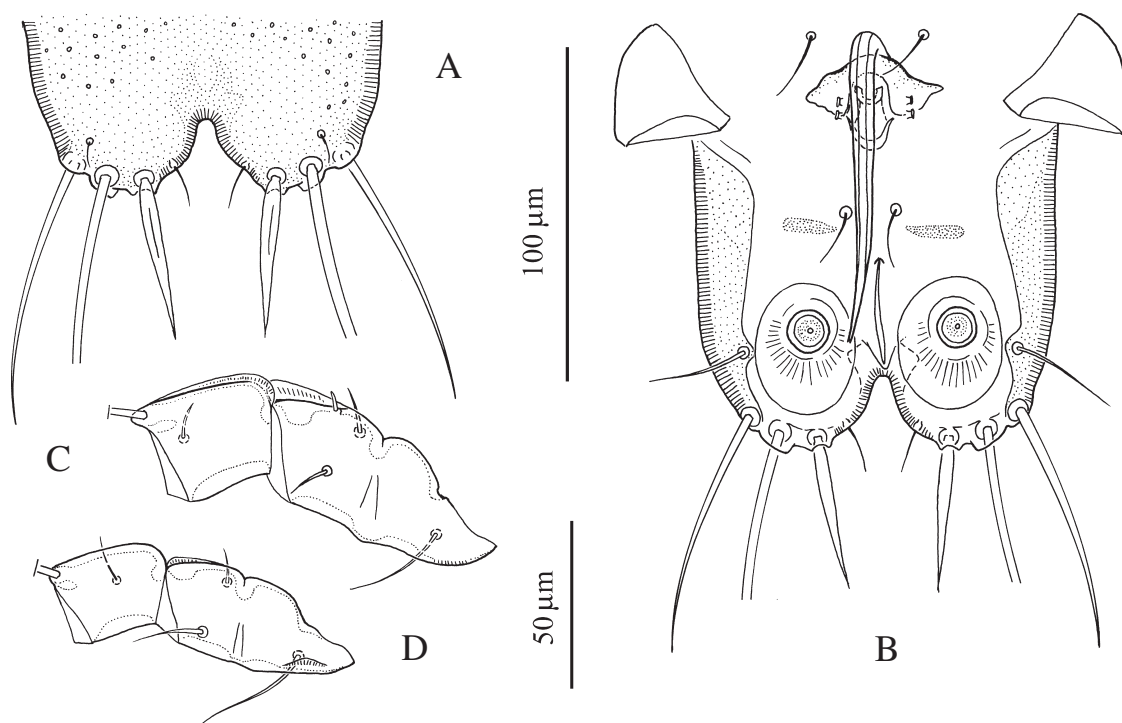


Fig. 6. *Montesauria pachypa*, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — tibia, genu and femur I, D — tibia, genu and femur II.

Philippines, Mindanao, Davao del Norte, Baracatan, 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, *e1: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

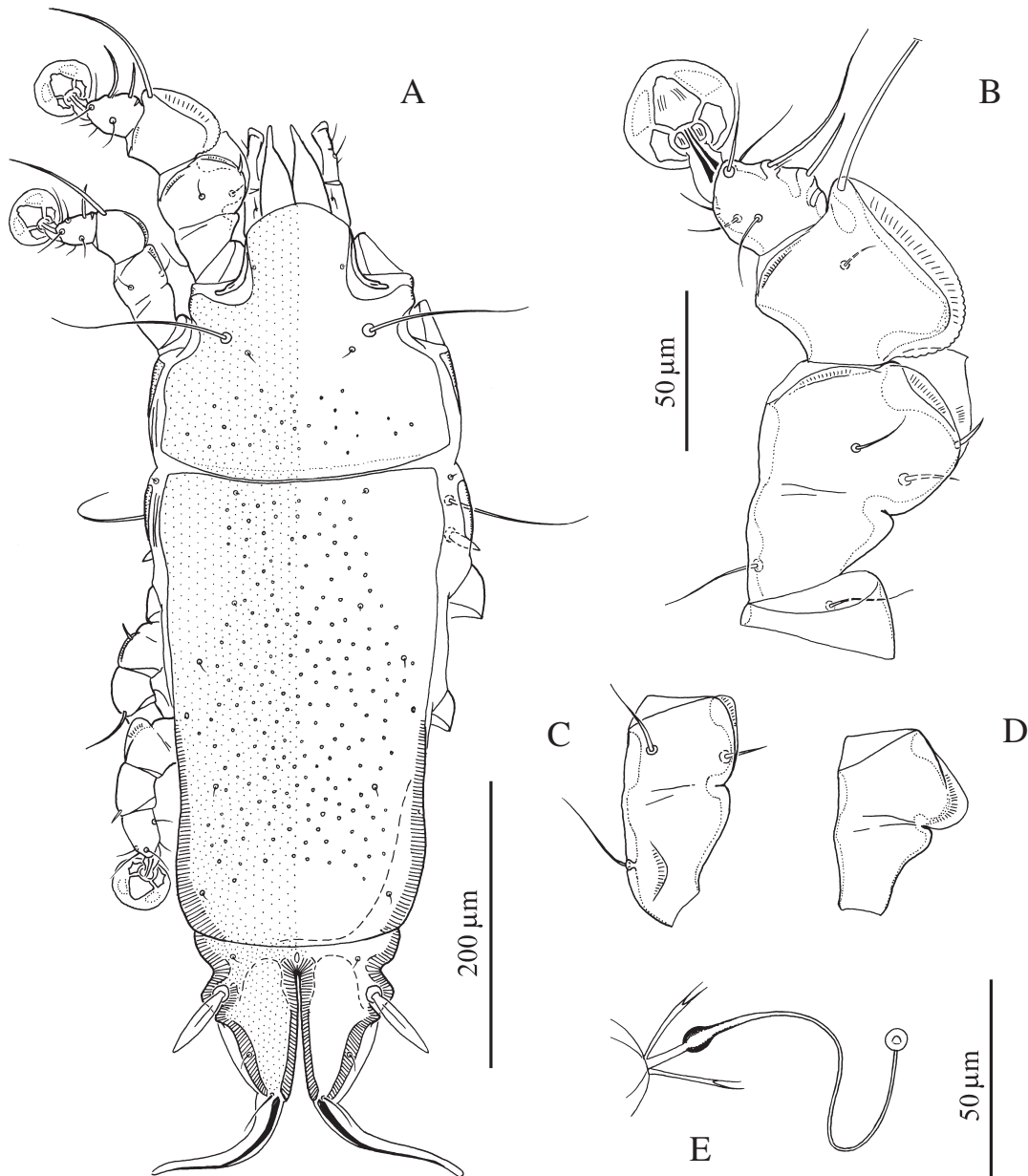


Fig. 7. *Montesauria pachypa*, female. A — dorsal view, B — leg I, antaxial view, C — tibia, genu and femur II, antaxial view, D — genu and femur III, antaxial view, E — spermatheca.

wide; basal sclerite of genital apparatus small, semicircular; aedeagus straight, sword-shaped, 88–93 long, extending to midlevel of anal suckers, genital acetabula poorly visible. Genital shield absent. Pair of small adanal sclerites situated posterior to level of setae *g*. Anal suckers 11–12 in diameter, corolla without indentations. Opisthoventral shields narrow, poorly expressed extension bearing setae *ps3* at level of posterior margin of anal suckers. Distance between ventral setae: *3b:3a* 17–20, *3a:4a* 38–40, *4a:g* 51–55, *g:ps3* 40–42, *ps3:ps3* 82–87, *ps3:h3* 25–29. Legs I noticeably thicker and longer than legs II. Genua I, II with narrow dorso-apical crest, tibiae I with narrow dorsal crest, femur II with ventro-basal crest. Solenidion $\sigma 1$ of genu I short,

stick-like, about 5–7 long; seta *cGI* thin spiculi-form, about 9 long; seta *cGII* setiform, 10–11. Genu III with narrow dorsal crest. Tarsus IV 25–27 in length, with small apical claw-like process, modified setae *d*, *e* button-like.

Female (10 specimens from type host). Length of idiosoma excluding terminal appendages 610–635, width 220–250, length of hysterosoma 435–445. Prodorsal shield: general form as in the male, except for convex posterior margin, posterior part with small pit-like lacunae (smaller than in the male), 193–200 long, 198–210 wide, setae *se* separated by 88–97. Humeral shields as in the male, not encompassing setae *cp*. Setae *c2* situated dorsally, on soft tegument. Setae *c3* lanceolate, 20–24 × 8.5–

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 *h2* membranous. Setae *f2* absent. Setae *h1* on lobar shield. Setae *h2* spindle-like, 48–54 long, 11–12 wide. Setae *ps1* on closer to lateral margins of opisthosomal lobes rather to margins of terminal cleft. Setae *h3* 20–25 long, about 1/5 of terminal appendages. Distance between dorsal setae: *se:c2* 104–113, *c2:d2* 113–122, *d2:e2* 158–163, *e2:h2* 66–72, *h2:h3* 67–73, *d1:d2* 30–34, *e1:e2* 70–75, *h1:h2* 22–24, *h1:h1* 73–82, *h2:h2* 100–108, *h3:h3* 33–44.

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 enlargement situated about 15 from head of spermatheca, outer surface of this spermaduct smooth; secondary spermaducts 1.5–2 times longer than distance between that enlargement and spermatheca (Fig. 7D). Distance between ventral setae: *ps2:ps2* 75–80, *ps3:ps3* 28–31, *ps2:ps3* 22–27.

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 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 σ 1 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. pachypa* from the Rennell starling, *Aplonis feadensis insularis*, a bird recently considered as an endemic species of Rennell Island. The material from 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. pachypa* 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 *pachypa* group by the following combination of characters. In males, prodorsal and hysteronotal shields almost touching; setae *h3* distinctly 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, adanal 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*.

Male (2 paralectotypes, measurements for lectotype in brackets). Length of idiosoma 360–365 (360), width 150–170 (150), length of hysterosoma 220–245 (224). Prodorsal shield: 120–130 (120) in length along median line, 126–150 (128) in width

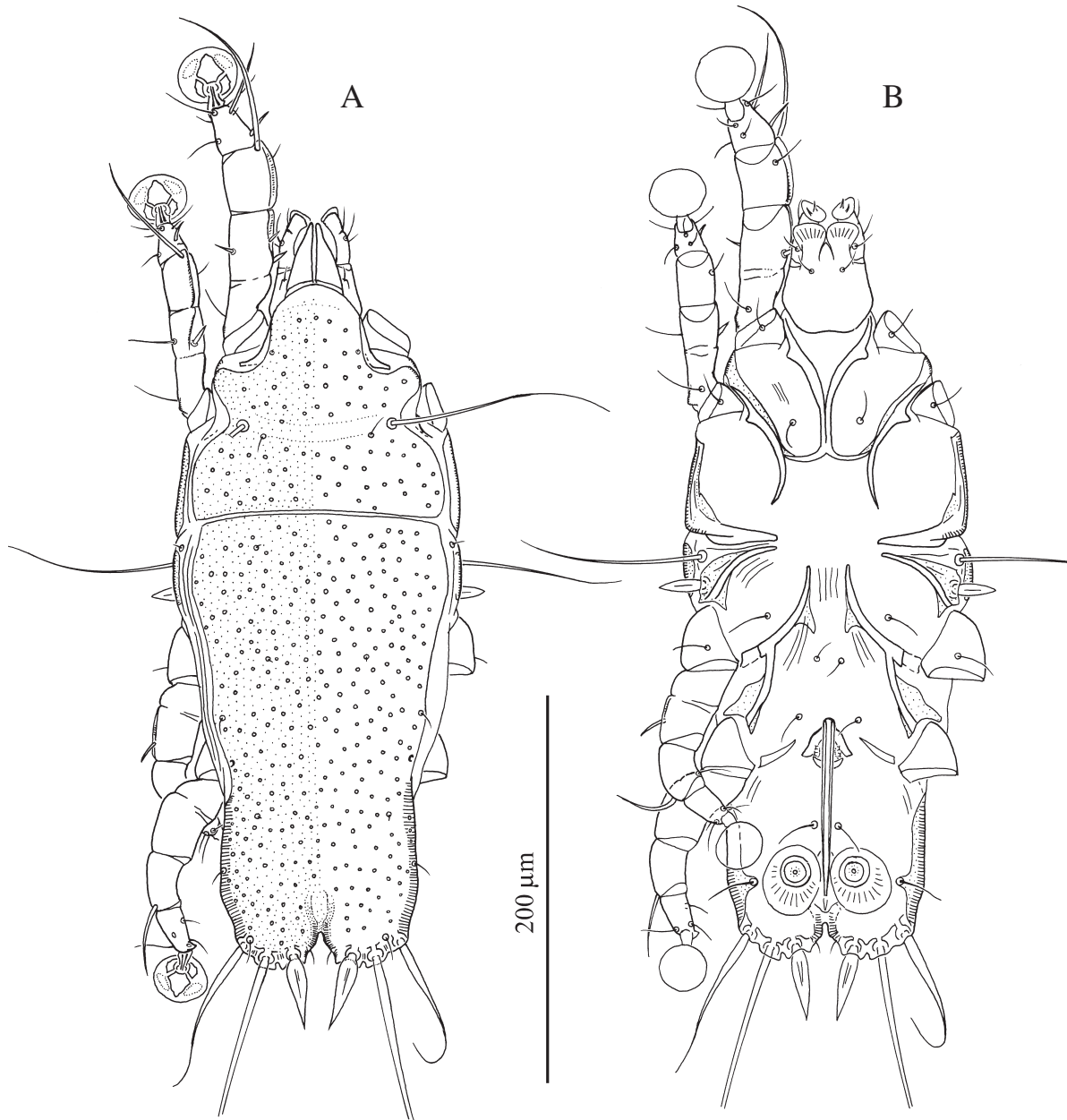


Fig. 8. *Montesauria mainati*, male. A — dorsal view, B — ventral view.

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.

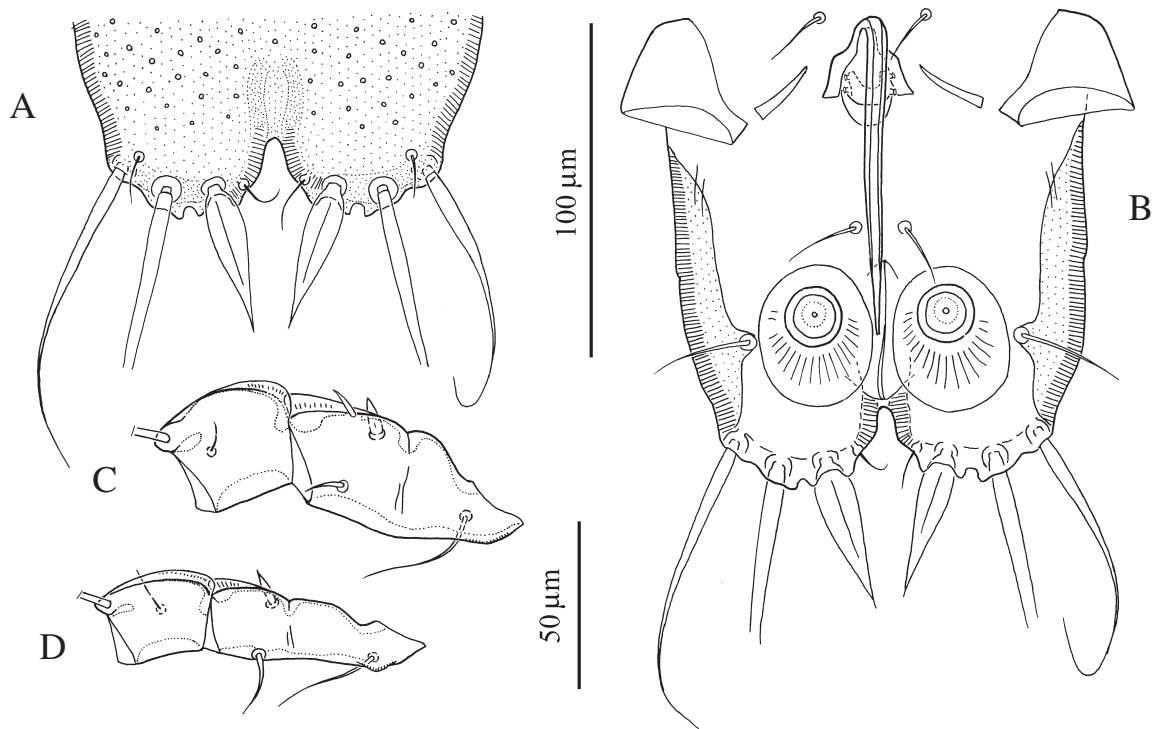


Fig. 9. *Montesauria mainati*, details of male. A — dorsal view of opisthosoma, B — ventral view of opisthosoma, C — tibia, genu and femur I, D — tibia, genu and femur II.

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 σ 1 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.

Female (8 paralectotypes). Length of idiosoma excluding terminal appendages 575–620, width 207–227, length of hysterosoma 388–415. Prodorsal shield: general form as in the male, except for

convex posterior margin, 185–200 long, 186–210 wide, posterior part with small pit-like lacunae, setae *se* separated by 105–115. Humeral shields small, not encompassing setae *cp*. Setae *c2* situated dorsal, on soft tegument. Setae *c3* lanceolate, 28–31 \times 7.5–9. Prodorsal and hysteronotal shields almost touching. Hysteronotal shield not split into anterior and lobar shields, these fragments demarcated only by pair of transverse striae on flanks of opisthosoma. Anterior hysteronotal fragment slightly enlarged in anterior part, anterior margin slightly concave, greatest length 292–312, width at anterior margin 197–215; surface with small pit-like lacunae as on prodorsal shield. Length of lobar region excluding terminal appendages 100–120, width at level of setae *h2* 98–112. Terminal cleft as narrow V, 68–75 long. Lateral margins of opisthosomal lobes posterior to setae *h2* membranous. Setae *f2* absent. Setae *h1* on lobar shield. Setae *h2* spindle-like, 50–52 long, 11–12.5 wide. Setae *ps1* closer to lateral margins of opisthosomal lobes. Setae *h3* 20–24 long, about 1/5 of terminal appendages. Distance between dorsal setae: *se:c2* 98–102, *c2:d2* 112–120, *d2:e2* 141–160, *e2:h2* 45–59, *h2:h3* 60–66, *d1:d2* 28–33, *e1:e2* 74–77, *h1:h2* 15–16, *h1:h1* 74–82, *h2:h2* 92–106, *h3:h3* 30–33.

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

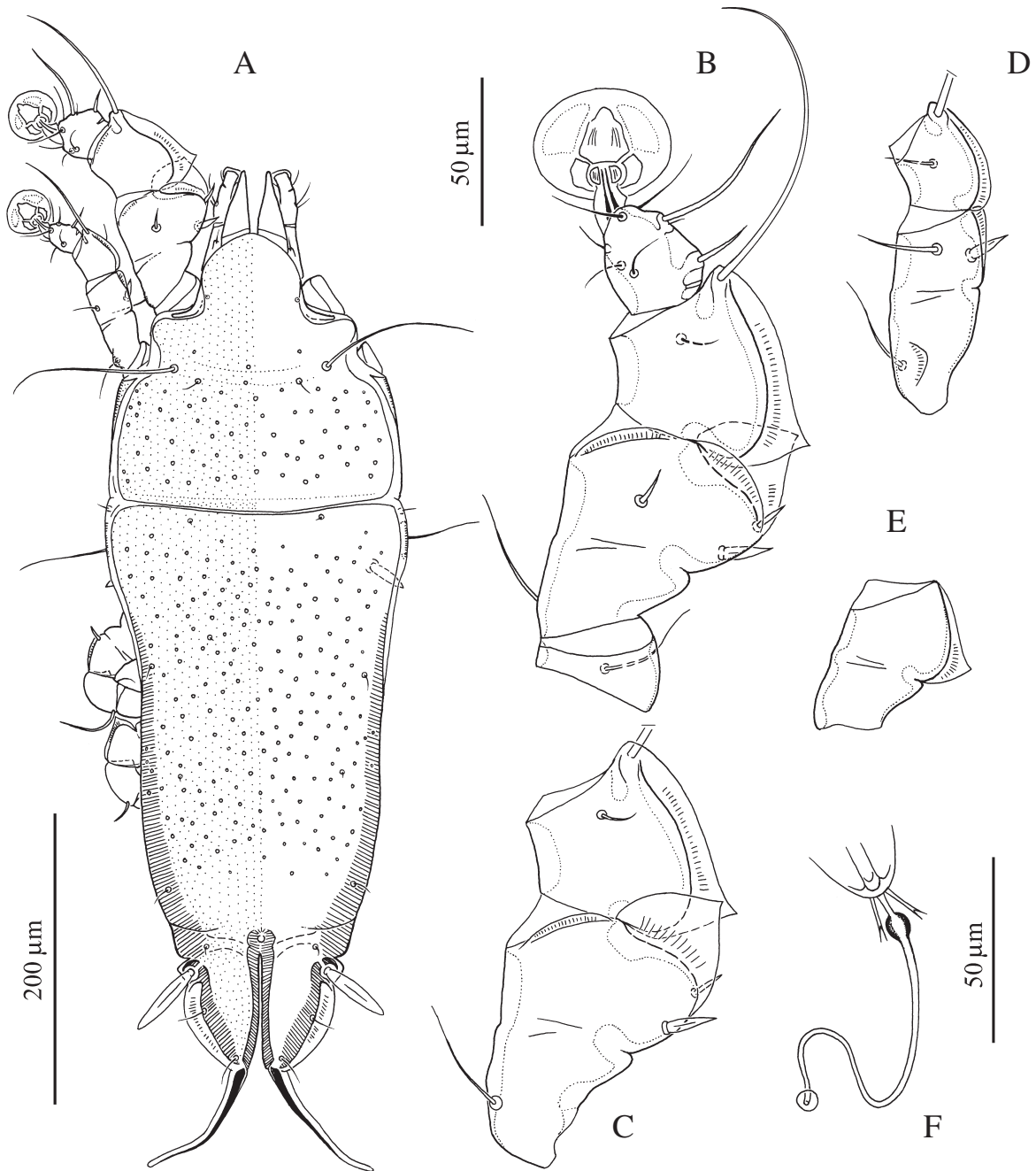


Fig. 10. *Montesauria mainati*, female. A — dorsal view, B — leg I, antaxial view, C — genu and femur I, paraxial view, D — tibia, genu and femur II, paraxial view, E — tibia, genu and femur III, antaxial view, F — spermatheca.

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 spermatheca with ball-shaped sclerotized enlargement situated about 10 from head of spermatheca, outer surface of this spermatheca smooth; secondary spermatheca 2–2.5 times longer than distance between that enlargement and spermathe-

ca. 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 ventrobasal crest. Solenidion $\sigma 1$ of genu I thin spine-like, 10–11 long. Setae cGI and $cGII$ spine-like, 11–13

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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