

# The identity of *Plesialges mimus* Trouessart, 1919 and taxonomic notes on the feather mite genus *Hemialges* Trouessart, 1895 (Acariformes: Analgidae)

Sergey V. Mironov<sup>a</sup>

<sup>a</sup> Zoological Institute, Russian Academy of Sciences, Universitetskaya Embankment 1, 199034, Saint Petersburg, Russia.

## Original research

### ABSTRACT

The feather mite *Plesialges mimus* Trouessart, 1919, briefly described from the White-browed Babbler *Pomatostomus superciliosus* (Vigors & Horsfield) (Passeriformes: Pomatostomidae), is the only species of the genus *Plesialges* Trouessart, 1919. In this work, I redescribe this mite species based on the type specimens, transfer it into the genus *Hemialges* Trouessart, 1895, and provide it with the valid name *Hemialges mimus* (Trouessart, 1919) **comb. n.** The genus *Plesialges* **syn. n.** is synonymized with the genus *Hemialges*. A new diagnosis, comments on taxonomy and an updated checklist of species are provided for the genus *Hemialges*. The transfer of *P. mimus* to the genus *Hemialges* created a conflict with the previously named *Hemialges mimus* Trouessart, 1920 from the Trumpet Manucode, *Phonygammus keraudrenii* (Lesson & Garnot) (Passeriformes: Paradisaeidae). *Hemialges mimus* (Trouessart, 1919) **comb. n.** is now the older homonym within this genus and *H. mimus* Trouessart, 1920 from the Trumpet Manucode is a junior homonym; here I provide the latter with a new name, *Hemialges trouessarti* **nom. n.**

**Keywords** Astigmata; feather mites; Analgidae; *Hemialges*; *Plesialges*; systematics; synonymy; check list

Received 07 June 2021  
Accepted 02 August 2021  
Published 14 September 2021

Corresponding author  
Sergey V. Mironov:  
sergei.mironov@zin.ru

Academic editor  
Małgorzata Joanna

[https://doi.org/  
10.24349/Pejc-x0bN](https://doi.org/10.24349/Pejc-x0bN)

ISSN 0044-586X (print)  
ISSN 2107-7207 (electronic)

© Copyright  
Mironov S. V.

Distributed under  
Creative Commons CC-BY 4.0



## Introduction

The feather mite genus *Plesialges* Trouessart, 1919 (Analgidae: Analginae) was established by for a single species, *Plesialges mimus* Trouessart, 1919, collected from the museum skin of a White-browed Babbler, *Pomatostomus superciliosus* (Vigors & Horsfield) (Passeriformes: Pomatostomidae), from Australia (Trouessart 1919). It is necessary to note that this genus and species were described once more as new taxa in another paper, in an issue of “Redia” for 1919, which was actually published two years later (Trouessart and Berlese 1921). Both papers (Trouessart 1919; Trouessart and Berlese 1921) provided the same extremely short diagnoses saying only that the genus *Plesialges* resembles *Analges* Nitzsch, 1818 in the form of hypertrophied legs III, but its male differs in having the pretarsus III in a form of bottle without a neck (*l’ambulacre renflée en forme la bouteille depourvue de col*), and the opisthosoma entire and much wider (*l’abdomen entire et plus développé en largeur que chez Analges*). Regarding the *P. mimus* female, Trouessart (1919) only indicated that it is similar to those of *Analges*. In the subsequent hundred years, this feather mite species has never been carefully redescribed or illustrated. Gaud and Atyeo (1982, 1996) included *Plesialges* in the genus *Analges* and treated

**How to cite this article** Mironov S. V. (2021), The identity of *Plesialges mimus* Trouessart, 1919 and taxonomic notes on the feather mite genus *Hemialges* Trouessart, 1895 (Acariformes: Analgidae). *Acarologia* 61(3): 626-640. <https://doi.org/10.24349/Pejc-x0bN>

it as a separate subgenus. In the review of the species content of the genus *Analges*, Mironov (2019) noted that *P. mimus* does not correspond to the criteria of this genus.

I re-examined the type specimens of *P. mimus* deposited in the collection of the Museum National d'Histoire Naturelle in Paris, one male and one female constituting the entire type series of this species, and have determined that the genus *Plesialges* corresponds to the taxonomic criteria of the genus *Hemialges* Trouessart, 1895 and should be included in this genus. The main mistake that led Trouessart to the suggestions that *Plesialges* is close to *Analges* was the incorrect interpretations of the structure of tarsus III in the male. Actually, a large claw on tarsus III in *P. mimus* is the apical process of the tarsal segment proper, which is one of the main diagnostic features of the genus *Hemialges*; in males of *Analges*, the apical “claw” of tarsus III is formed by the modified seta *s* (Gaud 1974; Mironov 2019). As for pretarsus of legs III in the male of *P. mimus*, the ambulacral stalk is thinned but retains a cylindrical form and a rudimentary ambulacral disc; in males of *Analges*, the entire pretarsus is modified into a very thin and transparent claw-like process, tightly adjacent to claw-like seta *s*. In addition, previous researchers did not pay attention to the structure of epimerites I in the female of *P. mimus*, which are fused into a Y, while in females of *Analges*, epimerites I are free.

In the present paper, *Plesialges mimus* is transferred to the genus *Hemialges* and redescribed. Additionally, I provide a new diagnosis for the genus *Hemialges*, comments on its taxonomy, and an updated checklist of species including host associations and localities.

## Material and methods

The type specimens of *Plesialges mimus* were loaned from the Museum National d'Histoire Naturelle (Paris, France). Comparative materials representing various species of the genus *Hemialges* were examined in the feather mite collection of the Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia). Investigation and redescription of mite specimens were made with the aid of a Leica microscope (DM2500, Leica Microsystems, Inc.) equipped with differential interference contrast (DIC) and a camera lucida.

Descriptions of mite taxa follow the modern format proposed for genera and species of Analgidae (Mironov 2009, 2019; Dabert *et al.* 2018; Pedroso and Hernandez 2018). General morphological terminology and idiosomal chaetotaxy follow Gaud and Atyeo (1996) with minor corrections by Norton (1998), and the leg chaetotaxy is after Grandjean (1939). All measurements are in micrometres (µm). Classification and scientific names of birds follow Gill *et al.* (2021).

## Systematics

### Family Analgidae Trouessart & Mégnin, 1884

### Subfamily Analginae Trouessart & Mégnin, 1884

### Genus *Hemialges* Trouessart, 1895

*Hemialges* Trouessart, 1895: 32-33 (subgen.), 1899: 27 (subgen.), 57 (full genus); 1916: 218, 1920: 303; Gaud 1962: 34-36, 1970: 117; Gaud and Atyeo 1982: 303, 1991: 164, 1996: 53; Mironov and Galloway 2002: 186.

*Plesialges* Trouessart, 1919: 336-337; Trouessart and Berlese 1919: 4, **syn. n.**

Type species: *Megninia pappus* Trouessart & Neumann, 1888, by original designation.

**Description** — *Both sexes*. Medium and large-sized analgines (up to 800 long). Prodorsal shield occupying median part of prodorsum, shaped as longitudinal trapezoid, a pair of longitudinal median ridges present or absent, a pair of acute suprategumental extensions on posterior margin present or absent, median area always with strong and dense punctuation

(Figure 1). Scapular shields with suprategumental triangular or rounded extension on inner margin. Supracoxal setae *scx* setiform or absent. Dorsal hysteronotal setae *c1*, *h1* absent. Vertical setae *ve* rudimentary, represented by alveoli. Epimerites I fused into a Y with long sternum (Figures 2, 4). Femur I with large hook-like lateral process rounded apically, trochanter I with tooth-like lateral process opposing to the femoral process; femur II without hook-like lateral process. Tarsi I, II, each with acute cuff-like ventral processes (“manchettes”), anterior margins of these processes usually with minute denticles and striation. Tibiae I, II, each with a spine-like hyaline ventral process. Tarsus I with 8 setae (*ba*, *d*, *e*, *f*, *la*, *ra*, *wa*, *s*); tarsus II with 7 setae (ventral seta *wa* absent) (Figure 5A, B).

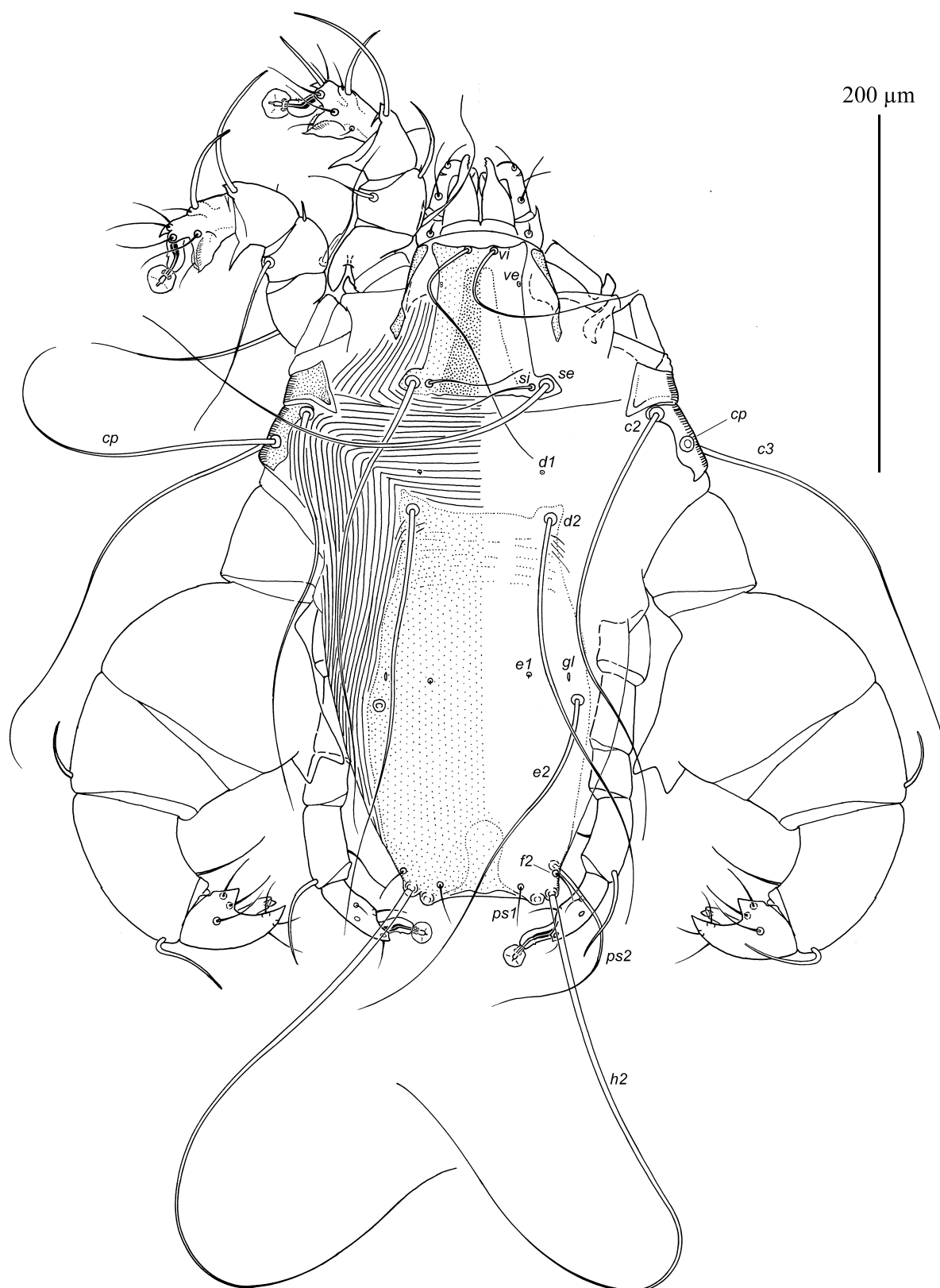
**Male.** Strongly variable in general appearance among species and within species; intraspecific polymorphism mainly expressed in size and form of body and in structure of legs III. Idiosoma variable in shape, from roughly rhomboid (in heteromorph males of *megamerus* and *pappus* groups) to moderately ovate; lateral margins of opisthosoma gradually attenuate posteriorly or almost parallel-sided. Opisthosoma, in most species, with a pair of triangular opisthosomal lobes bearing terminal lamellae of various form (angular, tongue-shaped, leaf-like) and with interlobar membrane between lobes; rarely without distinct lobes, truncate or rounded, without lamellae (*furcula* group; homeomorph males of some species, e.g. *H. effeminatus*, *H. hologaster*, *H. pilgrimi*). Lateral margin of humeral shields with or without spine-like extensions. Lateral membranes of opisthosoma absent. Hysteronotal shield occupying median area of hysterosoma with anterior end usually extending to level of humeral shields or trochanters III; rarely developed only in posterior half of opisthosoma. Setae *c2* situated on anterior ends of humeral shields and usually represented by macrosetae. Setae *d2*, *e2* vary in size, represented by macrosetae or relatively short filiform setae; these pairs distant from each other, *d2* situated at level of trochanters III, and *e2* at midlength of opisthosoma. Setae *ps2*, *h2* and *h3* arranged in a short row on lateral margin of opisthosomal lobes or, when lobes not developed, on margin of opisthosoma. Setae *ps1* short filiform. Supranal concavity present.

Coxal field III closed, completely sclerotized and fused with corresponding humeral shields and rarely with coxal fields II forming large combined shields on both sides of venter. Genital apparatus at level of anterior trochanters III. Epiandrum usually absent; paragenital apodemes flanking genital apparatus laterally present. Genital shield absent. Adanal shield represented by a pair of large longitudinal plates occupying area between genital apparatus and anal area; in some species, additional semicircular fragment of this shield partly encircles anal field (e.g. *H. pilgrimi*). Anal suckers circular, with smooth corolla. Cupules *ih* well developed in most species.

Legs III hypertrophied, much thicker and longer than legs IV; trochanter, femur, genu and tibia always enlarged, inner margin of femur III can bear 1-2 spine-like processes of various lengths and shapes. Tarsus III well developed, narrower than corresponding tibia, with large claw-like apical process (in some species half as long as entire segment), with or without basal spine-like extension on inner margin; all setae of tarsus III filiform; ambulacral stalk well developed as in other legs or slightly thinner (*H. forcipes*, *H. spinicrus*); ambulacral disc circular or reduced and shaped as small oval (*H. mimus*). Tarsus IV elongate, similar in length to tibia, with or without small apical process; modified setae *d* and *e* button-like; pretarsus IV developed as on legs I, II.

In heteromorph males, trochanter, femur, genu and tibia III strongly enlarged; inner margin of femur usually with spine- or claw-like process, rarely with 2 processes (*furcula* group); in cases of strongly developed claw-like process and relatively short genu, tibia and tarsus, whole leg III shaped as a chela (*H. forcipes*, *H. mimus*). In homeomorph males, trochanter, femur, genu and tibia III moderately enlarged, inner margin of femur with much smaller spines than in heteromorphs or lacking them.

**Female.** Hysteronotal shield absent, cuticle of hysterosoma finely striated. Setae *e1*, *d1* represented by microsetae. Setae *c2*, *d2* and *e2* vary in size, represented by macrosetae or relatively short filiform setae, less than half the width of body. Setae *ps1* present. Oviporus situated at level of trochanters III. Epigynum bow-shaped, free from epimerites III, distant



**Figure 1** *Hemialges mimus* (Trouessart, 1919), male lectotype, dorsal view.



**Figure 2** *Hemialges mimus* (Trouessart, 1919), male lectotype, ventral view.



from posterior tips of epimerites I, II. Lateral flaps of oviporus poorly sclerotized. Epimerites IIIa strongly reduced or absent. Anal opening ventral, copulatory opening posterior to anal opening.

**Differential diagnosis** — Combinations of characters differentiating *Hemialges* from remaining genera of Analginae. *Both sexes*. Epimerites I fused into a Y, ventral cuff-like processes of tarsi I, II in most species with minute denticles and striation on margin. *Male*. Pairs of setae *d2* and *e2* distant from each other, posterior end of opisthosoma with triangular opisthosomal lobes provided with variously shaped terminal lamellae, or opisthosoma can be without lobes and lamellae, truncate or rounded. Opisthosoma without lateral membranes. Paragenital apodemes small, flanking genital apparatus laterally. Adanal shield represented by a pair of longitudinal plates between genital apparatus and anal field. Legs III hypertrophied with trochanter, femur, genu and tibia enlarged. Tarsus III with large claw-like or spine-like apical process, all setae of tarsus simple filiform; ambulacral stalk well developed, almost as in other legs; ambulacral disc circular or ovate. *Female*. Hysteronotal shield absent, epigynum distant from posterior tips of epimerites I, II, setae *ps1* present.

**Remarks** — **Authority and date**. The name *Hemialges* was established by Trouessart (1895) as a subgenus of the genus *Megninia* Berlese, 1881 for two species, *Megninia pappus* Trouessart and Neumann, 1888 (type species of the subgenus) and *M. (Hemialges) magnifica* Trouessart, 1895. In the next paper concerning this taxon, Trouessart (1899) described four more species in the content of this subgenus (in pages 27-28), but in the second part of his paper (*Deuxième Note*, page 57), he treated *Hemialges* as a full genus and described one more species, *H. emarginata* Trouessart, 1899. In his revision of feather mite genera, “Sarcoptides plumicoles”, Trouessart (1916: 218) treated *Hemialges* as a full genus and established a new genus *Hyperalges* with a single species *Hyperalges magnificus* (Trouessart, 1895) transferred from *Hemialges*. It is interesting to note, in that general paper, Trouessart (1916) for the first time gave the erroneous date “1888” as the year of establishing the genus *Hemialges*.

Finally, in the monograph with revisions of the genera *Hemialges* and *Hyperalges*, Trouessart (1920: 302) made two erroneous statements: (a) that the taxon *Hemialges* was established in 1888, and (b) that it was elevated to the rank of full genus in 1916. Actually, Trouessart published only two papers in 1888, both co-authored by G. Neumann, and one of these papers (Trouessart and Neumann 1888b) included the description of *Megninia pappus*, but did not contain any mention of the taxon *Hemialges*. It is only possible to guess that Trouessart accidentally or deliberately applied the date 1888 to this genus, based on the year of the original description of *M. pappus*. The second paper by Trouessart and Neumann (1888a) dealt with skin-inhabiting feather mites, the families Dermationidae and Epidermoptidae in modern sense, and did not concern feather-inhabiting mites. It is also necessary to add that in his latest papers, Trouessart (1916, 1920) attributed only his name as the authority of *M. pappus*, although the original paper (Trouessart and Neumann 1888b) did not have any comments that he was the sole author of the new taxa.

These incorrect and conflicting statements in the papers by Trouessart entangled subsequent researchers. In the same paper but on different pages, Gaud and Atyeo (1982) applied to *Hemialges* the authorities “Trouessart, 1888” (p. 299) and “Trouessart and Neumann, 1888” (p. 303). In their world review of supraspecific taxa of feather mites, Gaud and Atyeo (1996) attributed to this genus two authors, Trouessart and Neumann, but in different pages provided different dates, 1888 (p. 53) and 1916 (p. 182).

**Species content**. In the revision of the genus *Hemialges*, Trouessart (1920) considered 25 species, including 19 newly described, and arranged them in seven species groups designated in capital letters A–G. These groups were based on characters of heteromorph males, such as the general shape of the body, structure of the prodorsal shield, opisthosoma and legs III. In Table 1, all groups retained to date in the genus are provided with new names taken from the first species mentioned in corresponding groups of Trouessart, and the letter designations by Trouessart are shown in brackets. Species within each group are listed according to their sequences in the revision of Trouessart (1920).

During the past hundred years, many changes in the species content of the genus took place. *Hemialges tumens* (Trouessart, 1899) (*ex* group A) and *H. humerosus* Trouessart, 1920 (the sole species in group D) associated with broadbills (Passeriformes: Eurylaimidae) were arranged by Gaud and Atyeo (1967) in a new genus *Therisalges* Gaud & Atyeo, 1967. Further, these authors (Gaud and Atyeo 1991) moved the species *H. attenuatus* Trouessart, 1920 (*ex* group E) and *H. laglaizeae* (Trouessart, 1887) (*ex* group G) to monobasic genera, *Atelanalges* Gaud & Atyeo, 1991 and *Euschizalges* Gaud & Atyeo, 1991, respectively.

Berla (1960) described a new species *Hemialges megapoda* Berla, 1960 from a suboscine passerine host, the Sharpbill *Oxyruncus cristatus* (Swainson) (Oxyruncidae), in Brazil. However, this mite undoubtedly belongs to the genus *Analges* Nitzsch, 1818, because the description by Berla (1960: 97, fig. 8, 9) clearly shows that the tarsus of legs III is very small and bears a large claw-like seta *s* that is one of crucial generic characters of the genus *Analges* listed by Mironov (2019). Later on, two more *Hemialges* species were described from whistlers (Pachycephalidae) in the Solomon Islands and Bismarck Archipelago by Gaud (1962, 1970), and one species from a fan-tailed flycatcher (Rhipiduridae) in New Zealand (Mironov and Galloway 2002).

The transfer of *Plesialges mimus* Trouessart, 1919 to the genus *Hemialges* in the present work makes the species *Hemialges mimus* Trouessart, 1920 described from *Phonygammus keraudrenii* (Lesson, R & Garnot) (Paradisaeidae), a junior homonym. The latter mite species is given here a new valid name, *Hemialges trouessarti* **nom. nov.** Taking into account all aforementioned taxonomic changes, the genus *Hemialges* currently includes 25 species (Table 1).

**Hosts** — All presently known *Hemialges* species, except one, are associated with oscine passerines of the infraorder Corvida and distributed in the Old World, mainly in the Indo-Malayan and Australian realms (Table 1). The record of *H. hologaster* Trouessart, 1899 from the Double-eyed Fig Parrot, *Cyclopsitta diophthalma* (Psittaciformes: Psittaculidae), is most likely the result of accidental contamination, as was noted even by the author of this mite species (Trouessart 1899, 1920). It is interesting to note that this mite was described a new species in both cited papers of Trouessart. The majority of *Hemialges* species associated with oscine passerines were recorded from whistlers (Pachycephalidae), 9 species from 13 host species, and from birds-of-paradise (Paradisaeidae), 4 species from 8 host species; and a few or only one species were found of birds from the families Meliphagidae, Monarchidae, Orthonychidae, Petroicidae, Pomatostomidae, Rhagologidae, Rhipiduridae and Vangidae. Considering the wide distribution of the genus *Hemialges* on representatives of Corvida and the number of potential hosts from its families that have not been yet examined for feather mites, it would be reasonable to expect a vast number of undescribed species of this genus in the Indo-Malayan and Australian realms.

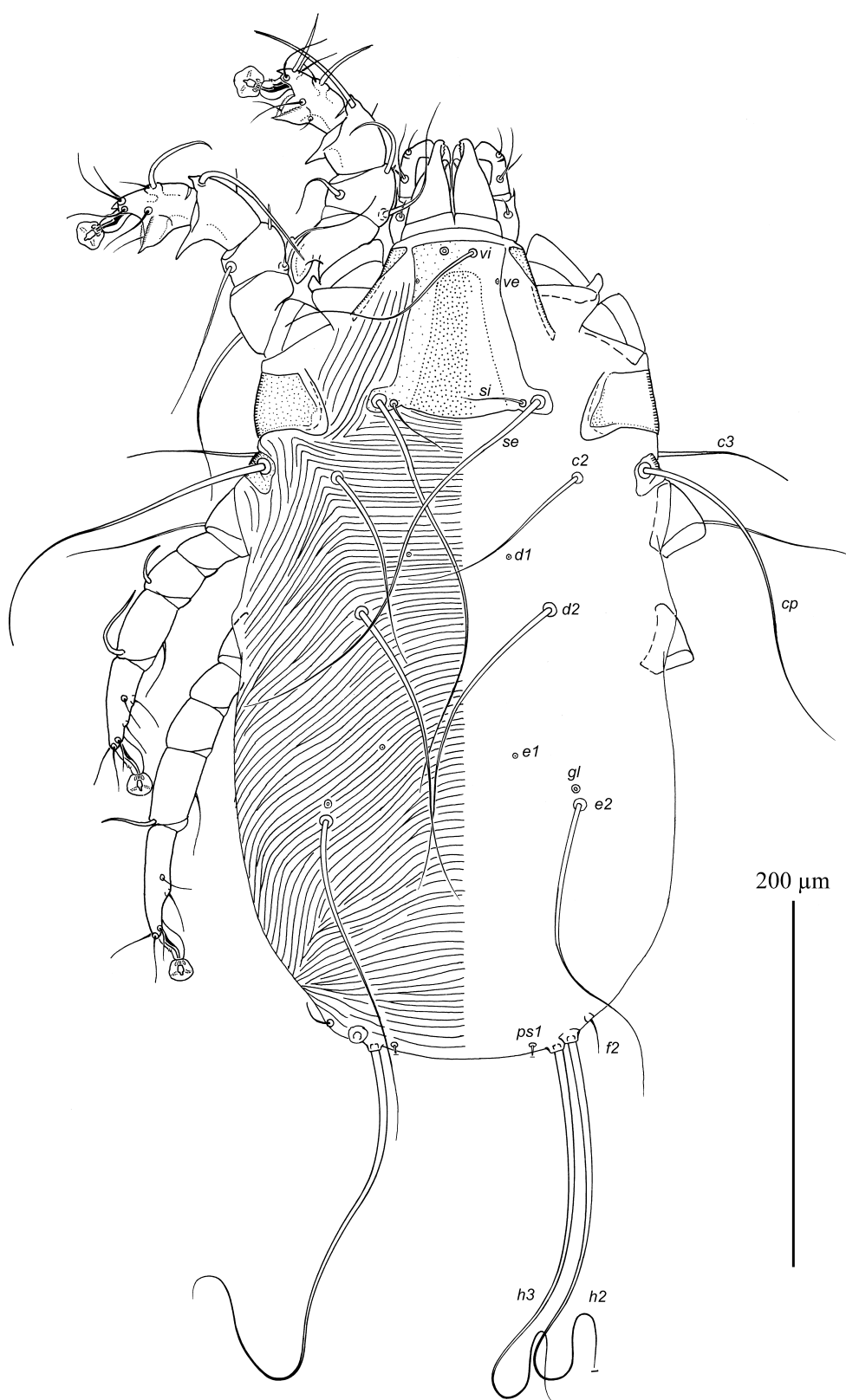
### ***Hemialges mimus* (Trouessart, 1919) comb. n.**

(Figures 1-6)

*Plesialges mimus* Trouessart, 1919: 336-337; Trouessart and Berlese 1921: 4; Mironov 2019: 30.

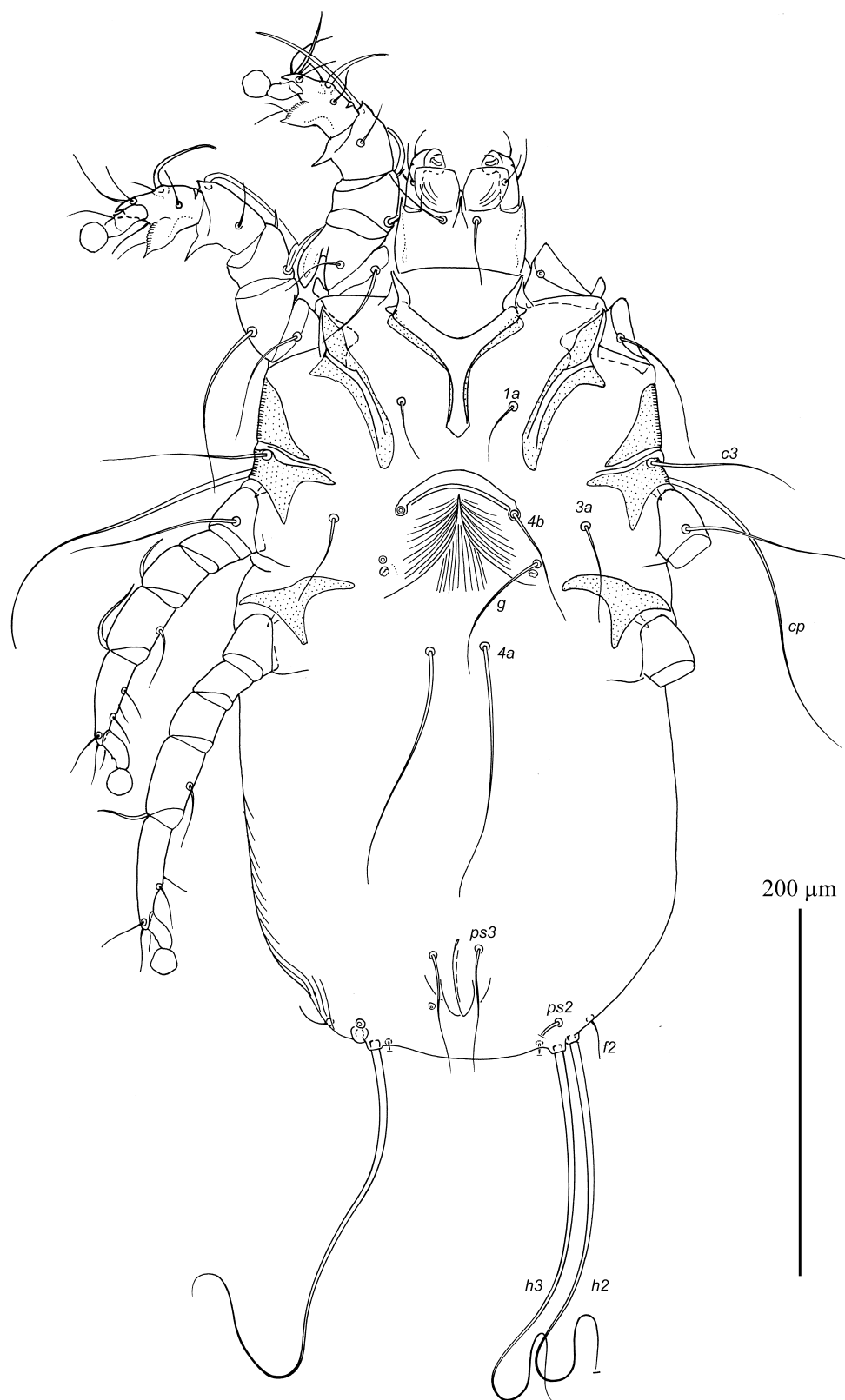
**Material examined** — Male lectotype and female paralectotype (MNNH, Trouessart collection, # 30B1) from *Pomatostomus superciliosus* (Vigors & Horsfield, 1827) (Passeriformes: Pomatostomidae) [= *Pomathorhinus superciliosus*], Australia, no date, E. Trouessart. (Lectotype and paralectotype designated here).

**Description** — **Heteromorph male** (lectotype) (Figures 1, 2, 5, 6A, B). Idiosoma, length × width, 365 × 245, moderately widened, humeral areas blunt-angular. Hysterosoma length 265. Subcapitulum with lateral spines. Prodorsal shield: shaped as almost rectangular plate, posterior margin almost straight, posterior corners with roughly rounded extensions bearing setae *se*, median ridges not developed, posterior supratégumental processes absent, greatest

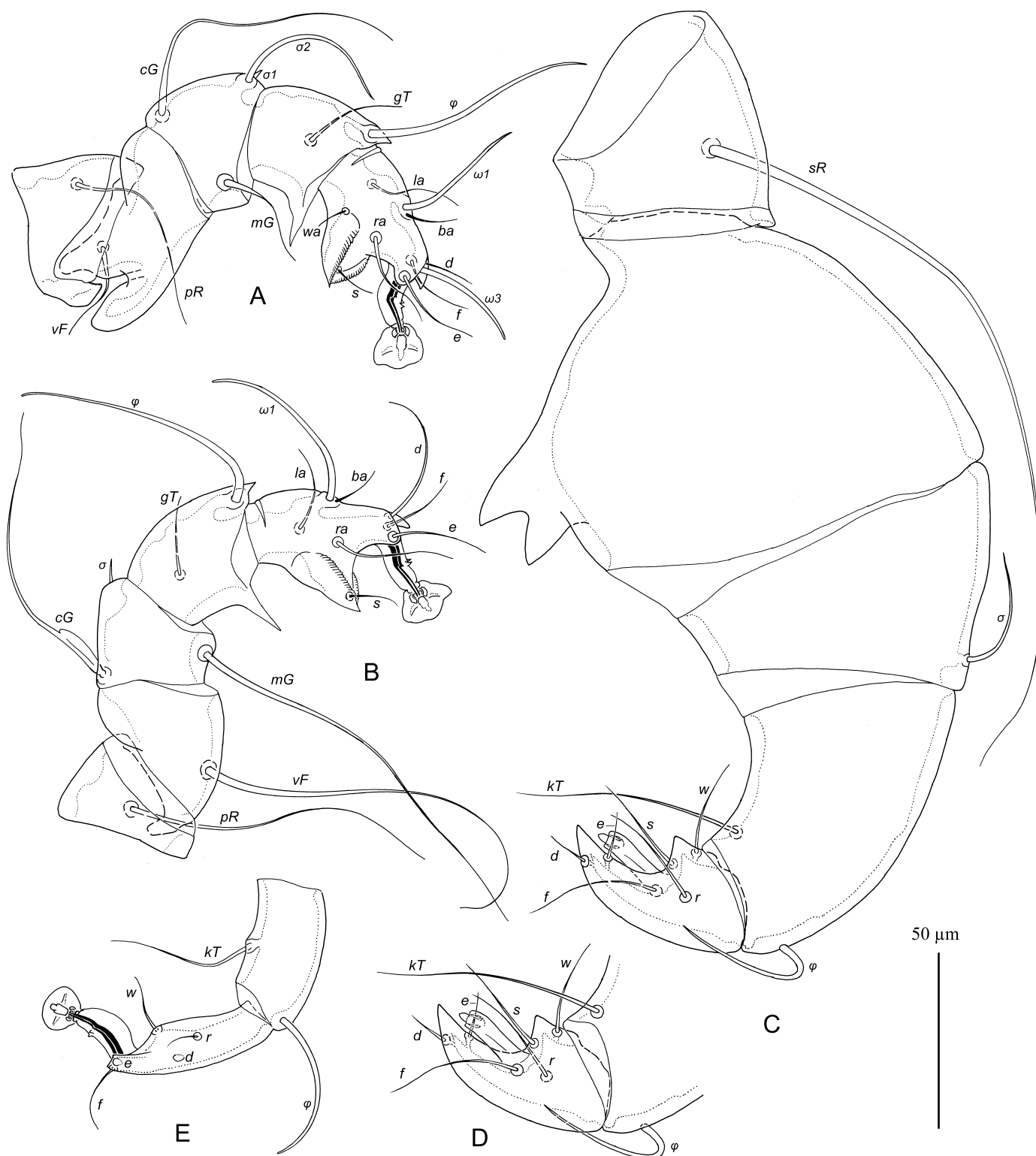


**Figure 3** *Hemialges mimus* (Trouessart, 1919), female paralectotype, dorsal view.

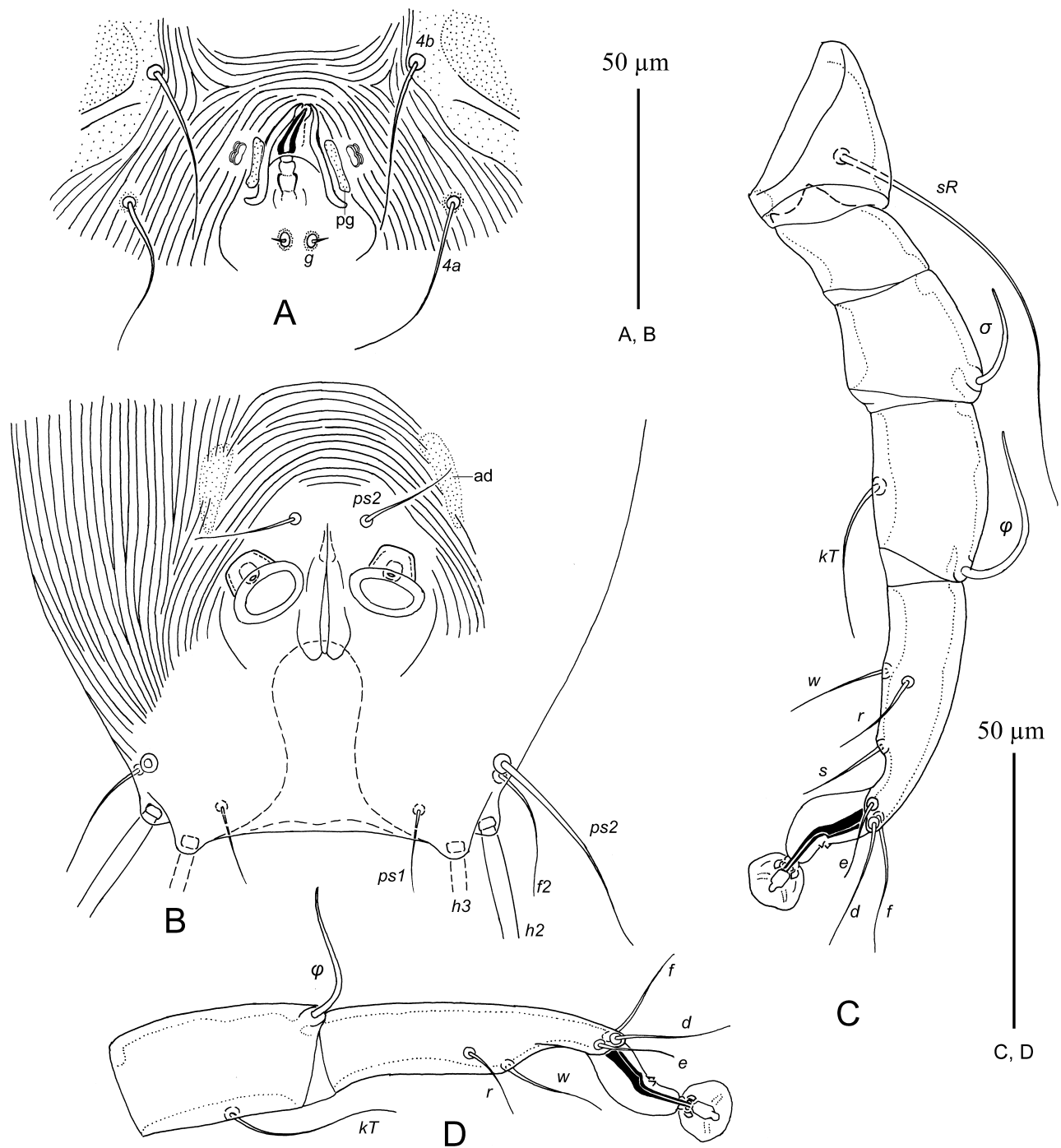




**Figure 4** *Hemialges mimus* (Trouessart, 1919), female paralectotype, ventral view.



**Figure 5** *Hemialges mimus* (Trouessart, 1919), legs of male lectotype: A–C – legs I–III, dorsal view, respectively, D – tarsus III, ventral view, E – tibia and tarsus IV, dorsal view.



**Figure 6** *Hemialges mimus* (Trouessart, 1919), details: A – genital area of male, B – ventral view of male opisthosoma, C – leg III of female, dorsal view, D – tarsus and tibia IV of female, dorsal view. Abbreviations: ad– adanal shield, pg– paragenital apodeme.

length 82, width at posterior margin 88, surface of median area shaped as narrow trapezoid with dense and strongly pronounced punctuation, lateral areas almost smooth (Figure 1). Setae *vi* about 1.5 times longer than prodorsal shield. Setae *se* separated by 75, almost extending to posterior margin of opisthosoma; setae *si* not extending to level of setae *d2*. Supracoxal setae *scx* absent. Posteromesal corners of scapular shields with triangular suprategumental extensions. Humeral shields without lateral spines. Hysteronotal shield: roughly rectangular in shape, anterior margin straight, anterior angles acute, lateral margins posterior to level of trochanters IV slightly convex, greatest length of shield 215, width at anterior margin 87, anterior part with barely distinct transverse striae, remaining surface without ornamentation. Opisthosoma gradually attenuate posteriorly, posterior margin almost straight, opisthosomal lobes and lamellae not developed. Bases of macrosetae *h2*, *h3* close to each other and situated in posterolateral corners of opisthosoma. Supranal concavity 43 long. Setae *c2* situated in anteromesal extensions of humeral shields, extending beyond level of setae *e2*. Setae *d2* in anterior angles of hysteronotal shield, extending beyond posterior margin of opisthosoma, setae *e2* on lateral margins of this shield, with distal half extending beyond posterior margin of opisthosoma. Short setae *d1* on striated tegument, near anterior margin of hysteronotal shield. Setae *e1* and hysteronotal gland openings *gl* slightly anterior to level of setae *e2*. Setae *f2* about 10 long, situated laterally at level of setae *ps2*. Setae *ps1* about 10 long, slightly anterior to level of setae *h2* and *h3*. Macrosetae *h2* subequal in length to idiosoma, both macrosetae *h3* in lectotype broken. Distances between dorsal setae and openings: *c2:e2* 62, *d2:e2* 93, *e2:h3* 105, *d1:d2* 20, *e1:e2* 15, *e2:gl* 10, *h2:h2* 75, *h3:h3* 58.

Epimerites I fused as a Y, length of sternum approximately equal to free parts of epimerites, posterior end of sternum acute (Figure 2). Coxal fields I sclerotized in anterolateral part, coxal fields II entirely sclerotized. Inner margins of coxo-humeral shields rounded. Genital apparatus 23 × 26; aedeagus narrow cone-shaped, half as long as genital apparatus. Epiandrum absent. Paragenital apodemes (sclerites) small, flanking genital apparatus laterally. Genital papillae on each side fused to each other, situated at midlevel of genital apparatus, off paragenital apodemes. Coxal setae *1a*, *4a*, *4b* 35–40 long. Setae *4a* at level of genital apparatus base; genital setae *g* minute, situated posterior to setae *4a*; setae *3a* and *4b* at same transverse level. Adanal shield represented by a pair of small elongated sclerites with uneven margins, about 20 long (Figure 2, 6B). Adanal suckers with smooth corolla 20 in diameter. Cupules *ih* absent. Distances between ventral setae: *4b:g* 38, *4b:4a* 32, *g:ps3* 88, *ps3:h3* 70, *ps3:ps3* 15.

Ventral cuff-like processes of tarsi I, II with minute denticles and striations on margins. Femur II with rounded lateral margin (Figure 5B). Legs III strongly widened and roughly chela-shaped, femur especially strongly widened and bearing large bidentate extension on inner margin, genu and tibia shaped as truncated cones (frustums); tarsus with large claw-like apical process bearing setae *e*, *d* and *f* and with basal angular process on inner margin bearing setae *w* and *s*. All setae of tarsus III filiform, not longer than this segment; ambulacral stalk cylindrical, not extending beyond tip of apical claw; ambulacral disc reduced, small ovate and partly retracted into ambulacral stalk. Legs IV with distal part of tarsus extending beyond posterior margin of opisthosoma; tarsus IV 45 long, with small bidentate apical process; modified setae *d* and *e* small button-like, situated at midlength and apical process of this segment, respectively. Tibial solenidion  $\phi$ III slightly shorter than tarsus III, solenidion  $\phi$ IV about 1.5 times longer than tarsus IV. Length of genual solenidia:  $\sigma$ II 45,  $\sigma$ II 10,  $\sigma$ III 35.

**Female** (paralectotype) (Figures 3, 4, 6C, D). Idiosoma, length × width, 435 × 220, length of hysterosoma 310. Prodorsal shield shaped almost as in male, except posterior margin slightly convex; greatest length 98, width at posterior margin 100. Setae *se* separated by 88, extending to level of setae *e2*. Scapular shields as in male, except suprategumental processes more rounded. Opisthosoma widely rounded posteriorly, nearly semicircular. Hysteronotal shield absent. Idiosomal setae *c2*, *d2*, and *e2* represented by macrosetae. Setae *c2* about 120, extending beyond bases of setae *d2*; setae *d2* about 150, extending to midlength between bases of setae *e2* and *h2*; setae *e2* about 180, with distal one third extending past end of opisthosoma. Setae *f2* about 15 long. Hysteronotal gland openings *gl* situated immediately anterior to bases

of setae *e2*. Setae *d1*, *e1* as microsetae. Distance between dorsal setae: *c2:d2* 70, *d2:e2* 95, *e2:h3* 105, *d1:d2* 30, *e1:e2* 35, *h2:h3* 110, *h3:h3* 98.

Epimerites I fused in a Y as in male. Coxal fields I, II without extensive sclerotization. Epigynum bow-shaped, without suprathegumental processes, 25 long and 65 wide (Figure 4). Apodemes of oviporus not sclerotized. Genital papillae of each side fused to each other, situated posterior to setae *g*. Setae *1a* short, not reaching epigynum. Setae *4b* 55 long, situated on tips of epigynum, and extending to midlength between levels of setae *g* and *4a*; setae *g* 55 long, situated at posterior ends of oviporus flaps extending slightly beyond level of setae *4a*; setae *4a* 120–130 long not extending to anterior end of anus. Setae *ps3* about 60 long, extending slightly beyond posterior margin of opisthosoma. Distances between ventral setae: *4b:3a* 17, *4b:g* 42, *g:4a* 55. Copulatory opening situated asymmetrically, at level of posterior end of anus. Spermatheca and spermathecae in paralectotype specimen indistinct.

Legs I, II as in male. Legs IV with pretarsus not reaching posterior margin of opisthosoma. Tarsi III, IV 50 and 58 long, respectively (Figure 6C, D). Length of solenidia:  $\sigma$ II 42,  $\sigma$ II 10,  $\sigma$ III 35,  $\phi$ III 43,  $\phi$ IV 28.

**Differential diagnosis** — Based on the subdivision of the genus *Hemialges* by Trouessart (1920) into species groups (Table 1), *H. mimus* (Trouessart, 1919) should be placed in the *furcula* group, the males of which are characterized in having femur III with two large spines and the posterior end of opisthosoma without distinct opisthosomal lobes. These two features clearly discriminate the *furcula* group from remaining species groups of *Hemialges*, always having well developed triangular lobes with variously shaped terminal lamellae, and femora III with one spine or without it. *Hemialges furcula* was described from a single heteromorph male without any illustrations and was the only species previously constituting the *furcula* group. The male of *H. mimus* differs from that of *H. furcula* in having the following features: in *H. mimus*, the large extension of the inner margin of femur III bears two relatively short spines similar in shape and size, and the posterior end of opisthosoma is trapezoidal in form, with almost straight posterior margin. According to the brief description of *H. furcula*, femur III bears two unequal spines situated one after another, among which the posterior one is smaller and shaped as a claw, and the posterior end of opisthosoma is slightly concave. Additionally, *H. mimus* is much smaller, with idiosoma 365 long; while *H. furcula* is a very large species, about 800 long (Trouessart 1920).

## Acknowledgements

The author thanks Dr. Mark Judson (the Museum National d'Histoire Naturelle, Paris, France) for loaning the type material for the present study. The investigation was supported by the Ministry of Science and Higher Education of the Russian Federation (project No AAAA-A19-119020790133-6).

## References

- Berla H.F. 1960. Analgesoidea neotropica. VII. Novas espécies de acarinos plumícolas. Anais da Academia Brasileira de Ciências, 32: 95-105.
- Dabert J., Mironov S.V., Janiga M. 2018. Two new species of the feather mite genus *Analges* Nitzsch, 1818 (Analgoidea: Analgidae) from accentors (Passeriformes: Prunellidae) - morphological descriptions with DNA barcode data. Syst. Appl. Acarol., 23: 2288-2303. <https://doi.org/10.11158/saa.23.12.2>
- Gaud J. 1962. Sarcoptiformes plumicoles (Analgesoidea) parasites d'oiseaux de l'Île Rennell. Natur. Hist. Rennell Isl., British Solomon Isl., 4: 31-51.
- Gaud J. 1970. Sarcoptiformes plumicoles (Analgoidea) parasites d'oiseaux des Îles Rennell, New Britain et New Ireland (Troisième note). Natur. Hist. Rennell Isl., British Solomon Isl., 6: 115-138.
- Gaud J. (1973) 1974. Quelques espèces nouvelles de Sarcoptiformes plumicoles (Analgidae et Dermoglyphidae) parasites d'oiseaux d'Europe. Acarologia, 15: 727-758.
- Gaud J., Atyeo W.T. 1967. Cinq genres nouveaux de la famille des Analgidae, Trouessart & Mégnin. Acarologia, 9: 435-446.
- Gaud J., Atyeo W.T. 1982. The subfamilies of the Analgidae and Psoroptoididae (Acari: Analgoidea). J. Med. Entomol., 19: 299-305. <https://doi.org/10.1093/jmedent/19.3.299>



**Table 1** Check list, host associations and distribution of *Hemialges* species.

Mite species	Host species	Host family	Locality	Reference
<b>Group megamerus (A)</b>				
<i>H. megamerus</i> Trouessart, 1920	<i>Rhagologus leucostigma</i> (Salvadori, 1876)	Rhagologidae	New Guinea <sup>1</sup>	Trouessart 1920
<i>H. clypeatus</i> (Trouessart, 1899)	<i>Parotia sefilata</i> (Pennant, 1781)*	Paradisaeidae	New Guinea	Trouessart 1899, 1920
“	<i>Lophorina superba</i> (Pennant, 1781)	Paradisaeidae	New Guinea	Trouessart 1920
“	<i>Paradisaea rudolphi</i> (Finsch & Meyer, AB, 1885)	Paradisaeidae	New Guinea	Trouessart 1920
<i>H. circinipes</i> (Trouessart, 1899)	<i>Paradisaea rubra</i> Daudin, 1800* (= <i>P. sanguinea</i> Shaw, 1809)	Paradisaeidae	New Guinea	Trouessart 1899, 1920
“	<i>Ptiloris magnificus</i> (Vieillot, 1819)	Paradisaeidae	New Guinea	Trouessart 1920
<i>H. spinicrus</i> Trouessart, 1920	<i>Orthonyx temminckii</i> Ranzani, 1822 (= <i>O. spinicauda</i> Temminck, 1827)	Orthonychidae	Australia: Queensland	Trouessart 1920
<i>H. pilgrimi</i> Mironov & Galloway 2002	<i>Rhipidura fuliginosa</i> (Sparman, 1787)	Rhipiduridae	New Zealand	Mironov and Galloway 2002
<b>Group pappus (B)</b>				
<i>H. pappus</i> (Trouessart & Neumann, 1888)	<i>Manucodia ater</i> (Lesson, R, 1830)*	Paradisaeidae	New Guinea	Trouessart and Neumann 1888; Trouessart 1895, 1916, 1920
“	<i>Manucodia chalybatus</i> (Pennant, 1781)	Paradisaeidae	New Guinea	Trouessart 1920
<i>H. trouessarti</i> <b>nom. nov.</b> (= <i>H. mimus</i> Trouessart, 1920)	<i>Phonygamus keraudrenii</i> (Lesson, R & Garnot, 1826)	Paradisaeidae	New Guinea	Trouessart 1920
<i>H. hologaster</i> Trouessart, 1899	<i>Cyclopsitta diophthalma</i> (Hombron & Jacquinet, 1841) (?)	Psittaculidae	New Guinea	Trouessart 1899, 1920
<b>Group forcipes (C)</b>				
<i>H. forcipes</i> Trouessart, 1920	<i>Mistacornis crossleyi</i> (Grandidier, A, 1870)	Vangidae	Madagascar	Trouessart 1920
<i>H. spinosus</i> Trouessart, 1920	<i>Terpsiphone mutata</i> (Linnaeus, 1766)*	Monarchidae	Madagascar	Trouessart 1920
“	<i>Terpsiphone mutata vulpina</i> (Newton, E, 1877)	Monarchidae	Comoros: Anjouan	Trouessart 1920
<i>H. fanerorchis</i> Trouessart, 1920	<i>Plesiodyras albonotata</i> (Salvadori, 1875)	Petroicidae	New Guinea	Trouessart 1920
<i>H. lativentris</i> Trouessart, 1920	<i>Pachycephala flavifrons</i> (Peale, 1849)*	Pachycephalidae	Samoa	Trouessart 1920
“	<i>Pachycephala collaris rosseliana</i> Hartert, 1898	Pachycephalidae	Papua New Guinea: Rossel Island	Trouessart 1920
<i>H. astrolabei</i> Trouessart, 1920	<i>Pachycephala hypoxantha</i> (Sharpe, 1887)*	Pachycephalidae	The Philippines	Trouessart 1920
“	<i>Pachycephala orioloidea</i> Pucheran, 1853 (= <i>Pachycephala astrolabi</i> Bonaparte, 1851 <b>nom. nud.</b> )	Pachycephalidae	Solomon Islands	Trouessart 1920
“	<i>Symposiachrus axillaris</i> (Salvadori, 1876) (?)	Monarchidae	New Guinea	Trouessart 1920
<i>H. mesomorphus</i> Gaud, 1970	<i>Pachycephala signata</i> <sup>2</sup>	Pachycephalidae	Papua New Guinea: Credner Island	Gaud 1970
<b>Group emarginatus (E)</b>				
<i>H. emarginatus</i> Trouessart, 1899	<i>Myiagra alecto</i> (Temminck, 1827)*	Monarchidae	New Guinea	Trouessart 1899, 1920
“	<i>Pachycephala chlorura littayei</i> Layard, EL, 1878 <sup>3</sup>	Pachycephalidae	New Guinea	Trouessart 1920
<i>H. effeminatus</i> (Trouessart & Neumann, 1888) <sup>4</sup>	<i>Melidectes leucostephes</i> (Meyer, AB, 1874) (?)	Meliphagidae	New Guinea	Trouessart and Neumann 1888; Trouessart 1920; Gaud and Atyeo 1991
<i>H. pardalis</i> Trouessart, 1920	<i>Pachycephala schlegelii</i> Schlegel, 1871	Pachycephalidae	New Guinea	Trouessart, 1920
<i>H. strictilobus</i> Trouessart, 1920	<i>Plesiodyras albonotata</i> (Salvadori, 1875)	Petroicidae	New Guinea	Trouessart 1920
<i>H. priapus</i> Trouessart, 1920	<i>Pachycephala schlegelii</i> Schlegel, 1871	Pachycephalidae	New Guinea	Trouessart 1920
<i>H. rennellianus</i> Gaud, 1962	<i>Pachycephala feminina</i> Mayr, 1931	Pachycephalidae	Solomon Islands: Rennell Island	Gaud 1962
<i>H. longiventer</i> Trouessart, 1920	<i>Pachycephala schlegelii obscurior</i> Hartert, 1896 (= <i>Pachycephala sororcula</i> De Vis, 1897)	Pachycephalidae	Papua New Guinea	Trouessart 1920
<i>H. curvispina</i> Trouessart, 1920	<i>Pachycephala aurea</i> Reichenow, 1899*	Pachycephalidae	New Guinea	Trouessart 1920
“	<i>Pachycephala schlegelii obscurior</i> Hartert, 1896 (= <i>Pachycephala sororcula</i> De Vis, 1897)	Pachycephalidae	Papua New Guinea	Trouessart 1920
<b>Group furcula (F)</b>				
<i>H. furcula</i> Trouessart, 1920	<i>Peneothello cyanus</i> (Salvadori, 1874)	Petroicidae	Papua New Guinea	Trouessart 1920
<i>H. minus</i> (Trouessart, 1919) <b>comb. n.</b>	<i>Pomatostomus superciliosus</i> (Vigors & Horsfield, 1827)	Pomatostomidae	Australia	Trouessart 1919
<b>Group simulans (G)</b>				
<i>H. simulans</i> Trouessart, 1920	<i>Orthonyx novaguineae</i> Meyer, AB, 1874	Orthonychidae	New Guinea	Trouessart 1920

Notes:

\*—type host, if a mite species recorded from more than one host;

(?)—questionable host association;

<sup>1</sup>—New Guinea is indicated for cases, in which other locality details in this island were not given in the original description;

<sup>2</sup>—this host name given in the original description (Gaud 1970) is uncertain; most likely, it could be a synonym of either *P. melanura* Gould, 1843 widely distributed in New Guinea, or *P. citreogaster* Ramsay, EP, 1876, an endemic of the Bismarck Archipelago;

<sup>3</sup>—this host subspecies is actually restricted to the Loyalty Island (New Caledonia) and does not occur in Papua New Guinea as given in the description;

<sup>4</sup>—Gaud and Atyeo (1991) examined type specimens and stated that only the homeomorph male and “females” (= tritonymphs) (Trouessart & Neumann 1888: pl. 24, fig. 2, 3) correspond to *H. effeminatus*, while the heteromorph male belongs to the genus *Aetalanalges*.

- Gaud J., Atyeo W.T., 1991. Huit genres nouveaux de la famille Analgidae (Acarina, Analgoidea). *Acarologia*, 32: 163-182.
- Gaud J., Atyeo W.T. 1996. Feather mites of the World (Acarina, Astigmata): the supraspecific taxa. *Mus. Roy. Afr. Centr., Ann., Sci. Zool.*, 277: 1-193 (Pt. 1, text), 1-436 (Pt. 2, illustrations).
- Gill F., Donsker D., Rasmussen P. (Eds). 2021. IOC World Bird List (v. 11.1). Available from: <http://www.worldbirdnames.org/> (accessed 10 March 2021).
- Grandjean F. 1939. La chaetotaxie des pattes chez les Acaridae. *Bull. Soc. Zool. France*, 64: 50-60.
- Mironov S.V. 2009. On identity of the type species of the feather mite genus *Anhemialges* Gaud 1958 (Astigmata: Analgidae), with the description of a new genus of the analgid subfamily Megniniinae. *Acarina*, 17: 89-100.
- Mironov S.V. 2019. A new species of the feather mite genus *Analges* Nitzsch, 1818 (Acariformes: Analgidae) from the Streaked Spiderhunter *Arachnothera magna* (Passeriformes: Nectariniidae), with a renewed diagnosis and world checklist to the genus. *Acarina*, 27: 19-43. <https://doi.org/10.21684/0132-8077-2019-27-1-19-43>
- Mironov S.V., Galloway T. D. 2002. New feather mite taxa (Acari: Analgoidea) and mites collected from native and introduced birds of New Zealand. *Acarologia*, 42: 185-201.
- Norton R. 1998. Morphological evidence for the evolutionary origin of Astigmata (Acari: Acariformes). *Exp. Appl. Acarol.*, 22: 559-594.
- Pedroso L.G.A., Hernandez F.A. 2018. Two new feather mite species of the family Analgidae (Acariformes: Analgoidea) from the Rufous-collared Sparrow *Zonotrichia capensis* (Müller, 1776) (Passeriformes: Passerellidae). *Zootaxa*, 4461 (2): 233-244. <https://doi.org/10.11646/zootaxa.4461.2.4>
- Trouessart E.L. (1886) 1887. Diagnoses d'espèces nouvelles de Sarcoptides plumicoles (Analgesinae). *Bull. Soc. Étud. Sci. Angers*, 16: 85-156.
- Trouessart E.L. 1895. Description de trois nouvelles espèces de grande taille du groupe des Sarcoptides plumicoles. *Ann. Soc. Entomol. France*, 64: CCCXI-CCCXIII.
- Trouessart E.L. (1898) 1899. Diagnoses préliminaires d'espèces nouvelles d'Acariens plumicoles. Additions et corrections à la sous-famille des Analgésinés. *Bull. Soc. Étud. Sci. Angers*, 28: 1-62.
- Trouessart E.L. (1915) 1916. Révision des genres de la sous-famille des Analgesinae, ou Sarcoptides plumicoles. *Bull. Soc. Zool. France*, 40: 207-223. (Séance du Déc. 14, 1915, publ. Mars 20, 1916)
- Trouessart E.L. 1919. Diagnose de genres nouveaux de Sarcoptides plumicoles (Analgesinae). *Ann. Mag. Natural Hist.*, Ser. 9, 4: 336-338. <https://doi.org/10.1080/00222931908673898>
- Trouessart E.L. (1919) 1920. Monographie des genres *Hemialges* et *Hyperalges* (Sarcoptides plumicoles). *Bull. Soc. Zool. France*, 44: 302-321. (Séance du Oct. 28, 1919, publ. Feb. 28, 1920)
- Trouessart E.L., Berlese A. (1919) 1921. Generi nuovi di Acari. *Redia*, 14: 4.
- Trouessart E.L., Neumann G. (1887) 1888a. Types nouveaux de Sarcoptides épidermiques et psoriques. *Bull. Soc. Étud. Sci. Angers*, 17:121-150 + pls. I-III.
- Trouessart E.L., Neumann G. 1888b. Diagnoses d'espèces nouvelles de Sarcoptides plumicoles (Analgesinae). *Bull. Sci. France et Belgique*, 19: 325-380 + pls. XXI-XXVII.