NEW FEATHER MITE TAXA (ACARI: ANALGOIDEA) AND MITES COLLECTED FROM NATIVE AND INTRODUCED BIRDS OF NEW ZEALAND

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ACARI
ANALGOIDEA
TAXONOMY
NEW ZEALAND

SUMMARY: Five new species of feather mites are described from several species of native and introduced birds of New Zealand: *Hemialges pilgrimi* sp. n. and *Trouessartia rhipidurae* sp. n. from *Rhipidura fuliginosa fuliginosa* (Muscicapidae), *Megninia californica* sp. n. from *Lophortyx californica brunnescens* (Phasianidae), *Mouchetia novaezealandica* sp. n. from *Zosterops lateralis lateralis* (Zosteropidae), *Proctophyllodes gerygonae* sp. n. from *Gerygone igata* (Acanthizidae). An additional 22 species of feather mites are recorded, 20 for the first time in New Zealand. One species of nasal mite, *Turbinoptes strandtmanni*, was also collected.

*ACARI
ANALGOIDEA
TAXONOMIE
NOUVELLE ZELANDE

RÉSUMÉ : Cinq nouvelles espèces d'acariens plumicoles sont décrits sur plusieurs espèces d'oiseaux indigènes de Nouvelle Zélande ainsi que d'espèces introduites: *Hemialges pilgrimi* sp. n. et *Trouessartia rhipidura* sp. n. de *Rhipidurae fuliginosa fuliginosa* (Muscicapidae) *Megninia californica* sp. n. de *Lophortyx californica brunnescens* (Phasianidae), *Mouchetia novaezealandica* sp. n. de *Zosterops lateralis lateralis* (Zosteropidae), *Proctophyllodes gerygonae* sp. n. de *Gerygone igata* (Acanthizidae). Vingt-deux espèces additionelles d'acariens de plumes sont enregistrées, 20 pour la première fois en Nouvelle Zélande. Une espèce d'acarien nasal, *Turbinoptes strandtmanni*, a aussi été collectée.

The feather mites are a vast group of highly specialized ectoparasitic, sarcoptiform mites occurring on almost all recent orders of birds. At present, this group consists of about 2300 species and nearly 450 genera. It is estimated that the number of described species represents about 20% of the extant species (GAUD & ATYEO 1982, 1996).

Our main objective is to describe five new species of feather mites in four different families collected on four species of birds in New Zealand. Data on feather mite diversity in New Zealand are scattered among systematics papers dealing with various feather mite taxa (e.g. GAUD & ATYEO 1970; BISHOP 1977, 1984; GAUD & LAURENCE 1981; MIRONOV 1990a; DABERT & EHRNSBERGER, 1996; MIRONOV & DABERT 1997). HEATH & BISHOP (1998) recently summarized the known information on ectoparasites of birds in New Zealand. As a supplement to this, we also include a list of species of feather mites collected from New Zealand birds examined during our study along with their host associations (TABLE 1).

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MITE SPECIES	HOSTS
Analgidae	
*Analges anthi**	*Anthus n. novaeseelandiae*
*Analges passerinus**	*Fringilla coelebs* *Carduelis flammea* *Carduelis chloris*
*Analges nitzschi**	*Emberiza citrinella*
*Analges turdinus**	*Turdus merula*
*Anhemialges gracillimus**	*Zosterops l. lateralis*
*Anhemialges longipes**	*Hirundo tahitica neoxena*
*Hemialges pilgrimi***	*Rhipidura f. fuliginosa*
*Megninia californica***	*Lophopteryx californica brunnescens*
Strelkoviacarus quadratus aff.*	*Zosterops l. lateralis*
Avenzoariidae	
*Zachvatkinia puffini**	*Puffinus huttoni*
*Scutomegninia phalacrocoracis**	*Phalacrocorax carbo novaehollandiae*
Pteronyssidae	
*Pteronyssoides striatus**	*Fringilla coelebs*
*Pteroherpus zosteropis**	*Zosterops l. lateralis*
*Mouchetia navaezealandica***	*Zosterops l. lateralis*
Alloptidae	
*Alloptes oxylobus**	*Larus novaehollandiae scopulinus*
*Brephosceles puffini**	*Puffinus huttoni*
Trouessartiidae	
*Calcealges yunkeri****	*Zosterops l. lateralis*
*Trouessartia megadisca**	*Zosterops l. lateralis*
*Trouessartia microcaudata**	*Hirundo tahitica neoxena*
*Trouessartia rhipidurae***	*Rhipidura f. fuliginosa*
Proctophyllodidae	
*Proctophyllodes troncatus****	*Passer domesticus*
*Proctophyllodes ceratophyllus**	*Zosterops l. lateralis*
*Proctophyllodes pinnatus**	*Carduelis flammea* *Carduelis carduelis britannica*
*Proctophyllodes ciae**	*Emberiza citrinella*
*Proctophyllodes gerygonae***	*Gerygone igata*
*Monojoubertia microphylla**	*Fringilla coelebs*
Turbinoptidae	
*Turbinoptes strandtmanni****	*Larus novaehollandiae scopulinus*
Freyaniidae	
*Freyana anatina**	*Anas s. superciliosa*

* First record for New Zealand., ** New species described in this paper., *** Recorded as in HEATH & BISHOP (1998).

TABLE 1: List of mites and their host species recorded in New Zealand during the present study.

MATERIAL AND METHODS

All birds for the present study were dead when collected. Some were found killed along roadsides at various locations on the South Island of New Zealand. Others were found dead beneath windows of buildings and overhead walkways on the University of Canterbury campus (Christchurch, New Zealand). Only birds that had died recently were examined. Each bird was individually bagged and then frozen for at least 48 hours. Birds were thawed and washed twice in warm, soapy water and once in warm water. After each wash, the water was passed through a 200 μm sieve. All ectoparasites were then rinsed into a Petri dish, removed from the sample by hand, and preserved in 70% ethanol. Feather mites for light microscope study were mounted on slides in FAURE's medium.

Descriptions of new species are given in standard formats used for respective taxa of feather mites. Idiosomal chaetotaxy follows GRIFFITHS *et al.* (1990) and chaetotaxy for the legs is that of ATYEO & GAUD (1966). All measurements are given in micrometers (μm). As the type series of new species are represented by few specimens, measurements are given for the holotype (male) and for one paratype (female). Scientific names for bird hosts follow the checklist of the birds of the world (HOWARD & MOORE 1991).

Abbreviations for locations where specimens have been deposited:

MONZ — Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand.
ZISP — Zoological Institute, Russian Academy of Sciences, Saint-Petersburg, Russia.
JBWM — J. B. Wallis Museum, Department of Entomology, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2.

Family Analgidae Trouessart et Megnin, 1884

Genus *Hemialges* Trouessart, 1888

A revision the 25 species of the genus *Hemialges* was carried out by TROUESSART (1919). Since that time, only one new species has been described (GAUD, 1962) and a few species have been moved to other genera (GAUD & ATYEO 1996). The taxonomy of this

genus is greatly complicated by significant morphological differences between homeomorph and heteromorph forms of males. Moreover, in some species, either heteromorph or homeomorph males are not known. Most species of this genus have been described from birds of paradise, Paradisaeidae, mainly from New Guinea, but a few species have been found on Eurylamiidae and Orthonichidae.

Hemialges pilgrimi Mironov et Galloway sp. n.
(FIG. 1, 2)

Heteromorph male (holotype): Idiosoma wide rhomb-like, 450 in length, 380 in width (in three paratypes 370-450 × 290-380). Prodorsal shields narrowly trapezoidal, 140 in length, 86 in width, with concave posterior margin, posterior angles of shield forming a pair of rounded suprategumental processes with setae *se*, *si*; distance between setae *se* 65 (FIG. 1a). Setae *si* as macrochaetae, approximately half the length of setae *se*. Humeral shields with large lateral crests bearing setae *c3*. Hysteronotal shield extending to level of setae *cp*, *c3*, anterior part attenuate, anterior margin slightly concave, total length 264, width at anterior margin 62. Macrochaetae *c2* with additional short acute branch at basal 1/4. Macrochaetae *d2*, *e2* situated on hysteronotal shield. Distances between setae: *c2-d2* 112, *d2-e2* 107, *h3-h3* 55. Opisthosoma with small triangular lobes continuing into pair of acute terminal membranes, length of incision between membranes 25. Coxal fields III completely sclerotized, coxal fields IV with narrow sclerotized area, epimerites IVa without supratetegumental spine-like processes. Genital apparatus at level of trochanters III, genital arch 17 × 15, genital apodemes small, bracket-like. Adanal shield represented by pair of oblique longitudinal sclerites and horseshoe-shaped sclerite encompassing anal opening and anal discs (FIG. 2a). Distance *g-ps3* 108. Legs III three times thicker than legs IV. Trochanter III with lateral crest; femur III with large acute medial processus; tarsus III with acute apex, without medial processus, all setae hair-like. Tarsus IV elongated, setae *d*, *e* rod-like.

Homeomorph male (paratype): Idiosoma parallel-sided, 327 in length, 168 in width (in four other paratypes 320-342 × 165-196). Prodorsal shield narrowly trapezoidal, 74 in length, 72 in width, posterior margin concave, with small acute processes, distance between setae *se* 65, setae *si* short, hair-like (FIG. 1b). Humeral shields without lateral crest. Hysteronotal shield short, extending slightly anterior to level of setae *e1*. Setae *c2*, *d2* represented by macrochaetae, setae *e2* short, hair-like; *d2* on striated tegument, *e2* on hysteronotal shield. Opisthosomal lobes not developed, posterior margin of opisthosoma between setae *h3* almost straight. Distances between setae: *c2-d2* 65, *d2-e2* 96, *h3-h3* 48. Coxal fields III not sclerotized in medial part, epimerites IVa without spine-like processes (FIG. 2b). Genital arch 24 × 22, genital apodemes bracket-like. Adanal shield separated into three fragments as in heteromorph male. Legs III two times thicker than legs IV. Trochanter III without lateral crest, femur III without medial spine, tarsi III, IV as in heteromorph male.

Female (paratype): Length of idiosoma 523, width of idiosoma 240 (idiosomal dimensions in seven other paratypes 430-525 × 185-240). Prodorsal shield as in homeomorph male (FIG. 2c), 108 in length, 96 in width, distance between setae *se* 77. Setae *c2*, *d2* represented by macrochaetae, *e2* short, hair-like, distances between setae: *c2-d2* 96, *d2-e2* 140, *h3-h3* 86. Epigynium thick, 46 in length, 60 in width, setae *3a* situated on posterior tips.

Diagnosis: Based on the structure of the scapular shields and legs III in heteromorph males, the new species is most similar to *Hemialges spinicrus* Trouessart, 1919, described from *Orthonyx spinicauda* (Orthonychidae). Heteromorph males of *Hemialges pilgrimi* differ from that species by having lobe-like processes on the prodorsal shield, bearing setae *si*, *se*, enlarged setae *si*, a circular sclerite around the anal opening and anal discs (FIG. 1a, 2a). In heteromorph males of *H. spinicrus*, the prodorsal shield lacks posterior lobe-like processes, setae *si* are hair-like, and there is no circular sclerite around the anal opening. Homeomorph males of *H. pilgrimi* differ from *H. spinicrus* and other species, in which homeomorph males are known (*H. megamerus* Trouessart, 1919, *H. emarginatus* Trouessart, 1919, *H. priapus*, 1919, *H. rennellianus* Gaud , 1962) by having no opisthosomal lobes and terminal membranes (FIG. 1b, 2b).

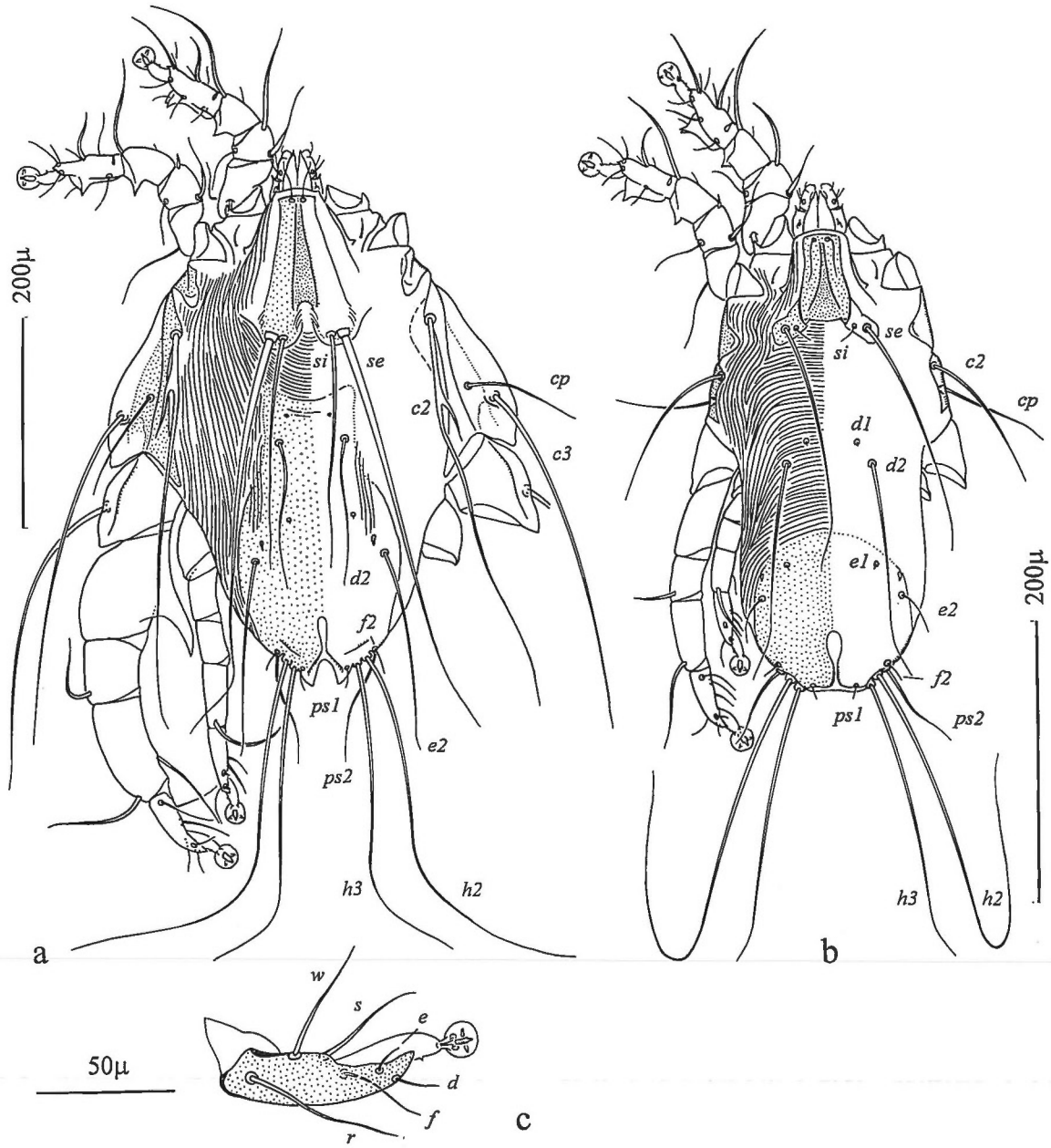

FIG. 1: *Hemialges pilgrimi* n. sp., males. a — heteromorph male, dorsal view, b — homeomorph male, dorsal view, c — tarsus III of heteromorph male, dorsal view.

Material examined: Holotype male (MONZ 4/410), paratypes 6 males, 8 females from *Rhipidura fuliginosa fuliginosa* (Muscicapidae), New Zealand, Tuahiwi, 14 April, 1999, T. GALLOWAY coll. Holotype - MONZ, paratypes - ZISP, UMW.

Etymology: The species is named in honour of Prof. Dr. R. L. C. PILGRIM (Department of Zoology, University of Canterbury, Christchurch, New Zealand).

Genus *Megninia* Berlese, 1881

Megninia is the most diverse genus in the subfamily Megniniinae and includes more than 30 species. The

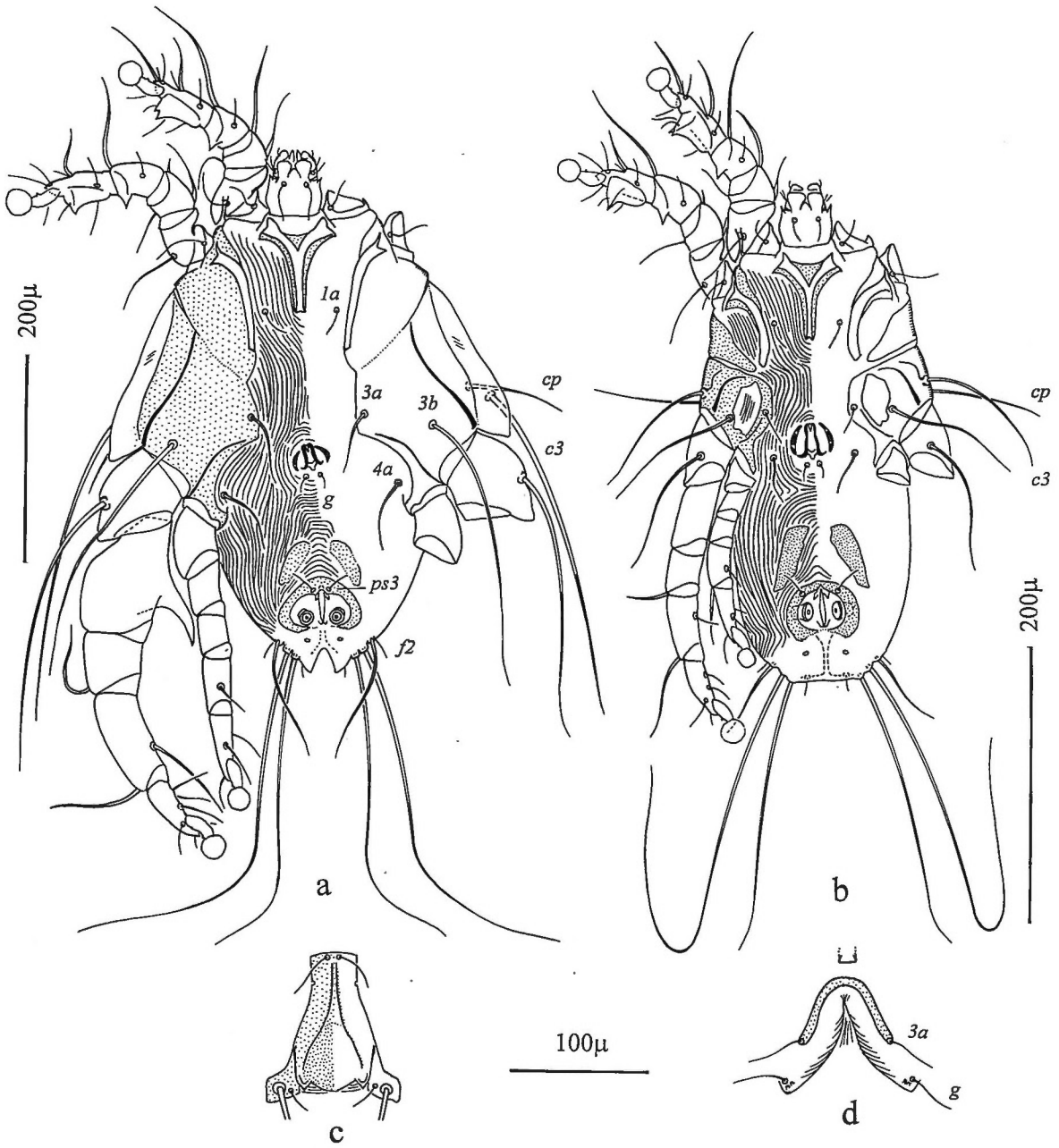

FIG. 2: *Hemialges pilgrimi* n. sp. a — heteromorph male, ventral view, b — homeomorph male, ventral view, c — prodorsal shield of female, d — epigynium of female.

majority of species are associated with Galliformes and several representatives are recorded from Coliiformes and Cuculiformes (GAUD 1965, 1983). *Megninia* spp. associated with Galliformes in Africa have been examined by GAUD (1965). Species restricted to wild subspecies and domestic races of the chicken, *Gallus gallus*, have been recently revised (GAUD *et al.* 1985). A brief review of species living on the Phasianidae and Tetraonidae in Europe was provided by CERNY (1973). Nevertheless, the genus *Megninia* needs thorough revision, and further investigations on its diversity and host associations are badly needed. Many species described by BONNET (1924) as *Megninia* spp. from Passeriformes apparently do not belong

to this genus. The position of *Megninia* spp. recorded from Coliiformes and Cuculiformes also seems doubtful. Finally, there are no reports of *Megninia* spp. from many gallinaceous birds in Asia and America, all of which are potential hosts of this genus.

Megninia californica Mironov et Galloway n. sp.
(FIG. 3, 4)

Male (holotype): Length of idiosoma 420, width 250. (Idiosoma size in 8 paratype males 420-460 × 248-288). Prodorsal shield narrowly trapezoidal, typical for the genus *Megninia*, 77 in length, distance between setae *se* 35, without spine-like projections on posterior margin (FIG. 3a). Hysteronotal shield 264 in length, 158 in width, anterior margin slightly concave, anterior angles acute, surface uniformly dotted, without striate pattern. Humeral setae *cp* slightly shorter than trochanter III, setae *c3* macrochaetae. Opisthosoma bilobate, terminal cleft semiovate, with narrow interlobal membrane extending to 3/4 of cleft length. Supranal concavity open posteriorly into terminal cleft. Length of triangular incision in interlobal membrane 38. Width of opisthosoma at level of setae *ps2* 103. Distances between setae: *ps2-h3* 43, *ps1-h3* 31, *ps1-ps1* 41, *h3-h3* 53. Epimerites I free, not touching by posterior ends. Coxal fields III closed. Genital apparatus situated slightly anterior to level of trochanters III; genital arch 41 in length, 26 in width, with rounded apex; pair of genital shields present. Adanal shield of complicated form (FIG. 3b), its anterior part (anterior to setae *ps3*) of 3 fragments (medial and 2 lateral ones). Adanal shield and anal discs surrounded by semicircular preanal membrane and by a pair of adanal membranes. Setae *ps3* dilated, triangular, with acute apices of unequal length. Distance from anterior margin of adanal shield to setae *ps3* 38, distances between setae: *ps3-ps3* 19, *g-ps3* 80. Tarsi I, II with acute ventral processus. Ventral spine on tibia I 17 long, on tibia II 22 long. Length of lanceolate setae of tarsus III (FIG. 3c): seta *w* -40, seta *s* -26. Tibia IV with a small apicoventral spine. Setae *d*, *e* of tarsus IV short, rod-like.

Female (paratype): Length of idiosoma 388, width 224. (Idiosoma of other 8 paratype females 360-390 × 205-245). Prodorsal shield as in male, 80 in length, distance between setae *se* 48. Scapular shields as thin transverse sclerites, setae *c2* off these shields. Hysteronotal shields absent (FIG. 4a). Copulatory opening as small cone-like cave. Lateral setae *c2*, *d2*, *e2* macrochaetae, distance between these setae: *c2-d2* 112, *d2-e2* 80. Epimerites I free, posterior ends not contiguous. Epigynium small, bow-like, situated between tips of epimerites II, 12 in length, 34 in width (FIG. 4b). Ventral spine of tibia I 10 long, one of tibia II 12 long. Legs IV extending slightly beyond posterior margin of opisthosoma.

Diagnosis: The new species is closely related to *Megninia gynglymura* (Megnin, 1877) by its free epimerites I, shape of adanal shield, form of setae *ps3* in males, and by the position of the epyginium in females (FIG. 4b). Males of *M. californica* differ from *M. gynglymura* by having acute anterior angles on the hysteronotal shield and a longer anterior part of the adanal shield (36-44 in 10 paratypes); females of *M. californica* are distinguished by the cone-like copulatory opening (FIG. 4b). In males of *M. gynglymura*, the anterior angles of hysteronotal shield are almost rectangular, length of anterior part of adanal shield 28-32; in females, the copulatory opening is situated on a small, button-like extension.

Material examined: Holotype male (MONZ 4/411), paratypes 9 males and 9 females from *Lophortyx californica brunnescens*, New Zealand, Kaikoura, 27 Nov., 1998, T. GALLOWAY coll. Holotype — MONZ, paratypes — ZISP, JBWM.

Etymology: The specific epithet is derived from the species name of the type host.

Remarks: To date, *Megninia gynglymura* has been recorded from many species of gallinaceous birds of the families Phasianidae, Pavonidae, Numididae, and Meleagridae (GAUD *et al.* 1985). Feather mites are host specific parasites and species are commonly associated with certain taxa of closely related species or genera of hosts. The association of one mite species with hosts of different families from distant continents seems doubtful. It is necessary to add that many of the available records of *M. gynglymura* are based on specimens collected in zoos, where accidental contamination or infestations of unnatural hosts are quite possible.

We suggest that *M. gynglymura*, in the sense of recent taxonomists (CERNY 1973; GAUD 1965; GAUD

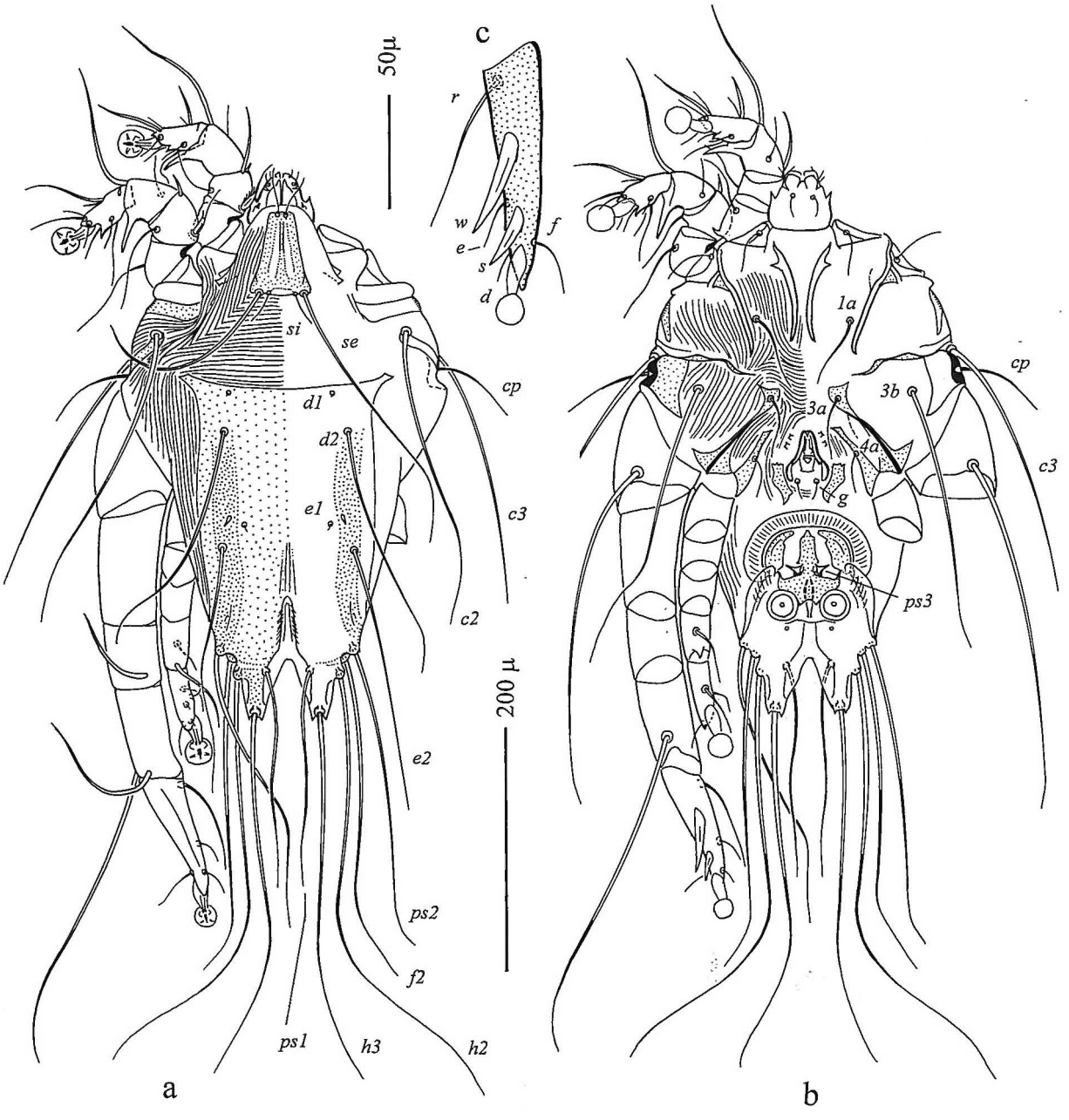

FIG. 3: *Megninia californica* n. sp., male. a — dorsal view, b — ventral view, c — tarsus III, ventral view.

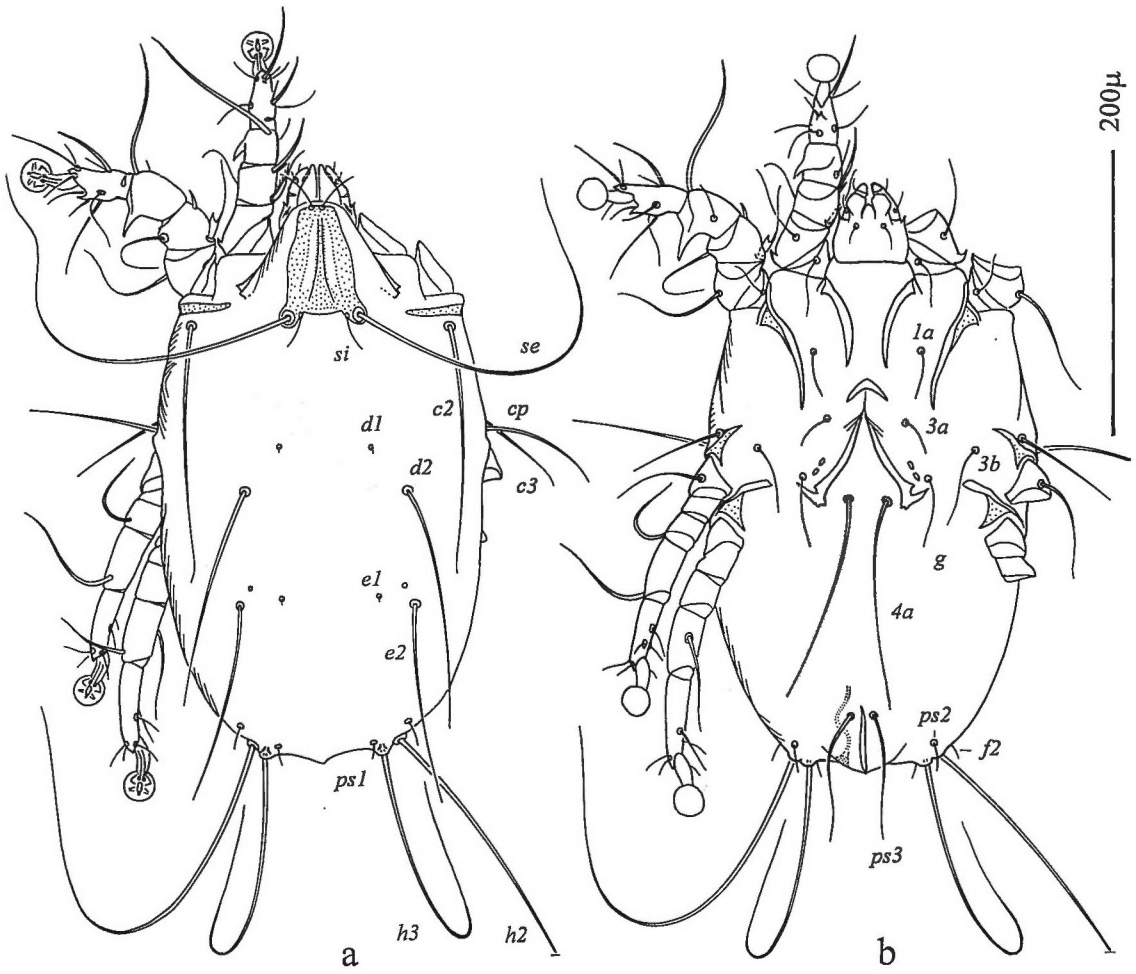

FIG. 4: *Megninia californica* n. sp., female. a — dorsal view, b — ventral view.

et al. 1985), is a complex of several closely related species and that their host associations need careful re-investigation. *Megninia californica* was compared with specimens of *M. gynglymura* collected in natural conditions from the type host, *Phasianus colchicus*, in Europe (specimens in the Zoological Institute, Saint Petersburg).

Family Pteronyssidae Oudemans, 1941

Genus *Mouchetia* Gaud, 1961

The genus formerly included five species (GAUD 1961, 1962; FACCINI & MIRONOV 1981; MIRONOV 1990b), three of which were known from white eyes, Zosteropidae, and two from babblers, Timaliidae.

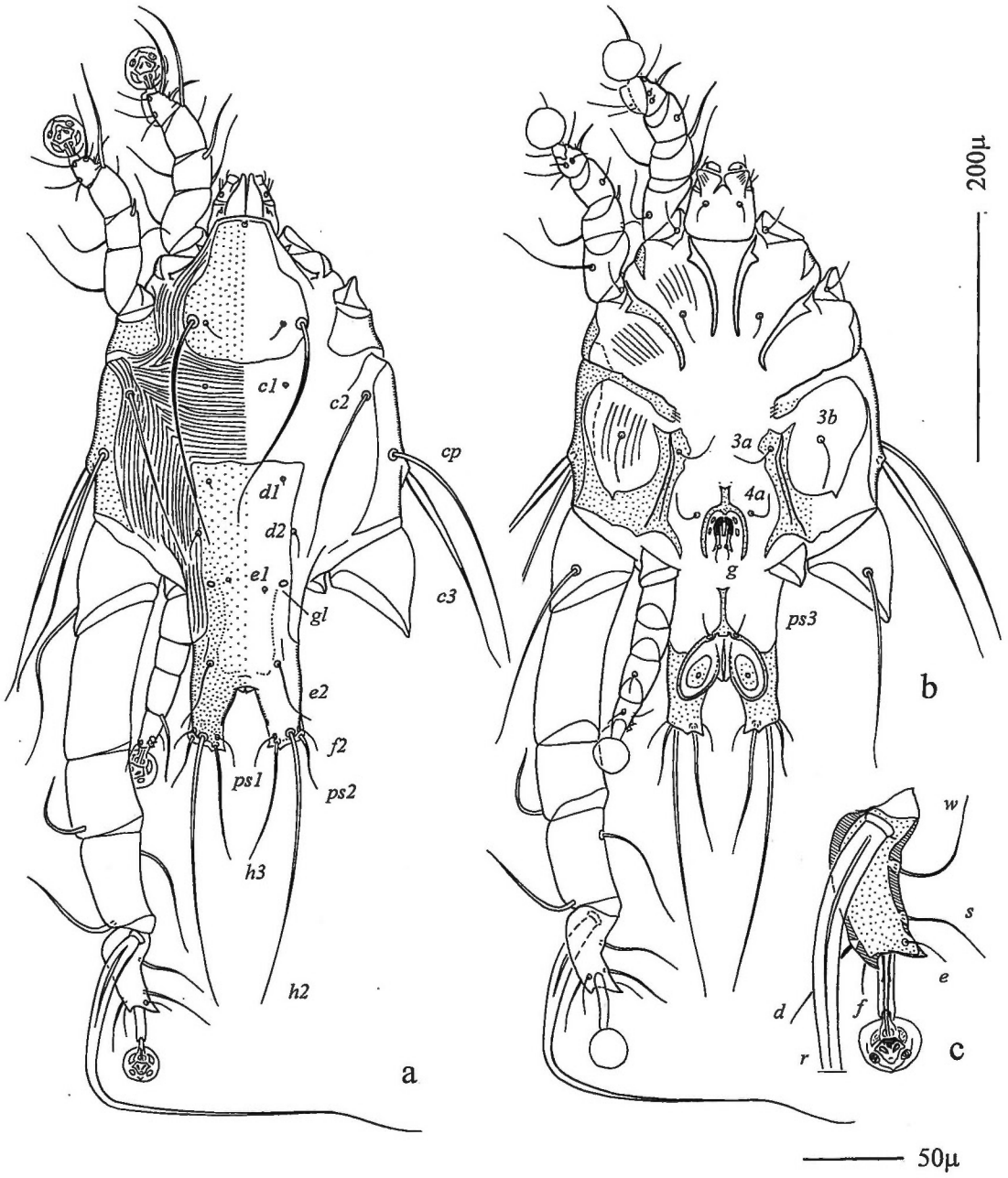

FIG. 5: *Mouchetia navaezealandica* n. sp., male. a — dorsal view, b — ventral view, c — tarsus III, dorsal view.

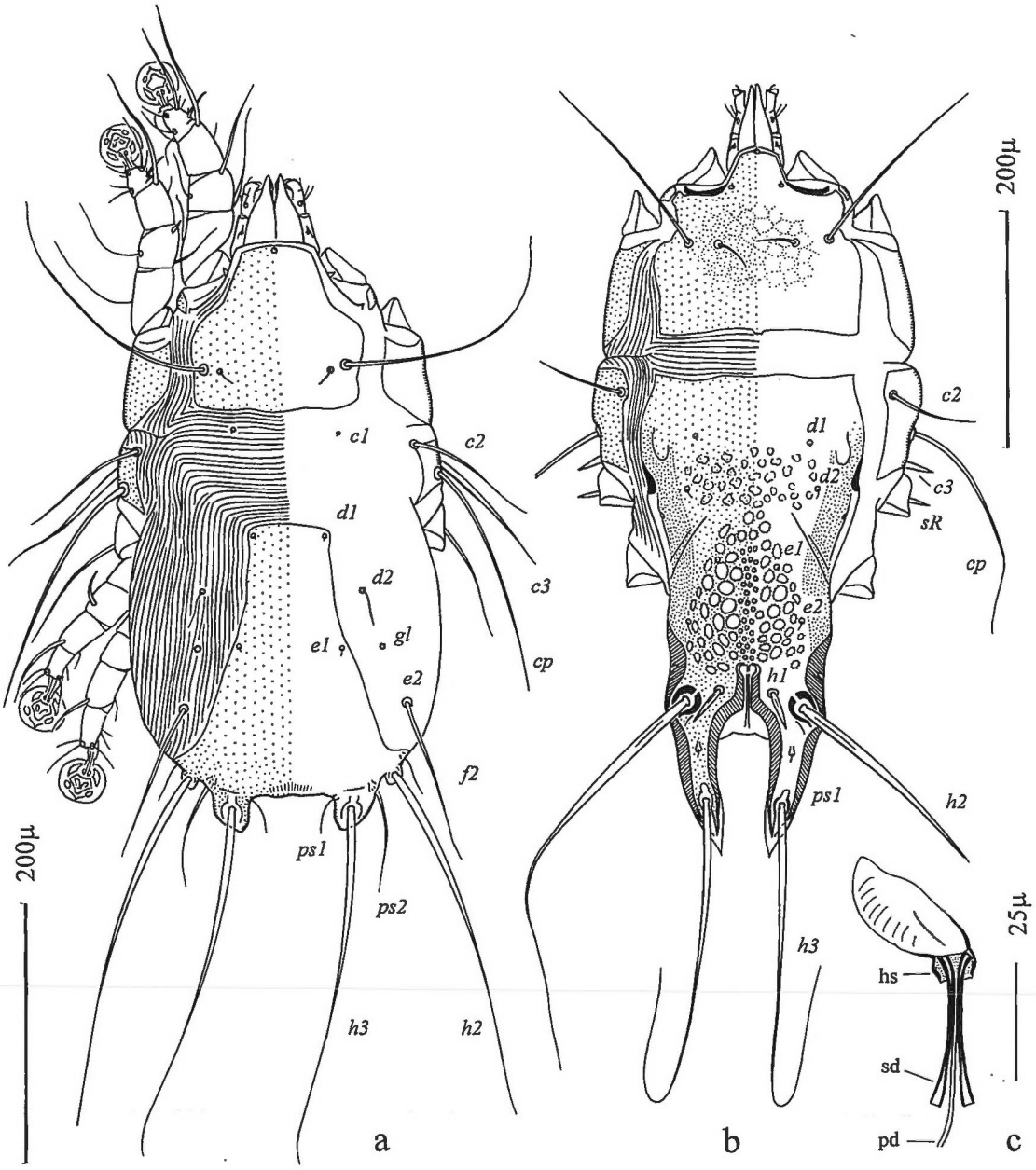

FIG. 6: Females of mite genera *Mouchetia* and *Trouessartia*. a — *Mouchetia novaezealandica* n. sp., dorsal view, b — Trouessartia rhipidurae n. sp., dorsal view, c — ibidem, spermatheca (hs: head of spermatheca, pd: primary spermaduct, sd : secondary spermaduct).

Mouchetia novaezealandica
Mironov et Galloway sp. n.
(FIG. 5, 6a)

Male (holotype): Length of idiosoma 489, width of idiosoma 283, length of hysterosoma 361 (idiosomal dimensions of four paratypes: 440-490 × 254-280). Prodorsal shield: length 132, width 115, distance between bases of setae *se* 98, posterior margin rounded, lateral margins without incisions at bases of setae se. Setae *c2* long macrochaetae, about 160 in length, situated medial to margin of humeral shields.

Setae *c3* with narrowly lanceolate basal part and hair-like apical part, 195 in length, 7 in width (FIG. 5a). Hysteronotal shield: length 264, width at anterior margin 107, anterior angles almost rectangular, anterior margin slightly sinuous. Dorsal setae *e1* situated at level of openings *gl*. Distance between prodorsal and hysteronotal shields along medial line 94. Opisthosomal lobes almost rectangular, slightly divergent, with pair of acute teeth at base of setae *h3*. Terminal cleft U-shaped, without supranal concavity, 55 in length, 43 in width at level of setae *h2*. Measurements *d2-e2* 127, *d2-gl* 60, *gl-e1* 6, *h3-h3* 53. Transventral sclerite absent. Epiandrium horseshoe-shaped, with short stick-like processus on anterior margin, completely encompasses genital apparatus, tips of epiandrium extending beyond level of setae *g* (FIG. 5b). Genital apparatus 24 × 14. Setae *4a* at level of anterior margin of epiandrium. Transanal sclerite (adanal shield) as thin inverted Y, continuing with adanal apodemes. Anal discs ovate, about 33 × 14. Tarsus III with two large apical teeth; all setae short, hair-like, except setae *r*, represented by macrochaeta with enlarged basal part (FIG. 5c). Legs IV extending beyond lobar apices by ambulacral disc and apex of tarsus IV.

Female (paratype): Length of idiosoma 450, width of idiosoma 234, length of hysterosoma 298 (idiosomal dimensions in five paratypes: 430-465 × 215-235). Prodorsal shield: length 124, width 127, lateral margin without incision, posterior margin almost straight, distance between setae *se* 103. Setae *c2* long, hair-like, about 88 in length, situated on striated tegument near margins of humeral shields. Setae *c3* lanceolate, with thread-like apices, 82 × 4. 8. Hysteronotal shield narrowly trapezoidal, occupying medial and terminal areas of opisthosoma, anterior end extending to level of trochanters III, 205 in length along medial line, 55 in width at anterior margin. Setae *d1*, *e1* situated on shield, setae *d2* on striated cuticle. Terminal margin of opisthosoma with pair of rounded short lobes bearing bases of macrochaetae *h3*. Length of cleft between lobes 24. Measurements: *d1-d2* 48, *d2-e2* 43, *d2-gl* 48, *gl-e1* 4. 5, *h3-h3* 93. Epigynium bow-like, 50 in length, 86 in width, tips not fused with epimerites IIIa.

Diagnosis: Among five formerly known species of the genus *Mouchetia* (GAUD 1961, 1962; FACCINI & ATYEO 1981; MIRONOV 1990b), the new species is most similar to *Mouchetia indochinensis* Mironov, 1990 described from *Zosterops japonica*. Males of *M. novaezealandica* differ from that species by having two acute teeth on the lobar apices and by having longer legs IV extending beyond the posterior ends of the lobes. In males of *M. indochinensis*, the opisthosomal lobes bear only one tooth medial to seta *h3* base, and tarsi IV are not extended to the lobar apices. Females of *M. novaezealandica* and *M. indochinensis* are distinguished by distance between setae *h3*, (90-105) and (120-135) respectively.

Material examined: Holotype male (MONZ 4/412), paratypes: 4 males, 5 females from *Zosterops lateralis lateralis* (Zosteropidae), Christchurch, New Zealand, 30 Jan., 1999, T. D. GALLOWAY coll. Holotype — MONZ, paratypes — ZISP, JBWM.

Etymology: The species epithet refers to the terra typica.

Family Trouessartiidae Gaud, 1957

Genus *Trouessartia* Canestrini, 1899

Trouessartia is the most diverse genus in the family and includes about 90 species. A comprehensive revision of the genus was carried out by SANTANA (1976); several species (about 20) have since been described by different authors (CERNY & LUKOSCHUS 1975; CERNY, 1979; GAUD , 1977; MIRONOV 1983; GAUD & ATYEO 1986, 1987; MIRONOV & KOPIJ 1996). The representatives of the genus *Trouessartia* are mainly associated with Passeriformes, though a few species have been recorded from Piciformes and Coraciiformes.

Trouessartia rhipidurae Mironov et Galloway sp. n.

(FIG. 6 b, c, 7)

Male (holotype): Length of idiosoma excluding terminal lamellae 561, width of idiosoma 268 (idiosomal dimensions for five paratypes 503-545 × 244-265). Prodorsal shield 148 in length, 170 in width; with blunt extensions between legs I, II, not fused with epimerites Ia; not fused laterally with scapular shields; surface with faint network. Setae *si* short

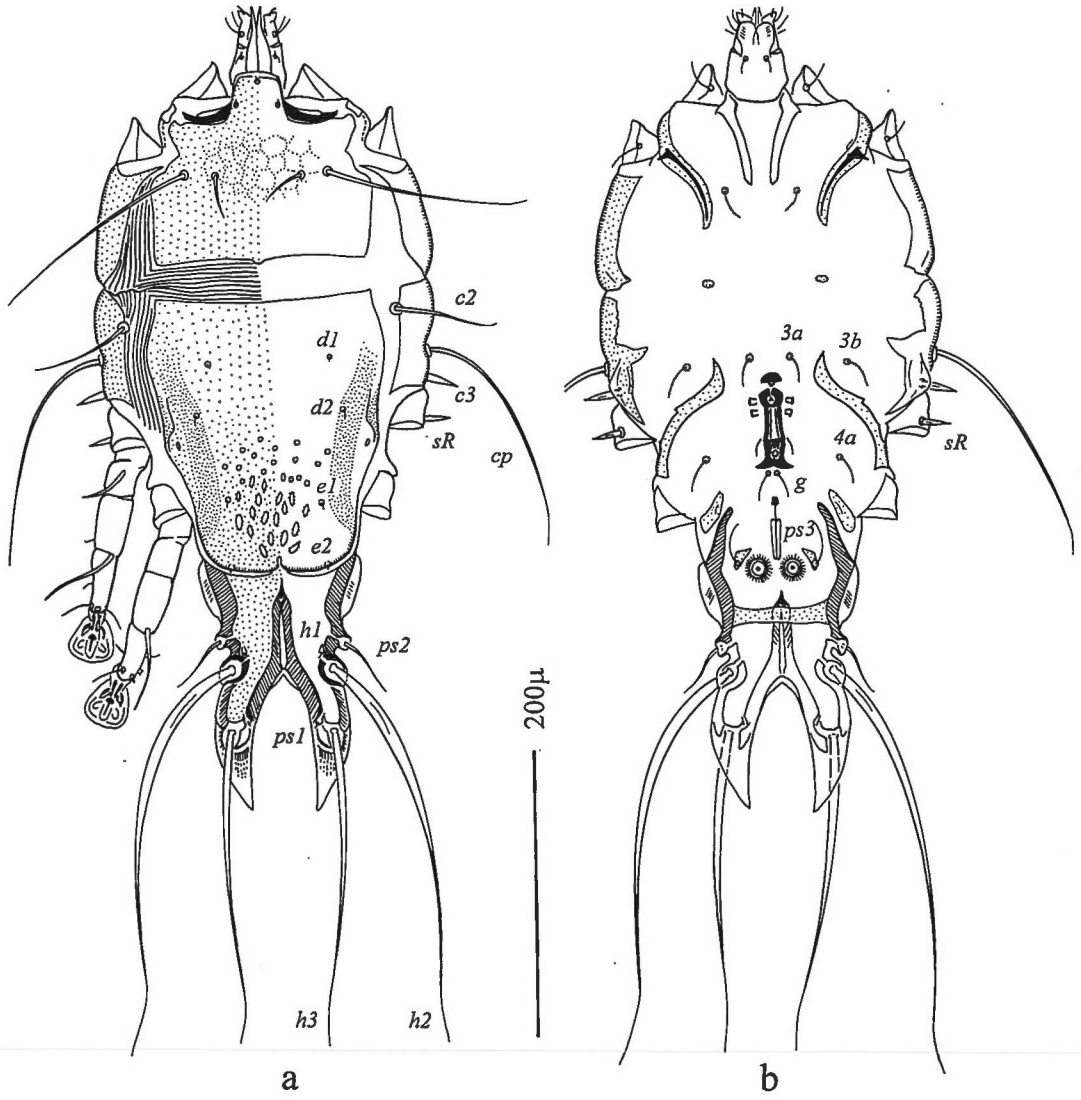

FIG. 7: *Trouessartia rhipidurae* n. sp., male. a — dorsal view, b — ventral view.

setiform, 26 in length, separated by 67. Humeral shield with setae *c2* setiform, 72 in length. Setae *c3* lanceolate, 24 in length. Dorsal hysterosoma almost completely separated into prohysteronotal shield and lobar shield; these shields weakly connected by narrow medial band (FIG. 7a). Prohysteronotal shield 218 in length, 189 in width, lateral margins entire, posterior part with small ovate and pit-like lacunae, DHA absent, dorsal setae *d1* present. Length of lobar shield, excluding lamellae, 139. Opisthosomal lobes separated by ovate terminal cleft, interlobar membrane present in anterior end only. Length of terminal cleft from top to posterior tips of lamellae 101, width at level of setae *h3* 12. Lamellae with acute apices, without teeth. Setae *h1* situated anterior to setae *h2*. Epimerites I free. Rudiments of epimerites IIa small ovoid. Genital apparatus situated between trochanters III, 62 × 29 (FIG. 7b). Anterior, posterior genital discs almost equidistant from midline. Setae *g* setiform, their bases almost contiguous. Adanal apodemes with wide lateral membranes, without apophyses. Translobar apodeme present. Setae

sR III lanceolate with acute apex, 21 in length. Modified setae *d*, *e* of tarsus IV separated by 5, seta *e* stick-like with truncated apex, seta *d* with discoidal cap.

Female (paratype): Length of idiosoma including lamellar processes on lobe apices 596, width of idiosoma 283 (idiosomal dimensions for four other paratypes 575-615 × 265-285). Prodorsal shield as in male, 160 in length, 182 in width; setae *si* setiform, 26 in length, separated by 70. Humeral shields with setae *c2* setiform, 77 in length. Setae *c3* lanceolate with acute apex, 24 in length. Hysteronotal shield 400 in length, 185 in width, with many ovate lacunae in posterior 2/3 and with distinct longitudinal medial row of small pit-like lacunae; DHA absent; setae *d1* present (FIG. 6b). Setae *h1* lanceolate with acute apex, about 26 in length, separated by 42, positioned 22 anterior from level of setae *h2*, 38 from each lateral margins of hysteronotal shield. Setae *ps1* positioned dorsal on opisthosomal lobes, 36-43 anterior of bases of setae *h3*. Width of opisthosoma at level of setae *h2* 132. Distance from bases of setae *h2* to membranous apices of lobes 122. Setae *f2* absent. Supranal concavity open posterior into terminal cleft, length of cleft 125, width of cleft at level of setae *h3* 36. Interlobar membrane occupies about 1/4 of cleft. Primary spermaduct terminating in margin of interlobar membrane. Spermatheca as in FIG. 6c. Setae *sR* III lanceolate with acute apex, 24 in length.

Diagnosis: This species is related to *T. secaticauda* Gaud, 1968, described from *Rhipidura rennelliana* from Rennell Island (GAUD 1968). The males of *T. rhipidurae* are easily distinguished from that species by having the opisthosomal lobes widely separated and terminal lamellae with acute apices. In males of *T. secaticauda*, the terminal cleft is almost slit-like and terminal lamellae are very short, with truncate posterior ends. Females of *T. rhipidurae* differ by having a medial row of small pit-like lacunae and copulatory opening situated on the margin of interlobar membrane. In female *T. secaticauta*, the posterior part of hysteronotal shield bears ovate lacunae only and the copulatory opening is ventral, situated at the level of setae *h2*.

Material examined: Holotype male (MONZ 4/415), paratypes 5 males, 5 females from *Rhipidura fuliginosa fuliginosa* (Muscicapidae), New Zealand, Tuahiwi, 4 April, 1999, T. D. GALLOWAY coll. Holotype — MONZ, paratypes — ZISP, JBWM.

Etymology: Specific epithet derived from the generic name of host.

Remarks: SANTANA (1976) arranged 32 species of the genus *Trouessartia* into five species groups, but other species were not assigned to any groups. *Trouessatia rhipidurae* and *T. secaticauda* apparently could be arranged into a new group, *rhipidurae*, with the following characters. In both sexes: DHA absent, setae *d1* absent, setae *c3* lanceolate, setae *c2* long, setiform. In males: prohysteronotal shield and lobar shield connected by medial sclerotized band, opisthosomal lobes separated by slit-like or ovate terminal cleft, translobar apodemes present, adanal apodemes with membranes, terminal lamellae without teeth, setae *g* setiform, setae *h1* anterior to setae *h2*. In females: setae *f2* absent, external copulatory tube absent; a copulatory opening situated ventral or on posterior margin of interlobar membrane; head of spermatheca and secondary spermaducts with indentation (FIG. 6c).

Family Proctophyllodidae Trouessart et Megnin, 1984

Genus *Proctophyllodes* Robin, 1877

The genus *Proctophyllodes* is the most diverse genus in the Proctophyllodidae. It includes more than 150 species, arranged in 12 species groups. The most extensive treatment of this genus is the revision of world species by ATYEO & BRAASCH (1966). The taxonomy and species identification within the genus *Proctophyllodes* are based exclusively on male characters. Almost all species of this genus are distributed on Passeriformes, but a few species are known from representatives of Charadriiformes, Apodiformes and Piciformes.

Proctophyllodes gerygonae Mironov et Galloway sp. n.

(FIG. 8)

Male (holotype): Length of idiosoma excluding lamellae 228, width 117 (idiosomal dimensions in one

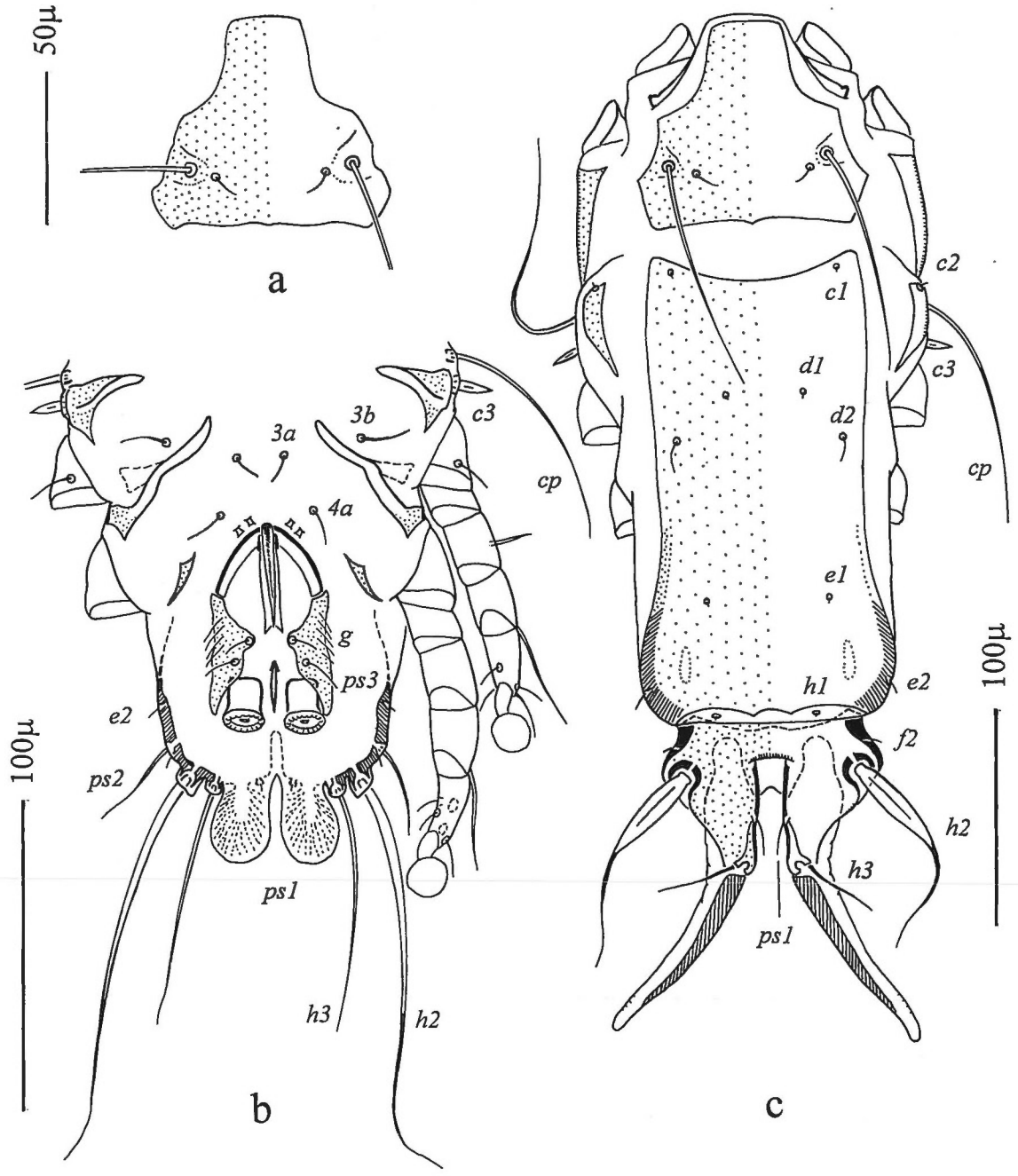

FIG. 8: *Proctophyllodes gerygonae* n. sp. a — prodorsal shield of male, dorsal view, b — hysterosoma of male, ventral view, c — idiosoma of female dorsal view.

paratype 234 × 122). Prodorsal shield 67 in length, 70 in width, lateral margins entire, without lacunae. Distance between setae *se* 48. Humeral shields moderately developed, bearing setae *c2* at anteromedial angles. Subhumeral setae *c3* lanceolate, 10.5 in length, 2.5 in width. Hysteronotal shield 139 in length, 67 in width, anterior margin concave, without lacunae, without ventrolateral extensions, supranal concavity 27 in length. Lamellae short ovoid, 22 in length, 18 in width, internal margins not overlapping, with pennate venation (FIG. 8 a). Epimerites I U-shaped, with thin connective, without lateral extensions. Epimerites without wide surface fields. Genital arch at level of trochanters IV, 24 × 36, aedeagus not extending to setae *g*, genital sheath bifid distally, 32 in length. Genital apodemes absent, genital discs not connected. Opisthogastric shield separated into two pieces represented by a pair of longitudinal sclerites; setae *g*, *ps3* situated on medial margins of these shields (FIG. 8b). Setae *g* and *ps3* in trapezoidal arrangement; distance between setae: *g-g* 12, *g-ps3* 6, *ps3-ps3* 21. 5, distances from genital arch apex to setae *ps1* 80. Anal suckers cylindrical, 15 in length, 8. 5 in width, corolla with 16-18 small teeth, medial margin not notched; without accessory glands.

Female (paratype): Length of idiosoma excluding terminal appendages 395, width 156 (idiosomal dimensions for other specimen 386 × 160). Prodorsal shield 91 in length, 103 in width, lateral margins entire, without lacunae; distance between setae *se* 70. Humeral shields moderately developed, bearing setae *c2* at anteromedial angles. Subhumeral setae *c3* lanceolate 19 in length, 4 in width. Hysterosoma with well developed opisthosomal lobes and terminal appendages; anterior hysteronotal shield 206 in length, 96 in width, with anterior margin shallowly concave, without lacunae, without supranal concavity. Lobar region of opisthosoma distinctly separated by transverse furrow from rest part of hysterosoma, length of lobar region 72, width at level of setae *h2* 96; setae *h1* inserted in furrow of weakly sclerotized tegument and separated by 48; external lobar margins greatly convex, terminal cleft almost rectangular, nar row, 50 in length, 14 in width; setae *h2* lanceolate with thread-like in apical part, setae *h3* about 1/3 length of terminal appendages (FIG. 8c). Epimerites I U-shaped, with thin connective, without lateral extensions, epimerites without surface fields. Opisthosomal lobes with ventral translobar apodemes.

Diagnosis: This species belongs to the *stylifer* species group, which is characterized by having the genital sheath slightly enlarged and bifid at the apex (ATYEO & BRAASCH 1966). *Proctophyllodes gerygonae* is most closely related to *P. reguli* Gaud, 1957 by proportions of the genital apparatus and terminal lamellae. The males of *P. gerygonae* differ from those of *P. reguli* by having the setae *g* on medial margins of opisthogastral shields, shorter terminal lamellae and the unnotched margin of corolla (FIG. 8b). In males of *P. reguli*, the setae *g* are situated on striated tegument, lamellae are longer (28-35) and the medial margin of the corolla is notched. Females of these species are distinguished by the width of terminal cleft and form of opisthosomal lobes. In females of *P. reguli*, the terminal cleft is wider (18-23) and lateral margins of the lobar region are less convex than in *P. gerygonae* (FIG. 8c).

Material examined: Holotype male (MONZ 4/414), paratypes: male, 2 females from *Gerygone igata* (Acanthizidae). Christchurch, New Zealand, 1998 (specific date of host collection not known), T. D. GALLOWAY coll. Holotype and paratype female — MONZ, other paratypes — ZISP.

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