



**New species of the feather mite subfamily Pterodectinae
(Astigmata: Proctophyllodidae) from African passerines
(Aves: Passeriformes)**

by S.V. MIRONOV¹ & A. FAIN²

¹ Zoological Institute, Russian Academy of Sciences, Universitetskaya embankment 1, 199034, Saint Petersburg, Russia (e-mail: acari@zin.ru).

² Institut royal des Sciences naturelles de Belgique, Vautier 29, 1000 Bruxelles, Belgique.

Summary

Five new species of feather mites belonging to two genera of the subfamily Pterodectinae (Analgoidea: Proctophyllodidae) are described from different passerines from Central Africa: *Montesauria nesocharis* sp. n. from *Nesocharis ansorgei* (Estrildidae), *M. euplectes* sp. n. from *Euplectes axillaris* (type host) and *E. oryx* (Ploceidae), *M. cisticolae* sp. n. from *Cisticola ayresii* (Sylviidae), *M. dolichodectina* sp. n. from *Acrocephalus rufus* (Sylviidae), *Dolichodectes myrmecocichlae* sp. n. from *Myrmecocichla nigra* (Turdidae). New host-associations are recorded for two pterodectine species formerly known from Africa: *M. eucyrta* (GAUD, 1953) is found on *Ploceus nigricollis* (Ploceidae) and *M. eurycalyx* (GAUD, 1964) is recorded on *Cisticola robusta* (Sylviidae).

Keywords: Taxonomy. Acari. Proctophyllodidae. Passeriformes. Africa

Introduction

The family Proctophyllodidae is the largest group within the feather mite superfamily Analgoidea and includes currently over 350 species arranged in 34 genera and 3 subfamilies (Gaud, Atyeo, 1996). This family is represented by typical inhabitants of feathers with well developed vanes, such as the flight and covert feathers of the wings and tail feathers. The proctophyllodid mites are usually located in narrow corridors formed by the primary and secondary barbs of the vane (MIRONOV, 1987; DABERT & MIRONOV, 1999). They are highly adapted to these microhabitats and commonly have a greatly elongated and flattened body, well developed dorsal shields and significantly reduced size of setae. Mites of this family are widely distributed on the passerines (Passeriformes) and hummingbirds (Apodiformes: Trochili); while host-associations with Piciformes, Coraciiformes, Charadriiformes, and Musophagiformes are

exceptions for this taxon (GAUD & ATYEO, 1996).

The feather mite subfamily Pterodectinae is one of two major subfamilies of Proctophyllodidae. It includes currently about 110 species arranged into 13 genera (PARK & ATYEO, 1971; GAUD & ATYEO, 1996). Mites of this subfamily are primarily associated with the passerines and hummingbirds. In spite of a careful generic revision of this subfamily (PARK & ATYEO, 1971) the biodiversity of this taxonomic group is still poorly known. The pterodectine mites were most extensively explored in different areas of Africa by GAUD and co-authors (GAUD, 1952, 1953, 1957; GAUD & MOUCHET, 1957) and in South Africa by TILL (1954, 1957). The results of these studies along the host and distribution data on all African feather mites were summarised by GAUD & TILL (1961) in the annotated check-list of arthropod parasites of vertebrates in Africa. Later on, several new species of the pterodectines were described from South African passerines (MIRONOV & KOPIJ, 1996a, 1996b, 1997). Up to

present, 51 pterodectine species from 6 genera have been recorded from Africa.

To a lesser extent, the pterodectines associated specifically with the hummingbirds were studied in the New World (PARK & ATYEO, 1973a, b, 1974a, b, 1975). Data on the systematics and biodiversity of the pterodectines in other regions of the World are poor and scattered throughout various taxonomic publications (TROUESSART, 1885, 1899; BANKS, 1909; VITZTHUM, 1929; SUGIMOTO, 1940; BERLA, 1958, 1960; GAUD, 1968; see PARK & ATYEO, 1971 for exhaustive references).

The goal of the present paper is to describe 4 new pterodectine species of the genus *Montesauria* OUDEMANS, 1905 and one new species of *Dolichodectes* PARK & ATYEO, 1971 collected from African passerines of the families Estrildidae, Ploceidae, Turdidae and Sylviidae in Central Africa.

Material and methods

The mite material used in the present study was collected by the junior co-author from various passerines in Rwanda in 1955-1956. Mites collected by hand from living or dead bird specimens were preserved in 70% ethanol. Specimens for light microscope study were mounted on slides in Hoyer medium (BAKER & WHARTON, 1952).

The descriptions of new taxa follow the standard formats used for respective pterodectine taxa (PARK & ATYEO, 1971; MIRONOV & KOPII, 1996a). The nomenclature of idiosomal and leg chaetotaxy follows GAUD & ATYEO (1996). All measurements are given in micrometers (μm). Since the number of specimens in most type series was restricted, a full set of measurements is given for the holotype (male) and one paratype (female); the range of idiosomal size (length, width) is displayed for other paratype specimens. General systematics, Latin and common names of hosts follow the Check-list of HOWARD & MOORE (1991).

Type materials are deposited: MRAC - Musée royal de l'Afrique centrale (Tervuren, Belgium), IRSNB - Institute Royal des Sciences naturelles de Belgique (Brussels, Belgium), ZISP - Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia). All other material used in the present study is deposited in IRSNB.

Systematics

Family Proctophyllodidae TROUESSART et MEGNIN, 1884

Subfamily Pterodectinae PARK et ATYEO, 1971 Genus *Montesauria* OUDEMANS, 1905

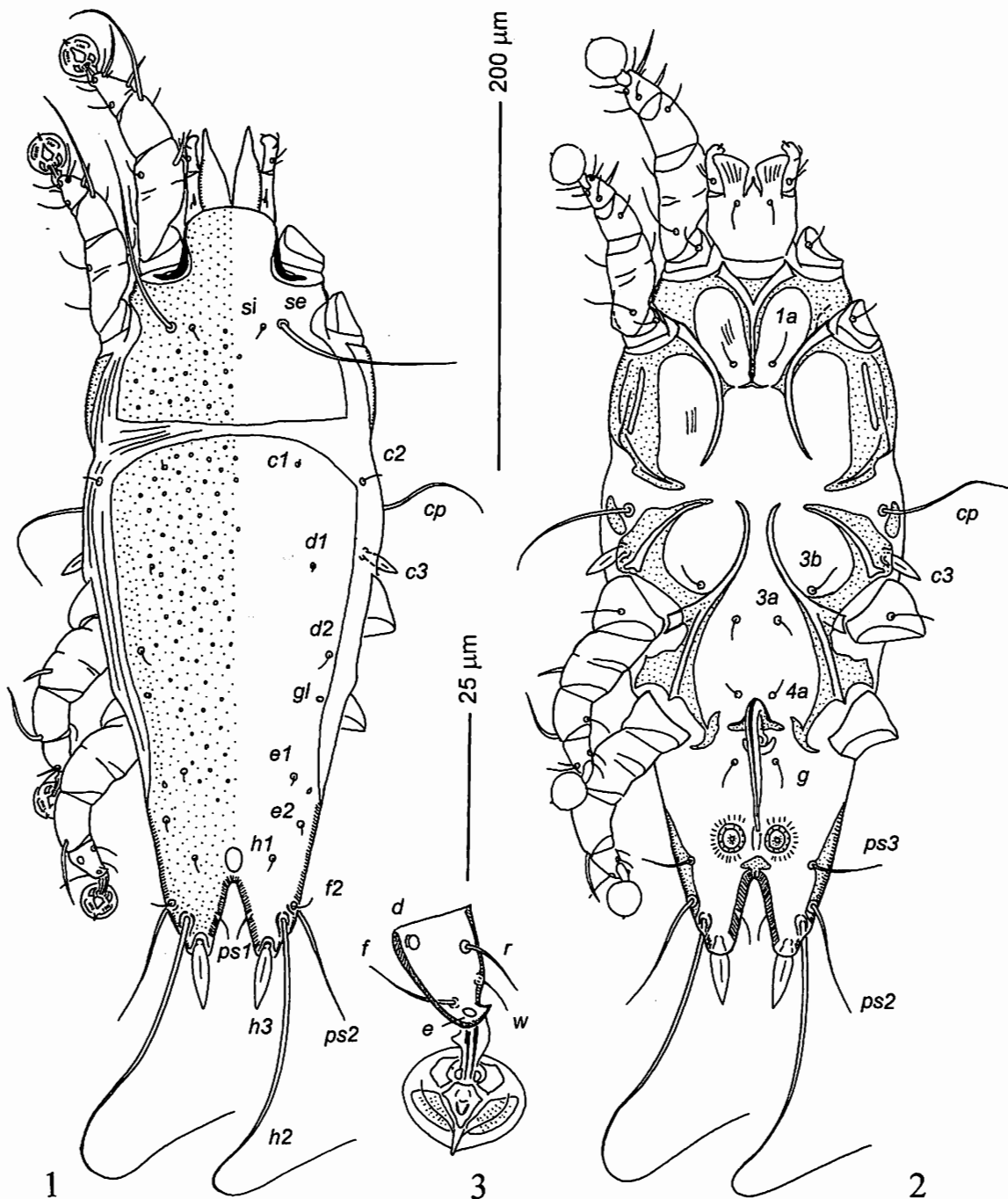
This genus currently including 45 species is the largest genus within the subfamily Pterodectinae. In the frame of a generic revision of the subfamily, PARK & ATYEO (1971) revised the species composition of this genus and noticed that there are at least 5 recognisable species groups plus many species that cannot be placed with these groups. They mentioned only the *bilobata* species group, stressed that this group is the most deviating one from the basic characteristics of the genus, and gave its distinctive characters. Other generic groups were neither named nor characterised. Later on, MIRONOV (1996a), erected the *bilobata* group as a separate genus *Alaudicola* MIRONOV, 1996. Thus, the intrageneric systematics of the genus *Montesauria* still remains uncertain. Moreover, this genus seems to be heterogeneous, because according to the current concept (PARK & ATYEO, 1971; GAUD & ATYEO, 1996; MIRONOV & KOPII, 1997), it includes mites with different sets of idiosomal chaetome and might be probably split into several genera. The genus *Montesauria* badly needs a revision, which could be carried out after an extensive accumulation of new data of its biodiversity.

Montesauria nesocharis MIRONOV et FAIN sp. n. (Figs 1-6)

TYPE MATERIAL. Male holotype, 4 male and 9 female paratypes from the White-collared Oliveback *Nesochares ansorgei* (HARTERT, 1899) (Estrildidae), Akanyaru river, East of Rwanda, 3.II.1956, coll. A. FAIN. Holotype, paratypes (2 males, 4 females) - MRAC, other paratypes - ZISP.

ADDITIONAL MATERIAL. 2 males, 1 female from the Fernando Po Oliveback *Nesocharis shelleyi* (ALEXANDER, 1903) (Estrildidae), Akanyaru river, East of Rwanda, 15.XII.1955, coll. A. FAIN.

MALE (holotype). Length of idiosoma 405, width 166 (idiosomal size in 4 paratypes 405-415 x 153-165). Prodorsal shield: 121 in length along median line, 126 in width at posterior margin, with lateral margins entire, posterior margin

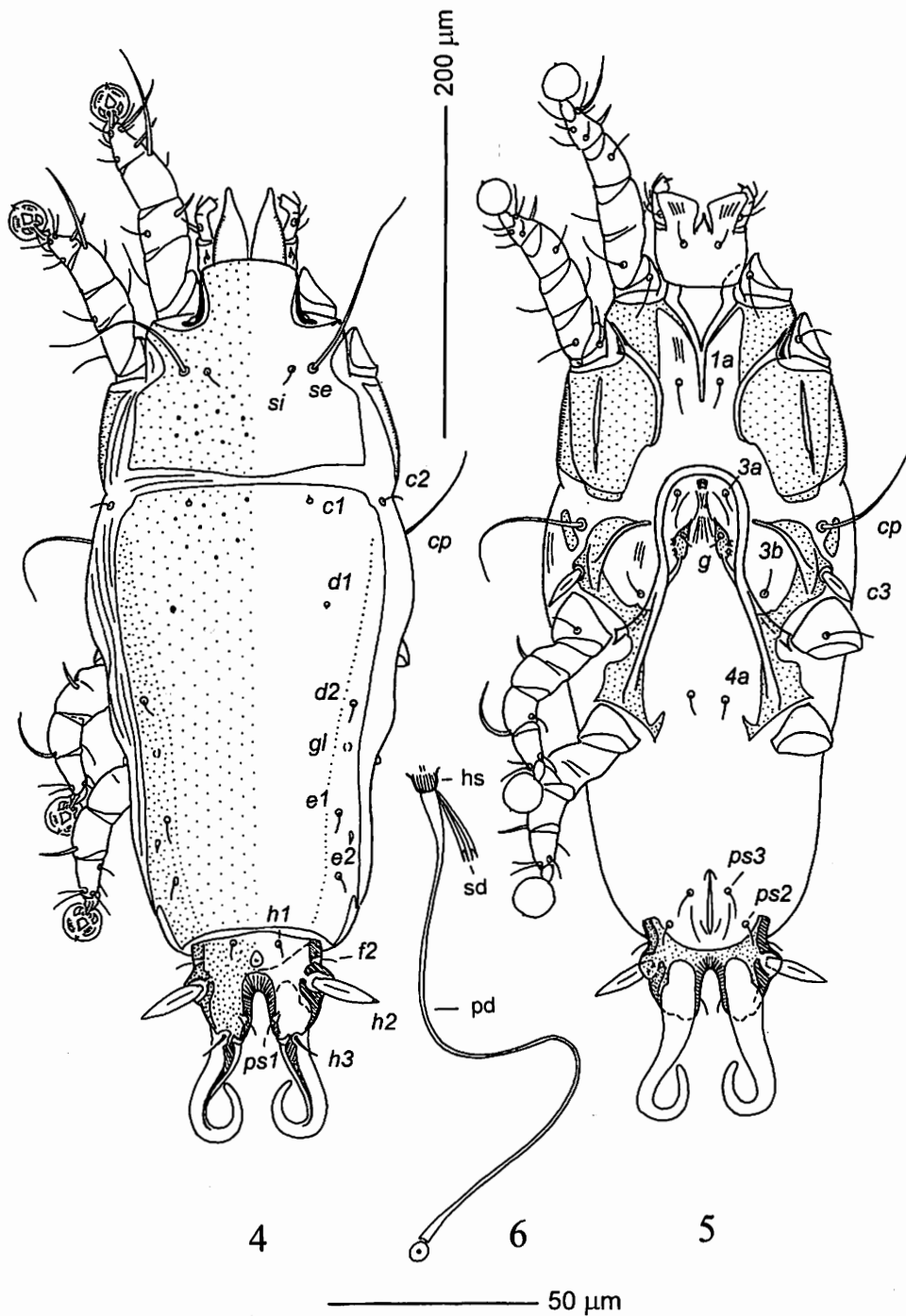


Figs 1-3. *Montesauria nesocharis* n. sp. Male: dorsal view (1), ventral view (2), tarsus IV, dorsal view (3).

almost straight, surface with sparsely disposed little pit-like lacunae (Fig. 1). Scapular setae *se* separated by 62. Humeral shields developed ventrally only, represented by small sclerite lateral to bases of humeral setae *cp*. Setae *c2* situated dorsally, on soft tegument. Subhumeral setae *c3* lanceolate, 25 in length 6.5 in width. Hysteronotal shield: greatest length (from anterior margin to apices of opisthosomal lobes) 280, width in anterior part 131, anterior margin convex, surface with sparsely disposed little pit-like lacunae.

Opisthosomal lobes well expressed, attenuate to apices, terminal cleft V-shaped, 39 in length, distance between bases of setae *h3* situated on lobar apices 35 (Fig. 1). Setae *h3* lanceolate with acute tips, 33 in length, 10 in width.

Epimerites I fused Y-likely, posterior end of sternum with acute transverse extensions almost touching medial part of epimerites II (Fig. 2): Lateral half of coxal fields I, II heavy sclerotized. Coxal fields II, III not closed. Coxal fields IV with narrow lateral sclerotized areas. Epimerites IVa



Figs 4-6. *Montesauria nesocharis* n. sp. Female dorsal view (4), ventral view (5), primary and secondary spermatducts (6). *hs* - head of spermatheca, *pd* - primary spermatduct, *sd* - secondary spermatducts.

present, small. Genital arch with tips directed lateral, 12 in length, 26 in width; basal sclerite of genital apparatus small, semicircular; aedeagus straight, 65 in length, extending to anterior margin of anal discs, genital acetabulae invisible. Genital shield absent. Anal discs 15 in diameter, corolla with indentations. Opisthoventral shields narrow, with setae *ps3* on inner margins of these shields, slightly posterior to level of anal discs. Distance between ventral setae: *3a-4a* 43, *4a-g* 34, *g-ps3*

58, *ps3-ps3* 62. Tarsus IV 18 in length, with small apical claw-like process (Fig. 3).

FEMALE (paratype). Length of idiosoma excluding terminal appendages 470, width 191 (idiosomal size in other 8 paratypes 460-480 x 185-192). Prodorsal shield as in the male, 121 in length along median line, 126 in width at posterior margin. Setae *se* separated by 77. Humeral shields as in the male. Setae *c2* situated dorsal, on soft tegument (Fig. 4). Setae *c3* lanceolate, 23 in

length, 7 in width. Hysteronotal shield separated into anterior and lobar parts by narrow band of soft tegument. Anterior hysteronotal shield slightly enlarged in anterior part, anterior margin straight, greatest length 270, width at anterior margin 166, surface with little pit-like lacunae in most anterior part. Length of lobar region excluding terminal appendages 67, width at level of setae *h2* 81. Terminal cleft narrow U-shaped, 30 in length, about 10 in width in anterior half. Setae *f2* present. Setae *h1* on lobar shield, separated by 27. Setae *h2* spindle-like, 40 in length, 7 in width. Setae *h3* 15 in length, about 1/5 of terminal appendages. Setae *ps1* on margins of terminal cleft.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Lateral half of coxal fields I and all area of coxal fields II heavy sclerotized (Fig. 5). Translobar apodemes of opisthosomal lobes present. Head of spermatheca small, with longitudinal striation, distal part of primary spermaduct with ampuliform enlargement, surface of spermaduct smooth (Fig. 6).

DIFFERENTIAL DIAGNOSIS. The new species is closely related to *Montesauria heterocaula* (GAUD & MOUCHET, 1959) described from the Grey-headed Negrofinch *Nigrita canicapilla* (STRIKLAND) (Estrildidae) in Cameroon. Within the genus *Montesauria*, these two species have a unique character, a partial sclerotisation of coxal fields I and complete sclerotisation of coxal fields II in females (Fig. 5). In males of these species, the sclerotisation of coxal fields I, II is also expressed, but in lesser extent (Fig. 2). These features allow to arrange them into the *heterocaula* species group. The males of *M. nesocharis* differ from *M. heterocaula* by having a straight aedeagus, the females are distinguished by having a striated head of spermatheca and ampuliform enlargement in the proximal part of the primary spermaduct. In the males of *M. heterocaula*, the aedeagus is curved at right angle at the distal end; in the females, the head of spermatheca is not striated, and the primary spermaduct has an equal width along all its length.

ETYMOLOGY. The species name derives from the generic name of the host.

***Montesauria euplectes* MIRONOV et FAIN
sp. n. (Figs 7-11)**

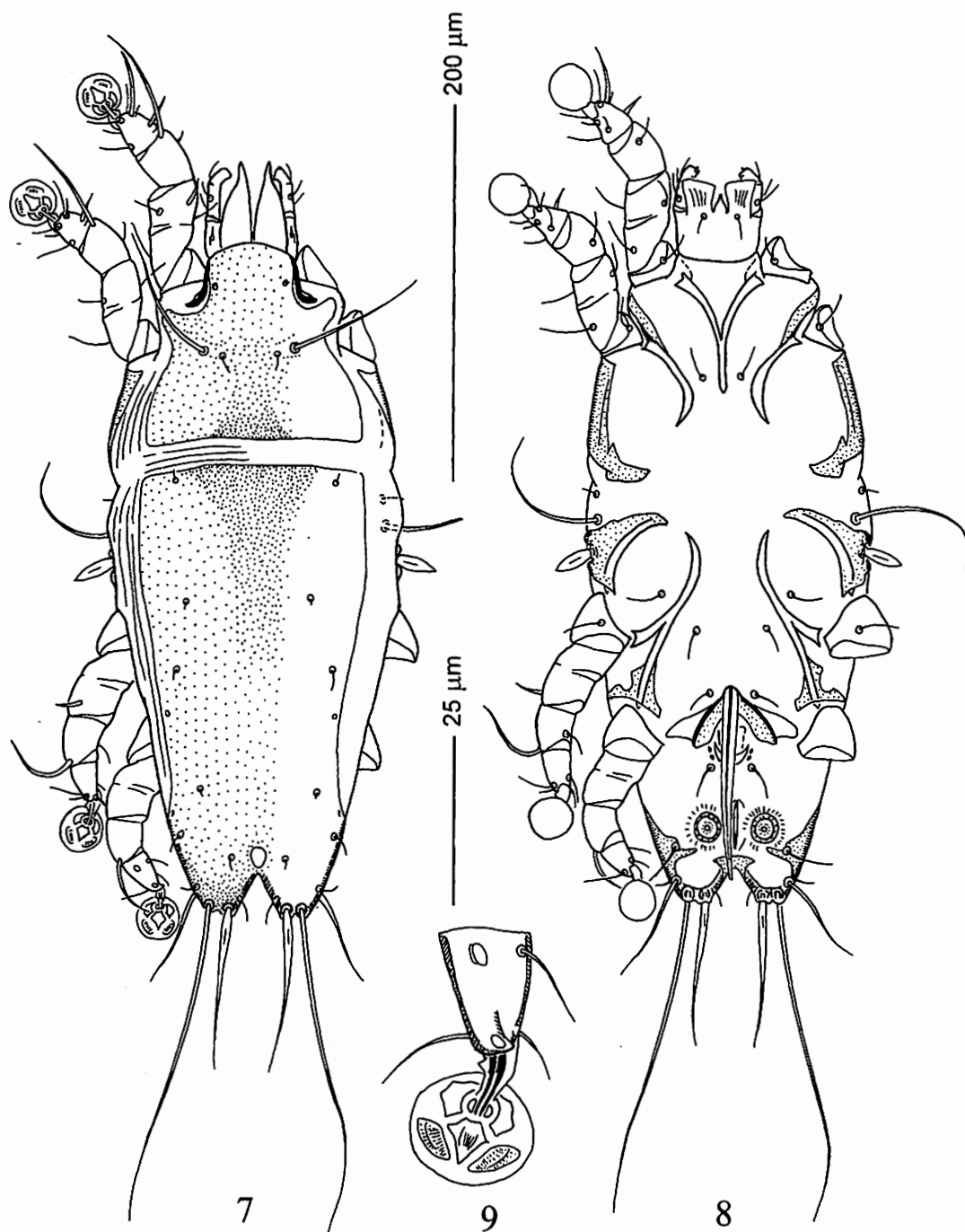
TYPE MATERIAL. Male holotype, 1 male and 2 female paratypes from the Fan-tailed Widowbird

Euplectes axillaris (SMITH, 1838) (Ploceidae), Gisagara, Rwanda, 16.I.1956, coll. A. FAIN, 4 male and 10 female paratypes from the same host species, Astrida, East of Rwanda, 15.XI.1955, coll. A. FAIN. Holotype, paratypes (1 male, 2 females) - MRAC, paratypes (1 male, 3 females) - IRSNB, paratypes (3 males, 7 females) - ZISP.

ADDITIONAL MATERIAL. 2 males and 6 females from the Red Bishop *Euplectes orix* (LINNAEUS, 1758) (Ploceidae), Akanyaru river, East of Rwanda, 9.II.1956, coll. A. FAIN; 3 females from the same host species, same location, 19.I.1956, coll. A. FAIN.

MALE (holotype). Length of idiosoma 365, width 154 (idiosomal size in 5 paratypes 355-370 x 146-155). Prodorsal shield: 111 in length along median line, 126 in width at posterior margin, with lateral margins entire, posterior margin straight, surface uniformly dotted with heavy sclerotisation in posterior median area (Fig. 7). Setae *se* separated by 47. Humeral shields absent. Setae *c2* situated submarginal, on soft tegument. Subhumeral setae *c3* lanceolate, 22 in length, 6.5 in width. Hysteronotal shield: greatest length 280, width of anterior part 120, anterior margin straight, surface dotted, with heavy sclerotisation in anteromedian area. Opisthosomal lobes well expressed, short, slightly attenuate to apices carrying bases of setae *h2*, *h3*; terminal cleft V-shaped, 17 in length, distance between setae *h3* 33. Setae *h3* long, slightly enlarged in basal 2/3, with terminal filament, 80-85 in length, 3.5 in width.

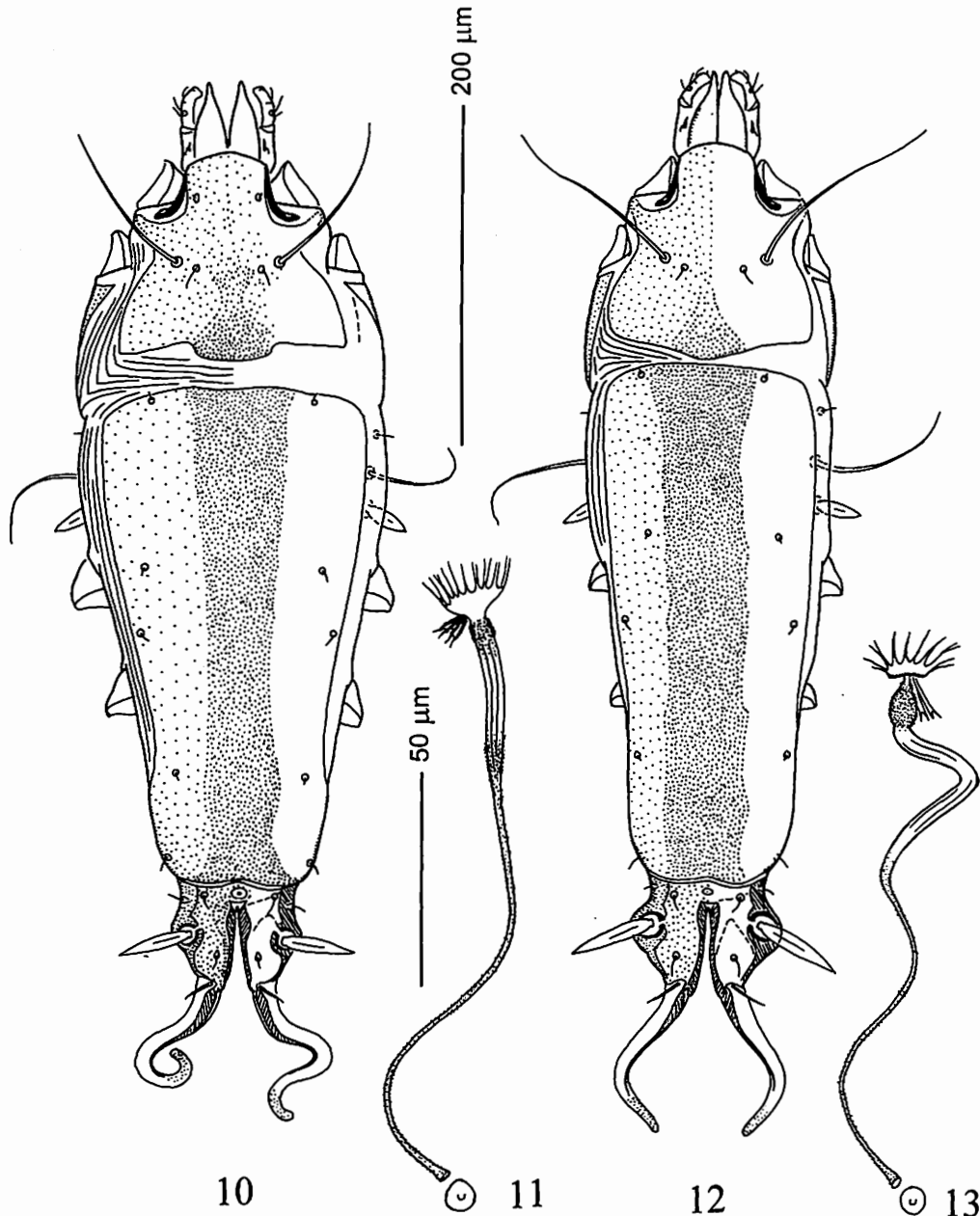
Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II without sclerotized areas. Coxal fields II, III not closed. Coxal fields IV without sclerotized lateral areas. Epimerites IV absent. Genital arch large, massive, with lateral wing-like extensions, length 28, width 38, width including lateral extensions 66; basal sclerite of genital apparatus small, semicircular; aedeagus straight, 98 in length, extending to anterior end of terminal cleft (to midlevel of terminal cleft in some paratypes), genital acetabulae visible, posterior to genital arch (Fig. 8). Genital shield absent. Anal discs 15 in diameter, corolla with indentations. Opisthoventral shields with finger-like extension on inner margin, setae *ps3* at base of this extensions, slightly posterior to level of anal discs. Distance between ventral setae: *3a-4a* 40, *4a-g* 38, *g-ps3* 50, *ps3-ps3* 59. Tarsus IV 21 in length, with small apical claw-like process (Fig. 9).



Figs 7-9. *Montesauria euplectes* n. sp. Male: dorsal view (7), ventral view (8), tarsus IV, dorsal view (9).

FEMALE (paratype). Length of idiosoma excluding terminal appendages 500, width 155 (idiosomal size in other 11 paratypes 495-535 x 155-195). Prodorsal shield as in the male, 124 in length along median line, 126 in width in posterior part, with short and wide median extension on posterior margin, posterior-median area with sclerotized patch of hourglass form. Setae *se* separated by 60. Humeral shields absent. Setae *c2* situated submarginal, on soft tegument. Setae *c3* lanceolate, 22 in length, 7.5 in width.

Hysteronotal shield separated into anterior and lobar parts by narrow band of soft tegument. Anterior hysteronotal shield enlarged in anterior part, anterior margin slightly convex, greatest length 295, width at anterior margin 156, median area of the shield with wide dark-brown sclerotized band (Fig. 10). Length of lobar region excluding terminal appendages 63, width at level of setae *h2* 71. Terminal cleft narrowly triangular, 48 in length, about 15 in width at level of lobar apices. Setae *f2* present. Setae *h1* on lobar shield,



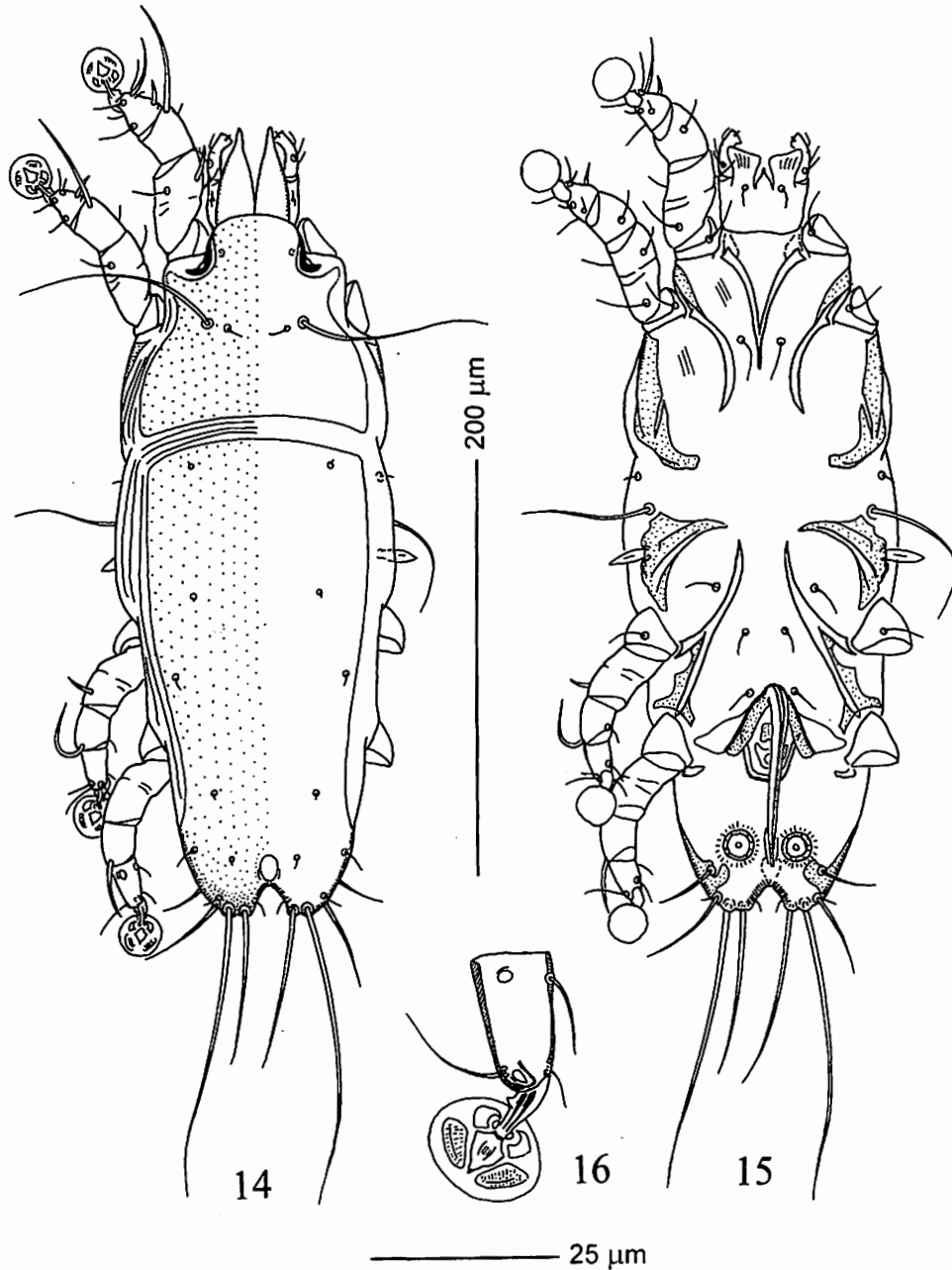
Figs 10-13. *Montesautia euplectes* n. sp., female: dorsal view (10) primary and secondary spermaducts (11). *M. eucyrta* (GAUD, 1953), female: dorsal view (12), primary and secondary spermaducts (13).

separated by 36. Setae *h2* spindle-like, 42 in length, 7 in width. Setae *h3* 15 in length, about 1/5 of terminal appendages. Setae *ps1* situated dorsal on lobes.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II without sclerotized areas. Translobar apodemes of opisthosomal lobes present. Head of spermatheca weakly sclerotized, proximal 1/4 part of primary spermaduct enlarged, most base of enlarged part and all thin part of the spermaduct finely verrucate (Fig. 11).

DIFFERENTIAL DIAGNOSIS. The new species

belongs to the *papillo* species group (MIRONOV & KOPII, 1997) including formerly 5 species and clearly characterised by having a dark-sclerotized median bar in hysteronotal shield in females (Figs 10, 12) and wing-like lateral extension of genital ark in males (Fig. 8). *M. euplectes* is most closely related to *M. eucyrta* (GAUD et MOUCHET, 1959) described from *Ploceus cucullatus* (MÜLLER, 1776) (Ploceidae) (GAUD, 1953, 1964; GAUD & MOUCHET, 1959) by the very wide median sclerotized band in the hysteronotal shield of females, which is about one third of the shield width. The males of *M. euplectes* are distin-



Figs 14-16. *Montesauria cisticolae* n. sp. Male: dorsal view (14), ventral view (15), tarsus IV, dorsal view (16).

guished from the latter species by having a longer aedeagus extending usually to the midlevel of terminal cleft, wider genital arch, and thinner setae *h3* (Fig. 8, 9). In the males of *M. eucyrta*, the aedeagus is not extending to the anterior end of terminal cleft, the proper genital arch is longer than wider, and setae *h3* are narrowly lanceolate (Fig. 21). The females of the new species differ by the hysteronotal shield enlarged in anterior part, which is about 1.5 times wider than posterior part, and rather thick connection of the primary spermaduct with the head of spermatheca (Fig. 11). In the females of *M. eucyrta*, the width of anterior and posterior parts of the anterior

hysteronotal shield is subequal (Fig. 12) and the primary spermaduct has a very thin connection with the head of spermatheca (Fig. 13).

ETYMOLOGY. The species name derives from the generic name of the host.

***Montesauria eucyrta* (GAUD, 1953)**
(Figs 12, 13, 21)

MATERIAL EXAMINED. 2 males and 1 female from the Black-necked Weaver *Ploceus nigricollis* (VIEILLOT, 1805) (Ploceidae), Akanyaru river, East of Rwanda, 30. XI. 1955, coll. A. FAIN.

REMARKS. This species belonging to the *papillo* species group was originally described from the Village Weaver *Ploceus cucullatus* and also reported from several species of African ploceids of the genera *Ploceus* CUVIER, 1816 and *Euplectes* SWAINSON, 1829 (GAUD, 1953, 1964; GAUD & MOUCHET, 1959). The present study of the material from selected species of these bird genera has shown that the widows of the genus *Euplectes* are occupied by a separate species, *M. euplectes*, described above, while *M. eucyrta* is apparently restricted to the weavers of the genus *Ploceus*. GAUD (1953) reported *M. eucyrta* from two weaver species, *Ploceus cucullatus* and *P. brachypterus* SWANSON, 1934. Records of this mite species from the widows, *Euplectes franciscana* (ISERT, 1789), *E. hordacea* (LINNAEUS, 1758) and *E. macrourus* (GMELIN, 1789), represent quite probably the findings of *M. euplectes*. The Black-necked Weaver *Ploceus nigricollis* is a new host record for *M. eucyrta*.

***Montesauria eurycalyx* (GAUD, 1964)**
(Figs 19, 20, 22)

MATERIAL EXAMINED. 6 males and 5 females from the Stout Cisticola *Cisticola robusta* (RÜPPELL, 1845) (Sylviidae), Astrida, East of Rwanda, 9. II. 1956, coll. A. FAIN.

REMARKS. This species was formerly known from the Siffling Cisticola *Cysticola brachyptera* (SHARPE, 1870) in Congo (GAUD, 1964). *Montesauria eurycalyx* and one new species *M. cisticolae* sp. n. described below are probably related to the *papillo* species group, because their males also have wing-like lateral extensions in the genital arch (Figs 15, 22), however in females of these species, any dark sclerotisation in the median part of hysteronotal shield is absent (Figs 17, 19). Finding of *M. eurycalyx* on the Stout Cisticola *C. robusta* is a new host record for this species.

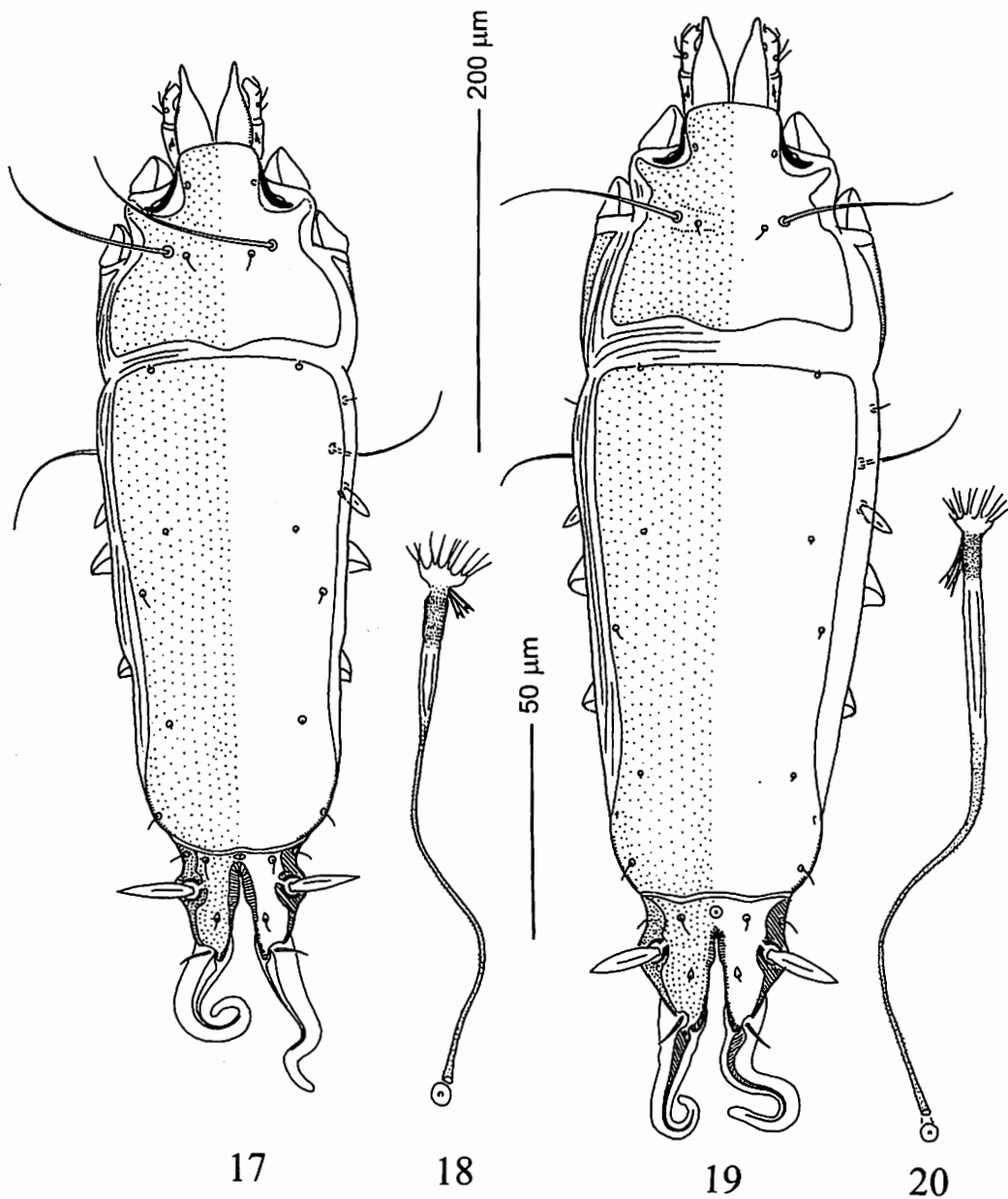
***Montesauria cisticolae* MIRONOV et FAIN**
sp. n. (Figs 14-18)

TYPE MATERIAL. Male holotype, 5 males and 3 female paratypes from the Wing-snapping Cisticola *Cisticola ayresii* HARTLAUB, 1863 (Sylviidae), Astrida, East of Rwanda, 23.I.1956, coll. A. FAIN. Holotype, paratypes (3 males, 4 females) - MRAC, paratypes (2 males, 1 female) - ZISP.

MALE (holotype). Length of idiosoma 350, width 122 (idiosomal size in 5 paratypes 340-350 x 120-130). Prodorsal shield: greatest length 109, width at posterior margin 104, lateral margins entire, posterior margin convex, surface uniformly dotted. Setae *se* separated by 47. Humeral shields absent. Setae *c2* situated submarginal, on soft tegument. Subhumeral setae *c3* lanceolate, 25 in length 7 in width. Hysteronotal shield: greatest length 235, width of anterior part 102, anterior margin convex, surface uniformly dotted. Opisthosomal lobes well expressed, short, with setae *h2*, *h3* on blunt apices, terminal cleft V-shaped, small, 12 in length, distance between setae *h3* 22 (Fig. 14). Setae *h3* setiform, 70 in length (65-78 in other paratypes), 3.5 in width.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II without sclerotized areas. Coxal fields II, III not closed. Coxal fields IV without sclerotized areas. Little epimerites IVa present. Genital arch large, massive, with wing-like lateral extensions, length 36, width 40, width including lateral extensions 73; basal sclerite of genital apparatus large U-shaped; aedeagus straight, 86 in length (84-90 in other paratypes), not extending to anterior end of terminal cleft, genital acetabulae invisible (Fig. 15). Genital shield absent. Anal discs 14 in diameter, corolla with indentations. Opisthoventral shields with short extension on medial margin; setae *ps3* at base of this extensions, slightly posterior to level of anal discs. Distance between ventral setae: *3a-4a* 31, *4a-g* 37, *g-ps3* 48, *ps3-ps3* 54. Tarsus IV 14 in length, without short claw-like process (Fig. 16).

FEMALE (paratype). Length of idiosoma excluding terminal appendages 480, width 150 (idiosomal size in other 2 paratypes 475-490 x 152-165). Prodorsal shield as in the male, greatest length 118, width in posterior part 121, with short obliterated median extension on posterior margin, surface uniformly dotted (Fig. 17). Setae *se* separated by 48. Humeral shields absent. Setae *c2* situated submarginal, on soft tegument. Setae *c3* lanceolate, 21 in length, 7.5 in width. Hysteronotal shield separated into anterior and lobar parts by narrow band of soft tegument. Anterior hysteronotal shield: anterior margin slightly convex, greatest length 295, width at anterior margin 156, surface uniformly dotted. Length of lobar region excluding terminal appendages 69, width at level of setae *h2* 73. Terminal cleft, 48 in length, anterior half slit-like, posterior half about 25 in width at level of lobar apices. Setae *f2*



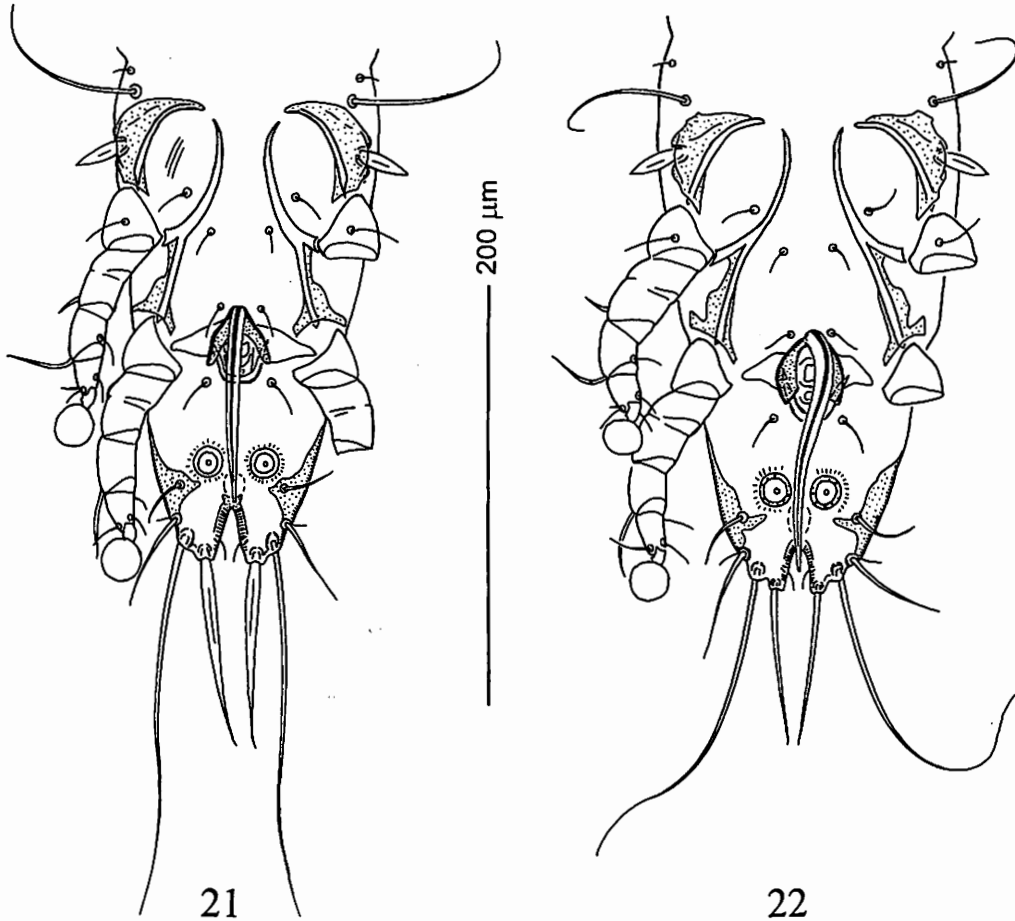
Figs 17-20. *Montesauria cisticolae* n. sp., female: dorsal view (17), primary and secondary spermaducts (18). *M. eurycalyx* (GAUD, 1964), female: dorsal view (19), primary and secondary spermaducts (20).

present. Setae *h1* on lobar shield, separated by 36. Setae *h2* spindle-like, 40 in length, 7.5 in width. Setae *h3* 16 in length, about 1/5 of terminal appendages. Setae *ps1* situated dorsally on opisthosomal lobes.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II without sclerotized areas. Translobar apodemes of opisthosomal lobes present. Head of spermatheca weakly sclerotized, distal 1/3 of primary spermaduct enlarged, basal half or this enlargement verrucate and distal half smooth, thin part of this spermaduct finely verrucate (Fig. 18).

DIFFERENTIAL DIAGNOSIS. The new species is very closely related to *Montesauria eurycalyx*

mentioned above by having similar structure of genital apparatus in males (Figs 15, 22) and spermatheca in females (Figs 18, 20). The males of *M. cisticolae* differ from the latter species by having a shorter aedeagus, which is not extending to the anterior end of terminal cleft, and thin setiform setae *h3*; the females are distinguished by the shorter idiosomal length (475-490) and relatively short smooth part of the primary spermaduct, about 20 in length (Fig. 18). In the males of *M. eurycalyx*, the aedeagus is extending to midlevel of terminal cleft and the setae *h3* are rod-like with acute apices (Fig. 21); in the females, the idiosomal length is about 520-545 (in 5 examined specimens) and the smooth part of the primary spermaduct is about 40 in length (Fig. 20).



Figs 21, 22. *Montesauria eucyrta* (GAUD, 1953), male: ventral view of hysterosoma (21). *M. eurycalyx* (GAUD, 1964), male: ventral view of hysterosoma (22).

ETYMOLOGY. The species name derives from the generic name of the host.

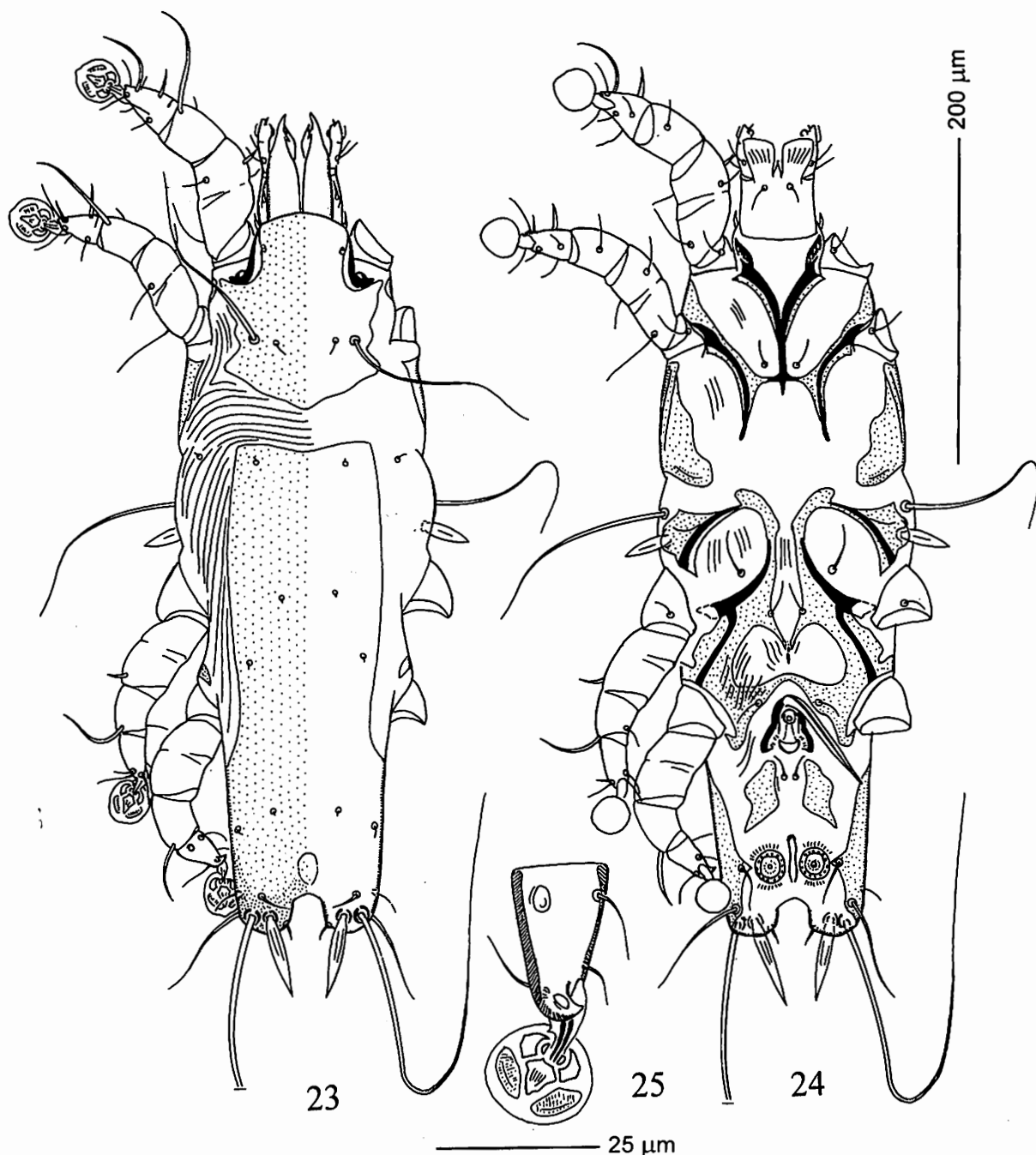
***Montesauria dolichodectina* Mironov et Fain**
sp. n. (Figs 23-25, 29, 30)

TYPE MATERIAL. Male holotype, and 7 female paratypes from the Greater Swamp-Warbler *Acrocephalus rufescens* (SHARPE et BOUVIER, 1876) (Sylviidae), Akanyaru river, East of Rwanda, 22. II. 1956, coll. A. FAIN; 1 male and 17 female paratypes from the same host species, same location, 9.X.1955, coll. A. FAIN. Holotype, paratypes (15 females) - MRAC, paratypes (4 females) - IRSNB, paratypes (1 male, 5 females) - ZISP.

MALE (holotype). Length of idiosoma 442, width 156 (idiosomal size in single paratype 405 x 125). Prodorsal shield: length along median line 109, width of posterior part 104, lateral margins entire, posterior margin convex, obtuse-angled, surface uniformly dotted. Setae *se* separated by 62. Humeral shields absent. Setae *c2* situated

dorsal on striated tegument. Subhumeral setae *c3* lanceolate, 28 in length 7.5 in width. Hysteronotal shield: greatest length 235, width of anterior part 102, anterior margin slightly concave, surface uniformly dotted. Opisthosomal lobes well expressed, short and straight, with widely rounded posterior ends (Fig.23). Terminal cleft U-shaped, wide, 12 in length, width between setae *ps1* situated on margins of the cleft 27, distance between setae *h3* 47. Setae *h3* lanceolate, with acute apices, 50 in length, 7.5-8 in width.

Epimerites I fused Y-likely, sternum connected with central part of epimerites II by thin transverse sclerotized bands. Epimerites I, II with very narrow sclerotized areas. Coxal fields III closed; coxal fields IV with large sclerotized lateral areas, angular extension of these areas fused at tips directed to midline and form an arch surrounding genital apparatus from anterior and lateral sides (Fig. 24). Genital arch 40 in length, 36 in width, basal sclerite of genital apparatus small crescent-shaped; aedeagus straight, 68 in length, extending beyond genital setae *g*, genital acetabulae



Figs 23-25. *Montesauria dolichodectina* n. sp. Male: dorsal view (23), ventral view (24), tarsus IV, dorsal view (25).

posterior to genital arch. Genital shield paired, not encompassing bases of setae *g*. Anal discs 18 in diameter, corolla with indentations. Opisthoventral shields long, with angle-like extension on inner margin; setae *ps3* situated on these extensions, at midlevel of anal discs. Distance between ventral setae: *3a-4a* 49, *4a-g* 46, *g-ps3* 55, *ps3-ps3* 58. Tarsus IV 26 in length, with apical claw-like process (Fig. 25).

FEMALE (paratype). Length of idiosoma excluding terminal appendages 505, width 162

(idiosomal size in other 16 paratypes 498-508 x 148-160). Prodorsal shield: length along median line 126, width of posterior part 102, with lateral margins entire, with convex posterior margin, surface uniformly dotted. Setae *se* separated by 57. Humeral shields absent. Setae *c2* dorsal, on striated tegument. Setae *c3* lanceolate, 25 in length, 6.5 in width. Hysteronotal shield separated into anterior and lobar parts by narrow band of soft tegument. Anterior hysteronotal shield: anterior margin slightly concave, greatest length

275, width at anterior margin 121, surface uniformly dotted, with little pit-like lacunae in posterior one third (Fig. 29). Length of lobar region excluding terminal appendages 81, width at level of setae *h2* 96. Terminal cleft narrow, with almost parallel margins, 52 in length, 10 in width. Setae *f2* present. Setae *h1* on lobar shield, separated by 44. Setae *h2* spindle-like, 52 in length, 8.5 in width. Setae *h3* 17 in length, about 1/5 of terminal appendages. Setae *ps1* situated dorsally.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II without sclerotized areas. Translobar apodemes of opisthosomal lobes present. Head of spermatheca weakly sclerotized; proximal one quarter of primary spermatheca enlarged and consist of basal fragment with heavy sclerotized wall (about 10-12 in length) and ampuliform part; all enlarged part verrucate, rest part of the spermatheca smooth. (Fig. 30).

DIFFERENTIAL DIAGNOSIS. The new species is most related to *Montesauria amblycerca* (GAUD et MOUCHET, 1959) described from *Chloropeta natalensis batesi* SHARPE in Cameroon (GAUD & MOUCHET, 1959) by the structure of coxal fields I-III in males and primary spermatheca in females. The males of *M. dolichodectina* differ from *M. amblycerca* by having the epimerites IVa fused into a large arch surrounding genital apparatus (Fig. 24) and terminal cleft being approximately equal in length and width; the females are distinguished by the relatively short secondary spermathecas, which are slightly longer than the heavy sclerotized part of primary spermatheca (Fig. 30). In the males of *M. amblycerca*, the epimerites IVa are not fused into arch and the terminal cleft is 2.5-3 times longer than wider; in the females, the secondary spermathecas are longer than all enlarged part of the primary spermatheca.

REMARK. It is worthy of note that the structure of coxal fields I-IV in males of *M. dolichodectina* and *M. amblycerca* is very similar to that in the genus *Dolichodectes* PARK et ATYEO, 1971 (see below), particularly in *Dolichodectes edwardsi* (TROUSSERT, 1885), rather than in most *Montesauria* species, that may reflect their real affinity with *Dolichodectes*.

ETYMOLOGY. The species name derives from the feather mite genus *Dolichodectes*, to point out certain general morphological similarity to this genus.

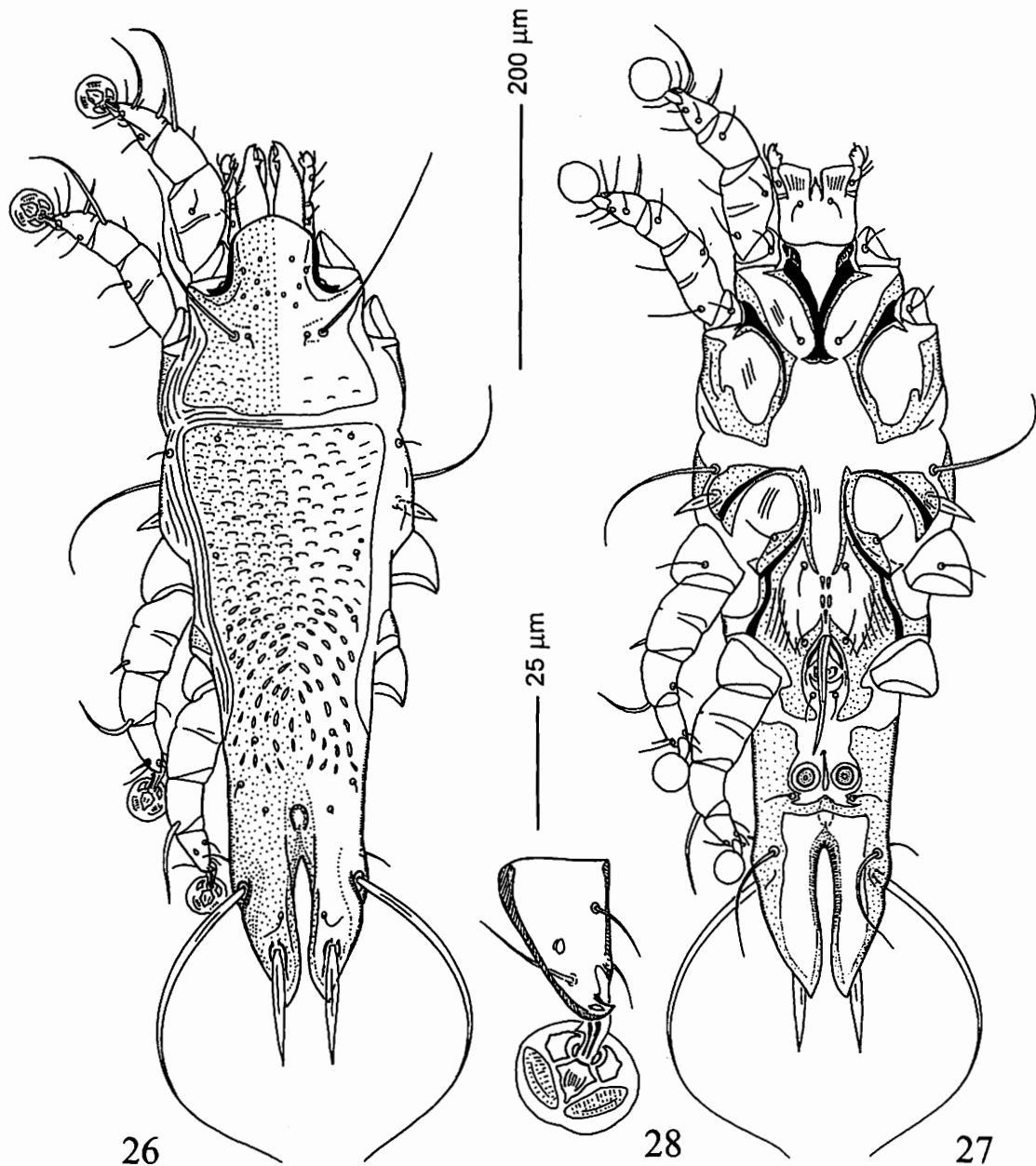
Genus *Dolichodectes* PARK et ATYEO, 1971

The genus *Dolichodectes* formerly included 5 species known from some species of Sylviidae and Muscipidae in Europe and Africa (PARK & ATYEO, 1971). Most clear diagnostic features separating this genus from *Montesauria* are based on the male characters. The males are characterised by having very long opisthosomal lobes (3-4 times longer than wider), and the setae *ps3* situated distinctly posterior to anal discs and moved to median line (Fig. 27), while the females of this genus are indiscernible from those of *Montesauria*. It is reasonable to suspect that this genus is heterogeneous, because these features of males could develop convergently due to the general elongation of the body. Additional facts causing doubts in a monophyly of *Dolichodectes* are associations of its species with different families of passerines. The type species, *Dolichodectes edwardsi* (TROUSSERT, 1885), is associated with European warblers of the genera *Acrocephalus* NAUMANN et NAUMANN, 1811 and *Phylloscopus* BOIE 1826 (Sylviidae), other four formerly known species were found on various African flycatchers (Muscipidae) and a new species described below was collected from a host of the family Turdidae.

Dolichodectes myrmecocichlae MIRONOV et FAIN sp. n. (Figs 26-28)

TYPE MATERIAL. Male holotype, 2 female paratypes from the Sooty Chat *Myrmecocichla nigra* (VIELLOT, 1818) (Turdidae), Astrida, Rwanda, 28.XII.1955, coll. A. FAIN; 2 female paratypes from the same host species, Remera, Rwanda, 9.X.1955, coll. A. FAIN. Holotype, paratypes (2 females) - MRAC, other paratypes - ZISP.

MALE (holotype). Length of idiosoma 625, width 200. Prodorsal shield: length along median line 161, width of posterior part 151, lateral margins entire, posterior margin slightly convex, surface with little ovate lacunae in anterior part. Setae *se* separated by 71. Humeral shields small, situated ventral. Setae *c2* situated dorsal, on soft tegument. Subhumeral setae *c3* lanceolate, 32 in length, 9 in width. Hysteronotal shield: greatest length 445, width of anterior part 166, anterior margin straight, anterior two third of the shield with narrow ovate lacunae arranged in transverse rows (Fig. 26). Opisthosomal lobes well expressed, 3 times longer than wider, with acute

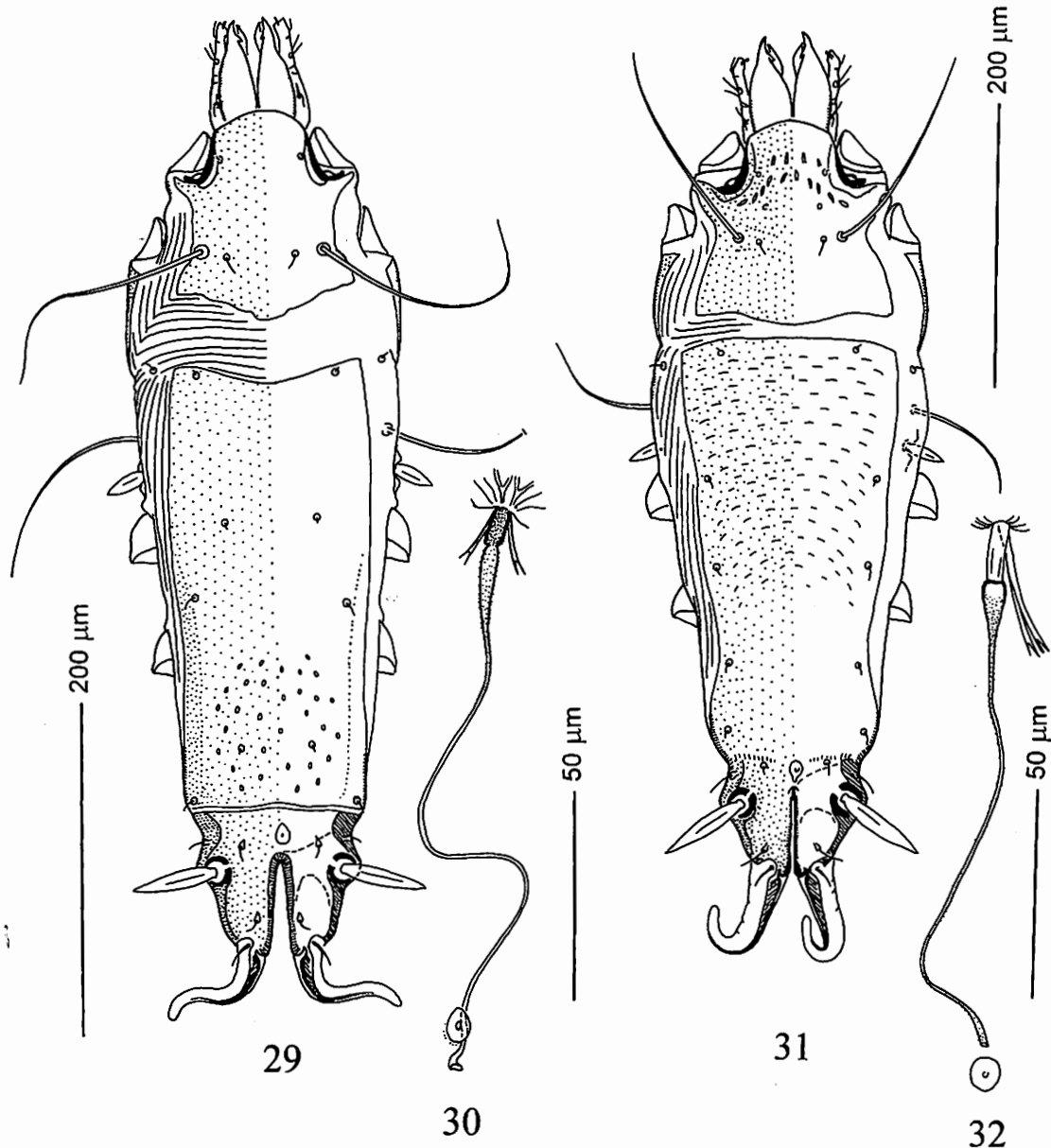


Figs 26-28. *Dolichodectes myrmecocichlae* n. sp. Male: dorsal view (26), ventral view (27), tarsus IV, dorsal view (28).

apices. Terminal cleft narrow, less than one third of lobar width, length 32, greatest width at level of setae *h2* 9. Setae *h3* lanceolate, with acute apices, 80-83 in length, 7.5-8 in width. Setae *ps1* at midlevel of opisthosomal lobes, near their inner margins.

Epimerites I fused Y-likely, posterior end of sternum lateral acute extensions almost touching with centres of epimerites II. Epimerites I, II with very narrow sclerotized areas. Coxal fields II, III closed. Central part of epimerites IIIa with narrow sclerotized extensions directed backward and to median line. Coxal field IV with large sclerotized

areas, genital apodemes fused with these areas and almost completely surround base of genital apparatus (Fig. 27). Genital arch 28 in length, 18 in width; basal sclerite of genital apparatus small, crescent-shaped; aedeagus straight, 93 in length, almost extending to anal discs, genital acetabulae invisible. Genital setae *g* off genital apodemes. Anal discs 20 in diameter, corolla without indentations. Opisthoventral shields long, enlarged in anterior part, connected by transverse band (transventral sclerite) posterior to anal discs. Setae *ps3* on inner margins of opisthoventral shields slightly posterior to anal discs. Distance



Figs. 29-32. *Montesauria dolichodectina* n. sp., female: dorsal view (29), primary and secondary spermaducts (30). *Dolichodectes myrmecocichlae* n. sp., female: dorsal view (31), primary and secondary spermaducts (32).

between ventral setae: *3a-4a* 62, *4a-g* 43, *g-ps3* 83, *ps3-ps3* 47. Tarsus IV 33 in length, with apical claw-like process (Fig. 28).

FEMALE (paratype). Length of idiosoma excluding terminal appendages 540, width 200 (idiosomal size in 3 paratypes 545-558 x 195-205). Prodorsal shield as in the male, length along median line 114, width of posterior part 109, posterior margin slightly convex in median part, anterior part of the shield with little narrow lacunae. Setae *se* separated by 72. Humeral shields absent. Setae *c2* dorsal, on striated tegument. Setae *c3* lanceolate, 26 in length, 9 in width. Hysteronotal shield not separated into anterior and lobar parts; anterior margin slightly

convex, total length of the shield 295, width at anterior margin 155, surface of anterior part with numerous dash-like lacunae arranged in transverse rows (Fig. 31). Length of lobar region excluding terminal appendages about 85, width at level of setae *h2* 63. Terminal cleft narrow, almost slit-like, 63 in length, 5 in width. Setae *f2* present. Setae *h1* separated by 44. Setae *h2* spindle-like, 64-68 in length, 10 in width. Setae *h3* 17 in length, about 1/5 of terminal appendages. Setae *ps1* situated dorsally.

Epimerites I fused Y-likely, sternum not connected with epimerites II. Epimerites I, II with narrow sclerotized areas. Translobar apodemes of opisthosomal lobes present. Head of spermatheca

not sclerotized; primary spermaduct near the entering into spermatheca with weakly sclerotized smooth enlargement about 15 in length and with finely verrucate ampuliform enlargement; rest part of this spermaduct verrucate (Fig. 32).

DIFFERENTIAL DIAGNOSIS. The new species is very similar to *Dolichodectes edwardsi* (TROUËSSART, 1885), described from *Acrocephalus aridinceus* and known from European warblers of the genera *Acrocephalus* and *Phylloscopus* (MIRONOV, 1996b), by having the opisthosomal lobes without lateral extensions and closed coxal fields III in males (Figs 26, 27). The males of *D. myrmecocichlae* differ from that species by the structure of genital apodemes, which are not fused to each other both at anterior and posterior ends, by having numerous little ovate lacunae in the hysteronotal shield and the genital setae *g* situated on soft tegiment; the females are distinguished by having little ovate lacunae in anterior part of prodorsal shield and a convex anterior margin of the hysteronotal shield (Fig. 31). In the males of *D. edwardsi*, the anterior part of hysteronotal shield has numerous transverse striations, the genital apodemes, sclerotized areas of coxal fields IV and genital shield form a complete sclerotized ring around the genital apparatus, and the setae *g* are disposed on the genital shield; in the females, the prodorsal shield has no any lacunae, the hysteronotal shield has a distinctly concave anterior margin.

Acknowledgement

The study was partly supported by Russian Foundation for Basic Researches (Grant 03-04-49072).

References

- BAKER E.W. & WHARTON G.W., 1952. - *An introduction to Acarology*. The MacMillan Company, New York. 465 pp.
- BANKS N., 1909. - New Canadian mites. *Proceedings of the Entomological Society of Washington*, 11: 133-143
- BERLA H.F., 1958. - Analgesidae neotropicais. I. Duas novas espécies de *Pterodectes* Robin, 1868 (Acarina-Proctophyllodidae) coletadas em Fringillidae, Aves, Passeriformes. *Boletim do Museu nacional de Rio de Janeiro, n.s., Zoologia*, 186: 1-6.
- BERLA H.F., 1960. - Analgesoidea neotropicais. VIII. Acarinos plumícolas parasitas de aves do Brasil. *Revista brasileira de biologia*, 20: 149-153.
- DABERT J. & MIRONOV S.V., 1999. - Phylogeny and evolution of feather mites (Astigmata). *Experimental and Applied Acarology*, 23 (6) : 437-454
- GAUD J., 1952. - Sarcoptides plumicoles des oiseaux de Madagascar. *Mémoires de l'Institut scientifique de Madagascar, Sér. A*, 7: 81-107.
- GAUD J., 1953. - Sarcoptides plumicoles des oiseaux d'Afrique occidentale et centrale. *Annales de Parasitologie humaine et comparée*, 28 : 193-226.
- GAUD J. 1957. - Acariens plumicoles (Analgesoidea) parasites des oiseaux du Maroc. I. Proctophyllodidae. *Bulletin de la Société de Sciences naturelles et physiques du Maroc*, 37 : 105-136.
- GAUD J. 1964. - Mission de Zoologie médicale au Maniema (Congo, Léopoldville) (P.L.G. Benoit, 1959). 8. Acariens plumicoles (Analgesoidea). *Annales du Musée royal de l'Afrique centrale, Sér. in-8, Sciences zoologiques*, 136: 119-132.
- GAUD J., 1968. - Sarcoptiformes plumicoles (Analgesoidea) parasites d'oiseaux de l'île Rennell. *The Natural History of Rennell Island, British Solomon Islands*, 5: 121-151.
- GAUD J & ATYEO W.T., 1996. - Feather mites of the World (Acarina, Astigmata): the supraspecific taxa. *Annales Musee Royal de l'Afrique Centrale, Sciences Zoologiques*, 277, Pt. 1, 193 pp.; Pt. 2. 436 pp.
- GAUD J. & MOUCHET J., 1957. Acariens plumicoles (Analgesoidea) des oiseaux du Cameroun. I. Proctophyllodidae. *Annales de parasitologie humaine et comparée*, 32: 491-546.
- GAUD J. & TILL W.M., 1961. - Suborder Sarcoptiformes, pp. 180-352. - In: Zumpt, F. (Ed.). *The arthropod parasites of vertebrates in Africa south of the Sahara (Ethiopian Region). Publications of the South African Institute of Medical Research, Johannesburg*, 9 (1), 457 pp.
- HOWARD R. & MOORE A.A., 1991. - *A complete Check-list of the Birds of the World. Second Edition*. Academic Press, London, 732 pp.
- MIRONOV S.V., 1987. - Morphological adaptations of feather mites to different types of plumage and skin of birds. *Parazitologicheskii Sbornik, Zoologicheskii Institut AN SSSR, Leningrad*, 34 : 114-132 [In Russian]
- MIRONOV S.V., 1996a. - A new genus of the feather mite subfamily Pterodectinae (Analgesoidea: Proctophyllodidae). *Parazitologiya*, 30 (4) : 398-403. [In Russian]
- MIRONOV S.V., 1996b. - Feather mites of the passerines in the North-West of Russia. *Parazitologiya*, 30 (6) : 521-539. [In Russian].
- MIRONOV S.V. & KOPIJ G., 1996a. - New feather mite species (Acarina: Analgesoidea) from some starlings (Passeriformes: Sturnidae) of South Africa. *Journal of African Zoology*, 110: 257-269.
- MIRONOV S.V. & KOPIJ G., 1996b. - Three new species of the feather mite family Proctophyllodidae

- (Acarina:Analgoidea) from some South African passerine birds (Aves: Passeriformes). *Acarina, Russian Journal of Acarology*, 4 : 27-33.
- MIRONOV S.V. & KOPIJ G., 1997. - New feather mites of the subfamily Pterodectinae (Astigmata: Analgoidea) from some passerines (Aves: Passeriformes) of South Africa. *Journal of African Zoology*, 111 : 449-463.
- PARK C.K. & ATYEO W.T., 1973a. - The pterodectine feather mites of hummingbirds: The genera *Syntomodectes* Park and Atyeo and *Sclerodectes*, new genus. *Journal of the Georgia Entomological Society*, 8 : 39-51.
- PARK C.K. & ATYEO W.T., 1973b. - The pterodectine feather mites of hummingbirds: The genus *Toxerodectes* Park and Atyeo (the *hastifolia* group). - *Journal of the Georgia Entomological Society*, 8: 221-233.
- PARK C.K. & ATYEO W.T., 1974a. - The pterodectine feather mites of hummingbirds: The genus *Toxerodectes* Park and Atyeo (the *lecroyae* and *gladiger* groups). *Journal of the Georgia Entomological Society*, 9: 18-32.
- PARK C.K. & ATYEO W.T., 1974b. - The pterodectine feather mites of hummingbirds: The genus *Trochilodectes* Park and Atyeo. *Journal of the Georgia Entomological Society*, 9: 156-173.
- PARK C.K. & ATYEO W.T., 1975. - The pterodectine feather mites of hummingbirds: The genus *Xynonodectes* Park and Atyeo. *Journal of the Georgia Entomological Society*, 10: 128-144.
- SUGIMOTO M., 1940. - A list of the Formosan Acarina with references. Part I: Families Tyroglyphidae and Analgesidae. - *Transactions of the Natural History Society of Formosa*, 30: 248-258.
- TILL W.M., 1954. - Five new feather mites of the genus *Pterodectes* (Acarina: Analgesidae). *Moçambique*, 79 : 85-100.
- TILL W.M., 1957. - Two new *Pterodectes* species from passeriform birds (Acarina: Proctophylloidae). *Journal of the Entomological Society of Southern Africa*, 20: 450-453.
- TROUSSERT E.L., 1885. - Note sur le classification des Analgésiens et diagnoses d'espèces et de genres nouveaux. *Bulletin de la Société d'études scientifiques d'Angers*, 14 : 46-89.
- TROUSSERT E.L., 1899. - Diagnoses préliminaires d'espèces nouvelles d'Acariens plumicoles. Additions et corrections à la sous-famille des Analgésinés. *Bulletin de la Société d'études scientifiques d'Angers*, 28 : 1-62.
- VITZTHUM H., 1929. - 5. Ordnung: Milben, Acari. *Die Tierwelt Mitteleuropas*, 3 : 1-112.

Bulletin S.R.B.E./K.B.V.E., 139 (2003) : 91-93

**Notes sur les Asilidae paléarctiques (Diptera Brachycera) (20).
Concordance entre systématique et répartition géographique dans un
groupe d'Asilidae. Désignation du lectotype de
Machiremisca periscelis (MACQUART in LUCAS, 1849) comb. n.**

par G. TOMASOVIC¹, J. DILS² et J.M. MALDÈS³

¹ Faculté des Sciences Agronomiques, Zoologie générale et appliquée, Passage des Déportés, 2, B-5030 Gembloux.

² Rue Krekelberg, 149, B-2946 Hoevenen.

³ CIRAD-Amis, TA 40-42, avenue Agropolis, F-34398, Montpellier cedex 5.

Summary

Machiremisca decipiens (WIEDEMANN in MEIGEN, 1820), comb. n. and *Machiremisca periscelis* (MACQUART in LUCAS, 1849) comb. n. are studied and an illustration of their genitalia is given for the first time. The lectotype of *Machiremisca periscelis* (MACQUART in LUCAS, 1849) is designated and its presence in Sardinia is confirmed.

Résumé

Une étude de deux espèces, *Machiremisca decipiens* (WIEDEMANN in MEIGEN, 1820), comb. n. et *Machiremisca periscelis* (MACQUART in LUCAS, 1849) comb. n. est réalisée et leurs genitalia sont illustrés pour la première fois. Le lectotype de *Machiremisca periscelis* (MACQUART in LUCAS, 1849) est désigné et sa présence en Sardaigne est confirmée.