

An annotated checklist of amblyceran chewing lice (Phthiraptera: Amblycera) from wild passerine birds (Passeriformes) in South Africa

A. Halajian^{1*}, O. Sychra², W. Luus-Powell¹, D. Engelbrecht¹ & I. Papousek²

¹Department of Biodiversity (Zoology), University of Limpopo, Turfloop Campus, Private Bag X1106, Sovenga, Polokwane, 0727 South Africa

²Department of Biology and Wildlife Diseases, Faculty of Veterinary Hygiene and Ecology, University of Veterinary and Pharmaceutical Sciences, Palackeho tr. 1/3, 612 42 Brno, Czech Republic

A total of 778 individuals of 150 bird species were examined: 123 (16 %) individuals of 40 non-passerine bird species belonging to 16 orders; and 655 (84 %) individuals of 110 passerine bird species (Passeriformes) belonging to 28 families. A total of 2041 chewing lice belonging to nine genera were found on passerine birds. Amblyceran lice were less frequent than ischnoceran lice (32.8 % vs 67.2 %, $n = 2041$). A total of 670 amblyceran lice (mean intensity = 5.0) were found on 133 passerine birds (20.3 %) of 43 species. The dominant amblyceran genus was *Menacanthus* with a dominance of 59.3 %, while the other two genera were less frequent: *Myrsidea* (36.9 %) and *Ricinus* (3.9 %). A total of 50 amblyceran louse–host associations were recorded. An equal overall sex ratio as well as age ratio was found among the collected lice. An updated checklist of the species of amblyceran lice from passerine birds from South Africa is included and discussed. Two families, five genera and 32 species of lice are listed from 42 passerine bird hosts.

Key words: chewing lice, *Colpocephalum*, *Machaerilaemus*, *Menacanthus*, *Myrsidea*, *Ricinus*, Amblycera, Menoponidae, Passeriformes, South Africa, prevalence, sex ratio, checklist.

INTRODUCTION

There are 359 species of Passeriformes in South Africa (Lepage 2013), according to taxonomy in Clements *et al.* (2012), and only 72 (20 %) of them (belonging to 26 families) are known to be hosts for 58 species of amblyceran lice (Price *et al.* 2003). Records of chewing lice from birds in the Afro-tropical Region, including those occurring in South Africa, derive mainly from neighbouring countries or from birds migrating from Europe (Ledger 1980). Therefore, there are only 23 species of amblyceran lice recorded from passerine birds in South Africa (Waterston 1914; Bedford 1919, 1920a,b, 1927, 1930, 1932, 1939; Tendeiro 1958, 1964, 1965; Rheinwald 1968; Tandan & Clay 1971; Price 1975; Ledger 1980; Klockenhoff 1981, 1982, 1984; Klockenhoff & Tendeiro 1989; Price *et al.* 2002; Halajian *et al.* 2012).

Following our previous work (Halajian *et al.* 2012; Sychra *et al.* 2014), we present an updated and annotated checklist of the amblyceran chewing lice found on wild passerine birds in South Africa, including some new data on the species composition, distribution, and notes on parasitological characteristics.

MATERIAL AND METHODS

Specimen collection

We conducted fieldwork from December 2005 to December 2012 at 22 study sites in the Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape and Western Cape provinces of South Africa. For detailed locations and methods of chewing louse collection and study see Halajian *et al.* (2012) and Sychra *et al.* (2014).

Parasitological characteristics

The following parasitological parameters are evaluated in this paper: (1) prevalence as the proportion of the birds infested with lice; (2) mean intensity as number of individuals of a particular louse genus per infested host; (3) mean abundance as number of individuals of a particular louse genus on all examined birds; (4) dominance as number of individuals of a louse genus as a percentage of the total number of lice collected from all examined birds; (5) sex ratio as percentage of males among all adults; (6) age-ratio as percentage of adults among all examined lice (Marshall 1981; Bush *et al.* 1997). For counting parameters (1)–(4)

*Author for correspondence. E-mail: ali_hal572002@yahoo.com

we used all samples of lice collected from passerine birds, despite the fact that some of them are, at present, still determined only to generic level (Table 1). To obtain the latter two parasitological characteristics we used records of 17 species of chewing lice that were identified from a total of 54 birds of 21 species collected during the period December 2005 to March 2012 (Table 2).

RESULTS

A total of 778 individuals of 150 bird species was examined: 123 (16 %) individuals of 40 non-passerine bird species belonging to the orders Accipitriformes, Apodiformes, Caprimulgiformes, Charadriiformes, Coliiformes, Columbiformes, Coraciiformes, Cuculiformes, Falconiformes, Galliformes, Gruiformes, Pelecaniformes, Piciformes, Psittaciformes, Strigiformes and Suliformes; and 655 (84 %) individuals of 110 passerine bird species (Passeriformes) belonging to 28 families (Alaudidae, Calyptomenidae, Cisticolidae, Dicruridae, Emberizidae, Estrildidae, Fringillidae, Hirundinidae, Laniidae, Macrosphenidae, Malaconotidae, Monarchidae, Motacillidae, Muscicapidae, Nectariniidae, Nicatoridae, Paridae, Passeridae, Phylloscopidae, Platysteiridae, Ploceidae, Prionopidae, Pycnonotidae, Sturnidae, Sylviidae, Turdidae, Viduidae and Zosteropidae).

Considering specimens of lice from passerine birds only, a total of 2041 lice belonging to nine genera (Amblycera: *Menacanthus*, *Myrsidea* and *Ricinus*; Ischnocera: *Brueelia*, *Penenirmus*, *Philopterus*, *Philopteroides*, *Picicola* and *Sturnidoecus*) were found. Amblyceran lice were less frequent than ischnoceran lice (32.8 % vs 67.2 %, respectively, $n = 2041$).

Considering specimens of amblyceran genera only, the topic of this paper, a total of 670 lice (mean intensity = 5.0) were found on 133 birds (20.3 %) representing 43 species. The dominant genus was *Menacanthus* with a dominance of 59.3 %, while the other two genera were less frequent: *Myrsidea* (36.9 %) and *Ricinus* (3.9 %, $n = 670$). If ischnoceran lice are included ($n = 2041$), the following dominances were found: *Menacanthus* (19.5 %), *Myrsidea* (12.1 %), and *Ricinus* (1.3 %).

A total of 50 amblyceran louse–host associations were recorded. Almost all individual birds were infested with only one amblyceran louse species. Two species of lice – one each of the genera *Menacanthus* and *Myrsidea* – were only found on a

specimen of *Bradornis mariquensis* and on a *Phyllastephus terrestris*. These co-occurrences with ischnoceran lice were recorded: 23 birds were infested by species of *Brueelia* and *Menacanthus*, 20 birds with species of *Brueelia* and *Myrsidea*, one bird carried species of *Menacanthus* and *Philopterus*, and five birds harboured species of *Brueelia*, *Menacanthus* and *Philopterus*. In 88.7 % of birds ($n = 133$), the rate of infestation was very light (1–10 lice per bird). An infestation rate of 11–26 lice was found on 14 birds, and the highest number of lice (35 specimens) was found on one *Dryoscopus cubla*. An equal overall sex ratio (male:female = 1:1.2; $n = 117$; $\chi^2 = 0.86$) and immature-biased age ratio (adults : immatures = 1:1.3; $n = 268$; $\chi^2 = 4.31$) were recorded. Total prevalences, mean intensities, mean abundances, sex ratios and adult nymph ratios are given in Table 3.

DISCUSSION

There is a limited number of quantitative surveys of chewing lice from the Afrotropical Region. Our results are comparable with Sychra *et al.* (2010a,b,d) and Najer *et al.* (2012) who deloused wild passerine birds in Senegal. These authors examined 463 birds of 46 species. We found a similar proportion of amblyceran lice versus ischnoceran lice on birds from South Africa to that recorded by those authors on birds from Senegal. In both cases, amblyceran lice were less dominant, with 32.8 % in South Africa and 19 % in Senegal (Sychra *et al.* 2010a,b; Najer *et al.* 2012). Similar results were also reported by Clayton *et al.* (1992) for birds in Peru. On the other hand, Sychra *et al.* (2010c) found amblyceran lice more frequent (dominance 64.2 %) than ischnoceran lice for wild passerine birds in Costa Rica.

Three genera recorded in this study – *Menacanthus*, *Myrsidea* and *Ricinus* – belong to the most common genera of chewing lice recorded from passerine birds (Price *et al.* 2003). Lice of the genus *Ricinus* are usually found with low prevalence and mean intensity (Rheinwald 1968). In the case of *Menacanthus* and *Myrsidea*, it appears that the latter is more frequent in tropical areas. We found a similar prevalence of *Myrsidea* in South Africa as Sychra *et al.* (2010a,b) and Najer *et al.* (2012) reported for this genus in Senegal (8.5 % vs 10.7 %). However, these prevalences are much lower than those reported by Sychra *et al.* (2010c) from Costa Rica (64.3 %). Conversely, lice of the genus *Menacanthus*

Table 1. List of passerine birds and their lice collected in South Africa.

Passerine bird species (family)	P ¹	E ²	Louse genus
<i>Calendulauda sabota</i> (Alaudidae)	1	5	<i>Menacanthus</i>
<i>Spizocorys sclateri</i> (Alaudidae)	1	1	<i>Menacanthus</i>
<i>Camaroptera brachyura</i> (Cisticolidae)	1	8	<i>Menacanthus</i>
<i>Cisticola aridulus</i> (Cisticolidae)	1	1	<i>Myrsidea</i>
<i>Cisticola chiniana</i> (Cisticolidae)	3	12	<i>Menacanthus</i>
<i>Prinia flavicans</i> (Cisticolidae)	1	6	<i>Menacanthus</i> ³
<i>Emberiza impetuani</i> (Emberizidae)	1	9	<i>Ricinus</i>
<i>Amadina fasciata</i> (Estrildidae)	1	1	<i>Myrsidea</i>
<i>Coccyzygia melanotis</i> (Estrildidae)	1	2	<i>Myrsidea</i>
<i>Estrilda astrild</i> (Estrildidae)	2	9	<i>Myrsidea</i> ³
<i>Hypargos margaritatus</i> (Estrildidae)	2	11	<i>Menacanthus</i>
<i>Serinus albogularis</i> (Fringillidae)	7	18	<i>Menacanthus</i> , <i>Myrsidea</i> , <i>Ricinus</i>
<i>Serinus flaviventris</i> (Fringillidae)	3	8	<i>Menacanthus</i>
<i>Cecropis abyssinica</i> (Hirundinidae)	1	2	<i>Myrsidea</i> ³
<i>Lanius collaris</i> (Laniidae)	2	3	<i>Menacanthus</i> ³
<i>Dryoscopus cubla</i> (Malaconotidae)	2	7	<i>Menacanthus</i> ³
<i>Anthus cinnamomeus</i> (Motacillidae)	1	3	<i>Menacanthus</i>
<i>Bradornis mariquensis</i> (Muscicapidae)	5	6	<i>Menacanthus</i> ³ , <i>Myrsidea</i> ³
<i>Cercotrichas leucophrys</i> (Muscicapidae)	2	4	<i>Menacanthus</i>
<i>Cercotrichas quadrivirgata</i> (Muscicapidae)	2	9	<i>Menacanthus</i>
<i>Cossypha caffra</i> (Muscicapidae)	3	7	<i>Menacanthus</i> , <i>Ricinus</i>
<i>Cossypha dichroa</i> (Muscicapidae)	2	6	<i>Ricinus</i> ³
<i>Cossypha heuglini</i> (Muscicapidae)	1	3	<i>Ricinus</i> ³
<i>Pogonochila stellata</i> (Muscicapidae)	2	4	<i>Myrsidea</i> ³
<i>Passer melanurus</i> (Passeridae)	2	7	<i>Menacanthus</i>
<i>Euplectes orix</i> (Ploceidae)	1	14	<i>Menacanthus</i>
<i>Plocepasser mahali</i> (Ploceidae)	18	31	<i>Menacanthus</i> ³
<i>Ploceus capensis</i> (Ploceidae)	1	17	<i>Myrsidea</i>
<i>Ploceus intermedius</i> (Ploceidae)	1	1	<i>Myrsidea</i> ³
<i>Ploceus velatus</i> (Ploceidae)	7	20	<i>Menacanthus</i> , <i>Myrsidea</i> ³
<i>Quelea quelea</i> (Ploceidae)	6	7	<i>Menacanthus</i> , <i>Myrsidea</i> ³
<i>Sporopipes squamifrons</i> (Ploceidae)	8	16	<i>Myrsidea</i> ³
<i>Prionops plumatus</i> (Prionopidae)	4	4	<i>Menacanthus</i>
<i>Andropadus importunus</i> (Pycnonotidae)	4	10	<i>Menacanthus</i> ³
<i>Chlorocichla flaviventris</i> (Pycnonotidae)	2	17	<i>Menacanthus</i> ³
<i>Phyllastrephus flavostriatus</i> (Pycnonotidae)	3	3	<i>Myrsidea</i> ³
<i>Phyllastrephus terrestris</i> (Pycnonotidae)	14	25	<i>Menacanthus</i> ³ , <i>Myrsidea</i>
<i>Pycnonotus capensis</i> (Pycnonotidae)	4	10	<i>Menacanthus</i>
<i>Parisoma subcaeruleum</i> (Sylviidae)	2	8	<i>Menacanthus</i>
<i>Geokichla gurneyi</i> (Turdidae)	4	4	<i>Myrsidea</i> ³
<i>Turdus libonyanus</i> (Turdidae)	1	4	<i>Myrsidea</i> ³
<i>Turdus smithi</i> (Turdidae)	1	4	<i>Menacanthus</i> ³
<i>Zosterops pallidus</i> (Zosteropidae)	2	23	<i>Menacanthus</i>
Total (43 species of passerine birds)	133	370	

¹Number of birds parasitized.²Number of birds examined.³Detailed data about this louse–host association recorded during the period December 2005 to March 2012 are in Table 2.

Table 2. List of passerine birds and their lice collected during the period December 2005 to March 2012 in South Africa.

Bird species	P ¹	E ²	Amblyceran species	♂	♀	Nymphs	Location ³
Cisticolidae							
<i>Prinia flavicans ortleppi</i> (Tristram, 1869)	1	1	<i>Menacanthus currucae</i> (Schrank, 1776)	2	3	3	Suikerbosrand NR, Gauteng province
Black-chested prinia	0	3		–	–	–	Polokwane Game Reserve, Limpopo province
Estrilidae							
<i>Estrilda astrild astrild</i> (Linnaeus, 1758)	2	9	<i>Myrsidea estrilidae</i> Tendeiro, 1993	0	1	2	Patryskloof farm, Worcester, Western Cape province
Common waxbill							
Hirundinidae							
<i>Cercopis abyssinica</i> (Guérin-Meneville, 1843)	1	1	<i>Myrsidea rustica</i> (Giebel, 1874)	0	2	0	Pullen farm, Mpumalanga province
Lesser striped-swallow	0	1		–	–	–	Hilltop farm, KwaZulu-Natal province
Laniidae							
<i>Lanius collaris collaris</i> Linnaeus, 1766	2	3	<i>Menacanthus camelinus</i> (Nitzsch, 1874)	2	2	2	Windy hill, KwaZulu-Natal province
Common fiscal							
Malacoconidae							
<i>Dryoscopus cubia</i> (Shaw, 1809)	2	7	§ <i>Menacanthus orioii</i> Blagoveshtchensky, 1951	3	3	29	Golwe camp, Limpopo province
Black-backed puffback							
Muscicapidae							
<i>Bradornis mairiquensis mairiquensis</i> A. Smith, 1847	1 ¹	4	<i>Menacanthus</i> sp.	0	0	8	Polokwane Game Reserve, Limpopo province
Marqua flycatcher	3	4	<i>Myrsidea mairiquensis</i> Halajian & Sychra, 2012	2	3	1	Polokwane Game Reserve, Limpopo province
<i>Cossypha dichroa mimica</i> Clancey, 1981	2	5	<i>Ficinus mugimaki</i> (Uchida, 1915)	0	7	2	Woodbush forest, Limpopo province
Chorister robin-chat							
<i>Cossypha heuglini heuglini</i> Hartlaub, 1866	1	3	<i>Ficinus mugimaki</i> (Uchida, 1915)	0	1	0	Schoemandsdal Environmental Education Centre, Limpopo province
White-browed robin-chat							
<i>Pogonocichla stellata stellata</i> (Vieillot, 1818)	1	1	<i>Myrsidea oatleyi</i> Sychra & Halajian ⁵	2	3	0	Vernon Crookes NR, KwaZulu-Natal province
White-starred robin	1	1	<i>Myrsidea oatleyi</i> Sychra & Halajian ⁵	3	3	16	Oribi Gorge NR, KwaZulu-Natal province
Ploceidae							
<i>Plocepasser mahali mahali</i> A. Smith, 1836	8	12	<i>Menacanthus alaudae</i> (Schrank, 1776)	11	5	13	Polokwane Game Reserve, Limpopo province
White-browed sparrow-weaver							
<i>Ploceus intermedius cabanisii</i> (W.K.H. Peters, 1868)	1	1	<i>Myrsidea textoris</i> Klockenhoff, 1984	0	0	1	Polokwane Game Reserve, Limpopo province
Lesser masked weaver							
<i>Ploceus velatus tahatali</i> A. Smith, 1836	3	4	<i>Myrsidea textoris</i> Klockenhoff, 1984	1	0	6	Polokwane Game Reserve, Limpopo province
Southern masked-weaver							
<i>Quelea quelea lathami</i> (A. Smith, 1836)	5	7	<i>Myrsidea queleae</i> Tendeiro, 1964*	4	3	10	De Loskop, Limpopo province
Red-billed quelea							
<i>Sporopipes squamifrons</i> (A. Smith, 1836)	8	13	<i>Myrsidea eisentrauti</i> Klockenhoff, 1982	3	4	6	Polokwane Game Reserve, Limpopo province
Scaly weaver							
Pycnonotidae							
<i>Anuropadus importunus oleagineus</i> W. Peters, 1868	2	6	<i>Menacanthus orioii</i> Blagoveshtchensky, 1951	1	0	2	Golwe camp, Limpopo province
Sombre greenbul							

Continued on p. 766

Table 2 (continued)

Bird species	P ¹	E ²	Amblyceran species	♂	♀	Nymphs	Location ³
<i>Chlorocichla flaviventris occidentalis</i> Sharpe, 1882	1	3	<i>Menacanthus</i> sp.	0	0	1	Glowe camp, Limpopo province
Yellow-bellied greenbul							
<i>Phyllastrephus flavostriatus flavostriatus</i> (Sharpe, 1876)	3	3	<i>Myrsidea gynazae</i> Halajian & Sychra, 2012	6	5	16	Woodbush forest, Limpopo province
Yellow-streaked greenbul							
<i>Phyllastrephus terrestris terrestris</i> Swainson, 1837	1	7	<i>Myrsidea</i> sp.	0	0	1	Golwe camp, Limpopo province
Terrestrial brownbul							
Turdidae							
<i>Geokichla gurneyi disruptans</i> (Clancey, 1955)	4	4	<i>Myrsidea estamii</i> Halajian & Sychra, 2012	13	15	15	Woodbush forest, Limpopo province
Orange ground-thrush							
<i>Turdus libonyanus libonyanus</i> (A. Smith, 1836)	1	2	<i>Myrsidea</i> sp.	0	0	2	Golwe camp, Limpopo province
Kurrichane thrush	0	1		-	-	-	Windy hill, KwaZulu-Natal province
<i>Turdus smithi</i> Bonaparte, 1850	1	4	<i>Menacanthus eurysternus</i> (Burmeister, 1838)	0	4	15	Woodbush forest, Limpopo province
Karoo thrush							

¹Number of birds parasitized.

²Number of birds examined.

³For detailed locations see Sychra *et al.* (2014).

⁴Following species of chewing louse was also found on this particular bird; ⁵ = Sychra *et al.* (2014).

Table 3. Parasitological parameters of chewing lice of the suborder Amblycera collected from passerine birds in South Africa.

	Chewing lice taxa		Total
	<i>Menacanthus</i>	<i>Ricinus</i>	
Prevalence (%) (<i>n</i> = 655)	11.0	1.1	20.3
Mean intensity ± S.E. (range)	5.5 ± 0.7 (1–35)	3.7 ± 1.2 (1–10)	5.0 ± 0.7 (1–35)
Mean abundance	0.61 ± 0.11	0.04 ± 0.02	1.02 ± 0.11
Dominance (%) (<i>n</i> = 452)	59.3	3.9	32.8 ¹
Percentage males	53 (36) ²	47 (72) ²	47 (116) ²
Percentage adults	33 (109) ³	49 (146) ³	44 (265) ³

The prevalence, mean intensity and mean abundance were determined *sensu* Bush *et al.* (1997).

¹Dominance of ischnoceran lice = 67.2 % (*n* = 2041).

²Number of adults for which sex was assessed.

³Number of lice for which age was assessed.

⁴Only eight females and two nymphs were found.

are usually found at a low prevalence in tropical areas: 11.0 % in South Africa, 1.5 % in Senegal (Najer *et al.* 2012) and 1.6 % in Costa Rica (Sychra *et al.* 2010c). It appears that lice of this genus are more frequent in temperate zones, for example, a prevalence of 64.0 % was recorded in Central Europe by Sychra *et al.* (2008). It is interesting that in the same paper Sychra *et al.* (2008) mentioned a prevalence of only 0.5 % for *Myrsidea*. It is important to mention that total prevalence and the mean intensity of the lice can be significantly affected by the number of bird species examined as well as the taxonomic groups these species belong to (see Price *et al.* 2003).

Checklist of lice

Amblyceran lice are listed from passerine birds from South Africa. Records originate from hitherto unreported samples as well as from published reports. To avoid repetition, published reports are identified by numbers in square brackets []. The hosts listed under each louse species are only those recorded from South Africa.

Class Insecta

Order Phthiraptera Haeckel, 1896

Suborder Amblycera Kellogg, 1896

Family Menoponidae Mjöberg, 1910

Genus Colpocephalum Nitzsch, 1818

Colpocephalum fregili Denny, 1842

Reports. [1] Bedford (1927: 745); [2] Bedford (1939: 151); [3] Mey (2013), [4] Price & Beer (1965: 11); [5] Green & Palma (1991: 5); [6] Pilgrim & Palma (1982: 28).

Synonyms. *Allocolpocephalum fregili* (Denny, 1842) [3]; *Colpocephalum semicinctus* Rudow, 1866 [1]; *Colpocephalum subequale* Nitzsch, 1838 [2].

Hosts. *Corvus albicollis* Latham [2]; *C. albus* Statius Müller [1]; *C. capensis* Lichtenstein [2].

Distribution in South Africa. Western Cape province: Lambert's Bay [1].

Other distribution. **Africa:** Cape Verde Islands [4], Egypt [4], Lesotho [2], Mozambique [1], Uganda [2, 4]; **Asia:** 'Arabia' [4], Borneo [4], Celebes [4], Ethiopia [4], India [4], Indonesia [4], Israel [4], Japan [4], Malaya [4], Maldive Islands [4], Myanmar [4], Philippine Islands [4], Thailand [4]; **Australasia:** Tasmania [4, 5], New Zealand [6]; **Europe:** Finland [3], Great Britain [4], Hungary [3], Italy [3], 'Jugoslavia' [4], Poland [3], Romania [3]; **North America:** Mexico [4], U.S.A. [4].

Genus Machaerilaemus Harrison, 1915

Machaerilaemus malleus (Burmeister, 1838)

Reports. [1] Mey (2013); [2] Price *et al.* (2002: 64); [3] Green & Palma (1991: 7).

Hosts. *Cecropis abyssinica* (Guérin-Meneville) [2]; *Petrochelidon spilodera* Sundevall [2].

Distribution in South Africa. no detailed location [2].

Other distribution. **Asia:** Thailand [2]; **Australasia:** Tasmania [3]; **Europe:** Germany [1], Hungary [1]; **North America:** U.S.A. [2].

Machaerilaemus plocei (Bedford, 1920)

Reports. [1] Bedford (1920b: 168); [2] Bedford (1927: 749); [3] Sychra *et al.* (2010a: 17).

Host. *Quelea quelea lathami* (Smith) [1, 2].

Distribution in South Africa. Gauteng province: Onderstepoort, Pretoria [1, 2].

Other distribution. **Africa:** Senegal [3].

Remarks. Although the species was described and reported from 'Waxbill' (Bedford 1920b: 168; 1927: 749) and Bedford (1927: 812) reported this species from *Amadina erythrocephala* Linnaeus, the host given on all the labels of the type specimens is *Quelea sanguinirostris lathami* (see Hopkins 1941: 286). This host is now known as *Quelea quelea lathami*.

Genus Menacanthus Neumann, 1912

Menacanthus alaudae (Schrank, 1776)

Reports. [1] Mey (2013); [2] Price (1977: 210); [3] Palma (1996: 133); [4] Sychra *et al.* (2014).

Host. *Plocepasser mahali mahali* A. Smith [2, 4].

Distribution in South Africa. Limpopo province: Polokwane Game Reserve [4].

Other distribution. **Africa:** Egypt [2], Mozambique [2]; **Asia:** Korea [2], Nepal [2]; **Australasia:** Australia [3]; **Europe:** Finland [1], Great Britain [2], Germany [1], Hungary [1, 2], Italy [1], Romania [1, 2], Spain [1, 2], Ukraine [1]; **North America:** Canada [2], U.S.A. [2].

Remarks. This is the first record of this louse species from South Africa.

Menacanthus camelinus (Nitzsch, 1874)

Reports. [1] Mey (2013); [2] Najer *et al.* (2012: 93); [3] Palma *et al.* (1998: 317); [4] Price (1977: 210); [5] Sychra *et al.* (2014).

Host. *Lanius collaris collaris* Linnaeus [5].

Distribution in South Africa. KwaZulu-Natal province: Windy hill, Wartburg [5].

Other distribution. **Africa:** Egypt [4], Senegal [2]; **Asia:** India [4], Israel [4], Korea [3], Nepal [4],

Philippine Islands [4], Taiwan [4], Thailand [4]; **Europe:** Finland [1], Germany [1], Great Britain [4], Hungary [1], Italy [1], Poland [1], Romania [1, 4], Spain [1, 4], Ukraine [1]; **North America:** Canada [4], Mexico [4], U.S.A. [4].

Remarks. This is the first record of this louse species from South Africa.

Menacanthus crateropus (Bedford, 1920)

Reports. [1] Bedford (1920a: 719); [2] Bedford (1927: 748).

Hosts. *Turdoides bicolor* (Jardine) [1, 2], *T. jardineii* (A. Smith) [1, 2].

Distribution in South Africa. North West province: Rustenburg district [1, 2].

Remarks. In his review of *Menacanthus* from passerine birds, Price (1977: 218) reported this species as *nomen dubium*, but Price *et al.* (2003: 119), in their world checklist of chewing lice mentioned it as a valid species. At present this louse species is only known from South Africa.

Menacanthus curuccae (Schrank, 1776)

Reports. [1] Mey (2013); [2] Najer *et al.* (2012: 93). [3] Price (1977: 215); [4] Sychra *et al.* (2014).

Host. *Prinia flavicans ortleppi* (Tristram, 1869) [1].

Distribution in South Africa. Gauteng province: Suikerbosrand Nature Reserve, Aloe forest [4].

Other distribution. **Africa:** Egypt [3], Senegal [2]; **Asia:** Malaya [3]; **Europe:** Finland [1], Germany [1], Great Britain [3], Hungary [1], Italy [1], Poland [1], Spain [1, 3], Ukraine [1]; **North America:** Canada [3], U.S.A. [3].

Remarks. This is the first record of this louse species from South Africa.

Menacanthus eurysternus (Burmeister, 1838)

Reports. [1] Bedford (1919: 719); [2] Bedford (1927: 748); [3] Bedford (1932: 379); [4] Bedford (1939: 128); [5] Mey (2013); [6] Palma *et al.* (1998: 317); [7] Price (1975: 621); [8] Green & Palma (1991: 7); [9] this paper.

Synonyms. *Menacanthus spiniferus* (Piaget, 1885) [3, 4]; *Menacanthus spinosum* (Piaget, 1880) [1, 2].

Host. *Acridotheres tristis* (Linnaeus) [3]; *Lamprolornis nitens* (Linnaeus) (= *Lamprocolius phoenicopterus* [1]) [1, 2, 6]; *Melaenornis pammelaina ater* (Sundevall) [2]; *Pycnonotus barbatus layardi* (J.H. Gurney) (= *Loidorosa layardi* [2]) [1, 2]; *Serinus canaria* (Linnaeus) – captive bird (= Norwich canary [3]) [3]; *Serinus mozambicus* (Stadius Müller) [4]; *Turdus smithi* Bonaparte [9].

Distribution in South Africa. KwaZulu-Natal

province: Kwambonambi [4], Ntambanana [2], Pietermaritzburg [1, 2, 3]; North West province: Jericho [1, 2]; Western Cape province: Muisboskerm BK, Lambert's Bay [9].

Other distribution. **Africa:** Botswana [7], Cameroon [7], Egypt [7], Kenya [7], Madagascar [7], Mozambique [5, 6], Senegal [7], Somaliland [7], Uganda [4], Zimbabwe [7]; **Asia:** Burma [7], Celebes [7], Hong Kong [7], India [7], Indonesia [7], Japan [7], Java [7], Korea [7], Malaysia [7], Marianas Asia [7], Nepal [7], New Britain [7], Palestine [7], Philippine Islands [7], Sarawak [7], Singapore [7], Taiwan [7], Thailand [7]; **Australasia:** Australia [7], Tasmania [7, 8]; New Zealand [7], Papua [6], **Europe:** Estonia [7], Finland [5], Germany [5], Great Britain [7], Hungary [5], Italy [5], 'Jugoslavia' [7], Poland [5], Romania [5], Spain [5], Ukraine [5]; **North America:** Canada [7], Mexico [6], U.S.A. [7]; **Central and South America:** Bolivia [7], Cayman Islands [7], Colombia [7], Costa Rica [7], Cuba [7], Peru [7], Venezuela [7].

Remarks. Contrary to Bedford (1927, 1939), Price *et al.* (2003) did not include *Melaenornis pammelaina* and *Serinus mozambicus* as hosts of this louse.

Menacanthus gonophaeus (Burmeister, 1838)

Reports. [1] Bedford (1930: 157); [2] Bedford (1939: 128); [3] Mey (2013); [4] Palma *et al.* (1998: 318); [5] Price (1977: 208); [6] Green & Palma (1991: 7).

Synonym. *Menacanthus corvi* Bedford, 1930 [1].

Hosts. *Corvus albus* Stadius Müller [1]; *C. capensis* Lichtenstein [1].

Distribution in South Africa. Eastern Cape province: Aliwal North [1]; Gauteng province: Onderstepoort [1].

Other distribution. **Africa.** Liberia [5], Morocco [5], Mozambique [5], Uganda [2]; **Asia:** Nepal [5], Taiwan [5], Thailand [5]; **Australasia:** Australia [5], Tasmania [6]; **Europe:** Finland [3], Germany [3], Great Britain [5], Hungary [3], Italy [3], Poland [3], Romania [3], Spain [3], Ukraine [3]; **North America:** U.S.A. [4].

Menacanthus oriolii Blagoveshtchensky, 1951

Reports. [1] Palma *et al.* (1998: 318); [2] Price (1977: 217); [3] Sychra *et al.* (2014). [4] this paper (Table 2).

Hosts. *Andropadus importunus oleaginus* W. Peters [3]; *Dryoscopus cubla* (Shaw) [4].

Distribution in South Africa. Limpopo province: Golwe camp [3, 4].

Other distribution. **Africa:** Mozambique [1]; **Asia:** Borneo [2], Malaya [1], Philippine Islands [2], Taiwan [2], Thailand [2].

Remarks. This is the first record of this louse species from South Africa.

Note. Many samples were identified to generic level only (as *Menacanthus* sp.) because they are represented by nymphs only or because we have not had the literature and/or comparable material to identify the species they belong to. Their hosts are: *Anthus cinnamomeus rufuloides* Roberts, *Bradornis mariquensis mariquensis* A. Smith, *Calendulauda sabota* A. Smith, *Camaroptera brachyura* (Vieillot), *Cercotrichas leucophrys* (Vieillot), *Cercotrichas quadrivirgata* (Reichenow), *Chlorocichla flaviventris occidentalis* Sharpe, *Cisticola chiniana* (A. Smith), *Cossypha caffra* (Linnaeus), *Euplectes orix* (Linnaeus), *Hypargos margaritatus* (Strickland), *Parisoma subcaeruleum* (Vieillot), *Passer melanurus* (Statius Müller), *Ploceus velatus* Vieillot, *Prionops plumatus* (Shaw), *Phyllastrephus terrestris* Swainson, *Pycnonotus capensis* (Linnaeus), *Serinus albogularis* (A. Smith), *Serinus flaviventris* (Swainson) and *Spizocorys sclateri* (Shelley), *Zosterops pallidus* Swainson.

Genus *Myrsidea* Waterston, 1915

Myrsidea aynazae Halajian & Sychra, 2012

Report. [1] Halajian *et al.* (2012: 62).

Host. *Phyllastrephus flavostriatus flavostriatus* (Sharpe) [1].

Distribution in South Africa. Limpopo province: Woodbush forest [1].

Remarks. At present, this louse species is known only from South Africa.

Myrsidea breviterga Tandan & Clay, 1971

Report. [1] Tandan & Clay (1971: 226)

Host. *Turdoides jardineii* (A. Smith) [1].

Distribution in South Africa. Limpopo province: Mabelikwa [1]; Mpumalanga province: Newington [1].

Remarks. At present, this louse species is known only from South Africa.

Myrsidea capensis Tendeiro, 1965

Reports. [1] Bedford (1939: 135); [2] Tendeiro (1965: 52).

Synonym. *Myrsidea ptilostomi* Bedford, 1939; in part [1, 2].

Host. *Corvus capensis* Lichtenstein (= *Heterocorax capensis* [1]) [1].

Distribution in South Africa. Eastern Cape province: Kenkelbosch [1].

Other distribution. **Africa:** Botswana [2], Ethiopia [2], Kenya [1, 2].

Myrsidea eisentrauti Klockenhoff, 1982

Reports. [1] Klockenhoff (1982: 407); [2] Halajian *et al.* (2012: 62); [3] this paper (Table 2).

Host. *Sporopipes squamifrons* (A. Smith) [1, 2, 3].

Distribution in South Africa. Limpopo province: Polokwane Game Reserve [2, 3]; North West province: Bloemhof [1], Mafeking = Mahikeng [1].

Other distribution. **Africa:** Botswana [1].

Myrsidea eslamii Halajian & Sychra, 2012

Report. [1] Halajian *et al.* (2012: 63).

Host. *Geokichla gurneyi disruptans* (Clancey) [1].

Distribution in South Africa. Limpopo province: Woodbush forest [1].

Remarks. At present, this louse species is known only from South Africa.

Myrsidea estrildae Tendeiro, 1993

Reports. [1] Tendeiro (1993: 56); [2] this paper (Table 2).

Host. *Estrilda astrild astrild* (Linnaeus) [2].

Distribution in South Africa. Western Cape province: Worcester, Patryskloof farm [2].

Other distribution. **Africa:** São Tomé e Príncipe [1], Kenya [2].

Remarks. This species was described from *E. astrild jagoensis* Alexander from São Tomé e Príncipe (Tendeiro 1993). We recently also found a few slides with this species from *E. a. massaica* Neumann from Kenya, deposited in the Natural History Museum London (slides nos. 6133 and 6621). This is the first record of this louse species from *E. astrild astrild* and from South Africa.

Myrsidea eurocephali Klockenhoff & Tendeiro, 1989

Report. [1] Klockenhoff & Tendeiro (1989: 273).

Host. *Eurocephalus anguitimens* A. Smith [1].

Distribution in South Africa. Limpopo province: Gravelotte [1].

Other distribution. **Africa:** Zimbabwe [1].

Myrsidea hopkinsi Bedford, 1939

Report. [1] Klockenhoff (1981: 205).

Host. *Corvus albicollis* Latham [1].

Distribution in South Africa. Western Cape province: Robinson Pass [1].

Other distribution. **Africa:** Kenya [1], Tanzania [1], Uganda [1].

Myrsidea mariquensis Halajian & Sychra, 2012

Report. [1] Halajian *et al.* (2012: 64).

Host. *Bradornis mariquensis mariquensis* A. Smith [1].

Distribution in South Africa. Limpopo province: Polokwane Game Reserve [1].

Remarks. At present this louse species is known only from South Africa.

***Myrsidea oatleyi* Sychra & Halajian, 2014**

Report. [1] Sychra *et al.* (2014).

Host. *Pogonocichla stellata stellata* (Vieillot) [1].

Distribution in South Africa. KwaZulu-Natal province: Vernon Crookes Natural Reserve [1], Oribi Gorge Natural Reserve [1].

Remarks. At present this louse species is known only from South Africa.

***Myrsidea obovata* (Piaget, 1880)**

Report. [1] Bedford (1939: 135).

Host. *Corvus albus* Statius Müller [1].

Distribution in South Africa. KwaZulu-Natal province: Empangeni [1].

Other distribution. **Africa:** Uganda [1].

***Myrsidea queleae* Tendeiro, 1964**

Reports. [1] Tendeiro (1964: 182); [2] Klockenhoff (1984: 281); [3] Sychra *et al.* (2010a); [4] this paper (Table 2).

Host. *Quelea quelea lathami* (Smith) [1, 2, 4].

Distribution in South Africa. Limpopo province: De Loskop [4]; North West province: Rustenburg [1, 2].

Other distribution. **Africa:** Botswana [1, 2], Congo [1], Kenya [2], Senegal [3], Sudan [2], Swaziland [2], Zimbabwe [1, 2].

***Myrsidea rustica* (Giebel, 1874)**

Reports. [1] Waterston (1914: 314); [2] Bedford (1919: 721); [3] Bedford (1927: 748); [4] Mey (2013); [5] Palma (1996: 138); [6] Sychra *et al.* (2014).

Synonym. *Menopon rusticum* Giebel, 1874 [1]

Hosts. *Cercopis abyssinica* (Guérin-Meneville) [6]; *Delichon urbicum* (Linnaeus) [2, 3]; *Hirundo rustica* Linnaeus [1]

Distribution in South Africa: Gauteng province: Blockspruit, Pretoria [2, 3]; Mpumalanga province: Pullen farm, Nelspruit [6].

Other distribution. **Australasia:** Australia [5]; **Europe:** Germany [4], Hungary [4], Italy [4], Poland [4], Spain [4], Ukraine [4].

Remarks. Contrary to Bedford (1919), Price *et al.* (2003) did not include *Delichon urbicum* as host of this louse. Bedford (1927: 811) reported *M. rustica* from *Riparia riparia* Linnaeus; however, according to his previous records (Bedford 1919, 1927: 748) the true host is *Delichon urbicum*.

***Myrsidea sjoestedti* (Kellogg, 1910)**

Report. [1] Klockenhoff (1981: 201).

Host. *Corvus albicollis* Latham [1].

Distribution in South Africa. KwaZulu-Natal province: Pietermaritzburg [1].

Other distribution. **Africa:** Angola [1], Kenya [1], Tanzania [1], Uganda [1].

***Myrsidea subanaspila* Bedford, 1939**

Reports. [1] Bedford (1939: 132); [2] Klockenhoff (1981: 209).

Host. *Corvus albus* Statius Müller [1, 2].

Distribution in South Africa. Gauteng province: Onderstepoort [1, 2]; Limpopo province: Warmbaths [2].

Other distribution. **Africa:** Angola [2], Lesotho [2].

***Myrsidea textoris* Klockenhoff, 1984**

Reports. [1] Klockenhoff (1984: 271); [2] Lindholm *et al.* (1998: 147); [3] Halajian *et al.* (2012: 65); [4] Sychra *et al.* (2014).

Hosts. *Ploceus capensis olivaceus* (Hahn) (= *Textor capensis olivaceus* [1]) [1]; *P. cucullatus spilonotus* Vigors (= *Textor cucullatus spilonotus* [1]) [1]; *P. intermedius cabanisii* (W.K.H. Peters) [2, 4]; *P. velatus tahatali* A. Smith [3, 4].

Distribution in South Africa. KwaZulu-Natal province: Pietermaritzburg [1, 2]; Limpopo province: Polokwane Game Reserve [3, 4]; North West province: Mafeking = Mahikeng [1].

Other distribution. **Africa:** Botswana [1], Ghana [1], Mozambique [1].

Note. Samples of lice identified to the generic level only (as *Myrsidea* sp.) were reported from *Amadina fasciata* (Gmelin), *Cisticola aridulus* Witherby, *Coccopygia melanotis* (Temminck), *Phyllastrephus terrestris terrestris* Swainson and *Turdus libonyanus libonyanus* (Smith) (Halajian *et al.* 2012) because the number of specimens and/or their stage/sex were not suitable for a species identification.

Family Ricinidae Neumann, 1890

Genus *Ricinus* De Geer, 1778

Ricinus dolichocephalus (Scopoli, 1763)

Reports. [1] Bedford (1927: 751); [2] Rheinwald (1968: 239); [3] Mey (2013).

Host. *Oriolus larvatus* Lichtenstein [1, 2].

Distribution in South Africa. KwaZulu-Natal province: Pietermaritzburg [1, 2].

Other distribution. **Africa:** Botswana [2], Kenya [2]; **Asia:** Taiwan [2], Thailand [2]; **Europe:** Cyprus

[2], Czech Republic [2], Finland [3], Germany [3], Hungary [3], Poland [2].

Ricinus meinertzhageni Rheinwald, 1968

Report. [1] Rheinwald (1968: 288).

Hosts. *Anthus cinnamomeus rufuloides* Roberts (= *Anthus novaeseelandiae rufuloides* Roberts [1]) [1]; *Anthus leucophrys* Vieillot [1]; *Anthus vaalensis* Shelley [1].

Distribution in South Africa. Eastern Cape province: Pirie, King Williams Town [1]; KwaZulu-Natal province: no detailed locality [1]; 'Transvaal', no detailed locality [1].

Other distribution. **Africa:** Ethiopia [1], Kenya [1], Somaliland [1], Zimbabwe [1]; **Asia:** Burma [1], Ceylon [1], India [1], Nepal [1].

Remarks. Since the host subspecies '*rufuloides*' was removed from the species *Anthus novaeseelandiae*, this is the first report of *R. meinertzhageni* from the species *Anthus cinnamomeus*.

Ricinus mugimaki (Uchida, 1915)

Reports. [1] Rheinwald (1968: 242); [2] Green & Palma (1991: 10); [3] Sychra *et al.* (2014); [4] this paper (Table 2).

Hosts. *Cossypha dichroa mimica* Clancey [3]; *Cossypha heuglini heuglini* Hartlaub [4].

Distribution in South Africa. Limpopo province: Woodbush forest [3], Schoemandsdal Environmental Education Centre [4].

Other distribution. **Africa:** Botswana [1], Kenya [1], Mozambique [1], Tanzania [1], **Asia:** Japan [1], Philippine Islands [1]; **Australasia:** Tasmania [2]; Papua [1].

Remarks. Rheinwald (1968) reported *R. mugimaki* from *C. h. heuglini* from Kenya and Mozambique. This is the first record of this louse species from South Africa.

Ricinus serratus (Durrant, 1906)

Report. [1] Rheinwald (1968: 231).

Hosts. *Calandrella cinerea* (Gmelin) [1]; *Eremopterix verticalis* (A. Smith) [1]; *Serinus flaviventris* (Swainson) [1].

Distribution in South Africa. North West province: Mafeking = Mahikeng [1], Northern Cape province: Calvinia [1].

Other distribution. **Africa:** Morocco [1], Somaliland [1], Sudan [1]; **Asia:** Afghanistan [1], China [1], India [1], Saudi Arabia [1], Yemen [1]; **Europe:** Montenegro [1]; **North America:** U.S.A. [1].

Ricinus timmermanni Rheinwald, 1968

Report. [1] Rheinwald (1968: 254).

Host. *Chalcomitra amethystina* (Shaw) [1].

Distribution in South Africa. Western Cape province: Knysna [1].

Other distribution. **Africa:** Ethiopia [1], Kenya [1].

Ricinus tugarinovi Blagoveshtchensky, 1951

Report. [1] Rheinwald (1968: 279).

Host. *Terpsiphone viridis* (Statius Müller) [1].

Distribution in South Africa. Limpopo province: Rooiberg [1].

Other distribution. **Africa:** Ethiopia [1], Kenya [1]; **Asia:** Philippine Islands [1], Malaya [1], Thailand [1]; **Australasia:** Rennell Island [1].

Note. Samples of lice identified to the generic level only (as *Ricinus* sp.) were found on *Cossypha caffra* (Linnaeus), *Emberiza impetuanii* A. Smith, and *Serinus albogularis* (A. Smith) because the number of specimens and/or their stage/sex were not suitable for a species identification.

Bedford (1927: 751) mentioned *Ricinus longetarsatus* Piaget, 1895 from *Lamprotornis* sp. This louse species was later synonymized with *Laemobothrion tinnunculi* (Linnaeus, 1758), a parasite of raptors (Falconiformes), by Nelson & Price (1965: 252). The host recorded as *Lamprotornis* sp. by Bedford (1927) for *Ricinus longetarsatus* was probably accidental, so we have omitted it from this list.

HOST-PARASITE LIST

The list includes all South African passerine birds that are known to be hosts of amblyceran lice (according to Price *et al.* 2003). Also, we included louse species that are known from these hosts, but which have not been reported from South Africa yet. Where possible, the subspecies of the host is given.

Migrating birds wintering in South Africa (MBWSA) and introduced birds (IB) are also listed.

'§' denotes louse species recorded in South Africa.

'*' denotes the bird species associated with the marked louse species as its type host.

AVES

PASSERIFORMES

Acrocephalidae

Acrocephalus arundinaceus (Linnaeus, 1758)

Great reed warbler (MBWSA)

Menacanthus curucuae (Schrank, 1776)

Acrocephalus schoenobaenus (Linnaeus, 1758)

Sedge warbler (MBWSA)

Menacanthus curucuae (Schrank, 1776)

Acrocephalus scirpaceus (Hermann, 1804)
Eurasian reed warbler (MBWSA)
Menacanthus curuccae (Schrank, 1776)

Alaudidae

Calendulauda sabota A. Smith, 1836
Sabota lark
Menacanthus sp.

Calandrella cinerea (Gmelin, 1789)
Red-capped lark
Ricinus serratus (Durrant, 1906)

Eremopterix verticalis (A. Smith, 1836)
Grey-backed sparrow-lark
Ricinus serratus (Durrant, 1906)

Spizocorys sclateri (Shelley, 1902)
Sclater's lark
Menacanthus sp.

Cisticolidae

Camaroptera brachyura (Vieillot, 1820)
Green-backed camaroptera
Menacanthus sp.

Cisticola aridulus Witherby, 1900
Desert cisticola
Myrsidea sp.

Cisticola chiniana (A. Smith, 1843)
Rattling cisticola
Menacanthus sp.

Prinia flavicans ortleppi (Tristram, 1869)
Black-chested prinia
Menacanthus curuccae (Schrank, 1776)

Prinia subflava (Gmelin, 1789)
Tawny-flanked prinia
Menacanthus eurysternus (Burmeister, 1838)

Corvus albicollis Latham, 1790
White-necked raven
Colpocephalum fregili Denny, 1842
Myrsidea bedfordi Brink, 1955
Myrsidea hopkinsi Bedford, 1939*
Myrsidea nigra (Kellogg & Paine, 1911)*
Myrsidea sjoestedti (Kellogg, 1910)*

Corvus albus Statius Müller, 1776
Pied crow
Colpocephalum fregili Denny, 1842
Menacanthus gonophaeus (Burmeister, 1838)
Myrsidea bedfordi Brink, 1955*

Myrsidea obovata (Piaget, 1880)*
Myrsidea sjoestedti (Kellogg, 1910)*
Myrsidea subanasipila Bedford, 1939

Corvus capensis Lichtenstein, 1823
Cape crow
Colpocephalum fregili Denny, 1842
Menacanthus gonophaeus (Burmeister, 1838)
Myrsidea capensis Tendeiro, 1965*
Myrsidea obovata (Piaget, 1880)

Corvus splendens Vieillot, 1817
House crow (IB)
Colpocephalum fregili Denny, 1842
Menacanthus gonophaeus (Burmeister, 1838)
Menacanthus merisuoii Eichler, 1953
Myrsidea baktitar (Ansari, 1951)
Myrsidea insolita (Kellogg & Paine, 1914)*
Myrsidea splendenticola Klockenhoff, 1973*

Dicruridae

Dicrurus adsimilis (Bechstein, 1794)
Fork-tailed drongo
Ricinus brelihi Rheinwald, 1968*

Emberizidae

Emberiza impetuani A. Smith, 1836
Lark-like bunting
Ricinus sp.

Emberiza tahapisi A. Smith, 1836
Cinnamon-breasted bunting
Menacanthus eurysternus (Burmeister, 1838)

Estrildidae

Amadina fasciata (Gmelin, 1789)
Cut-throat
Myrsidea sp.

Coccygia melanotis (Temminck, 1823)
Sweet waxbill
Myrsidea sp.

Estrilda astrild astrild (Linnaeus, 1758)
Common waxbill
Myrsidea estrildae Tendeiro, 1993*

Hypargos margaritatus (Strickland, 1844)
Pink-throated twin-spot
Menacanthus sp.

Pytilia melba (Linnaeus, 1758)
Green-winged pytilia
Menacanthus eurysternus (Burmeister, 1838)

Fringillidae

Fringilla coelebs Linnaeus, 1758
Common chaffinch (IB)
 §*Menacanthus eurysternus* (Burmeister, 1838)
 §*Myrsidea lyali* Klockenhoff, 1984*
 §*Ricinus fringillae* (De Geer, 1778)

Serinus albogularis (A. Smith, 1833)
White-throated canary
 §*Menacanthus* sp.
 §*Ricinus* sp.

Serinus canaria (Linnaeus, 1758)
Canary (captive bird)
 §*Menacanthus eurysternus* (Burmeister, 1838)

Serinus flaviventris (Swainson, 1827)
Yellow canary
 §*Menacanthus* sp.
 §*Ricinus serratus* (Durrant, 1906)

Serinus mozambicus (Stadius Müller, 1776)
Yellow-fronted canary
 §*Menacanthus eurysternus* (Burmeister, 1838)

Hirundinidae

Cecropis abyssinica (Guérin-Meneville, 1843)
Lesser striped-swallow
 §*Machaerilaemus malleus* (Burmeister, 1838)
 §*Myrsidea rustica* (Giebel, 1874)

Delichon urbicum (Linnaeus, 1758)
Common house-martin (MBWSA)
 §*Myrsidea rustica* (Giebel, 1874)

Hirundo rustica (Linnaeus, 1758)
Barn swallow (MBWSA)
 §*Machaerilaemus malleus* (Burmeister, 1838)
 §*Myrsidea rustica* (Giebel, 1874)*

Hirundo smithii Leach, 1818
Wire-tailed swallow
 §*Myrsidea guimaraesi* Tendeiro, 1958*

Petrochelidon spilodera Sundevall, 1850
South African swallow
 §*Machaerilaemus malleus* (Burmesiter, 1838)
 §*Myrsidea rustica* (Giebel, 1874)

Riparia riparia (Linnaeus, 1758)
Bank swallow (MBWSA)
 §*Machaerilaemus clayae* (Balát, 1966)*
 §*Myrsidea latifrons* (Carriker & Shull, 1910)*
 §*Ricinus fringillae* (De Geer, 1778)

Laniidae

Eurocephalus anguitemens A. Smith, 1836
White-crowned shrike
 §*Myrsidea eurocephali* Klockenhoff & Tendeiro, 1989*

Lanius collaris collaris Linnaeus, 1766
Common fiscal
 §*Menacanthus camelinus* (Nitzsch, 1874)

Lanius collurio Linnaeus, 1758
Red-backed shrike (MBWSA)
 §*Menacanthus camelinus* (Nitzsch, 1874)
 §*Menacanthus eurysternus* (Burmeister, 1838)

Lanius minor Gmelin, 1788
Lesser grey shrike (MBWSA)
 §*Menacanthus camelinus* (Nitzsch, 1874)

Leiothrichidae

Turdoides bicolor (Jardine, 1831)
Southern pied-babbler
 §*Menacanthus crateropus* Bedford, 1920*

Turdoides jardineii (A. Smith, 1836)
Arrow-marked babbler
 §*Menacanthus crateropus* Bedford, 1920
 §*Myrsidea brevoitgera* Tanden & Clay, 1971*

Malaconotidae

Dryoscopus cubla (Shaw, 1809)
Black-backed puffback
 §*Menacanthus oriolii* Blagoveshtchensky, 1951

Tchagra senegalus (Linnaeus, 1766)
Black-crowned tchagra
 §*Myrsidea tchagrae* Klockenhoff & Tendeiro, 1989

Monarchidae

Terpsiphone viridis (Stadius Müller, 1776)
African paradise-flycatcher
 §*Ricinus tugarinovi* Blagoveshtchensky, 1951

Motacillidae

Anthus cinnamomeus rufuloides Roberts, 1936
African pipit
 §*Menacanthus* sp.
 §*Ricinus meinertzhageni* Rheinwald, 1968

Anthus leucophrys Vieillot, 1818
Plain-backed pipit
 §*Ricinus meinertzhageni* Rheinwald, 1968

Anthus similis Jerdon, 1840

Long-billed pipit

§*Ricinus meinertzhageni* Rheinwald, 1968***Anthus trivialis*** (Linnaeus, 1758)

Tree pipit (MBWSA)

§*Menacanthus pusillus* (Nitzsch, 1866)§*Ricinus fringillae* (De Geer, 1778)***Anthus vaalensis*** Shelley, 1900

Buffy pipit

§*Ricinus meinertzhageni* Rheinwald, 1968**Muscicapidae*****Bradornis mariquensis mariquensis*** A. Smith, 1847

Mariqua flycatcher

§*Menacanthus* sp.§*Myrsidea mariquensis* Halajian & Sychra, 2012***Cercotrichas leucophrys*** (Vieillot, 1817)

Red-backed scrub-robin

§*Ricinus maculates* (Piaget, 1885)§*Menacanthus* sp.***Cercotrichas quadrvirgata*** (Reichenow, 1879)

Bearded scrub-robin

§*Menacanthus* sp.***Cercotrichas paena*** (A. Smith, 1836)

Kalahari scrub-robin

§*Ricinus maculates* (Piaget, 1885)***Cossypha caffra*** (Linnaeus, 1771)

Cape robin-chat

§*Menacanthus* sp.§*Ricinus* sp.***Cossypha dichroa mimica*** Clancey, 1981

Chorister robin-chat

§*Ricinus mugimaki* (Uchida, 1915)***Cossypha heuglini heuglini*** Hartlaub, 1866

White-browed robin-chat

§*Ricinus mugimaki* (Uchida, 1915)***Ficedula albicollis*** (Temminck, 1815)

Collared flycatcher (MBWSA)

§*Ricinus pflegeri* Balát, 1952****Melaenornis pammelaina ater*** (Sundevall, 1850)

Southern black-flycatcher

§*Menacanthus eurysternus* (Burmeister, 1838)***Muscicapa striata*** (Pallas, 1764)

Spotted flycatcher (MBWSA)

§*Menacanthus agilis* (Nitzsch, 1866)§*Myrsidea proteroa* (Zlotorzycza, 1964)****Oenanthe oenanthe*** (Linnaeus, 1758)

Northern wheatear (MBWSA)

§*Menacanthus affinis* Fedorenko & Belskaya, 1979*§*Menacanthus exilis* (Nitzsch, 1866)****Phoenicurus phoenicurus*** (Linnaeus, 1758)

Common redstart (MBWSA)

§*Menacanthus agilis* (Nitzsch, 1866)§*Ricinus rubeculae* (Schrank, 1776)***Pogonocichla stellata stellata*** (Vieillot, 1818)

White-starred robin

§*Myrsidea oatleyi* Sychra & Halajian, 2014.**Nectariniidae*****Chalcomitra amethystina*** (Shaw, 1812)

Amethyst sunbird

§*Ricinus timmermanni* Rheinwald, 1968***Cinnyris chalybeus*** (Linnaeus, 1766)

Southern double-collared sunbird

§*Menacanthus eurysternus* (Burmeister, 1838)***Nectarinia famosa*** (Linnaeus, 1766)

Malachite sunbird

§*Ricinus timmermanni* Rheinwald, 1968**Oriolidae*****Oriolus larvatus*** Lichtenstein, 1823

African black-headed oriole

§*Ricinus dolichocephalus* (Scopoli, 1763)***Oriolus oriolus*** (Linnaeus, 1758)

Eurasian golden oriole (MBWSA)

§*Menacanthus oriolus* Blagoveshtchensky, 1951*§*Ricinus dolichocephalus* (Scopoli, 1763)***Passeridae*****Passer domesticus*** (Linnaeus, 1758)

House sparrow (IB)

§*Menacanthus eurysternus* (Burmeister, 1838)§*Myrsidea quadrifasciata* (Piaget, 1880)*§*Ricinus fringillae* (De Geer, 1778)***Passer melanurus*** (Statius Müller, 1776)

Mossie

§*Menacanthus* sp.**Phylloscopidae*****Phylloscopus trochilus*** (Linnaeus, 1758)

Willow warbler (MBWSA)

§*Menacanthus agilis* (Nitzsch, 1866)§*Menacanthus curuccae* (Schrank, 1776)

Platysteiridae***Batis molitor*** (Kuster, 1836)

Chin-spot batis

Ricinus mugimaki (Uchida, 1915)**Ploceidae*****Euplectes orix*** (Linnaeus, 1758)

Red bishop

§*Menacanthus* sp.***Plocepasser mahali mahali*** A. Smith, 1836

White-browed sparrow-weaver

§*Menacanthus alaudae* (Schrank, 1776)***Ploceus capensis spilonotus*** Vigors, 1831

Cape weaver (endemic)

§*Myrsidea textoris* Klockenhoff, 1984***Ploceus cucullatus*** (Stadius Müller, 1776)

Village weaver

§*Myrsidea textoris* Klockenhoff, 1984****Ploceus intermedius cabanisii*** (W.K.H. Peters, 1868)

Lesser masked weaver

§*Myrsidea textoris* Klockenhoff, 1984***Ploceus velatus tahatali*** A. Smith, 1836

Southern masked-weaver

§*Menacanthus* sp.§*Myrsidea textoris* Klockenhoff, 1984***Quelea quelea lathamii*** (A. Smith, 1836)

Red-billed quelea

§*Machaerilaemus plocei* Bedford, 1920*§*Myrsidea queleae* Tendeiro, 1964****Sporopipes squamifrons*** (A. Smith, 1836)

Scaly weaver

§*Myrsidea eisentrauti* Klockenhoff, 1982***Prionopidae*****Prionops plumatus*** (Shaw, 1809)

White helmetshrike

§*Menacanthus* sp.*Myrsidea prionopsis* Klockenhoff & Tendeiro, 1989***Pycnonotidae*****Andropadus importunus oleaginus*** W. Petars, 1868

Sombre greenbul

§*Menacanthus oriolii* Blagoveshtchensky, 1951***Chlorocichla flaviventris occidentalis*** Sharpe, 1882

Yellow-bellied greenbul

§*Menacanthus* sp.***Phyllastrephus flavostriatus flavostriatus*** (Sharpe, 1876)

Yellow-streaked greenbul

§*Myrsidea aynazae* Halajian & Sychra, 2012***Phyllastrephus terrestris terrestris*** Swainson, 1837

Terrestrial brownbul

§*Menacanthus* sp.§*Myrsidea* sp.***Pycnonotus barbatus layardi*** (J.H. Gurney, 1879)

Garden bulbul

§*Menacanthus eurysternus* (Burmeister, 1838)***Pycnonotus capensis*** (Linnaeus, 1766)

Cape bulbul (endemic)

§*Menacanthus* sp.**Sturnidae*****Acridotheres tristis*** (Linnaeus, 1766)

Common myna (IB)

§*Menacanthus eurysternus* (Burmeister, 1838)*Myrsidea invadens* (Kellogg & Chapman, 1902)****Creatophora cinerea*** (Meuschen, 1787)

Wattled starling

Menacanthus eurysternus (Burmeister, 1838)***Lamprotornis chalybaeus*** Ehrenberg, 1828

Greater blue-eared glossy-starling

Menacanthus eurysternus (Burmeister, 1838)***Lamprotornis chloropterus*** Swainson, 1838

Lesser blue-eared glossy-starling

Ricinus brelihi Rheinwald, 1968***Lamprotornis nitens*** (Linnaeus, 1766)

Cape glossy-starling

§*Menacanthus eurysternus* (Burmeister, 1838)***Pastor roseus*** (Linnaeus, 1758)

Rosy starling

Menacanthus eurysternus (Burmeister, 1838)***Sturnus vulgaris*** Linnaeus, 1758

European starling (IB)

Menacanthus eurysternus (Burmeister, 1838)*Myrsidea cucullaris* (Nitzsch, 1818)**Ricinus elongatus* (Olfers, 1816)

Sylviidae***Parisoma subcaeruleum*** (Vieillot, 1817)

Rufous-vented warbler

§*Menacanthus* sp.***Sylvia atricapilla*** (Linnaeus, 1758)

blackcap (MBWSA)

Menacanthus curucae (Schrank, 1776)*Myrsidea sylviae* Sychra, 2008****Sylvia borin*** (Boddaert, 1783)

Garden warbler (MBWSA)

Menacanthus curucae (Schrank, 1776)*Ricinus borin* Balát, 1952****Sylvia communis*** Latham, 1787

Common whitethroat (MBWSA)

Menacanthus curucae (Schrank, 1776)***Sylvia nisoria*** (Bechstein, 1795)

Barred warbler (MBWSA)

Menacanthus curucae (Schrank, 1776)**Turdidae*****Geokichla gurneyi disruptans*** (Clancey, 1955)

Orange ground-thrush

§*Myrsidea eslammii* Halajian & Sychra, 2012*Myrsidea montana* Clay, 1966 (from *Geokichla gurneyi otomitra* (Reichenow, 1904))**REFERENCES**

- BEDFORD, G.A.H. 1919. Anoplura from South African hosts. *Report of the Director of Veterinary Services and Animal Industry, Union of South Africa 1919–1920*: 709–731.
- BEDFORD, G.A.H. 1920a. Anoplura from South African hosts. Part 2. *Report of the Director of Veterinary Services and Animal Industry, Union of South Africa 7–8*: 709–734.
- BEDFORD, G.A.H. 1920b. Mallophaga from South African birds. Descriptions of a new genus (*Neomenopon*) and two new species (*Machaerilaemus plocei*, *Neomenopon pteroclorus*). *Parasitology* **12**: 167–172.
- BEDFORD, G.A.H. 1927. A synoptic check-list and hostlist of the ectoparasites found on South African Mammalia, Aves, Reptilia. Part I. *Report of the Director of Veterinary Services and Animal Industry, Union of South Africa* **12**: 705–817.
- BEDFORD, G.A.H. 1930. New genera and species of Mallophaga from South African hosts. *Report of the Director of Veterinary Services and Animal Industry, Union of South Africa* **16**: 153–173.
- BEDFORD, G.A.H. 1932. A synoptic check-list and hostlist of the ectoparasites found on South African Mammalia, Aves, Reptilia. Part II. *Report of the Director of Veterinary Services and Animal Industry, Union of South Africa* **18**: 223–523.
- BEDFORD, G.A.H. 1939. Notes on Menoponidae (Mallophaga) with descriptions of new genera and species. *Onderstepoort Journal of Veterinary Science and Animal Industry* **12**: 121–152.
- BUSH, A.O., LAFFERTY, K.D., LOTZ, J.M. & SHOSTAK, A.W. 1997. Parasitology meets ecology on its own terms: Margolis *et al.* revisited. *Journal of Parasitology* **83**: 575–583.
- CLAYTON, D.H., GREGORY, R.D. & PRICE, R.D. 1992. Comparative ecology of Neotropical bird lice (Insecta, Phthiraptera). *Journal of Animal Ecology* **61**: 781–795.
- CLEMENTS, J.F., SCHULENBERG, T.S., ILIFF, M.J., SULLIVAN, B.L., WOOD, C.L. & ROBERSON, D. 2012. The eBird/Clements Checklist of Birds of the World: Version 6.7. Online at: <http://www.birds.cornell.edu/clementschecklist/downloadable-clements-checklist> (accessed 20 September 2013).
- GREEN, R.H. & PALMA, R.L. 1991. A list of lice (Insecta: Phthiraptera) recorded from Tasmania. *Records of the Queen Victoria Museum, Launceston* **100**: 1–43.
- HALAJIAN, A., SYCHRA, O., LUUS-POWELL, W. & ENGELBRECHT, D. 2012. Chewing lice of the genus *Myrsidea* (Phthiraptera: Amblycera: Menoponidae) from passerines (Aves: Passeriformes) in South Africa, with descriptions of three new species. *Zootaxa* **3442**: 58–68.
- HOPKINS, G.H.E. 1941. Stray notes on Mallophaga. 15.

Turdus libonyanus libonyanus (A. Smith, 1836)

Kurrichane thrush

§*Myrsidea* sp.***Turdus smithi*** Bonaparte, 1850

Karoo thrush

§*Menacanthus eurysternus* (Burmeister, 1838)**Viduidae*****Vidua macroura*** (Pallas, 1764)

Pin-tailed whydah

Myrsidea viduae Tendeiro, 1993***Zosteropidae*****Zosterops pallidus*** Swainson, 1838

Pale white-eye

§*Menacanthus* sp.**ACKNOWLEDGEMENTS**

We owe special thanks to P. Brown (Natural History Museum, London) for the loan of specimens of *Myrsidea estrildidae*, and F. Kounek for help in the molecular laboratory. I. Papousek was supported by the Operational Programme 'Education for Competitiveness' project CZ.1.07/2.3.00/30.0014 from the European Social Fund. Thanks are extended to University of Limpopo for partly funding this study.

- Notes on the types of the Mallophaga described by Bedford. *Annals and Magazine of Natural History* (11)7: 274–294.
- KLOCKENHOFF, H.F. 1981. Mallophagen der Gattung *Myrsidea* Waterston, 1915 von afrikanischen Rabenvögeln (Corvidae) II. *Bonner Zoologische Beiträge* 32(1–2): 195–219.
- KLOCKENHOFF, H.F. 1982. Mallophagen der gattung *Myrsidea* Waterston, 1915 von afrikanischen Webervögeln (Ploceidae) I. *Myrsidea eisentrauti* n. sp. *Bonner Zoologische Beiträge* 33: 407–411.
- KLOCKENHOFF, H.F. 1984. Mallophagen der gattung *Myrsidea* Waterston, 1915 von afrikanischen Webervögeln (Ploceidae) – II. *Bonner Zoologische Beiträge* 35: 269–284.
- KLOCKENHOFF, H.F. & TENDEIRO, J. 1989. Three new species of the genus *Myrsidea* Waterston (Mallophaga, Menoponidae) parasitic on African shrikes (Aves, Laniidae). *Bonner Zoologische Beiträge* 40(3/4): 273–283.
- LEDGER, J.A. 1980. *The Arthropod Parasites of Vertebrates in Africa South of the Sahara, Vol. IV, Phthiraptera (Insecta)*. Publication of the South African Institute for Medical Research No. 56. South African Institute for Medical Research, Johannesburg, South Africa.
- LEPAGE, D. 2013. Avibase – Bird Checklists of the World: South Africa. Online at: <http://avibase.bsc-eoc.org/checklist.jsp?region=za&list=clements> (accessed 20 September 2013).
- LINDHOLM, A.K., VENTER, G.J. & UECKERMANN, E.A. 1998. Persistence of passerine ectoparasites on the diderik cuckoo *Chrysococcyx caprius*. *Journal of Zoology* (London) 244: 145–153.
- MARSHALL, A.G. 1981. *The Ecology of Ectoparasitic Insects*. Academic Press, London, U.K.
- MEY, E. 2013. Amblycera, chewing lice. *Fauna Europaea* version 2. Online at: <http://www.faunaeur.org> (accessed 5 November 2013).
- NAJER, T., SYCHRA, O., LITERÁK, I., PROCHÁZKA, P., ČAPEK, M. & KOUBEK, P. 2012. Chewing lice (Phthiraptera) from wild birds in Senegal, with descriptions of three new species of the genera *Brueelia* and *Philopteroides*. *Acta Parasitologica* 57: 90–98.
- NELSON, R.C. & PRICE, R.D. 1965. The *Laemobothrion* (Mallophaga: Laemobothriidae) of the Falconiformes. *Journal of Medical Entomology* 2: 249–257.
- PALMA, R.L. 1996. Laemobothriidae; Menoponidae; Ricinidae; Philopteridae. In: Wells, A. (Ed.) *Zoological Catalogue of Australia*. Vol. 26. Psocoptera, Phthiraptera, Thysanoptera. 106–230, 333–361 (App. I–IV), 373–396 (Index). CSIRO Publishing, Melbourne, Australia.
- PALMA, R.L., PRICE, R.D. & HELLENTHAL, R.A. 1998. New synonymies and host records for lice of the genus *Menacanthus* (Phthiraptera: Menoponidae) from the Passeriformes (Aves). *Journal of the Royal Society of New Zealand* 28: 309–320.
- PILGRIM, R.L.C. & PALMA, R.L. 1982. A list of the chewing lice (Insecta: Mallophaga) from birds in New Zealand. *Notornis* 29 (Suppl.): 1–32 (also as *National Museum of New Zealand Miscellaneous Series* 6).
- PRICE, R.D. 1975. The *Menacanthus eurysternus* complex (Mallophaga: Menoponidae) of the Passeriformes and Piciformes (Aves). *Annals of the Entomological Society of America* 68: 617–622.
- PRICE, R.D. 1977. The *Menacanthus* (Mallophaga: Menoponidae) of the Passeriformes (Aves). *Journal of Medical Entomology* 14: 207–220.
- PRICE, R.D. & BEER, J.R. 1965. A review of the *Colpocephalum* of the Corvidae with the description of a new species. *Proceedings of the Entomological Society of Washington* 67: 7–14.
- PRICE, R.D., HELLENTHAL, R.A. & DALGLEISH, R.C. 2002. A review of *Machaerilaemus* (Phthiraptera: Amblycera: Menoponidae) from the Passeriformes (Aves), with the description of five new species. *American Midland Naturalist* 148: 61–74.
- PRICE, R.D., HELLENTHAL, R.A. & PALMA, R.L. 2003. World checklist of chewing lice with host associations and keys to families and genera. In: Price, R.D., Helleenthal, R.A., Palma, R.L., Johnson, K.P. & Clayton, D.H. *The Chewing Lice: World Checklist and Biological Overview*. Illinois Natural History Survey Special Publication 24: 1–448.
- RHEINWALD, G. 1968. Die Mallophagengattung *Ricinus* De Geer, 1778. Revision der ausseramerikanischen Arten. *Mitteilungen aus dem Hamburg Zoologischen Museum Institut* 65: 181–326.
- SYCHRA, O., BARLEV, E., LITERÁK, I., ČAPEK, M., KOUBEK, P. & PROCHÁZKA, P. 2010a. The chewing lice (Phthiraptera) of Red-billed Quelea (*Quelea quelea*) in Senegal, with a description of a new species. *African Entomology* 18: 17–22.
- SYCHRA, O., HALAJIAN, A., LUUS-POWELL, W., ENGELBRECHT, D., SYMES, C. & PAPOUSEK, I. 2014. Amblyceran chewing lice (Phthiraptera: Amblycera) from wild passerines (Passeriformes) in South Africa, with a note to their phylogenetic relationships and the description of a new species of the genus *Myrsidea*. *African Entomology* 22: 589–601.
- SYCHRA, O., LITERÁK, I., NAJER, T., ČAPEK, M., KOUBEK, P. & PROCHÁZKA, P. 2010b. Chewing lice (Insecta: Phthiraptera) from estrildid finches (Aves: Passeriformes: Estrildidae) and louse-flies (Insecta: Diptera: Hippoboscidae) from birds in Senegal, with descriptions of three new species of the genus *Brueelia*. *Zootaxa* 2714: 59–68.
- SYCHRA, O., LITERÁK, I., PODZEMNÝ, P. & BENEDIKT, V. 2008. Insect ectoparasites from wild passerine birds in the Czech Republic. *Parasite* 15: 599–604.
- SYCHRA, O., NAJER, T., KOUNEK, F., ČAPEK, M. & LITERÁK, I. 2010c. Chewing lice (Amblycera, Ischnocera) from wild-living birds in Costa Rica. Abstracts from the Fourth International Conference on Phthiraptera (ICP4), Urgup, Turkey. *Türkiye Parazitoloji Dergisi* 34, Supplement 1: 42.
- SYCHRA, O., NAJER, T., LITERÁK, I., ČAPEK, M., KOUBEK, P. & PROCHÁZKA, P. 2010d. Chewing lice (Amblycera, Ischnocera) from estrildid finches, weavers, indigobirds and sparrows (Passeriformes: Estrildidae, Ploceidae, Viduidae, Passeridae) from birds in Senegal. Abstracts from the Fourth International Conference on Phthiraptera (ICP4), Urgup, Turkey. *Türkiye Parazitoloji Dergisi* 34, Supplement 1: 40.

- TANDAN, B.K. & CLAY, T. 1971. Contributions towards a revision of *Myrsidea* Waterston. VI. (Phthiraptera, Amblycera: Menoponidae). *Transactions of the Royal Entomological Society of London* **123**: 209–246.
- TENDEIRO, J. 1958. Études sur les Mallophages. Sur une petite collection de Mallophages prélevée au Mozambique. *Garcia de Orta* **6**: 223–240.
- TENDEIRO, J. 1964. Mallophaga. *Annales du Musée Royal de l'Afrique Centrale (Tervuren, Belgique)* **132**: 161–216.
- TENDEIRO, J. 1965. Nouvelles études sur les Mallophages Africains. *Revista Estudos Gerais Universidade Moçambique (Serie 4)* **2**: 1–155.
- TENDEIRO, J. 1993. On the terrestrial and riverine faune of the Democratic Republic of São Tomé e Príncipe. Mallophaga from São Tomé. I. Description of three new species of the genus *Myrsidea* Waterston. *Garcia de Orta, Série Zoológica* **19**: 55–60.
- WATERSTON, J. 1914. On some ectoparasites in the South African Museum, Cape Town. *Annals of the South African Museum* **10**: 271–324.

Accepted 4 July 2014