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Chewing lice (Insecta, Phthiraptera) off Bruijn's Brush-turkey *Aepypodius bruijnii* from New Guinea (Aves, Galliformes, Megapodiidae)

With 19 figures and 5 tables

Eberhard Mey [1]

[1] Naturhistorisches Museum im Thüringer Landesmuseum Heidecksburg zu Rudolstadt, Schlossbezirk 1, 07407 Rudolstadt
mey-rudolstadt@t-online.de

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Summary

On the basis of the material examined by the author (with is very incomplete and mostly off old museum skins), the following chewing lice species known to infest *Aepypodius bruijnii* are here treated or described: Amblycera: *Kelerimenopon aepypodi* Price & Emerson, 1966 sensu lato and *Talegalligogus wilhelmi waigeuensis* n. ssp.; Ischnocera: *Megathellipeurus mumesensis* n. sp., "*Oxylipeurus*" *aepypodius* Clay, 1938, *Talegallipeurus tenuis* Mey, 1982, *Weehalia hakalphila* n. sp., and *Homocerus* sp. These species illustrate the close relationships between their host genera *Aepypodius* and *Talegalla*, and suggest that *Alectura* is more distantly related. An overview is given of the hospitalic distribution of all genera of chewing lice so far known off the Megapodiidae, with special reference to *Aepypodius arfakianus* and *A. bruijnii*.

Key words

Aepypodius bruijnii, Amblycera, Ischnocera, new species & subspecies, parasitophyletic studies, Waigeo.

Zusammenfassung

Nach dem Autor vorliegendem noch sehr lückenhaften und zumeist von alten Museumsbälgen stammenden Material werden die folgenden auf dem Braunbrusttalegalla *Aepypodius bruijnii* (Oustalet, 1880) nachgewiesenen Federlinge beschrieben: die Amblyceren *Kelerimenopon aepypodi* Price & Emerson, 1966 sensu lato und T*alegalligogus wilhelmi waigeuensis* n. ssp. und die Ischnoceren *Megathellipeurus mumesensis* n. sp., „*Oxylipeurus*" *aepypodius* Clay, 1938, *Talegallipeurus tenuis* Mey, 1983, *Weehalia hakalphilus* n. sp. und *Homocerus* sp. Diese Arten weisen auf enge verwandtschaftliche Beziehungen ihrer Wirtsgattungen *Aepypodius* und *Talegalla*, denen *Alcetura* ferner steht. Unter besonderer Berücksichtigung von *Aepypodius arfakianus* und *A. bruijnii* wird die hospitale Verbreitung aller bisher auf Großfußhühnern (Megapodiidae) festgestellten amblyzeren und ischnozeren Federlingsgattungen zur Übersicht gebracht.

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Introduction

Aepypodius bruijnii (Oustalet, 1880), the Bruijn's Brush-turkey, is one of the rarest recent bird species in the world, and was actually rediscovered in the wild only a few years ago (Heij & Post 2001, Mauro 2002). Its epizoic and/or parasitic arthropod fauna remains hardly known. The extreme rarity of this megapode, which occurs in an apparently stable population only on the Indonesian island of Waigeo, off the north-west tip of New Guinea, is directly proportional to the rarity of its ectoparasites. This means that not only the host species, but also its highly specialized parasites face the threat of possible extinction. Among them are various representatives of the chewing lice (Insecta: Amblycera and Ischnocera) found exclusively on the Megapodiidae.

The aim of this paper is principally to document the current state of taxonomic knowledge of the chewing lice species that have been found so far on Bruijn's Brush-turkey. It is based on material obtained from some of the rare museum skins of the species, using the "shaking out" method, as well as on specimens collected off a freshly dead specimen found in October 2002 on Waigeo.

Material and Methods

The material evaluated here comes from at least five of the 24 museum skins in existence worldwide (Heij & Post 2002), which were mostly collected around 1880 and which are now in Europe and North America. Of the six skins investigated, three were from the American Museum of Natural History, New York via C. J. Heij and J. N. J. Post (1999), and three other skins via the author from the Museum für Tierkunde Dresden (1992), from the Senckenberg Museum Frankfurt am Main (1990; this was the only skin with no chewing lice material), and the Zoologisches Museum und Zoologisches Institut of the University of Hamburg (1990).

All chewing lice specimens were permanently mounted in Canada balsam, the great majority of them in the Phthiraptera collection of the Naturhistorisches Museum Rudolstadt (in the Thüringer Landesmuseum Heidecksburg) (NMRud), as well as in the Natuurmuseum Rotterdam (NMRot) and the Natural History Museum London (NHML). Measurements after Mey (1997a). For the body measurements (in mm) and the head index the following abbreviations are given, always in the same order:

TL total length, HL head length, HW head width (preantennal), HWT head width (temporal), HI head index (quotient derived from HL divided by HW), PW prothorax width, MW mesometathorax width, AW abdomen width.

Material from the following institutions (with abbreviations) was made available for this study:

AMNH American Museum of Natural History, New York, USA;
ISZB Institut für Systematische Zoologie im Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin, Germany;
MTKD Museum für Tierkunde Dresden, Senckenberg Naturhistorische Sammlungen, Germany;
NHML The Natural History Museum, London, UK;
NHMRot Natuurmuseum Rotterdam, The Netherlands;
NHMRud Naturhistorisches Museum im Thüringer Landesmuseum Heidecksburg zu Rudolstadt, Germany;
ZIMH Zoologisches Institut und Zoologisches Museum Hamburg, Germany.

Results

Systematics, species accounts

Order Phthiraptera Haeckel, 1896

Suborder Amblycera Kellogg, 1896

Family Menoponidae Mjöberg, 1910 *sensu lato*

Genus *Kelerimenopon* Conci, 1942

Kelerimenopon aepypodi Price & Emerson, 1966

Host: *Aepypodius bruijnii* (Oustalet, 1880).

Material examined:
1 ♀, 1 larva (M. 3482. a, e) off a skin (3745) in ZIMH, 31.12.1909 Waigeo, leg. E. Mey (16.iv.1990).

Remarks:
In the absence of additional and better preserved material, the female is provisionally assigned to *K. aepypodi* Price & Emerson, 1966 (type host: *Aepypodius arfakianus*), with which it shares the prolongations of the inner ventro-posterior pleural corners on sternites ii-vii pointing posteriorly, the ventral brush of setae on femur III and laterally on sternites iv-vi (the last apparently in very low numbers), and a very similar setae pattern on the ventral terminalia. However it does not possess a frontally pointed head and shows, like *Lorimenopon* Price & Emerson, 1966, a broad, deep preocular notch. In addition it has a pronotal margin with 17 setae and metanotal margin with 22 setae.

Measurements:
TL 1.5, HL 0.36, HW 0.43, HWT 0.58, HI 0.62, PW 0.42, MW 0.52, AW 0.79.

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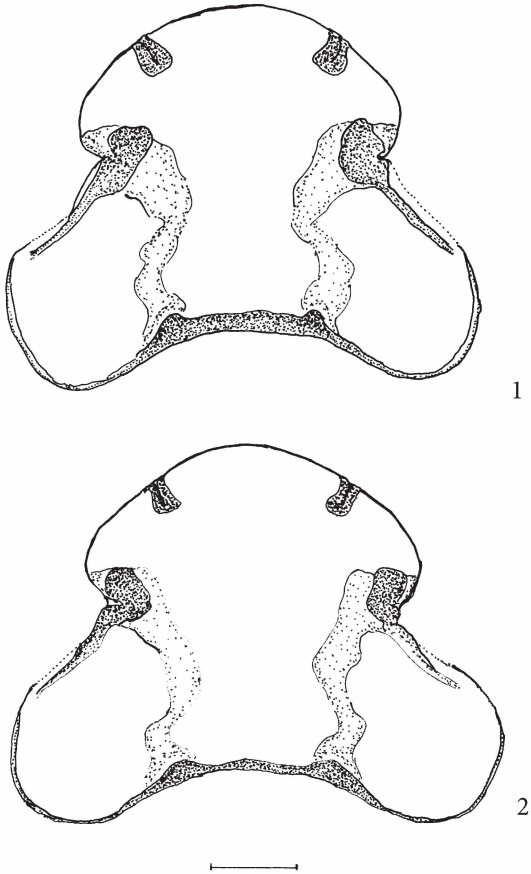
Genus *Talegalligogus* Mey, 1982

Talegalligogus wilhelmi waigeuensis n. ssp.
(Fig. 1, Table 1)

Type host: *Aepypodius bruijnii* (Oustalet, 1880).

Material examined:
1 ♀ (M. 3844. d - holotype) off an old skin (C 8228) from Laglaize, Waigeo, in MTKD, leg. E. Mey (30.x.1992). Holotype in NHMRud.

Diagnosis:
Female: I have named this well-preserved ♀ as a new subspecies of "*Colpocephalum wilhelmi* Price & Beer, 1964" (type host: *Aepypodius arfakianus*), since only the shape and the structure (e. g. preocular region) of the head (see Figs 1 and 2) and slight differences in the setae pattern of the abdominal tergites deviate from the nominate form, with which it seems to share all other morphological characters. The number of setae in the row on the posterior margin of the tergites, each between the post-spiracular setae, varies per segment between the nominate form (according to a ♀ M. 902.g off the type host in NHMRud collection and the description by Price & Beer 1964: 398 f. of a ♀) and *waigeuensis* only very slightly, although the latter does possess more macrochaetae there (see Table 1). The number of posterior metanotal setae in *wilhelmi* is 30, in *waigeuensis* 28, of which only three on the corners of each side take the form of thick, medium-length macrochaetae.



Figs 1-2: Shape of head of *Talegalligogus wilhelmi* ssp., females: **1.** *waigeuensis* n. ssp. – **2.** *wilhelmi*. – Scale 0.1 mm.

Tergites	*Talegalligogus wilhelmi wilhelmi*	*Talegalligogus wilhelmi waigeuensis* n. ssp.
I	28 (9)	29 (11)
Ii	33 (2)	34 (4)
Iii	24 (2)	25 (6)
Iv	24 (2)	18 (6)
V	20 (2)	19 (6)
Vi	16 (2)	18 (2)
Vii	16 (2)	19 (2)
Viii	12 (2)	14 (2)

Table 1: Numbers of setae on abdominal tergites i-viii both of *Talegalligogus w. wilhelmi* and *T. wilhelmi waigeuensis* n. ssp., females. In brackets number of macrochaete including post-spiracular seta.

Measurements:
(in parentheses the measurements of one ♀ *T. w. wilhelmi*): TL 1.69 (1.90), HL 0.42 (0.39), HW 0.36 (0.38), HWT 0.51 (0.54), HI 0.82 (0.72), PW 0.38 (0.39), MW 0.59 (0.60), AW 0.66 (0.71).

Male: Unknown.

Remarks:
T. w. wilhelmi and the considerably smaller, always distinctly different-looking "*Colpocephalum arfakiani* Price & Beer, 1964", occur synhospitalically even on the same host individual, whereby *arfakiani* (according to my collecting experience) is clearly the commoner species. Here, *wilhelmi* is transferred provisional to *Talegalligogus* (type species "*Colpocephalum talegallae* Price & Beer, 1964" ex type host *Talegalla cuvieri*), which cannot be done with *arfakiani* until further studies have been carried out. A similar species-pair (and genus-pair?) can also be expected on *Aepypodius bruijnii*.

Etymology:
Named for the island of Waigeo (here transcribed as Waigeu) off the north-west tip of New Guinea, where Bruijn's Brush-turkey is endemic.

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Suborder Ischnocera KELLOGG, 1896

Family Philopteridae BURMEISTER, 1838 *sensu lato*

Genus *Megathellipeurus* MEY & CURIO, 1993

Megathellipeurus mumesensis n. sp.
(Figs 3-4, 6, 8, 11-12, Table 2)

Type host: *Aepypodius bruijnii* (OUSTALET, 1880).

Material examined:
8 ♂, 17 ♀ off three host individuals, especially 1 ♀ (M. 4387. a) off an old skin (no. 3; coll. A. A. Bruijn), in AMNH, Waigeo (no other data), leg. C. J. Heij & J. N. J. Post (12.xi.1999); 4 larvae (M. 3482. b-e), in ZIMH, 31.xii.1909 Waigeo, leg. E. Mey (16.iv.1990); and 8 ♂, 16 ♀ (M. 4614. a-n) off a freshly dead individual conserved in alcohol (no. 1909-01606), in NHMRot, 4.x.2002 Mumes, Waigeo, leg. C. J. Heij & C. Moeliker.
Holotype ♂ (M. 4614. b), allotype (M. 4614. j [left]) and 7 ♂, 16 ♀ paratypes in NHMRud.

Diagnosis:
Habitus of male (ventral) and female (dorsal) as in Figs 3 and 4. This species is difficult to separate from *M. jonesi* MEY, 2000 [„1999"] (type host: *Talegalla fuscirostris* ssp.). However, since the structure of the male genitalia of *M. mumesensis* is similar to that of *M. jonesi*, but the structure of the endomeral part is quite different, it must be assumed that both forms are in fact reproductively isolated from each other and therefore must be given species rank. Otherwise hardly any characters can be discerned that would make a morphostructural differentiation any easier. The simplest method might be to compare the mesometathorax: in *mumesensis* the anterior corners distinctly project, while in *jonesi* they bulge only slightly (see Figs 9-12). The clypeal carina appears rather wider in *jonesi* than in *mumesensis*, and the preantennal outline of the former is more of a semicircle, in the latter more a semi-oval. The thumb-shaped growth of the male scapus in *mumesensis* is slightly longer than in *jonesi* (former 0.057 mm, latter 0.047 mm in length), but as with all these characters this should be verified using a larger series of *M. jonesi*.

Measurements:
see Table 2.

Etymology:
Named for the village of Mumes in the south of the eastern half of the island of Waigeo, where in October 2002 the freshly dead Bruijn's Brush-turkey, which apparently only harbored this single chewing louse species, came into the prudent hands of Dr. C. J. Heij.

	males			females		
	VW	x	holo-type	VW	x	allo-type
TL	2.41–2.66	2.55	2.62	2.60–2.81*	2.73	2.74
HL	0.63–0.67	0.65	0.64	0.63–0.70*	0.68	0.67
HW	0.40–0.45	0.43	0.43	0.43–0.48*	0.46	0.45
HWT	0.40–0.43	0.42	0.40	0.49–0.55*	0.53	0.51
HI	1.50–1.58	1.55	1.60	1.24–1.33*	1.29	1.31
PW	0.33–0.37	0.36	0.37	0.39–0.55	0.41	0.39
MW	0.41–0.52	0.48	0.49	0.51–0.55*	0.52	0.51
AW	0.46–0.55	0.53	0.54	0.66–0.81	0.75	0.76

Table 2: Measurements (in mm) and head index of *Megathellipeurus mumesensis* n. sp. VW - variation width, x - arithmetic means. Males n = 8, females n = 17; * n = 16.

Genus *Oxylipeurus* MJÖBERG, 1910

"*Oxylipeurus*" *aepypodius* CLAY, 1938
(Figs 13-14)

Host: *Aepypodius bruijnii* (OUSTALET, 1880).

Material examined:
1 ♂ (without head; M. 3844. a) off an old skin (C 8228) from Laglaize, Waigeo, in MTKD, leg. E. Mey (30.x.1992).

Diagnosis:
Despite its missing head, the only available male specimen can almost certainly be identified as *O. aepypodius* CLAY, 1938 (type host: *Aepypodius arfakianus*), since there are hardly any visible differences, even in the form of the genitalia. The shape of the genital apparatus shows very slight but constant differences (see Figs 13 and 14), but it is unknown if they are determined perhaps by the preparation or by variation; if they exist *in natura* then these distinguishing characters would point to at least a subspecific differentiation. However these points can only be clarified by having a wider range of authenticated material to work on.

Measurements:
PW 0.20, MW 0.30, AW 0.40.

Remarks:
Allied to these problems is the still open question of the generic classification of "*Oxylipeurus aepypodius* CLAY, 1938" and "*Lipeurus ischnocephalus* TASCHENBERG, 1882" (type host: *Alectura lathami*), which here remain in *Oxylipeurus*, although with reservations. Both species are easily separable (e.g., by head shape, clearer in males than females, and by male genitalia), but they also share some synapomorphies, such as the characteristic suite of macrochaetae frontally on the clypeal carina in males,

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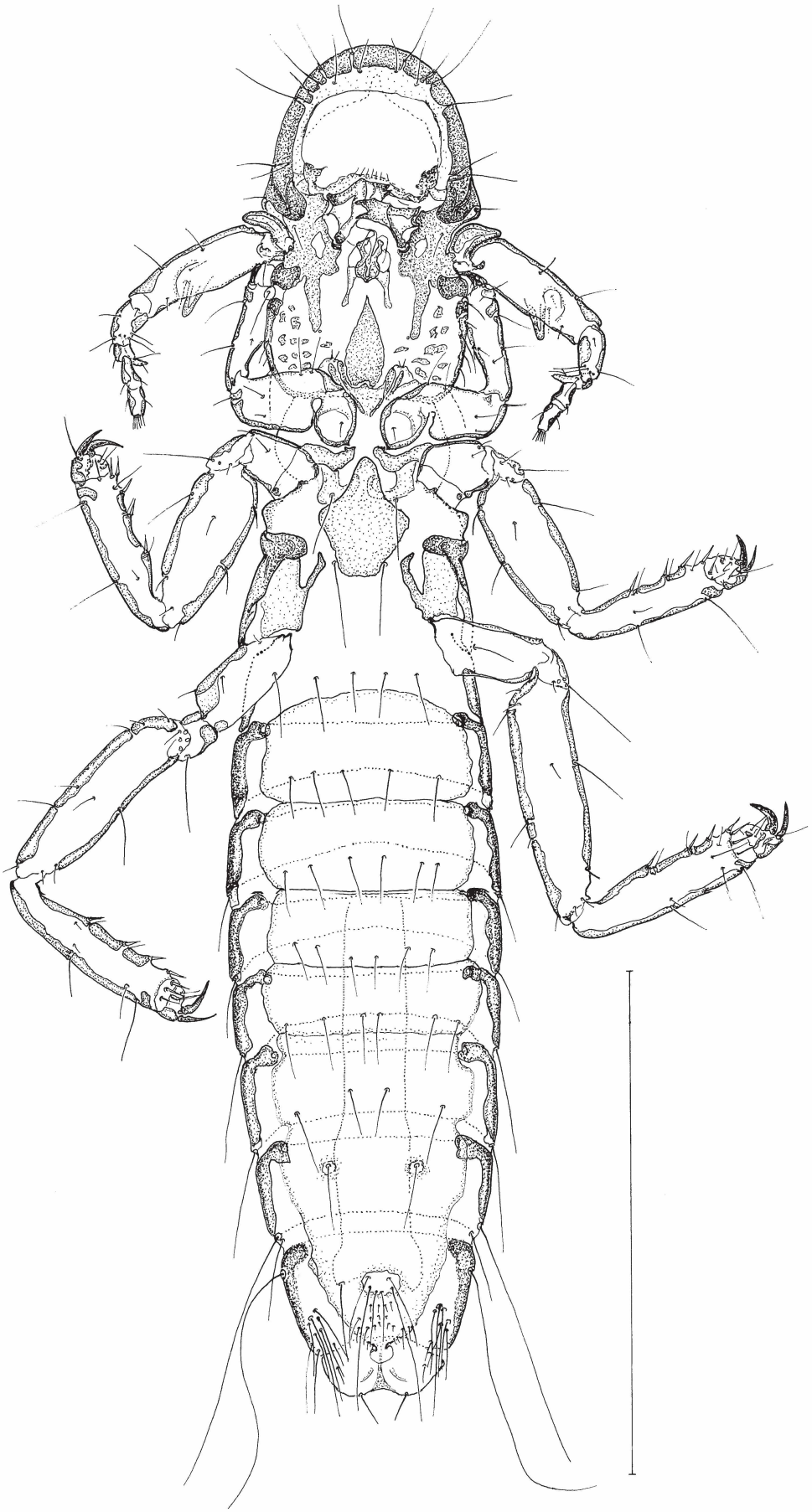

Fig. 3: *Megathellipeurus mumesensis* n. sp., male, ventral view. – Scale 1 mm.

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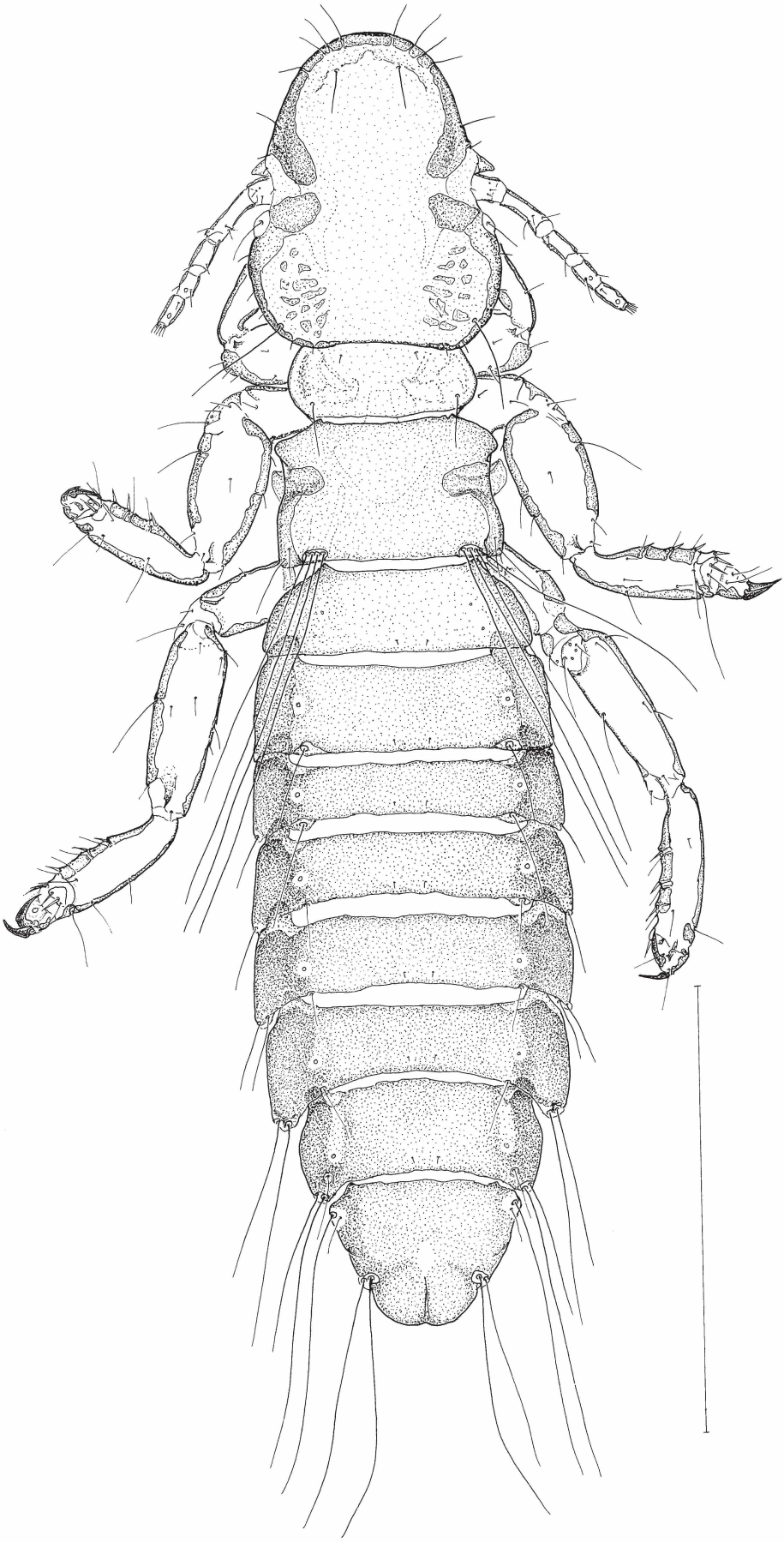

Fig. 4: *Megathellipeurus mumesensis* n. sp., female, dorsal view. – Scale 1 mm.

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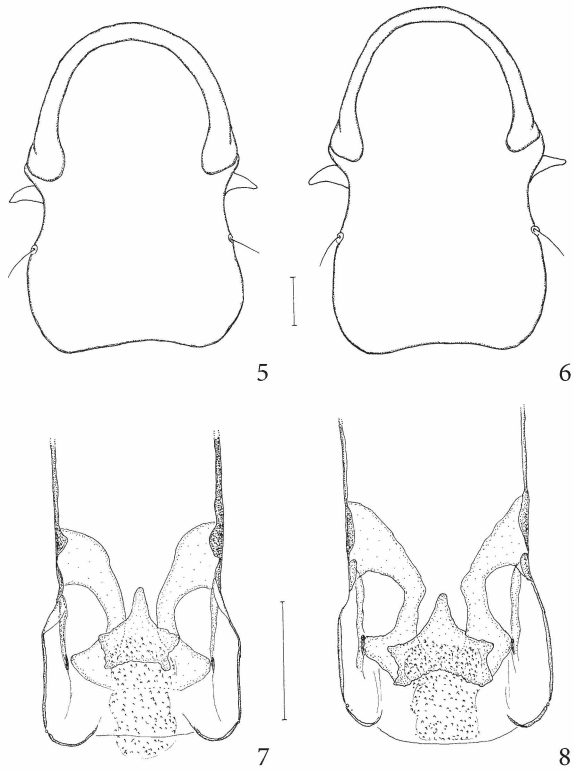
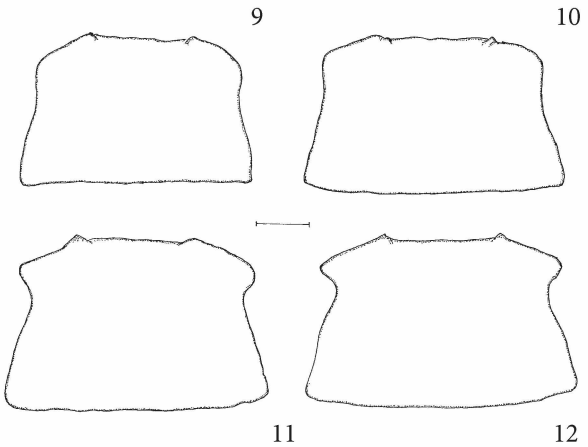
and their unique genital region structure. These characters indicate an independent development that should find its expression in nomenclature. A close relationship to *Talegallipeurus* is unmistakable, and if it was to be confirmed that *Talegallipeurus* spp. and "*O.*" *aepypodius* or *ischnocephalus* exist synhospitalically, then more than just a separation at the subgenus level would be called for (see v. Kéler 1958, Mey 1990).



Figs 5-8: *Megathellipeurus* spp., males: **5.** shape of head of *M. jonesi*. – **6.** dito *M. mumesensis* sp. n. – **7.** Genitalia (terminalia part only) of *M. jonesi*. – **8.** dito *M. mumesensis* sp. n. – Scale 0.1 mm.



Figs 9-12: Shape of mesometanotum of *Megathellipeurus* spp., **9.** *M. jonesi*, male, – **10.** dito female, – **11.** *M. mumesensis* sp. n. male, – **12.** dito female. – Scale 0.1 mm.

Figs 13-14: Male genitalia of "*Oxylipeurus*" *aepypodius* **13.** ex *Aepypodius arfakianus*. – **14.** ex *A. bruijnii*. – Scale 0.1 mm.

Genus *Talegallipeurus* Mey, 1982

Talegallipeurus tenuis Mey, 1982

Host: *Aepypodius bruijnii* (Oustalet, 1880).

Material examined:
1 ♀ (M. 4387. b) off an old skin (no. 3; coll. Bruijn ex coll. W. Rothschild, Tring) from Waigeo (no other data), in AMNH, leg. C. J. Heij & H. Post (12.xi.1999).

Remarks:
The ♀ in question, lacking antennae, legs, and part of the terminalia, cannot be separated morphologically from *T. tenuis* Mey, 1982 (type host: *Talegalla jobiensis longicauda*). It must remain open whether it belongs to another form.

Measurements (mm):
TL 2.44, HL 0.57, HW 0.27, HWT 0.30, HI 1.90, PW 0.21, MW 0.27, AW 0.39.

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Family Goniodidae Mjöberg, 1910

Genus *Weehalia* Mey, 1997

Weehalia hakalphila n. sp.
(Figs 15, 19, Table 3)

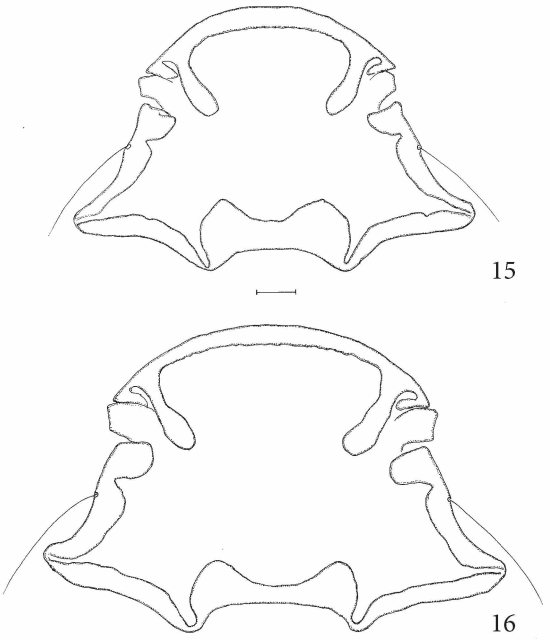
Type host: *Aepypodius bruijnii* (Oustalet, 1880).

Material:
1 ♂ (M. 4387. b) off an old skin (no. 1; coll. Bruijn, ex coll. W. Rothschild, Tring) from Waigeo (no other data), in AMNH, leg. C. J. Heij & H. Post (12.i.1999).
Holotype in NHMRud.

Diagnosis:
Male: very similar to *W. fissus* (Rudow, 1869), but definitely smaller (see Table 3). The temporal corners are clearly swollen in *fissus*, in *hakalphila* almost straight, which, coupled with size, makes for a striking difference in the shape of the head (Figs 15-16). The solenoidal genital apparatus, along the entire length of the abdomen, is clearly constricted in its lower third in *fissus*, where there is a grip-like endosclerite, but this is not the case in *hakalphila* sp. n. (see Figs 17-19). Current illustrations of *W. fissus* genitalia (Clay 1940, Mey 1997b) show them with a partially erect preputial sac; here it is shown in a relaxed state (Figs 17-18).

Measurements: see Table 3.
Female: Unknown.

Remarks:
In addition to a large *Weehalia* series off *Alectura lathami* (= type host of "*Goniodes fissus* Rudow"), Clay (1940: 112) examined 6 ♂, 7 ♀ ex *Aepypodius arfakianus* and 12 ♂, 13 ♀ "from skins of *Aepypodius bruijnii* (Oustalet) from Waigou", all of which she placed in *fissus* without comment. At least 1 ♂, 2 ♀ (prep. BM 3069) of *W. fissus* ex *Alectura l. lathami* from New South Wales,



Figs 15-16: *Weehalia* spp., males: **15.** shape of head of *W. hakalphila* n. sp. – **16.** dito *W. fissus*. – Scale 0.1 mm.

and also 3 ♂, 2 ♀, 1 larva (prep. Meinertzhagen 11001) of the same species ex *A. lathami* from Queensland, were made available to me. On this basis it is impossible to determine whether the body measurements and setae numbers given by Clay (1940: 111) are actually derived from the total material off the three host species mentioned above, or only from a part of it.
Two *Weehalia* ♀ ex *Aepypodius arfakianus* that I examined are distinctly smaller than a *fissus* ♀, and definitely not conspecific with it, but are probably very close to *hakalphila*.

Etymology:
Derived from Hakal, the usual name for Bruijn's Bush-turkey used on Waigeo (Lupintol) (after Jones et al. 1995; gender feminine), and the Greek phil = loving.

	W. hakalphila	*W. fissus*								*W.* sp.		
	males						females					
	holotype	C 1	M 1	M 2	Me3023.a	Me3023.b	C 2	C 3*	M 3	Me922.d	Me902.k	Me902.a
TL	1.93	2.16	2.35	2.35	2.34	2.19	2.86	2.58	2.92	2.43	2.38	2.41
HL	0.63	0.68	0.74	0.72	0.75	0.75	0.74	0.72	0.78	0.69	0.68	0.69
HW	0.61	0.68	0.75	0.77	0.78	0.78	0.72	0.75	0.78	0.72	0.72	0.71
HWT	0.94	1.04	1.08	1.08	1.08	1.08	1.08	1.07	1.13	1.05	1.05	0.99
HI	0.67	0.65	0.69	0.67	0.69	0.69	0.69	0.67	0.69	0.66	0.65	0.70
PW	0.39	0.42	0.45	0.45	0.45	0.47	0.45	0.45	0.48	0.45	0.42	0.42
MW	0.60	0.68	0.71	0.71	0.71	0.72	0.71	0.71	0.72	0.68	0.63	0.63
AW	1.18	1.32	1.43	1.41	1.40	1.38	1.41	1.44	1.44	1.32	1.38	1.31

Table 3: Measurements (mm) and head index of *Weehalia hakalphila* n. sp. (♂, holotype), *W. fissus* (♂ & ♀) and *Weehalia* sp. (♀) ex *Aepypodius arfakianus*. C 1 – 3 = slides BM 3069. (C 2, female designed as homotype by T. Clay) and M 1 – 3 = slides R. Meinertzhagen 11001, all ex coll. NHML. Me = slides E. Mey. * = immature specimen.

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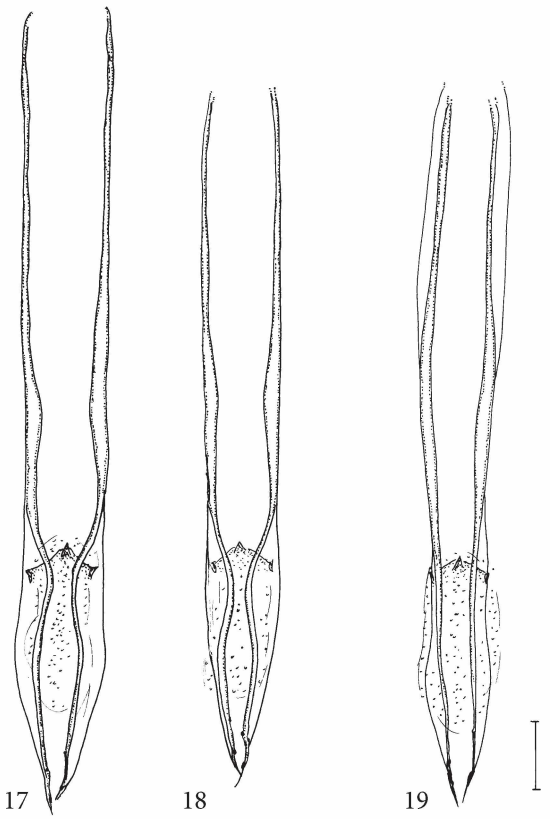

Figs 17-19: Genitalia of *Weehalia* spp., males: **17-18.** *W. fissus*. – **19.** dito *W. hakalphila* n. sp. – Scale 0.1 mm.

Genus *Homocerus* Kéler, 1940 [„1939"]

Homocerus sp.

Type host: *Aepypodius bruijnii* (Oustalet, 1880).

Material examined:
2 ♂ and 1 ♀ off two specimens, namely 1 ♂, 1 ♀ (M. 3844. b-c) off skin C 8228 in MTKD, Laglaize, Waigeu, leg. E. Mey (30.x.1992), and 1 ♂ (M. 4386.) off an old skin (no. 2; coll. Bruijn ex coll. W. Rothschild, Tring) from Waigeo (no other data) in AMNH, leg. C. J. Heij & H. Post (12.xi.1999).

Remarks:
The specimens studied are very close to, but not conspecific with, *Homocerus arfakianus* (Tendeiro, 1983), since there are visible differences in the shape of the unpaired terminalia sclerites in both sexes. Neither can they be assigned to *H. aepypodius* (Tendeiro, 1983). Tendeiro (1983: 118) described the species from a male and a female that came from the collection of K. C. Emerson, and for which there is no further information on their provenance than "*Aepypodius bruijnii*" and "île Waigeu". In my opinion, the original description and illustrations (Planche III, Photo 1-2 in Tendeiro, 1983) of *H. aepypodius* fit very well to *H. curtiprothorax* Mey, 1982 (type host: *Talegalla jobinensis longicauda*). In *H. arfakianus* and *Homocerus* sp. ex *Aepypodius bruijnii*, as in the species of *Homocerus* usually paired thoracic pleural sternites II and III are fused in a plate. Also the tergites IX+X and VIII on male anal conus are different in shape from those of *H. curtiprothorax*. Therefore, the supposition is not groundless that in Tendeiros' description the host provenance on which *aepypodius* is based, is mistaken, and that in actual fact *curtiprothorax* is perhaps synonymous with *aepypodius*. The problem will doubtless be finally resolved in the course of the intended revision on the basis of type specimens comparisons of the genus *Homocerus*. For the actual publication date of *Homocerus* see Mey (2009: 185).

Measurements:
in this order of two males (prep. M. 3844.b, 4386.) and one female (prep. 3844.c): TL 1.05, 1.06, 1.30; HL 0.37, 0,39, 0,43; HW 0.34, 0.34, 0.42; HWT 0.51, 0.51, 0.60; HI 0.73, 0.76, 0.72; PW 0.25, 0.25, 0.27; MW 0.39, 0.39, 0.42; AW 0.61, 0.63, 0.73.

Discussion

The fact that *Aepypodius bruijnii*, from an ornithological point of view, is obviously a good species in its own right when compared with *A. arfakianus* and *Talegalla* spp. is however not adequately expressed in its chewing lice (referring to the 7 species discussed here). This means that representatives at least of the genera *Talegalligogus*, "*Oxylipeurus*", and *Talegallipeurus* have not yet attained species level in the course of their isolated development from each other on their hosts (5 recent species with altogether 10 subspecies, after Jones et al. 1995), which probably had its beginnings in a common ancestral form of *Aepypodius* and *Talegalla*. From a phthiropterological standpoint, this host group, today confined to New Guinea, is most likely closest to the Australian *Alectura* within the Megapodiidae (Mey 1999). *Weehalia* appears to give us a strong support in this direction. We can however state that *Alectura* on the one hand, and *Aepypodius* and *Talegalla* on the other hand, harbor no conspecific chewing lice.

The infestation of Bruijn's Brush-turkey and Wattled Brush-turkey as reflected in the list of all chewing lice genera recorded on the megapodes is presented in Table 4. This overview makes one thing above all clear: the large gaps remaining in our knowledge, here especially where the Amblycera are concerned. However, with the help of parasitophyletic deduction, it also enables us to see the emerging contours of an internal systematic arrangement of the megapodes and their differentiation from other galliform families.

What is noteworthy is the fact that only one species of chewing louse (*Megathellipeurus mumesensis* n. sp., with larvae and adults in large numbers) was retrieved from the recently collected freshly dead Bruijn's Brush-turkey, while

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	Alectura	*Aepypodius*		*Talegalla*	*Leipoa*	*Macrocephalon*	*Eulipoa*	*Megapodius*
		arfakianus	*bruijnii*					
Amblycera								
Menoponidae sensu lato								
Amyrsidea	0	0	0	0	0	0	0	1
Kelerimenopon	1	1	1	1	0	0	1	1
Megacolpocephalum	0	0	0	1	0	0	0	?
Colpocephalum sensu lato	1	1	0	0	1	1	0	1
Talegalligogus	0	(1)	(1)	1	0	0	0	0
Ischnocera								
Philopteridae sensu lato								
Degeeriella complex								
Megapodiella	0	1	0	1	1	0	0	0
Lipeurus complex								
Lipeuroides	0	0	0	1	0	0	0	0
Megathellipeurus	1	1	1	1	1	1	0	0
Malaulipeurus	0	0	0	0	0	0	1	1
Oxylipeurus complex								
Oxylipeurus	0	0	0	0	0	0	1	1
Talegallipeurus	0	1	1	1	0	0	0	0
„*Oxylipeurus*“	1	1	1	1	0	0	0	0
Goniodidae								
Leipoiella	0	0	0	0	1	0	0	0
Megatheliella	0	0	0	0	1	0	0	0
Maleophilus	0	0	0	0	0	0	0	1
Maleoicus	0	0	0	0	0	0	0	1
Euligoniodes	0	0	0	0	0	0	1	0
Homocerus	1	1	1	1	0	1	0	0
Weelahia	1	1	1	0	0	0	0	0
Lobicrotaphus	0	0	0	0	0	0	0	1
Goniocotes	0	0	0	0	0	1	0	0

Table 4: Distribution of the Phthiraptera (suborder Amblycera and Ischnocera) on the Megapodiidae according to genera, with special reference to *Aepypodius* spp. (as of August 2010). 0 = lacking or not yet recorded; 1 = recorded; (1) = generic status questionable; ? = report questionable.

on each of three out of five old skins from the end of the 19th and beginning of the 20th century two species (single specimens) were recorded (see Table 5). One of these old skins harbored no chewing lice, and on each of two others one species was found. Whether these findings result from the collecting method, or reflect actual qualitative individual infestation, cannot be decided here. Whatever the case, we can surely expect further new chewing lice species from Bruijn's Brush-turkey.

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	Amblycera		Ischnocera				
	Keleri-menopon	*Talegalli-gogus*	*Megathel-lipeurus*	*„Oxylipeu-rus“*	*Talegall-peurus*	*Weehalia*	*Homoce-rus*
Skins							
Mus., inventory no., find. date							
AMNH, 1, c. 1880	0	0	0	0	0	0	0
AMNH, 2, c. 880	0	0	0	0	0	0	1
AMNH, 3, c. 1880	0	0	1	0	1	0	0
MTKD, C 8228, 19. Jh.	0	1	0	1	0	0	1
ZIMH, 3745, 1909	1	0	1*	0	0	0	0
NHMRot, 1909-01606, 2002	0	0	1	0	0	0	0

Table 5: Records of chewing lice genera off five old museum skins and a freshly dead specimen of *Aepypodius bruijnii* (Oustalet, 1880) from Waigeo. For details see species accounts. The inventory numbers of the AMNH skins were not noted, so in their place here and in the species accounts they have been allocated the numbers 1 to 3. - 0 = absent; 1 = present; * = one larva.

mounted specimens from the London *Phthiraptera* collection in 2003. Many thanks also to Brian Hillcoat (Berlin) for the translation of the manuscript. I am grateful to Eckhard K. Groll (Senckenberg Deutsches Entomologisches Institut Müncheberg) for his critical review of the manuscript.

References

Clay, T. 1940: Genera and species of Mallophaga occurring on gallinaceous hosts. – Part II. *Goniodes*. – Proceedings of the Zoological Society of London, series B, **110** (1&2): 1-120.

Heij, C. J. & Post, J. N. J. 2001: Bruijn's Brush-turkey *Aepypodius bruijnii* rediscovered on Waigeo. – Megapode Newsletter **15** (1): 2-5.

Jones, D. N.; Dekker, R. W. R. J. & Roselaar, C. S. 1995: The Megapodes Megapodiidae – Bird Families of the World 3, Oxford, New York, Tokyo (Oxford University Press): 262 pp.

Kéler, S. v. 1958: The genera *Oxylipeurus* Mjöberg and *Splendoroffula* Clay and Meinertzhagen (Mallophaga). – Deutsche entomologische Zeitschrift, Neue Folge **5** (3-4): 299-362.

Mauro, I. 2002: Bruijn's Brush-turkey *Aepypodius bruijnii* for the first time observed in the wild. – Megapode Newsletter **16** (1): 2-3.

Mey, E. 1982: Zur Taxonomie und Biologie der Mallophagen von *Talegalla jobiensis longicaudus* A. B. Meyer, 1891 (Aves, Megapodiidae). – Reichenbachia, Museum für Tierkunde Dresden **20**: 223-246.

Mey, E. 1990: Zur Taxonomie der auf Großfußhühnern (Megapodiidae) schmarotzenden *Oxylipeurus*-Arten (Insecta, Phthiraptera, Ischnocera: Lipeuridae). – Zoologische Abhandlungen, Staatliches Museum für Tierkunde Dresden **46**: 103-116.

Mey, E. 1997a: Leben auf dem Riesenseeadler *Haliaeetus pelagicus* zwei *Degeeriella*-Arten (Insecta, Phthiraptera, Ischnocera)? – Mit Anmerkungen zur Biografie Georg Wilhelm Stellers. – Ornithologischer Anzeiger **35**: 1-18.

Mey, E. 1997b: Die Goniodiden (Insecta, Phthiraptera, Ischnocera) der Großfußhühner (Megapodiidae). – Rudolstädter naturhistorische Schriften **8**: 19-44.

Mey, E. 1999: Phylogenetic relationships of the Megapodiidae as indicated by their ischnoceran, in particular goniodid, chewing lice (Insecta: Phthiraptera): pp. 23-35. – In: Dekker, R.; Jones, D. & Benshemesh, J. (Editors), Proceedings of the Third Interantional Megapode Symposium, Nhill, Australia, December 1997. – Zoologische Verhaandelungen (Leiden) **327**: 174 pp.

Mey, E. 2000: Neue, auf Großfußhühnern (Megapodiidae) lebende und zumeist aus Indonesien stammende Federlinge (Insecta, Phthiraptera: Amblycera & Ischnocera). – Rudolstädter naturhistorische Schriften, Supplement **3** (Beiträge zur Kultur- und Naturgeschichte Indonesiens): 119-137.

Mey, E. 2009: Die Mallophagen (Insecta, Phthiraptera: Amblycera & Ischnocera) der Galloanseres (Aves) – ein Überblick. – Beiträge zur Jagd- und Wildforschung **34**: 151-187.

Price, R. D. & Beer, J. R. 1964: Species of *Colpocephalum* (Mallophaga: Menoponidae) parasitic upon the Galliformes. – Annals of the Entomological Society of America **57**: 391-402.

Price, R. D. & Emerson, K. C. 1966: The genus *Kelerimenopon* Conci with the description of a new subgenus and six new species. – Pacific Insects **8** (2): 349-362.

Tendeiro, J. 1983: Études sur les Goniodidés (Mallophaga, Ischnocera) des Galliformes II – Un nouveau genre, *Aurinirmus* nov., pour cinq espèces parasites des Mégapodiidés. – Garcia de Orta, Sér. Zool. **10** (1-2): 115-123 + Pl. I-IV.

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