

**The *Brueelia* (Mallophaga: Philopteridae) of the
Meropidae (Aves: Coraciiformes)**

N. SANDRA WILLIAMS

Biology Department, Simmons College,
Boston, Massachusetts 02115

ABSTRACT: Five species of *Brueelia* from the Meropidae (Coraciiformes) are discussed and a key is provided. Three new species are described: one from *Melittophagus bullockoides*, one from *Nyctornis athertoni* and one from *Merops superciliosus philippinus*. A lectotype is designated for *B. erythropteri*.

Brueelia Kéler, 1936

- Brüelia* Kéler, 1936. Arb. morph.-tax. Ent. Berlin-Dahlem 3:257. Type species: *Brüelia rossittensis* Kéler, 1936. (A synonym of *Nirmus brachythorax* Giebel, 1874).
- Meropsiella* Conci, 1941. Boll. Soc. Ent. Ital. 73:104. Type species: *Nirmus apiastri* Denny, 1842.
- Corvonirmus* Eichler, 1944. Stettin. Ent. Ztg. 105:81. Type species *Nirmus uncinus* Burmeister, 1838.
- Painjunirmus* Ansari, 1947. Proc. Nat. Inst. Sci. India 13:285. Type species: *Painjunirmus pengya* Ansari, 1947.
- Traihoriella* Ansari, 1947. Proc. Nat. Inst. Sci. India 13:290. Type species: *Traihoriella punjabensis* Ansari, 1947.
- Guimaraesiella* Eichler, 1949. Boll. Soc. Ent. Ital. 79:11. Type species: *Docophorus subalbicans* Piaget, 1885 (A synonym of *Docophorus papulanus* Giebel, 1879).
- Xobugirado* Eichler, 1949. Boll. Soc. Ent. Ital. 79:13. Type species: *Nirmus submarginellus* Nitzsch, 1866. (A synonym of *Nirmus menuraelyrae* Coinde, 1859).
- Allobrüelia* Eichler, 1951. In *Forschung und Praxis*, Bedeutung der Vogelwelt, Berlin: 36. Type species: *Allobrüelia amsel* Eichler, 1951.
- Turdinirmus* Eichler, 1951. In *Forschung und Praxis*, Bedeutung der Vogelwelt, Berlin: 36. Type species: *Nirmus merulensis* Denny, 1842.
- Hirundiniella* Carriker, 1963. Rev. Brasil. Biol. 23:312. Type species: *Hirundiniella cruscula* Carriker, 1963.
- Olivinirmus* Zlotorzycza, 1964. Acta Parasit. Polon. 12:246. Type species: *Nirmus glandarii* Denny, 1842.
- Maculinirmus* Zlotorzycza, 1964. Acta Parasit. Polon. 12:247. Type species: *Nirmus mundus* Nitzsch, 1866.

Nigronirmus Zlotorzycza, 1964. Acta Parasit. Polon. 12:248. Type species:
Nirmus limbatus Burmeister, 1838.

Spiroirmus Zlotorzycza, 1964. Acta Parasit. Polon. 12:261. Type species:
Nirmus nebulosa Burmeister, 1838.

Allonirmus Zlotorzycza, 1964. Acta Parasit. Polon. 12:263. Type species:
Nirmus tristis Giebel, 1874.

Hopkins and Clay (1952, 1953, 1955) recognized 130 species of *Brueelia* with two of these from the Meropidae (Coraciiformes). While Ansari (1956, 1957) has revised the species found on the Corvidae, no comprehensive review of the genus is available. This review may not be possible until the *Brueelia* from the various groups are more completely understood. Initially the most advantageous approach to that end may be studies by host groups, but a comprehensive review will probably show this method to be artificial.

This paper deals with five *Brueelia* species from the Meropidae; two of these have been previously described and three are new.

Peters (1948) and Gruson (1976) were used for the nomenclature of the hosts. The dimensions provided for each species of *Brueelia* were taken from all of the specimens listed in the "Materials Examined" sections. The measurements given are the \bar{x} and range in mm. The "abdominal width" is the measurement of the widest abdominal segment. For these *Brueelia*, it is the fifth segment.

In those cases where only a limited amount of material exists, the location of the collection is given: British Museum (Natural History) = B.M.; R. E. Elbel Collection, University of Utah = U.U.; K. C. Emerson Collection, Sanibel Florida = E.C.; United States National Museum = U.S.N.M.

As discussed by Clay and Tandan (1967), the *Brueelia* from the Meropidae share some characteristics with those from other birds: ventral marginal carina interrupted medially; filiform antennae; prothorax small with lateral margins slightly concave; pterothorax broader than long with sides diverging and posterior margin evenly rounded; abdomen an elongate oval with tergal plates III-IV of the female separated medially.

Key to the *Brueelia* from the Meropidae

1. Ventral marginal carina interrupted medially but not laterally. Head broader than long *athertona*
- Ventral marginal carina interrupted medially and laterally. Head thimble shaped with preantennal region longer than broad 2
2. Male genitalia with basal plate less than twice as long as parameres. Head with dorsal anterior plate *superciliosa*
- Male genitalia with basal plate more than twice as long as parameres. Head lacking dorsal anterior plate 3

3. Proximal head of paramere undivided. Parameres of male genitalia with rows of nodules *bullockoida*
 – Proximal head of paramere bifurcate. Parameres without nodules 4
4. Proximal head of paramere small, bifurcate and rounded *apiastri*
 – Proximal head of paramere larger, bifurcate and pointed .. *erythropteri*

Brueelia erythropteri (Piaget, 1885)

(Figs. 1–3)

Nirmus erythropteri Piaget, 1885. Pédiculines Supplement: 28, pl. 3, fig. 8.

Type-host: (*Merops erythropterus*) = *Melittophagus pusillus* (P. L. S. Muller).

Brüelia erythropteri (Piaget); Hopkins and Clay, 1952. Check list of genera and species of Mallophaga: 55.

The males of this species are distinguished from the others found on the Meropidae by having the proximal head of the genital paramere large, bifurcate and pointed.

Thimble shaped head with preantennal region conical; ventral marginal carina interrupted medially; dorsal marginal carina complete but indented medially and interrupted laterally; no dorsal anterior plate; antennae filiform and similar in both sexes; prothorax small with lateral margins slightly concave; pterothorax broader than long with sides diverging and posterior margin evenly rounded; abdomen an elongate oval with tergal plates I–VII of the female separated medially; male genitalia with a large basal plate and short, blunt parameres; proximal head of parameres bifurcate and pointed; dorsal arms of endomere not fused with basal apodeme; distal end of paramere usually with four sensilla in a row, but sometimes only three are visible.

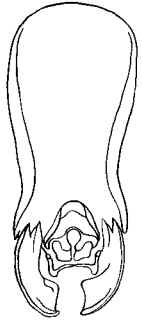
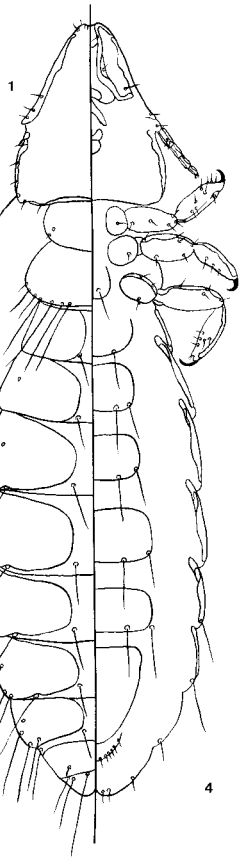
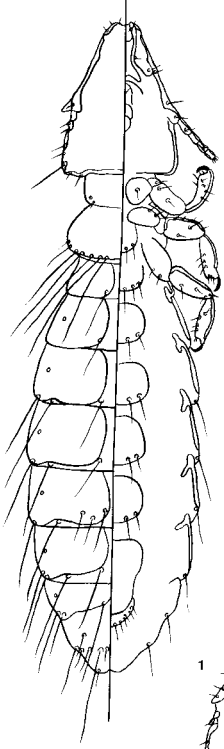
DIMENSIONS: ♦ Male (91): Total length, 1.49 (1.31–1.68); head length, 0.41 (0.34–0.45); head width, 0.33 (0.28–0.43); prothorax width, 0.22 (0.20–0.27); pterothorax width, 0.30 (0.25–0.34); abdominal width, 0.41 (0.34–0.49).

♦ Female (112): Total length, 1.84 (1.55–2.12); head length, 0.46 (0.39–0.51); head width, 0.37 (0.33–0.50); prothorax width, 0.24 (0.21–0.29); pterothorax width, 0.34 (0.28–0.43); abdominal width, 0.49 (0.33–0.63).

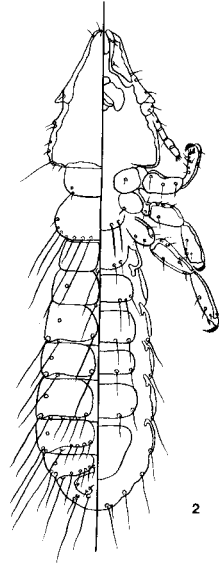
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Figs. 1–3. *Brueelia erythropteri* (Piaget, 1885), dorsal and ventral views of (1) female and (2) male, and (3) male genitalia.

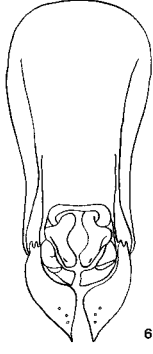
Figs. 4–6. *Brueelia apiastri* (Denny, 1842), dorsal and ventral views of (4) female and (5) male, and (6) male genitalia.



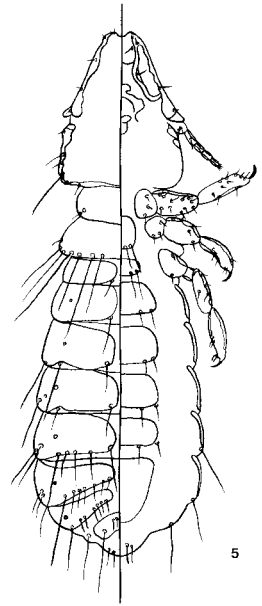
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MATERIAL EXAMINED: 1 male from *Melittophagus p. pusillus* from an unknown region (B.M. slide No. 1267). I have designated this male as the lectotype of this species. It is deposited in the B.M. 2 females from *M. p. pusillus* from Mozambique; 2 females from *M. v. variegatus* from Uganda; 6 females from *M. bullocki* from N. Ghana; 2 males 6 females from *M. lafresnayii orebates* from Kenya; 7 males 5 females from *Dicrocercus hirundineus* from Mozambique, Rhodesia and Tanganyika; 14 males 16 females from *Merops leschenaulti* from Thailand; 3 males 2 females from *M. superciliosus persicus* from Afghanistan and Kenya; 3 males 2 females from *M. s. superciliosus* from Israel; 17 males 24 females from *M. s. philippinus* from India and Thailand; 6 males 11 females from *M. orientalis viridissimus* from the Sudan; 15 males 17 females from *M. o. orientalis* from India, Nepal, and Thailand; 19 males 22 females from *M. v. viridis* from Borneo, Malaya, Spain, Siam, and Thailand; 1 female from *M. nubicus* from the Sudan; 1 male 2 females from *M. nubicoides* from Rhodesia; 2 males 2 females from *M. revoilli* from Somaliland; 1 male 2 females from *M. albicollis* from Sierra Leone and Cameroon.

Brueelia apiastri (Denny, 1842)
(Figs. 4-6)

Nirmus apiastri Denny, 1842. Mon. Anopl. Brit. 52:133, pl. 10, fig. 4. Type host: *Merops apiastri*.

Brueelia apiastri (Denny); Hopkins and Clay, 1952. Check list of genera and species of Mallophaga: 53.

The type specimen of this species is headless and no paratypes exist.

This species is distinguished from *B. erythropteri*, to which it is otherwise similar, by its larger dimensions and having the proximal head of the paramere small, bifurcate and rounded and the distal end of the paramere with three or four sensilla.

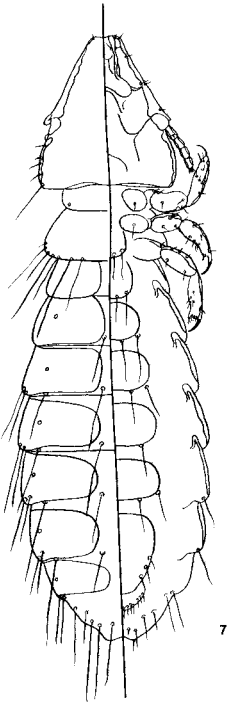
DIMENSIONS: ♦ Male*: Total length, 1.60; head length, 0.44; head width, 0.37; prothorax width, 0.24 (0.23-0.24); pterothorax width, 0.34 (0.33-0.35), abdominal width, 0.49 (0.48-0.49).

* Total length, head length and head width for 1 specimen as the other is headless.

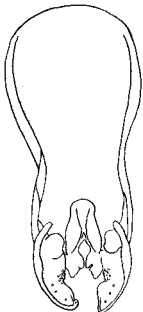
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Figs. 7-9. *Brueelia bullockoda* sp. n., dorsal and ventral views of (7) female and (8) male, and (9) male genitalia.

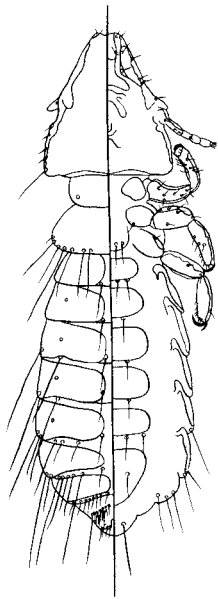
Figs. 10-12. *Brueelia superciliosa* sp. n., dorsal and ventral views of (10) female and (11) male, and (12) male genitalia.



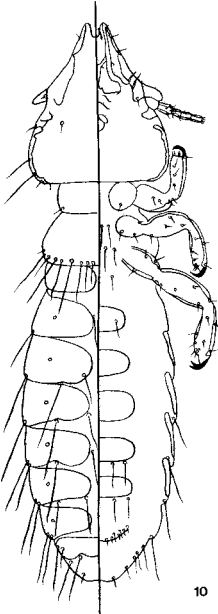
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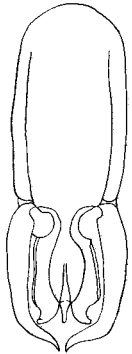
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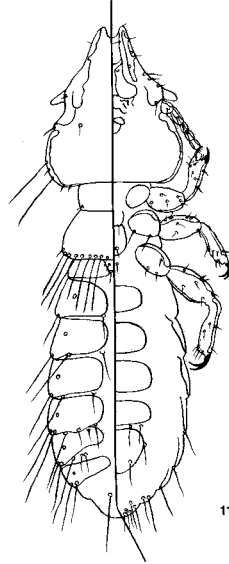
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◆ Female (5): Total length, 1.91 (1.78–2.12); head length, 0.48 (0.46–0.50); head width, 0.41 (0.38–0.48); prothorax width, 0.25 (0.24–0.28); pterothorax width, 0.38 (0.37–0.41); abdominal width, 0.53 (0.49–0.62).

MATERIAL EXAMINED: 1 male holotype from *Merops apiastri* from Belfast, Ireland (B.M. slide No. 1852.98). 1 male 1 female from *M. apiastri* from Al Maghrah, Egypt (U.S.N.M.). 4 females from *M. apiastri* from Mietyana, Uganda (U.S.N.M.).

Brueelia bullockoda sp. n.

(Figs. 7–9)

Very similar to *B. erythropteri* in size and morphology but not in some aspects of the male genitalia. The proximal head of the paramere is not divided; the distal end of the paramere has three or four sensilla; the parameres have rows of nodules; the inner edges of the endomeres have two rows of spine-like projections that are only clearly visible under oil immersion.

DIMENSIONS: ◆ Male (7): Total length, 1.47 (1.44–1.54); head length, 0.41 (0.39–0.41); head width, 0.37 (0.35–0.38); prothorax width, 0.24 (0.23–0.24); pterothorax width, 0.33 (0.32–0.35); abdominal width, 0.48 (0.47–0.51).

◆ Female (11): Total length, 1.85 (1.69–2.09); head length, 0.45 (0.44–0.48); head width, 0.41 (0.40–0.43); prothorax width, 0.26 (0.25–0.27); pterothorax width, 0.38 (0.36–0.40); abdominal width, 0.55 (0.50–0.65).

MATERIAL EXAMINED: Holotype male and paratype male from *Melittophagus bullockoides*, Kenya (A. G. Canaris), No. 1965-42, deposited in B.M.; 2 female paratypes from *M. bullockoides*, N. Rhodesia, 1939 (Meinertzhagen), No. 13511, deposited in B.M.; 1 male from *M. bullockoides* from Mozambique (U.S.N.M.); 3 males 8 females from *M. bullockoides* from Kenya (B.M.); 1 male 1 female from *M. pusillus* from S. Africa (B.M.).

◆ Type-host: *Melittophagus bullockoides* (A. Smith).

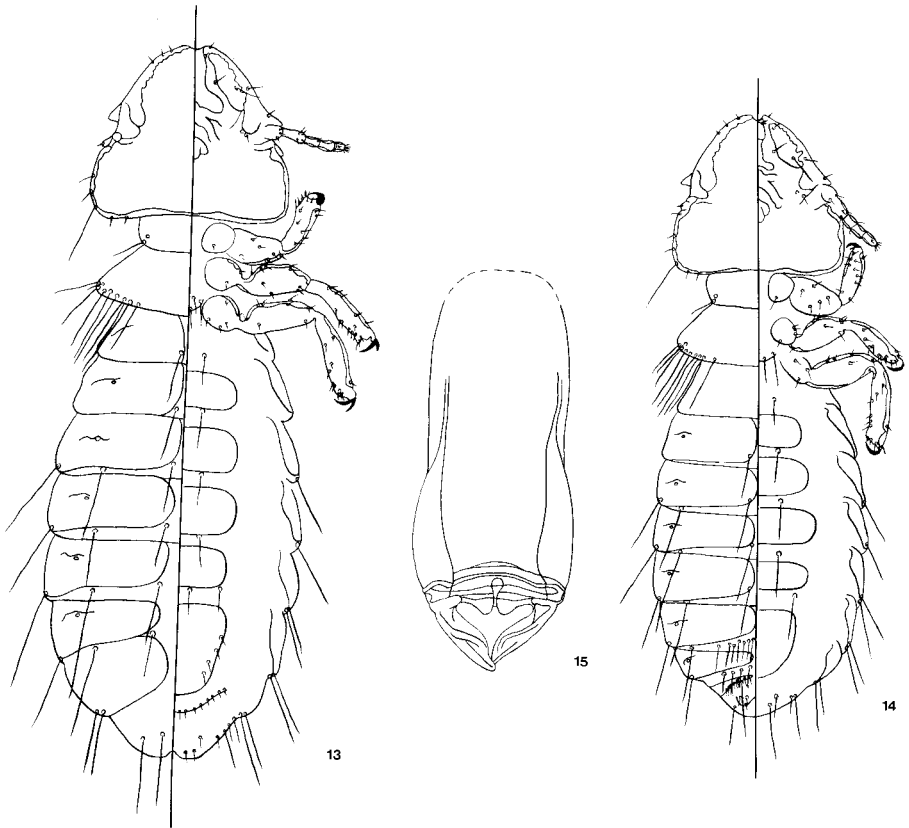
Brueelia superciliosa sp. n.

(Figs. 10–12)

B. superciliosa is distinguished from the other *Brueelia* from the Meropidae in having a head with a dorsal anterior plate and 18 setae at the posterior margin of the pterothorax rather than 14. The male genitalia have a basal plate less than twice as long as the parameres which are distally curved. The distal end of the endomeres is knob-like and ridged.

DIMENSIONS: ◆ Male (1): Total length, 1.49; head length, 0.48; head width, 0.41; prothorax width, 0.24; pterothorax width, 0.33; abdominal width, 0.42.

◆ Female (4): Total length, 1.69 (1.60–1.82); head length, 0.50 (0.48–



Figs. 13–15. *Brueelia athertona* sp. n., dorsal and ventral views of (13) female and (14) male, and (15) male genitalia.

0.51); head width, 0.44 (0.42–0.45); prothorax width, 0.25 (0.24–0.26); pterothorax width, 0.36 (0.34–0.38); abdominal width, 0.45 (0.43–0.46).

MATERIAL EXAMINED: Holotype male and paratype female from (*Merops philippinus javanicus*) = *M. superciliosus philippinus* Linn., Thailand, 1962 (V. Songprakob), Elbel Collection, RE No. 6065; deposited in U.S.N.M.; 3 females from *M. javanicus* from Thailand (U.S.N.M.).

◆ **Type-host:** *Merops superciliosus philippinus* Linn.

Brueelia athertona sp. n.
(Figs. 13–15)

More similar to the *Brueelia* found on the Corvidae than those from the Meropidae. Dimensions larger, head broader than long and triangular, ventral margin of the carina interrupted medially but not laterally, posterior

edge of the pterothorax with 16 setae. Proximal end of basal plate weakly sclerotized and often indistinct, but when visible, the basal plate is 3.5 times as long as parameres. Parameres short and broad with well developed proximal heads.

DIMENSIONS: ♦ Male (12): Total length, 1.68 (1.62–1.78); head length, 0.45 (0.42–0.48); head width, 0.49 (0.47–0.52); prothorax width, 0.28 (0.27–0.30); pterothorax width, 0.47 (0.44–0.53); abdominal width, 0.61 (0.57–0.64).

♦ Female (18): Total length, 2.01 (1.76–2.26); head length, 0.49 (0.45–0.55); head width, 0.55 (0.48–0.63); prothorax width 0.29 (0.24–0.32); pterothorax width, 0.52 (0.46–0.59); abdominal width, 0.72 (0.65–0.81).

MATERIAL EXAMINED: Holotype male and 2 male and 3 female paratypes from *Nyctornis athertoni athertoni*, Bengal, 1926 (Meinertzhagen), B.M. No. 2748; deposited in B.M.; 5 males 8 females from *N. athertoni* from India and Thailand (E.C., U.S.N.M., B.M.); 4 males 7 females from *N. amicta* from Thailand (U.S.N.M., E.C., U.U.).

♦ Type-host: *Nyctornis athertoni athertoni* (Jardine and Selby).

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