A New Species of *Ardeicola* (Insecta: Phthiraptera: Ischnocera)

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**Abstract**

A new species of *Ardeicola* (Ischnocera: Philopteridae) parasitic on *Ardea novaehollandiae* is described and its position within *Ardeicola* discussed.

**INTRODUCTION**

The genus *Ardeicola* Clay, 1935, parasitises birds of the family Ardeidae, Ciconiidae, and Threskiornithidae. Twenty-one species and subspecies of these families, excluding the doubtfully valid forms *Butoroides rogersi* and *Ixobrychus minutus alisteri*, occur in New Zealand and Australia (Peters, 1931): Ardeidae, 14 species and subspecies of 11 genera; Ciconiidae, one subspecies; Threskiornithidae, five species of five genera. One taxon is found in New Zealand only, four taxa in Australia and New Zealand, the remaining 16 in Australia. Of the known species of *Ardeicola*, three—*ibis* (Le Souëf and Bullen), *australis* Hajela and Tandan, 1967, and *harrisoni* Hajela and Tandan, 1970—have been described from material collected in Australia and all are parasitic on members of the Threskiornithidae. As far as Ardeidae is concerned, the type host (*Demigretta sacra*) of *Ardeicola pallidus* (Piaget)—a species of which the type locality is Celebes—occurs in both these countries, but no specimens collected in Australia or New Zealand from this heron have been seen. The species here described is the first new form based on material collected in New Zealand and Australia from a member of the Ardeidae, but the host itself is fairly widespread in East and South-east Asia (Kinsky et al. 1970).

Species of *Ardeicola* from the Ardeidae form a distinct species group, the most distinctive character being the presence of $3 + 3$ long, well-separated, postero-lateral setae on the pteronotum and their position relative to the $2 + 2$ slightly posterior (thoracic trichobothrium and thoracic spiniform) setae (Fig. 5). As species of this group show less divergence than *Ardeicola* parasitising the Ciconiidae and Threskiornithidae, the specific characters are less marked and fewer. In combination with the pigmentation pattern, which is an important taxonomic character, some or all of the following characters allow specific separation of the species of *Ardeicola* from the Ardeidae: Shape of head and terminalia. Length of inner pronotal seta; relative lengths of tergocentral and tergolateral setae on VIII, of sternocentral and sternolateral setae on II and III, and of the inner sternolateral setae (Fig. 8, i. sl) on VI and VII. The distance separating the two tergocentral setae on VIII; the length of the inner sternocentral seta on VI (Fig. 8, i. sc); the extent to which the sternal setae on VIII of the male extend posteriorly relative to the setae in the genital region. Number of pleural setae on segments III and IV and their length on II, III, VI and VII. The components of the male external genitalia, including shape of the basal apodeme, proportions of the mesosome and details of its tip, length of the paramere, especially of its membranous apical portion, and proportions of the hook on its inner margin. The shape and pigmentation pattern of the supra-vulval sclerites.
Figs 1-4.—*Ardecola pilgrimi*. (1) Head of female. (2) Terminal segments of female abdomen. (3) Posterior sclerites of male genitalia. (4) Terminal segments of male abdomen.
Figs 5–8. *Ardelica* *pilgrimi*. (5) Thorax of female, dorsal, one-half only. (6) Sterna II and III for sternal and pleural setae, male. (7) Segments IV and V for pleural setae, male. (8) Sterna VI and VII for sternal and pleural setae, male. i.sc., inner sternocentral seta; i. sl, inner sternolateral seta; sc, sternocentral seta; sl, sternolateral seta.
Family Philopteridae Burmeister
Genus *Ardeicola* Clay, 1935

*Ardeicola pilgrami* n.sp. Figs. 1–9.

Type host: *Ardea novaehollandiae* (Latham)

General characters and pigmentation pattern as in Fig. 9. Body measurements given in Table 1; no overlap in the length of the sexes.

Shape of head and chaetotaxy as in Fig. 1. Posttemporal seta short in the female, long in the male either falling slightly short of or reaching the occiput. Pro- and ptero-notum as in Fig. 5. Outer marginal pronotal seta short in the male, moderately long in the female; inner seta long. On meso- and meta-sternum 1 + 1 long setae.

Interpretation of abdominal segments as in *A. dennelli* (see Hajela and Tandan, 1967). Segment II shorter than III, more so in the female than in the male. In the male, anterior margin of tergite II incised to about two-thirds of its length and tergites III–VIII as transverse plates apparently continuous across the segment. Tergal thickening of segments II–VIII in the female as lateral tergites and of IX–XI in both sexes as a large plate (Figs 2, 4). Sternal thickening not apparent. Male genital region, its chaetotaxy and external genitalia, and female genital region as in Figs 2, 3, 4. Margin of male genital opening membranous. Supra-vulval sclerites of characteristic shape, anteriorly feebly and posteriorly moderately pigmented.

**Fig. 9.—Ardeicola pilgrimi** n.sp., left, male; right, female.
Abdominal chaetotaxy: Tergal. Counts same in both sexes. On II anterior setae absent; on II–VIII 2 tc (tergocentral) + 2 tl (tergolateral) marginal setae present, but in the male 3 tc setae also present on IV, V and composite IX–XI. Fused IX–XI as in Figs 2 and 4. Post-spiracular setae, 1 + 1, present on terga III–VII, usually long, but in the female tend to be very long on V–VII. Pleural (Figs 2, 4, 6–8). Count of II–IV, VII, VIII and seta a in both sexes: II, absent; III, 1 + 1, moderately long to long; IV, 2 + 2; VII, VIII, 4 + 4; a, 1 + 1. Male: V, 3 + 3 (2), 4 + 3 (2); VI, 4 + 4 (3), 4 + 5 (1); seta a, fine, moderately long; v, 1 + 1 long. Female: V, 3 + 3 (1), 4 + 3 (2), 4 + 4 (1); VI, 4 + 4 (4); seta a, fine, short; p, 1 + 1 spiniform, marginal and submarginal setae on IX–XI, each side 2–4, total 5–7, short or spiniform. Sternal. Male (4) (Figs 6, 8): II, 2 sc (sternocentral) + 2 sl (sternolateral), sc usually much longer than sl setae; III, 2 sc + 2 sl, sc short to long, sl long and much longer than sl setae; IV, 2 sc, minute or short; V, 2 sc, long to very long; VI, 4 + 4 (an important character); VII, 3 + 3 (3), 6 + 3 (1); VIII, 1 + 1, not reaching to the setae in the genital region; setae d in genital region, 2 + 2, moderately long to long. Female (3): II, 6–7, one each side of the midline is elongated and the longest; III, IV, VII and VIII, count as in the male; III, sc long and sl almost twice as long as sc setae; IV, sc minute; V, 2 sc (2), 2 sc + 1 sl (1), sc minute to long, sl of medium length; VI, each side 3–4, total 6–8. Vulval marginal, 5 + 5, spiniform, one each side of the midline longer than the others.

Table 1.—Measurements in mm of Ardeicola pilgrimi n.sp.

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<tr>
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<th>Male (4)</th>
<th>Female (4)</th>
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<tr>
<td>Head</td>
<td>Range</td>
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<td>Length</td>
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<tr>
<td>Breadth¹</td>
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<td>Breadth²</td>
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<td>Pterothorax</td>
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<td>Length</td>
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<td>Breadth</td>
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<td>Total length</td>
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<td>C.T.</td>
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<td>0.58</td>
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1, Breadth across temples; 2, breadth at level of preantennal setae.

MATERIAL EXAMINED: All from Ardea novaehollandiae. 3 ♂, 1 ♀ and 3 nymphs, New Zealand: 1960’s (R. L. Pilgrim); 1 ♂, 1 ♀, New Zealand: Summer, 20/vi/1969 (B. N. Norris). In BMNH, 1 ♂ (dissected) without data and 2 ♀, Australia: Tuggerah Beach Lagoon, New South Wales (L. Harrison); 1 ♀, without data, K. C. Emerson collection.


Paratypes 5 ♂ and 5 ♀, with data as given above, BMNH and Dr K. C. Emerson collections.

The species is named in honour of Professor R. L. C. Pilgrim.

DISCUSSION

Comparison with all the known species of Ardeicola from the Ardeidae showed the necessity of separating this species from twelve taxa: ardeae (L.), stellaris (Denny), leucoproctus (Nitzsch), pallidus (Paige), botauri (Osborn), goisagi Uchida, crusculus Carriker, florida florida Carriker, celeris Tuff, floridanus Tuff, buttekeri Kumar and Tandan and ixobrychae Tuff. It differs from these in the pigmentation pattern and characters of the mesosome, especially the details of the tip. These, in combination with the following characters, separate it from all the foregoing taxa: Shape of head in both sexes; length of pleural setae on II, III, VI and VII in the male and II and III in the female. In the male by the proportions of sternocentral and sternolateral setae on II and in the female by the shape and pigmentation pattern of the supra-vulval sclerites.

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LITERATURE CITED


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