Review of the Species of *Rallicolia* (Phthiraptera: Philopteridae) from the Woodcreepers (Passeriformes: Dendrocolaptinae)

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ABSTRACT  Sixteen species of chewing lice in the genus *Rallicolia* are recognized and described from members of the passerine subfamily Dendrocolaptinae. These include 12 previously described species and 4 new ones. *R. keyseri* from *Dendrocolaptes punctatus*, *R. balbi* from *Xiphocolaptes major*, *R. harryi* from *Deconychura longicauda*, and *R. palmata* from *Campylorhamphus trachirostris*. New synonyms include *R. guttata* and *R. purpura*, both of which are junior synonyms of *R. chinchotambo*, and *R. certhia* microgenista, which is a junior synonym of *R. cumbulana*. A key is provided for identification of the species treated herein.

KEY WORDS *Rallicolia*, woodcreepers, Neotropical region, taxonomy

AT PRESENT, 31 species and subspecies of the chewing louse genus *Rallicolia* Johnston & Harrison are recognized from birds in the Neotropical parvorder Furnariidae (Passeriformes). All 31 taxa were described by Carricker (1944, 1953a, b, 1966), who placed them in the genus *Furnariola* Carricker, Hopkins & Clay (1952) and Clay (1953) treated Furnariola as a synonym of the genus *Rallicolia*. Despite this, Carricker (1966) defended the generic validity of *Furnariola* until his death, saying: "I think it would be most unwise to place this genus under the synonymy of *Rallicolia*, since it would utterly confuse any idea of the relationships between the Mammal and their hosts." Carricker's defense exemplifies the circular reasoning common among earlier taxonomists who tended to classify parasites on the basis of their hosts rather than on the basis of the parasites themselves (Halper & Naelder 1990). Because such reasoning is not justification for recognizing genera, we adopt the action of Hopkins & Clay (1952), thereby altering the position of Price & Emerson (1987) who supported the generic status of *Furnariola*.

We have recently surveyed the 31 species and subspecies of *Rallicolia* from the Furnariidae. The results of this suggest a monophyletic origin for the subset of *Rallicolia* occurring on members of the subfamily Dendrocolaptinae, the woodcreepers. In this paper, we restrict our attention to these woodcreepers *Rallicolia*, which include 15 previously described taxa and 4 new species described herein (Table 1). Three of the new species are based on specimens collected by D.H.C. in Peru (see Clayton 1990). The fourth new species is based on specimens of Bolivian lice on loo from The Natural History Museum (London).

Before proceeding with our taxonomic descriptions, a few cautionary notes are in order regarding Carricker's descriptions, which are seriously flawed because they were often based on inadequate series of one or two specimens; preoccupation with artificial characters resulting from poorly prepared specimens; unreliable host associations because of apparent cases of smuggling or contamination; and illustrations lacking critical detail, especially with regard to chaetotaxy.

The net result of these shortcomings is that one cannot use Carricker's descriptions or keys to identify any lice with confidence, other than by host association. Our experience has shown that even Carricker could not identify lice working with his own descriptions; gross errors were common when he attempted to incorporate additional specimens into his classification scheme. In short, when it is necessary to work with Carricker's descriptions, it is essential to obtain and reinterpret his original type material. Experienced taxonomists are aware of this problem; we merely wish to caution those new to the field who might otherwise place unwarranted trust in Carricker's work. Considerable effort will be required to clarify the fruits of Carricker's labor, given that he holds the record as the most prolific describer of chewing lice, having generated more than 800 specific-subspecific names from 1902 to 1967. Fortunately, much of the Carricker collection is available for study at the National Museum of Natural History in Washington, DC (see Carricker 1967).
Table 1. Host-parasite list

<table>
<thead>
<tr>
<th>Host taxon</th>
<th>Ralliecola species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dendrocarpa fuliginosa</td>
<td>antependias fuliginosa</td>
</tr>
<tr>
<td>Dendrocarpa longiflora</td>
<td>harpyea, n. sp.</td>
</tr>
<tr>
<td>Sittamomus viridiscula*</td>
<td>pygmaea</td>
</tr>
<tr>
<td>Caliperichus spinatus</td>
<td>cephalonia</td>
</tr>
<tr>
<td>Xiphostomatias almaris</td>
<td>tergalis</td>
</tr>
<tr>
<td>Xiphostomatias major</td>
<td>laticincta</td>
</tr>
<tr>
<td>Dendrocarpa certhia</td>
<td>certhia</td>
</tr>
<tr>
<td>Dendrocarpa microps*</td>
<td>keymerae, n. sp.</td>
</tr>
<tr>
<td>Xiphostomatias pires</td>
<td>hirta microps</td>
</tr>
<tr>
<td>Xiphostomatias acellatus</td>
<td>chunechotambo</td>
</tr>
<tr>
<td>Xiphostomatias guttatus</td>
<td>chunechotambo</td>
</tr>
<tr>
<td>Xiphostomatias longipennis</td>
<td>chaetextophora</td>
</tr>
<tr>
<td>Xiphostomatias quadrangulars*</td>
<td>chaetextophora</td>
</tr>
<tr>
<td>Lernadocotias unipinnata</td>
<td>palma, n. sp.</td>
</tr>
</tbody>
</table>

* Host names and sequence from Sibley & Monroe (1990).
* n. sp., new species; all others described by Carriker.

Taxonomic Characters. We find the following features useful in characterizing the *Ralliecola* found on woodpeckers. For brevity, only deviations from these, along with dimensions and certain unique features, are discussed under each species description.

Very little sexual dimorphism (Figs. 1 and 5), limited to female being consistently larger and to usual differences associated with terminalia and male genitalia.

Head broadly triangular, with distinct shallow medioanterior concavity. Dorsal anterior plate longer than wide (Fig. 2), with "U" extending nearly posterior margin. Ocellar seta (Fig. 7, arrow) short, similar in length to 3 marginal temple setae between it and single very long seta on each side. Gular plate as in Fig. 3.

Pronotum with only single seta at each latero-posterior corner. Each side of metanotum with cluster of 4 short to very long setae laterally and 2 long to very long setae grouped medially of these.

Abdomen with tergal plate II (first apparent tergum) medically constricted, either divided or with weak union; each side with 2 medioanterior sensilla, with inner occasionally represented by minute seta (Fig. 10). Remainder of tergal plates undivided, with those of male posterior segments much shorter than female. Tergal chaetotaxy of 2 median marginal setae on II–VIII, these either being short (length of seta on V of male, 0.075–0.125; of female, 0.055–0.130) or long (length of setae on V of male, 0.125–0.185; of female, 0.150–0.250). Short lateral marginal seta on VII medially of spiracle.

Without seta at lateral body margin of II, with single short lateral seta on III, and with 2–3 short to very long lateral setae on IV–VIII.

Sternal plates undivided, with sternal plate on 11 (first apparent abdominal sternum) bearing 2 setae; with minimum of 2 setae on each of other sterna. Outer sternal seta on 6 very long, extending across VIII, often to near end of abdomen (Fig. 11, arrow).

Female with large subgenital plate (fused sternae VII–VIII) marginally having row of 5–12 short spiniform setae on each side and total of 13–30 short fine setae. With 2 prominent setae on large tubercle latero-posterior to subgenital plate; chaetotaxy posterior to this tubercle as in Fig. 1.

Male terminalia as shown in Fig. 5, with total of 8 dorsal and ventral very long setae on last segment. Genitalia with well-developed, slender parameres, each having terminal short, fine seta. I small setulium about third of way from end, and lacking any strong process on median margin. With variably shaped mesosoma and elongate broad anteriorly rounded to flattened basal plate.

The woodpecker *Ralliecola* all have a distinct medioanterior head concavity, a relatively short broad gula (Fig. 3), and male genitalia without a strong process on the median paramere margin (Figs. 8, 9, and 12–19). In contrast, *Ralliecola* from other members of the parvorder Furnariidae (Furnariinae [toucans], Formicariidae [ground ants, and Rhinocryptidae (tapaculs)] all have a flat to slightly convex medioanterior head margin, a more attenuate gula, and often a prominent process on the median paramere margin of the male genitalia.

Materials and Methods

The following descriptions contain measurements given in millimeters. Explanations for abbreviations are provided the first time they are used. Illustrations for similar parts are drawn to the same magnification. Under the "Materials" section following the locality, we have indicated parenthetically the cases where house collections are from more than one host individual. Host classification to species follows Sibley & Monroe (1990); that of subspecies follows Peters (1951).

**Ralliecola chunechotambo** (Carriker) (Figs. 1–5)

*Furnarica chunechotambo* Carriker 1944: 92. Type host: *Xiphostomatias acellatus chunechotambo* (Tecludi).

*Furnarica guttatus* Carriker 1963a: 466. Type host: *Xiphostomatias guttatus polystictus* (Salvin & Godman). N. syn.

Description. Male as in Fig. 5, female as in Fig. 1. Ocular setae much longer than 3 marginal setae between it and very long seta. With short tergal setae. Sternal setae: IV-V, 2-4; VI, 4; outer seta on VI only extending as far as VIII. Male genitalia (Fig. 4) with hind median parameres: male the one triangular with open apex and inwardly directed barbs.

Dimensions of Male. Temple width (TW), 0.415–0.460; head length (HL), 0.440–0.480; dorsoanterior plate length (DAPL), 0.090–0.095; prothorax width (PW), 0.225–0.260; metathorax width (MW), 0.325–0.350; abdomen width at V (AWV), 0.455–0.480; total length (TL), 1.375–1.515; genitalia width (GW), 0.075–0.080; genitalia paramere length (GPL), 0.085–0.095; genitalia length (GL), 0.270–0.305.

Dimensions of Female. TW, 0.465–0.500; HL, 0.485–0.520; DAPL, 0.095–0.105; PW, 0.260–0.275; MW, 0.365–0.385; AWV, 0.515–0.555; TL, 1.740–1.935.


Remarks. The long ocular seta of R. chunchotambo is shared with only one other known species, R. antauquensis (Carriker); the former is easily separated from the latter by its much smaller dimensions. We can find no characters distinguishing either F. guttata or F. pyrgulena from R. chunchotambo; hence, we consider the first two taxa to be junior synonyms of R. chunchotambo.

Ralicola antauquensis (Carriker) (Fig. 6)

Furcarincola fuliginosa antauquensis Carriker 1966: 416. Type host: Dendrocolaptes fuliginosa lafresnayei Budayray.

Description. Known only from male. Head (Fig. 6) with dorsoanterior plate as shown, long ocular seta, and deep medianocoxal concavity. With long tergal setae. Sternal setae: III–IV, 4; V–VI, 4–6; VII, 4. Male genitalia like those of R. chunchotambo (Fig. 4).

Dimensions of Male. TW, 0.550–0.555; HL, 0.550–0.585; DAPL, 0.125–0.130; PW, 0.325–0.330; MW, 0.445–0.450; AWV, 0.590–0.610; TL, 1.575–1.680; GW, 0.095–0.100; GPL, 0.100–0.115; GL, 0.365–0.380.

Material Examined. Holotype, ♀, 1 paratype, ♂, ex D. f. lafresnayei, Colombia: Antioquia, Taraza.

Remarks. This species and R. chunchotambo, which are readily separated by dimensional differences, are the only known taxa with a long ocular seta. Carriker (1960) noted the very large size of R. antauquensis, which serves as an excellent distinguishing character. Because female lice are consistently larger than males, we anticipate that females of this species will be easily recognized when collected.

Carriker (1960) placed F. antauquensis as a subspecies of F. fuliginosa rather than as a species, despite the morphological distinctness of the two taxa. We assume that Carriker’s decision was motivated by the fact that these lice are reported from the same species of host (Table 1). However, we do not consider this to be justification for lumping such distinct morphotypes. Because the host record of R. antauquensis is based on only two specimens, further collecting is needed to confirm this host association.

Ralicola certhia (Carriker)

Furcarincola certhia Carriker 1963a: 465. Type host: Dendrocolaptes certhia certhia (Boddaert).

Description. Head similar to Fig. 20. Dorsoanterior plate with "U" extending to near middle of plate. With long tergal setae. Sternal setae: III, 4–6; IV–V, 5–7; VI, 6–8; and on male VII, 3–4. Male genitalia much as in Fig. 14a, with tendency to more abrupt "shoulder" on parameres.

Dimensions of Male. TW, 0.515; HL, 0.520–0.530; DAPL, 0.130; PW, 0.270–0.305; MW, 0.415–0.430; AWV, 0.520–0.545; TL, 1.595–1.683; GW, 0.085–0.090; GPL, 0.100–0.105; GL, 0.350–0.355.

Dimensions of Female. TW, 0.530–0.550; HL, 0.565–0.570; DAPL, 0.130–0.135; PW, 0.290–0.325; MW, 0.435–0.440; AWV, 0.575–0.610; TL, 1.900–2.020.


Remarks. This species is distinguished by its combination of short ocular seta, only two medium long marginal tergal setae, generally large dimensions, and male genitalia near Fig. 14a.

Ralicola colombiana (Carriker) (Fig. 14b)

Furcarincola certhia colombiana Carriker 1966: 411. Type host: Dendrocolaptes certhia hyleorus Wetmore.

Furcarincola certhia microgenitalia Carriker 1966: 412. Type host: Dendrocolaptes certhia colombianus Todd. N. s.
Description. Head similar to Fig. 20. Dorsoanterior plate with "U" extending to near middle of plate. Abdomen much as in Fig. 10: with 4 median tergal setae on III–VII, 2–3 on VIII; with long tergal setae. Sternal setae: III–VI, 4–5; VII, 3–4. Male genitalia near Fig. 14a but with parameres as in Fig. 14b.

Dimensions of Male. TW, 0.175–0.500; HL, 0.515–0.530; DAPL, 0.115; PW, 0.260–0.300; MW, 0.375–0.415; AWY, 0.460–0.530; TL, 1.525–1.550; GW, 0.075–0.085; GPL, 0.095–0.100; GL, 0.315–0.335.

Dimensions of Female. TW, 0.500; HL, 0.555; DAPL, 0.125; TL, 1.735; other dimensions unavailable because of distorted mount.


Remarks. This is one of only three species with at least four median marginal tergal setae on III–VI. It is distinguished from the other two species in having only up to five sternal setae on IV–VI, a unique male genital paramere shape, and lacking a pair of long medioanterior setae on tergum II.

Rallicola kyemez Price & Clayton, new species
(Figs. 10, 14a, and 20)

Type host. Dendroclastes pulchrum Lichtenstein.

Description. Head as in Fig. 20. Dorsoanterior plate with "U" extending to near middle of plate. Abdomen as in Fig. 10: with 4–5 median tergal setae on III–VI, 2–4 on VII, and 3–4 on male VIII; with long tergal setae. Sternal setae: III, 4–7; IV–VI, 6–9; male VII, 2–3. Male genitalia as in Fig. 14a.

Dimensions of Male. TW, 0.450–0.480; HL, 0.470–0.505; DAPL, 0.120–0.135; PW, 0.265–0.275; MW, 0.375–0.400; AWY, 0.465–0.510; TL, 1.450–1.580; GW, 0.085–0.090; GPL, 0.090–0.100; GL, 0.300–0.330.

Dimensions of Female. TW, 0.515–0.555; HL, 0.535–0.580; DAPL, 0.130–0.150; PW, 0.310–0.320; MW, 0.400–0.470; AWY, 0.565–0.630; TL, 1.935–2.115


Remarks. Although this species and R. colombiana are distinct in having at least four median marginal tergal setae on III–VI and no long medioanterior pair of setae on tergum II. R. kyemez can be separated from R. colombiana in having at least six sternal setae on each of IV–VI, a male genital paramere of different shape, and a tendency toward smaller male dimensions.

Etymology. This species is named for the junior author's friend and colleague, Anne E. Keeney, University of Oxford, in recognition of her fundamental contributions to the study of host-parasite epidemiology, ecology, and evolution.

Rallicola lalici Price & Clayton, new species

Type host. Xiphorchestes major (Nieblatt).

Description. Head similar to Fig. 20. Dorsoanterior plate with "U" extending to near middle of plate. Abdomen much as in Fig. 10, but with tergum II as in Fig. 11, having long medioanterior pair of setae similar in length to marginal setae, with 4–6 median tergal setae on III–VIII, male with 4 on VIII, with long tergal setae. Sternal setae: III, 4–5; IV–VI, 5–9. Male genitalia similar to Fig. 14a, but with parameres as in Fig. 14b.

Dimensions of Male. TW, 0.405; HL, 0.545; DAPL, 0.110; PW, 0.300; MW, 0.450; AWY, 0.640; TL, 1.775; GW, 0.085; GPL, 0.115; GL, 0.405.

Dimensions of Female. TW, 0.515–0.525; HL, 0.550–0.580; DAPL, 0.165–0.230; PW, 0.310–0.320; MW, 0.460–0.475; AWY, 0.680–0.760; TL, 1.910–2.080.

Type Material. Holotype, ♂ ex X. major, Bolivia: Dept. Santa Cruz, Prov. Chiquitos (170); in collection of The Natural History Museum (London). Paratypes, 3 ♀♀ 3 ♂♂, same data and in same collection as holotype.

Remarks. This species, R. colombiana, and R. kyemez are the only ones with at least four marginal tergal setae on III–VI. Although the male genital paramere resembles that of R. colombiana (Fig. 14b) rather than that of R. kyemez (Fig. 14a), the long pair of medioanterior setae on tergum II separates R. lalici from both of the other species.

Etymology. This species is named for Christopher H. C. Letical, The Natural History Museum (London), in recognition of his outstanding research on mammalian Filthiraptera and his longtime friendship and collaboration.

Rallicola lachrymosa (Carriker)
(Fig. 15)

Carrikeria lachrymosa (Carriker 1966: 412.

Type host. Xiphorchestes lachrymosus lachrymosus Lawrence.

Description. With short tergal setae. Sternal setae: III, 2–3; IV–V, 2–4; VI, 4; outer seta on VI
only extending as far as VIII. Male genitalia (Fig. 15) with straight-sided parameres.

**Dimensions of Male.** TW: 0.470–0.480, HL: 0.495–0.505, DAPL: 0.100–0.105, PW: 0.275–0.280, MW: 0.375–0.380, AWV: 0.510–0.520, TL: 1.525–1.620, GW: 0.075–0.080, GPL: 0.100–0.105, GL: 0.335–0.360.

**Dimensions of Female.** TW: 0.505–0.520, HL: 0.530–0.535, DAPL: 0.105–0.110, PW: 0.225–0.230, MW: 0.410–0.420, AWV: 0.575–0.590, TL: 1.845–1.915.

**Material Examined.** Holotype, ♂, allotype, ♀, paratypes, 1 ♂, 3 ♀♀, all ex X. l. lachrymosa, Colombia: Dept. Choco, Quibdo.

**Remarks.** This species is distinguished from the others by the combination of short ocular setae, terga each with only two short median setae, the last segment of male with eight very long setae, the generally large dimensions, and details of the male genitalia. Included in Carriker's collection is a male supposedly collected from X. l. alatum Chapman, stated by Carriker (1966) to be "... inseparable from the allotype" and identified as *F. lachrymosa*. This identification is in error, the specimen is likely a contaminant because it represents a *Ruplicola* from some host other than a woodcreeper.

**Ruplicola pipraphaga** (Carriker) 1966: 421

**Type host:** Pipra pipra comata Berlepsch & Stolzmann (error).

**Description.** Head with dorsolateral plate similar to Fig. 20. With short tergal setae; short lateral setae on tergum VII posterior to spiracle. Segment III lacking lateral setae on both sides. Ectal setae of male: III-V, 2–3, VI, 4–5, of female: III, 2–4, IV, 3–4, V–VI, 4–6. Outer seta on VI extending only as far as VII. Male terminalia with only 6 very long setae, lacking very long "arrow" seta of Fig. 5. Male genitalia similar to Fig. 18a, but mesosoma (Fig. 18b) more rounded and lacking prominent posterior flared barbs.

**Dimensions of Male.** TW: 0.400–0.420, HL: 0.395–0.405, DAPL: 0.075–0.080, PW: 0.220–0.225, MW: 0.310–0.335, AWV: 0.400–0.440, TL: 1.315–1.405, GW: 0.600–0.655, GPL: 0.085–0.085, GL: 0.250–0.265.

**Dimensions of Female.** TW: 0.450–0.460, HL: 0.450–0.445, DAPL: 0.055–0.060, PW: 0.235–0.260, MW: 0.350–0.350, AWV: 0.455–0.495, TL: 1.625–1.720.

**Material Examined.** Holotype, ♂, ex P. p. comata (error), Peru: Chanchamayo, Enenas. 1 ♂, 2 ♂♂, ex S. griseicapillus, Peru: Dept. Madre de Dios, Cerro de Fantiaculla (2 collections).

**Remarks.** This is the only species with a mesosomal shape as in Fig. 18b and which lacks a lateral seta on both sides of abdominal segment III. It is additionally characterized as having a short ocular seta, each of terga III–VI with only two short median setae, relatively small dimensions, and the last male segment with only six very long setae.

Carriker (1966) described this species from a single female supposedly collected from a Peruvian Piprmae host. This female is obviously a contaminant from a woodcreeper host and agrees in all aspects with the females from *S. griseicapillus*, thus, we consider these three to be conspecific.

When Carriker (1966) originally described *F. pipraphaga* (as well as a second species [see below]) from hosts in the Piprmae (manakins), he noted in an appended paragraph: "There is a faint possibility of straggling in the case of these two species, although no real proof..." The only thing that is suspicious is that the two females are so different, while both are from hosts of the same genus [Pipra]." Given that *R. pipraphaga* is actually a woodcreeper host, we suggest that the second species (*R. inexpectata* [Carriker]), based also on a single female which we have examined and which was supposedly collected from Pipra coerulescens Tschudi will also prove to be a contaminant from a host in the Furnariinae or Formicaridae. In short, Carriker (1966) was correct in having doubts about the validity of these host records because Piprmae most likely do not harbor *Ruplicola*.

It is worth noting that the locality for this erroneous host record for *F. pipraphaga* is Enenas, Peru, which is the same locality for the erroneous record for *F. pyrgilena*, which was described from a Formicaridae host when it is actually a junior synonym of the woodcreeper host *R. chunchamato*.

**Ruplicola harceyi** Price & Clayton, new species

(Fig. 18a)

**Type host:** Decumanura linguacauda (Pezeln) 1966.

**Description.** Similar to *R. pipraphaga* except for presence of lateral setae on I or both sides of abdominal segment III, outer seta on sternum VI extending near end of body and male genitalia with prominent, inwardly directed mesosomal barbs (Fig. 18a).

**Dimensions of Male.** TW: 0.420–0.430, HL: 0.425–0.440, DAPL: 0.085–0.089, PW: 0.220–0.240, MW: 0.330–0.350, AWV: 0.415–0.445, TL: 1.345–1.410, GW: 0.600–0.655, GPL: 0.080–0.085, GL: 0.270–0.280.

**Dimensions of Female.** TW: 0.440–0.450, HL: 0.450–0.455, DAPL: 0.090–0.095, PW: 0.250–0.255, MW: 0.345–0.360, AWV: 0.450–0.460, TL: 1.610–1.630.
**Rallincola cephalosa** (Carriker)  
(Figs. 7 and 8)

*Furnaricola cephalosa* Carriker 1944: 94. Type host: *Glyptolophus spurius subletus* Peters.

**Description.** Head as in Fig. 7 with "U" of square dorsoanterior plate extending to near middle of plate; with deep anterior concavity. With short tergal setae. Tergal setae on VI, 4–5; outer setae on sternum VI extending only as far as VIII. Last male segment with only 6 very long setae. Male genitalia (Fig. 8) with straight-sided parameres; solid "button" at posterior end of mesosome.

**Dimensions of Male.** TW, 0.420–0.470; HL, 0.385–0.410; DAPL, 0.090–0.105; PW, 0.220–0.240; MW, 0.315–0.355; AW, 0.400–0.420; TL, 1.200–1.415; GW, 0.080–0.085; GPL, 0.240–0.275.

**Dimensions of Female.** TW, 0.460–0.480; HL, 0.410–0.430; DAPL, 0.100–0.105; PW, 0.240–0.250; MW, 0.300–0.355; AW, 0.445–0.470; TL, 1.515–1.645.

**Material Examined.** Holotype, 1 ♂, ex G. spurius Costas Rica, Guanacaste; 4 ♀♀, ex G. spurius (Vieillot). Brazil: Belem (3 collections), 14 ♂♂, ex G. spurius, Peru: Dept. Madre de Dios, Cerro de Pancirolla (3 collections); 4 ♂♂, ex G. spurius, Peru: Dept. Cuzco, 20 km NW Pucallpa.

**Remarks.** This is the first of four species described herein with a solid "button" on the posterior tip of the male genital mesosome. *R. cephalosa* is distinguished from the other three species by its much shorter head with its deep anterior concavity.

**Rallincola fuliginosa** (Carriker)  
(Figs. 13 and 21)

*Furnaricola fuliginosa* Carriker 1963a: 467. Type host: *Dendrocoelum fuliginosa modrakin* (Halsneveal).

**Description.** Head as in Fig. 21. With short tergal setae; short lateral seta on tergum VI posterior to spiracle. Tergal setae of male: III–IV, 2–3; VI, 3–4; of female: III–V, 2–4; VI, 4–7. Female, and occasionally male, with shorter outer seta on sternum VI. Last male segment as for *R. cephalosa*. Male genitalia (Fig. 13) much as for *R. cephalosa* (Fig. 8), but with basally swollen parameres.

**Dimensions of Male.** TW, 0.420–0.465; HL, 0.440–0.485; DAPL, 0.090–0.095; PW, 0.240–0.275; MW, 0.345–0.380; AW, 0.450–0.510; TL, 1.420–1.585; GW, 0.085–0.075; GPL, 0.090–0.100; GL, 0.255–0.285.

**Dimensions of Female.** TW, 0.475–0.480; HL, 0.505–0.510; DAPL, 0.095–0.100; PW, 0.265–0.270; MW, 0.360–0.385; AW, 0.485–0.525; TL, 1.770–1.810.

**Material Examined.** Holotype, 1 ♂, ex D. fuliginosa, Trinidad: Bush bush Forest, 12 ♂♂, 11 ♀♀, ex D. modrakin (Vieillot). Peru: Dept. Madre de Dios, Cerro de Pancirolla (2 collections).

**Remarks.** This species is similar to *R. cephalosa* in that the male has a solid "button" at the mesosome tip. It is distinguished from the latter by the male having a longer outer seta on sternum VI and basally swollen genitalic parameres; both sexes also have longer heads than *R. cephalosa*.

**Rallincola picrostria** (Carriker)  
(Fig. 12)

*Furnaricola picrostria* Carriker 1966: 414. Type host: *Xiphophorus pictus picrostria* (Lattesnavel).

**Description.** Similar to *R. fuliginosa*, except with both sexes having longer tergal setae and very long outer seta on sternum VI, and with male genitalia (Fig. 12) having a distinct hole in "button" of mesosome.

**Dimensions of Male.** TW, 0.440–0.465; HL, 0.475–0.490; DAPL, 0.095–0.100; PW, 0.250–0.265; MW, 0.360–0.375; AW, 0.495–0.580; TL, 1.455–1.590; GW, 0.075–0.085; GPL, 0.090–0.105; GL, 0.295–0.330.

**Dimensions of Female.** TW, 0.465–0.495; HL, 0.495–0.510; DAPL, 0.095–0.100; PW, 0.265–0.280; MW, 0.385–0.405; AW, 0.520–0.560; TL, 1.775–1.790.

**Material Examined.** Holotype, 1 ♂, allotype, 2 ♀♀, paratype, 1 ♂, ex X. p. picrostria, Colombia: Magdalena. El Conojo. 1 ♂, 2 ♀♀, ex X. p. dug-
andi (Wetmore & Phelps), Colombia: Bolivar, Rio Viejo, 1 M, 1 1/2, ex X. p. saturator (Helli- mary), Colombia: Santander, Cucuta.

Remarks. The male genitalia of R. picrostra are unique in having a distinct hole in the mesosome “button.” R. picrostra is further distinguished from R. fuliginosa, to which it is most similar, in having long tergal setae, a very long seta on sternum VI, and minor dimensional differences.

This is another instance in which Carriker (1968) assigned subspecific status to a house that differs substantially from the nominate form, thereby overrating the taxon closer to it. Given that both forms are found on the same host taxon (Table 1), Carriker was likely again following a preconceived notion derived from host association rather than basing his decision on house morphology. To further complicate matters, and to further illustrate Carriker’s lack of a grasp of specific detail, he identified the above pair of flies from X. p. saturator as F. h. hirsuta rather than as F. h. picrostra.

Ralllicola hirsuta (Carriker)

(Fig. 16)

Furnarica hirsuta hirsuta Carriker 1966: 413.
Type host: Xiphophorus plane saturator (Helli-mary).

Description. Head similar to Fig. 20, dor-
soanterior plate = 80% larger than wide, with “U” extending to near middle of plate. Tergal setae long. Sternal setae: III–IV, 3–4, V–VI, 4–7; outer seta on sternum VI extending only to VII. Male genitalia (Fig. 16) with basally swollen parameres having slight pointed process on median margin, mesosome broadly open posteriorly.

Dimensions of Male. TW, 0.485–0.510, HL, 0.505–0.545, DAPL, 0.105–0.110, PW, 0.280–
0.305, MW, 0.395–0.415, LW, 0.520–0.565, TL, 1.500–1.565, GW, 0.085–0.090, GL, 0.120–
0.140, CG, 0.345–0.350.

Dimensions of Female. TW, 0.415–0.415, HL, 0.445–0.475, DAPL, 0.120–0.130, PW, 0.260–
0.265, MW, 0.355–0.385, LW, 0.475–0.510, TL, 1.400–1.565.


Remarks. The combination of short ocular setae, long abdomimal tergal setae, dimensions, and genitalia as in Fig. 10 distinguish R. tergalis from all other taxa treated herein.

Carriker (1966) mentioned three females from X. praetorophorus (Hessitt) which could not distinguish from R. tergalis. These specimens likely represent two taxa, neither of which is R. tergalis; however, we agree with Carriker that a final decision must await the collection of male specimens.

Ralllicola triangulata (Carriker)

(Fig. 9)

Furnarica triangulata Carriker 1966: 415.
Type host: Lampidocelotes soueregoli lineaticeps (Latreille).

Remarks. The male genitalia of R. triangulata are unique in having a distinct hole in the mesosome “button.” R. picrostra is further distinguished from R. fuliginosa, to which it is most similar, in having long tergal setae, a very long seta on sternum VI, and minor dimensional differences.

This is another instance in which Carriker (1968) assigned subspecific status to a house that differs substantially from the nominate form, thereby overrating the taxon closer to it. Given that both forms are found on the same host taxon (Table 1), Carriker was likely again following a preconceived notion derived from host association rather than basing his decision on house morphology. To further complicate matters, and to further illustrate Carriker’s lack of a grasp of specific detail, he identified the above pair of flies from X. p. saturator as F. h. hirsuta rather than as F. h. picrostra.

Ralllicola hirsuta (Carriker)

(Fig. 16)

Furnarica hirsuta hirsuta Carriker 1966: 413.
Type host: Xiphophorus plane saturator (Helli-mary).

Description. Head similar to Fig. 20, dor-
soanterior plate = 80% larger than wide, with “U” extending to near middle of plate. Tergal setae long. Sternal setae: III–IV, 3–4, V–VI, 4–7; outer seta on sternum VI extending only to VII. Male genitalia (Fig. 16) with basally swollen parameres having slight pointed process on median margin, mesosome broadly open posteriorly.

Dimensions of Male. TW, 0.485–0.510, HL, 0.505–0.545, DAPL, 0.105–0.110, PW, 0.280–
0.305, MW, 0.395–0.415, LW, 0.520–0.565, TL, 1.500–1.565, GW, 0.085–0.090, GL, 0.120–
0.140, CG, 0.345–0.350.

Dimensions of Female. TW, 0.415–0.415, HL, 0.445–0.475, DAPL, 0.120–0.130, PW, 0.260–
0.265, MW, 0.355–0.385, LW, 0.475–0.510, TL, 1.400–1.565.


Remarks. The combination of short ocular setae, long abdomimal tergal setae, dimensions, and genitalia as in Fig. 10 distinguish R. tergalis from all other taxa treated herein.

Carriker (1966) mentioned three females from X. praetorophorus (Hessitt) which could not distinguish from R. tergalis. These specimens likely represent two taxa, neither of which is R. tergalis; however, we agree with Carriker that a final decision must await the collection of male specimens.
Description. Head similar to Fig. 20, dorsoanterior plate 30–50% longer than wide, with "U" extending to near middle of plate. Tergal setae long. Sternal setae: III–IV, 3–6; V–VI, 4–7; on male, V, 2–4. Female ventral terminalia as in Fig. 22. Male genitalia (Fig. 9) with parameres slightly swollen basally; mesosome apically as shown, with thin rounded closure.

Dimensions of Male. TW, 0.390–0.415; Hl, 0.400–0.435; DAPL, 0.105–0.115; PW, 0.230–0.245; MW, 0.345–0.365; AWY, 0.435–0.500; TL, 1.315–1.385; GW, 0.085–0.080; GL, 0.095–0.100; GL, 0.295–0.320.

Dimensions of Female. TW, 0.440–0.445; Hl, 0.425–0.490; DAPL, 0.115–0.125; PW, 0.245–0.260; MW, 0.390–0.395; AWY, 0.525–0.570; TL, 1.480–1.680.

Material Examined. Holotype, ♂, allotype, ♀, paratypes, 2 ♂♂, 1 ♀, ex L. z. lineapectus, Colombia: Bolivar, Tierra Alta; paratype, 1 ♂, ex L. z. lineapectus, Colombia: Bolivar, Coloso, 2 ♂♂, 1 ♀, ex L. smaragdus (Des Murs), Venezuela: 24 km S, 93 km E Maracaibo.

Remarks. As with the foregoing species, R. triangulare is characterized by its short ocellar seta, long abdominal tergal setae, dimensions, and genitalia details. We were initially at a loss to explain why the collection data for the type series are given by Carriker (1966) as "El Conoto, Sierra Perija, Colombia, March 18, 1945," when the slides involved are clearly labelled "Tierra Alta, Bolivar, Colombia, 11-16-1949." However, we subsequently noted that the former data are those given for the preceding species on the facing page of Carriker (1966); hence, they apparently represent a lapse in transcription.

**Rallicola palmae Price & Clayton, new species** (Figs. 11, 17, and 22)

Type host. Campylorhaphus trocheirostris (Lichtenstein).

Description. Head similar to Fig. 21. Abdominal tergum II with pair of medioanterior setae similar in size to marginal setae (Fig. 11); tergal setae long. Sternal setae: III–IV, 2–5; V–VI, 3–6. Female ventral terminalia as in Fig. 22 with longer setae flanking long seta posterior to tubercle. Male genitalia (Fig. 17) with markedly curved parameres, basally swollen, with faint median process; mesosome with posterior "button.

Dimensions of Male. TW, 0.445–0.470; Hl, 0.465–0.480; DAPL, 0.100–0.105; PW, 0.245–0.270; MW, 0.360–0.405; AWY, 0.485–0.515; TL, 1.480–1.645; GW, 0.075–0.080; GL, 0.085–0.105; GL, 0.300–0.315.

Dimensions of Female. TW, 0.470–0.500; Hl, 0.485–0.515; DAPL, 0.105–0.110; PW, 0.260–0.290; MW, 0.390–0.435; AWY, 0.560–0.590; TL, 1.700–1.920.


Remarks. This taxon is readily distinguished from all others except R. lalii by the pair of conspicuous medioanterior setae on abdominal tergum II. It is distinguished from R. lalii in having only two medioanterior marginal setae on abdominal tergum III–VI. This recognition is further reinforced by the unique male genitalia in combination with a short ocellar seta, dimensions, and other features.

Etymology. This species is named for Ricardo L. Palma, National Museum of New Zealand, in recognition of his outstanding contributions to the taxonomy of avian Pluviraptera and his long-time friendship and collaboration.

Key to the Species of *Rallicola* from the Woodcreepers

1. Ocellar seta much longer than any of 3 marginal temple setae posterior to it (Figs. 1, 5, and 6) .......................................................... 2
2. Ocellar seta similar in length to 3 marginal temple setae posterior to it (Figs. 7, 20, and 21) .......................................................... 4
3. Very large. TW >0.53, HL >0.55 .......................................................... 2
   Smaller than above .................................................. clenchotambo (Carriker)
   (Carricker)
3. Each of terga III–VI with at least 4 median marginal setae (Fig. 10) .......................................................... 4
   Each of terga III–VI with only 2 median marginal setae (Figs. 1, 5, and 11) .......................................................... 6
4. Tergum II with medioanterior pair of long seta in addition to pair of marginal setae (Fig. 11) .................................................. lalii Price & Clayton, n. sp.
   Without such medioanterior setae on tergum II (Figs. 1, 5, and 10) .......................................................... 5
5. At least 6 setae on each of sternum IV–VI. Male paramere as in Fig. 14a. HL <0.60; PW <0.290; DAPL at least 0.120; Female TW >0.510, DAPL at least 0.130; keynerme Price & Clayton, n. sp.
   Only up to 5 setae on each of sternum IV–VI. Male paramere with broad "shoulder"
and short curved distal portion (Fig. 14b).

6. Terecum II with medioanterior pair of setae

similar in size to marginal setae (Fig. 11).

male genitalia as in Fig. 17b. Price & Clayton, n. sp.

Terecum II lacking medioanterior pair of prominent setae (Figs. 1, 5, and 10). male

7. Long tergal setae, those on V of male at

least 0.125 long. of female >0.140 long

8. Short tergal setae, those on V of male not

>0.125 long. of female >0.140 long (Figs.

1 and 5).

9. Male genitalia (Fig. 12) with parameters

and mesosome as shown, mediodposterior

"button" with distinct small hole in center.

Female TW >0.405, HL >0.485

Smaller than above

9. Male genitalia (Fig. 12) with parameters

and mesosome as shown, without mediodposterior "button." Female TW

at least 0.500, HL >0.540

10. Male genitalia as in Fig. 14a. Female AWY

<0.630. DAPL at least 0.130. citerina

(Carrier)

Male genitalia as in Fig. 10. Female AWY

>0.645. DAPL not >0.125

11. Male genitalia (Fig. 16) with distinct mesosomal bars mediodposteriorly and GPL

<0.090. Female MW <0.300

11a. tristia (Carrier)

Male genitalia (Fig. 9) with mesosome and smoothly rounded mediodposteriorly and GPL at least 0.090. Female MW at least

0.300. triangulata (Carrier)

12. Male with last segment having 6 very long setae (Figs. 5, 10, and 11). genitalia (Fig. 15) with mediodposterior opening of mesosome and straight-sided parameters. Female TW at least 0.500, HL >0.520

12a. lachnitis (Carrier)

Male with last segment having only 6 very long setae (without "arrow" seta of Fig.

5). genitalia otherwise. Female TW

<0.500. HL >0.520

13. Abdominal segment III without lateral

setae. Male genitalia gynously as in Fig. 18a, but with mesosome as in Fig. 18b

13a. protonephlebia (Carrier)

Abdominal segment III with very short to

short setae on at least 1 side. Male genitalia otherwise

14. Female HL >0.480. Male HL at least

0.440. genitalia (Fig. 13) large. GW at

least 0.065. GPL at least 0.090

15. Head with deep anterior concavity (Fig. 7).

Male genitalia as in Fig. 8. cephalosa (Carrier)

Head with shallow anterior concavity (Fig.

21). Male genitalia as in Fig. 18a

16. on Price & Clayton, n. sp.

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