REDESCRIPTIONS OF FIVE SPECIES OF THE FEATHER MITE GENUS PTERODECTES ROBIN, 1877 (ACARI: PROCTOPHYLLOIDIDAЕ: PTERODECTINAE), WITH THE PROPOSAL OF A NEW GENUS AND A NEW SPECIES

M. P. Valim1 and F. A. Hernandes2

1 Laboratório de Ixodides, Pavilhão Mourisco, sala 214; Instituto Oswaldo Cruz, Fiocruz; Av. Brasil, 4365, Manguinhos, Rio de Janeiro, RJ, BRAZIL, 21045-900, e-mail: mpvalim@hotmail.com
2 Departamento de Zoologia e Botânica; Programa de Pós-Graduação em Biologia Animal — Universidade Estadual Paulista — UNESP; Rua Cristóvão Colombo, 2265, Jardim Nazareth, São José do Rio Preto, SP, BRAZIL, 15054-000, e-mail: fabio_akashi@yahoo.com.br

ABSTRACT: Five species of the feather mite genus Pterodectes Robin, 1877 are redescribed (type hosts are given in parenthesis): Pterodectes rutilus Robin, 1868 (the Northern House-Martin, Delichon urbicum), P. crassus Trouessart, 1885 (the Plush-crested Jay, Cyanocorax chrysops), P. gracilis Trouessart, 1885 (the Crested Oropendola, Psarocolius decumanus), P. sialiarum (Stoll, 1893) (the Eastern Bluebird Sialia sialis) and P. muticus Banks, 1909 (the Vesper Sparrow, Pooecetes gramineus). One new species, P. banksi sp. n., is described from the Eastern Phoebe, Sayornis phoebe (Tyrannidae), and a new monotypic genus Cotingodecetes gen. n. is proposed to accommodate C. interifolius (Trouessart, 1899) comb. n. from the Andean Cock-of-the-Rock, Rupicola peruviana (Cotingidae), previously referred to the genus Pterodectes.

KEY WORDS: feather mite, Astigmata, Proctophyllodidae, Pterodectes, systematics

INTRODUCTION

The feather mite genus Pterodectes Robin, 1877 (Astigmata, Proctophyllodidae, Pterodectinae) is currently considered to comprise 20 valid species. In a comprehensive review of the subfamily Pterodectinae, Park and Atyeo (1971) redefined the genus Pterodectes and recognized nine species, among which six species were described in the end of the nineteenth and beginning of the early twentieth century (Robin 1868; Trouessart 1885, 1899; Stoll 1893; Banks 1909). Four more species were described by Berla (1958, 1959, 1968; Stoll 1893; Banks 1909). Four more species were described by Černý (1974) and more recently, three species were described from Brazil (Hernandes and Valim 2005, 2006) and Galapagos Islands (OConnor et al. 2005) as belonging to the genus Pterodectes. Finally, in a partial revision of the genus Montesauria Oudemans, 1905 (Proctophyllodidae, Pterodectinae), Mironov (2006) proposed the transfer of Montesauria trulla (Trouessart, 1885) into the genus Pterodectes.

Despite this current knowledge regarding the genus Pterodectes, this genus is likely to comprise actually a much higher number of undescribed species, as can be seen in the surveys that many unnamed species collected from several little explored hosts (e.g. Rojas 1998; Roda and Farias 1999; Lyra-Neves et al. 2003; Reeves et al. 2007; Kanegae et al. 2008). When redefining the genus, Park and Atyeo (1971) already pointed out that there were about 90 undescribed species in their collection.

In order to facilitate the future studies of such large and poorly known genus and to avoid possible instances of synonymies as well, it is important that all currently recognized species have clear specific and differential diagnoses. Only three of 20 species were originally described using the current concept of the genus (OConnor et al. 2005; Hernandes and Valim 2005, 2006), and four species were recently redescribed to meet with the current morphotaxonomical standards (Valim and Hernandes 2006).

In the present paper we redescribe five species of Pterodectes originally described by Charles Philippe Robin (1821–1885), Édouard Luis Trouessart (1842–1927), Otto Stoll (1849–1922) and Nathan Banks (1868–1953) in the classical period of feather mite exploration (sensu Mironov 2003). Additionally, one new species is described from Sayornis phoebe (Latham, 1790) (Tyrannidae), a former second host species of P. muticus Banks, 1909, and a new genus is proposed to accommodate P. interifolia Trouessart, 1899.

MATERIAL AND METHODS

With the exception for Pterodectes muticus, type specimens of redescribed species were not examined. The redescriptions are based, when possible, on samples collected from the type hosts and/or locality, all species being thoroughly compared with their original descriptions. Since no remarkable differences were noticed between the original descriptions and the mites collected from those same hosts, we have confidence that they represent the original named species. In some instances the old descriptions even mention particularities of the species (e.g. P. crassus, P. interfolia, P. gracilis), which make our interpretation in those cases more reliable.

The idiosomal and leg chaetotaxy follow Griffiths et al. (1990) and Atyeo and Gaud (1966),
respectively; and host names were updated according to Dickinson (2003). All measurements are in micrometres (μm); distance between setae is measured as a direct distance between their bases; distances between setae belonging to different pairs were taken on one side of the body. Measurements for particular structures of the body were standardized for further descriptions of the genus *Pterodectes* and include: (i) idiosomal length, measured from the anterior margin of prodorsal shield to the lobar apices in males, and excluding the terminal appendages in females; (ii) idiosomal width, measured at the level of setae *cp*; (iii) prodorsal shield dimensions, length measured along the midline and width at the posterior margin; (iv) hysteronotal shield length (in males), measured from the anterior margin to lobar apices, and anterior hysteronotal shield length (in females), measured from the anterior to posterior margin (lobar shields excluded); (v) hysteronotal shield width (in both sexes), measured at the level of setae *cp*; (vi) lobar shield dimensions (in females), length measured from the anterior margin to the apices of lobes excluding appendages and width measured at the level of setae *h2*; (vii) distance between prodorsal and hysteronal shields, measured along the midline; (viii) distance between male anal suckers, measured between their centres; (ix) length of terminal cleft (in both sexes), measured from its anterior end to the level of lobar apices; (x) dimensions of setae, length taken from bases to visible ends, and width of setae *c3* (in both sexes) and *h2* (in females) at their greatest dimensions and; (xi) length of tarsi *h2* (in males), measured excluding the pretarsus.

The specimens studied herein are deposited in the following institutions: Museum of Zoology, University of Michigan, Ann Arbor, Michigan, USA (UMMZ); Collection of the Museu Nacional do Rio de Janeiro, Rio de Janeiro, Brazil (MNRJ); Collection of Acari of Departamento de Zoologia e Botânica da Universidade Estadual Paulista, São José do Rio Preto, São Paulo, Brazil (DZSJRP); and Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA (MCZ).

**SYSTEMATICS**

Family Proctophyllodidae Trouessart et Méglin, 1884

Subfamily Pterodectinae Park et Atyeo, 1971

Genus *Pterodectes* Robin, 1877

Type species: *Pterodectes rutilus* Robin, 1877 by subsequent designation.

The genus *Pterodectes* in the recent concept of Park and Atyeo (1971) includes 20 species that occur mainly on Neotropical passerines (Passeriformes). These authors recognized two species groups within the genus: the *rutilus* group, composed by a sole species, *P. rutilus*, which is associated exclusively with the swallows (Hirundinidae) and distributed in both the Old and the New Worlds, and the *gracilis* group, constituted by all remaining species, which occur only on birds of the New World. The main morphologic distinction between these two groups is that the former has setae *c2* inserted on the hysteronotal shield, and in the females the setae *h2* are long whip-like with a filiform distal part. In the *gracilis* group, the setae *c2* are on the soft tegument or near humeral shields, if they are present, and setae *h2* in females are dagger-like, without a terminal filament. However, at least three species (*P. turdinus*, *P. crassus*, and *P. muticus*), that were described before the proposal of this subdivision, have actually the setae *h2* of dagger-like form but with a terminal filament. An odd species *P. ralliculae* Atyeo et Gaud, 1977 described from the Forbé’s Forest Rail (Gruiformes, Rallidae), was provisionally placed among this genus (Atyeo and Gaud 1977), but it is not herein considered as a member of *Pterodectes*, because of its genital papillae set posterior to the genital arch.

*Pterodectes rutilus* Robin, 1877

Figs 1–2

*Pterodectes rutilus* Robin, 1868: 787 (nomen nudum).


*Dermaleichus hirundinis* Canestrini, 1878: 66.


*Pterodectes rhodesiensis* Till, 1954: 90, figs. 5–6.

**Type host:** *Delichon urbicum* (Linnaeus, 1758) (Hirundinidae) — the Northern House-Martin, Europe.

**Material examined:** 5 males and 5 females from the Barn Swallow *Hirundo rustica* Linnaeus, 1758 (Hirundinidae), Chokpak, Djambul Province, Kazakhstan, 06.IX.1984, coll. S.V. Mironov, deposited in DZSJRP.

**Differential diagnosis.** The following combination of characters in both sexes readily distinguishes *P. rutilus* from all other known *Pterodectes* species: epimerites I fused as a Y; setae *c2* are
Redescriptions of *Pterodectes* species

in the anterior angles of hysteronotal shield; setae *c3* are spine-like; humeral shield are well developed, situated ventrally and not fused with epimerites III. The females of this species have relatively small lobar region and setae *h2* are setiform, and the males have anal suckers with dentate corolla.

**Male** (Figs 1A–B) (*n* = 5). Length of idiosoma 429–473, width 176–198. Prodorsal shield: 122–141 in length, 128–152 in width, antero-lateral extensions acute, posterior margin slightly convex or straight, surface with faint sculpturing, but without lacunae or pale-sclerotized areas. Setae *ve* present. Scapular setae *si* and *se* arranged in transverse line, and both on prodorsal shield. External scapular setae *se* 141–163 in length, their bases separated by 71–84; bases of *si* separated by 49–61. Humeral shields present, situated ventrally, separated from epimerites III. Setae *cl* on hysteronotal shield, setae *c2* in anterior angles of hysteronotal shield. Setae *c3* spine-like, 14–16 in length and about 3 in width. Setae *cp* set on stri-
ated tegument (Fig. 1B). Distance between pro-
dorsal and hysteronotal shields 16–30. Hysterono-
tal shield: 280–313 in length, 158–180 in width; 
anterior margin slightly convex, anterior angles 
rounded, surface with faint sculpturing but with-
out lacunae or pale-sclerotized areas. Terminal 
cleft U-shaped with divergent branches, 24–27 in 
length, supranal concavity indistinct. Setae 
$h_3$ spiculiform, approximately equal in length to 
distance between their bases. Length of setae: $ps_l$
5–8, $h_3$ 27–44, $h_2$ 150–158, $ps_2$ 60–68, $f_2$ 7–8,
$ps_3$ 19–27. Distance between dorsal setae: $si–c_1$
71–92, $c_1–c_2$ 33–49, $c_1–d_1$ 75–95, $d_1–d_2$ 50–65,
$d_1–e_1$ 101–120, $d_2–e_1$ 49–65, $e_1–e_2$ 27–54, $e_1–h_1$
44–54, $e_2–h_1$ 20–33, $h_1–f_2$ 24–30, $h_3–h_3$
38–49.

Epimerites I fused as Y; epimerites I, II, and
III with narrow sclerotized areas; coxal fields I–III
open. Rudimentary epimeral sclerite rEpIIa ab-
sent. Epimerites IVa present and represented by
two little sclerites. Aedeagus extending to anterior

Fig. 2. *Pterodectes rutilus* Robin, 1868. Female: dorsal (A) and ventral (B) views; spermatheca (C).
margin of anal suckers, 73–75 in length; genital arch 24–30 in length and 44–48 in width. Distance between ventral setae: 3a–4a 41–54, 4a–g 57–68, g–ps3 44–49, ps3–ps3 58–65. Anal suckers 19–20 in diameter, separated by 24–34, corolla dentate. Opisthosperothal shields restricted to lateral borders of lobes, with large roughly rectangular projecting toward anal suckers; setae ps3 on inner margin of these projections, at midlevel of anal suckers.

Setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 13–15 long, situated at midlevel of segment. Tarsus IV 37–41 in length, without apical claw-like process; setae d and e button-like, inserted at midlevel and sub-apically, respectively (Fig. 1A).

**Female** (Figs 2A–C) (n = 5). Length of idiosoma 539–589, width 209–242. Prodorsal shield: 152–171 in length and 152–166 in width, surface and shape, setae ve, scapular setae si and se as described for the male. Setae se 152–158 in length, their bases separated by 87–92; pair si separated by 57–64. Setae c3 spine-like, 16–18 in length and 3 in width. Humeral shields and positions of setae c1, c2 and cp as in male (Fig. 2B).


Epimerites I fused as Y; epimerites I, II, and III with narrow sclerotized areas. Epimerites IVa present. Distance between ventral setae: 1a–3a 90–103, 3a–g 20–27, 4a–ps3 76–98, g–4a 136–166, ps2–ps3 18–22, ps2–ps2 30–44, ps3–ps3 19–30. Setae ps2 and ps3 setiform, in trapezoidal arrangement, both situated at level of anal opening. Spermataca and spermatoducts as in Fig. 2C. Legs I and II as in the male; setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 16–17 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Legs IV extending by ambulacral disc at maximum to the level of setae ps1.

**Remarks.** Although species of *Pterodectes* have been collected mainly from Neotropical birds, *P. rutillus* associated exclusively with Hirundinidae, is the only described species collected from birds of the Old World. Park and Atyeo (1971) established a distinct group for this species (*rutillus group*) based on its morphological peculiarities (see differential diagnosis above). Furthermore, those authors suggested that *P. rutillus* might be a species complex. In the New World, this species was reported on *H. rusticus* in Cuba (Černý 1967) and on the Black-collared Swallow *Atticora melanoleuca* (Wied, 1820) in Surinam (Černý and Lukochus 1975). The redescription presented herein is based on specimens collected from *Hirundo rustica*, the most common host of *P. rutillus*, and matches well with the available descriptions of this mite species for that host (Canestrini 1878; Till 1954, Gaud and Till 1961; Park and Atyeo 1971).

**Pterodectes crassus** Trouessart, 1885

Figs 3–4

*Proctophylloides (Pterodectes) crassus* Trouessart, 1885: 79

*Pterodectes crassus*: Canestrini, Kramer, 1899: 125; Park, Atyeo, 1971: 56

**Type host:** Cyanocorax chrysops (Vieillot, 1818) (= *C. pileatus*) (Corvidae) — the Plush-crested Jay, Colombia.

**Material examined:** 5 males and 5 females (BMOC 88–1230–032) from *Cyanocorax chrysops* (Vieillot, 1818) (Passeriformes, Corvidae), Rio Paraguay, E. bank, 10km W Rosario, San Pedro, Paraguay, 13.IX.1988, coll. S.M. Goodman.

**Differential diagnosis.** This species resembles *P. mutilus* Banks, 1909, *P. fissurus* Hernandez et Valim, 2005 and *P. amaurochalinus* Hernandez et Valim, 2006 by having the U-shaped epimerites I in both sexes and setae ps2 and ps3 modified into button-like structures in females. Although *P. banksi* sp. n. also has U-shaped epimerites I, setae ps2 and ps3 in females are setiform. The following set of characters in both sexes of *P. crassus* is unique among known species of *Pterodectes*: the idiosoma is strongly enlarged in...
median part, the posterior margin of prodorsal shield has two conspicuous incisions; setae *si* are situated posterior to the level of setae *se*.

**Male** (Figs 3A–B) (*n* = 5). Length of idiosoma 418–451, width 209–231; median part of idiosoma strongly enlarged. Prodorsal shield: 155–169 in length, 158–169 in width, antero-lateral extensions acute, lateral margins entire, posterior margin with two deep incisions resulting in conspicuous lobed shape, surface without lacunae and pale-sclerotized areas (Fig. 3A). Setae *se* absent. Scapular setae *si* set posterior to level of setae *se*. External scapular setae *se* 114–136 in length, their bases separated by 79–87; bases of *si* separated by 46–60. Humeral shield represented by little rudimentary sclerites situated ventrally. Setae *c1* set on anterior margin of hysteronotal shield; setae *c2* on striated tegument; setae *c3* lanceolate, 33–37 in length and 10–11 in width; humeral seta *cp* on striated tegument (Fig. 3B). Distance between prodorsal and hysteronotal shields 14–27. Hysteronotal shield: 253–280 in length, 163–185 in width; anterior margin slightly concave; anterior angles rounded or with acute tip; surface with little sparse circular lacunae concentrated mainly on posterior 3/4 of this shield and with two longitudinal depressions in anterior third of hysteronotal shield between levels of setae *c1* and *d2* (Fig. 3A). Ter-
minal cleft U-shaped, 33–38 in length, supranal concavity indistinct. Setae $h_3$ thick setiform, approximately 1.5 times longer than distance between them. Length of setae: $ps_1$ minute, $h_3$ 60–68, $h_2$ 223–237, $ps_2$ 95–112, $j_2$ 8–11, $ps_3$ 41–44. Distance between dorsal setae: $si$–$c_1$ 68–79, $c_1$–$c_2$ 54–71, $c_1$–$d_1$ 30–44, $d_1$–$d_2$ 42–57, $d_1$–$e_1$ 106–122, $d_2$–$e_1$ 60–65, $e_1$–$e_2$ 41–46, $e_1$–$h_1$ 54–68, $e_2$–$h_1$ 27–38, $h_1$–$f_2$ 19–27, $h_3$–$h_3$ 38–44.

Epimerites I fused into a narrow U; epimerites II with narrow sclerotized areas on inner margins; coxal fields I–III open. Rudimentary epimeral sclerite rEpIIa absent. Epimerites IVa broad but poorly sclerotized. Aedeagus extending to anterior margin of anal suckers, 84–92 in length; genital arch 19–27 in length and 44–49 in width. Distance between ventral setae: $3a$–$4a$ 46–54, $4a$–$g$ 44–49, $g$–$ps_3$ 65–71, $ps_3$–$ps_3$ 71–82. Anal suckers 16–18 in diameter and separated by 38–41, corolla edentate. Opisthoventral shields occupying lateral margin of opisthosoma and distal half of lobes, inner margins with broad roughly rectangular projections at level of anal suckers; setae $ps_3$ situated on
these projections at level of posterior margins of anal suckers.

Setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 8–9 long, situated at midlevel of segment. Setae sR on trochanter III absent and solenidion σ on genu III present. Tarsus IV 46–50 in length, without apical claw-like process; setae d and e button-like, well separated from each other, situated on proximal and distal portions of the segment, respectively (Fig. 3A).

Female (Figs 4A–C) (n = 5). Length of idiosoma 572–583, width 231–253; idiosoma enlarged in medial part as in male. Prodorsal shield: 171–180 in length and 180–196 in width, shape generally as in male but lateral margins with rounded incisions extending to bases of setae se; surface, setae ve, and scapular setae si, se as in male. Setae se 133–150 in length, their bases separated by 94–103; pair si separated by 56–73. Humeral shield represented by small rudimentary sclerite situated ventrally. Setae c1 set on anterior margin of hysteronotal shield; setae c2 on striated tegument; setae c3 lanceolate, 38–41 in length and 10–12 in width, humeral setae cp on striated tegument.

Distance between prodorsal and hysteronotal shields 24–41. Anterior hysteronotal and lobar shields separated by thin band of soft cuticle. Anterior hysteronotal shield: 258–272 in length, 196–215 in width, anterior margin concave, pattern of dorsal ornamentation as described for hysteronotal shield in male; at least one pair of pale-sclerotized areas present in postero-lateral angles, near setae e2. Lobar region: 95–112 in length and 98–109 in width; anterior third between seta h1 with at least three pairs of little circular lacunae; terminal cleft as an inverted and narrow U (65–79 in length), reaching the level of setae f2, its inner margins touching at level of setae h2 (Fig. 4A). Supranal concavity well expressed. Setae h2 spine-like with terminal filament, 122–139 in length, 7–8 in width. Setae h1 inserted posterior to supranal concavity; setae h1 and f2 in trapezoidal arrangement. Setae ps1 set at level nearest from h3 than setae h2. Distance between dorsal setae: si–c1 79–90, c1–e2 60–73, c1–d1 35–48, d1–d2 54–68, d1–e1 141–150, d2–e2 182–90, e1–e2 57–65, e1–h1 117–122, e2–h1 73–79, h1–f2 22–33, f2–h2 16–22. Setae h3 15–16 long, about 1/6 of terminal appendages.

Epimerites I U-shaped; epimerites I and II with narrow sclerotized areas, coxal fields I and II open. Epimerites IVa present, large. Distance between ventral setae: 1a–3a 73–90, 3a–g 24–30, 4a–ps3 109–114, g–4a 122–133, ps2–ps3 11–14, ps2–ps2 38–44, ps3–ps3 33–38. Setae ps2 and ps3 button-like, in rectangular arrangement, situated at midlevel of anal opening. Spermatheca and spermiducts as in Fig. 4C.

Legs I and II as in the male; setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 11–12 long, situated in distal half of segment. Setae sR on trochanter III absent and solenidion σ on genu III present. Legs IV extending by ambulacral discs to the level of setae f2 (Fig. 4A).

**Pterodectes gracilis** Trouessart, 1885

Figs 5–7

Psectophyloides (Pterodectes) gracilis Trouessart, 1885: 79.


**Type host**: Psarocolius decumanus (Pallas, 1769) (= P. citrius) (Icteridae) — the Crested Oropendola, Brazil.

**Material examined**: 3 males (MNRJ 44926, n° 57; MNRJ 44927, n° 58; MNRJ 44930, n° 61) and 2 females (MNRJ 44928, n° 59; MNRJ 44931, n° 62) from Crested Oropendola Psarocolius decumanus (Pallas, 1769) (Icteridae), Fazenda Rubião, Mangaratiba, Rio de Janeiro, Brazil, 05. IV.1958, coll. H.F. Berla; 1 male and 1 female (MNRJ 44932, n° 361) from Green Oropendola P. viridis (Müller, 1776) (Icteridae), from same data.

**Differential diagnosis**. This species resembles *Pterodectes bilineatus* Berla, 1958, *P. turdinus* Berla, 1959 and *P. storkani* Černý, 1974 by having the epimerites I in males as a narrow inverted π with their posterior extensions connected to epimerites II (Fig. 5B). Both sexes of *P. gracilis* can be distinguished from *P. bilineatus* and *P. storkani* by having spine-like setae cG on genua I and II (instead of strongly dagger-like), the males differ by lacking the dorsal groove on the hysteronotal shield, and the females differ by the slender “waist” in anterior third of lobar region. The males of *P. gracilis* are readily separable from *P. turdinus* by the relatively longer aedeagus reaching the midlevel of opisthosomal lobes, shape of setae h3, absence of the rudimentary epimeral sclerites rEpIIa; in the females, setae h2 are properly dagger-like rather than ending with a long terminal filament.

**Male** (Figs 5A–B) (n = 3). Length of idiosoma 462–473, width 171–176. Prodorsal shield:
Redescriptions of *Pterodectes* species

141–147 in length, 114–128 in width, antero-lat-
eral extensions rounded, lateral margins entire, posterior margin straight or slightly convex; sur-
face with sparsely disposed lacunae of circular shape. Setae *ve* present. Scapular setae *si* and *se* arranged in transverse line. External scapular setae

Fig. 5. *Pterodectes gracilis* Trouessart, 1885. Male: dorsal (A) and ventral (B) views.
se missed in all specimens examined, their bases separated by 71–76; bases of si separated by 60. Humeral shield present dorsally, ventral part fused with outer margin of epimerites III. Setae c1 set on hysteronotal shield near to its anterior margin; c2 on striated tegument, near to anterior end of humeral shield. Setae cp set on humeral shields. Setae c3 lanceolate, 33–35 in length and 5–8 in width. Distance between prodorsal and hysteronotal shields 3. Hysteronotal shield: 307–313 in length, 109–120 in width; anterior margin slightly concave, anterior angles acute; surface with numerous circular lacunae monotonously distributed on this shield. Terminal cleft U-shaped, 38–41 in length. Supranal concavity poorly distinct. Setae h3 narrowly lanceolate, with a small terminal filament, slightly longer than distance between their bases. Length of setae: ps1 7, h3 63–73, h2 177–204, ps2 103–131, f2 12–14, ps3 27–31. Distance between dorsal setae: si–c1 71–76, c1–c2

Fig. 6. Pterodectes gracilis Trouessart, 1885. Female: dorsal (A) and ventral (B) views.
Redescriptions of *Pterodectes* species


Epimerites I fused as a narrow inverted π, posterior tips of epimerites connected with middle part of epimerites II by thin transverse sclerotized bands. Rudimentary epimeral sclerites rEpIIa absent. Coxal fields II and III open. Epimerites IVa large but poorly sclerotized. Aedeagus arises forwards from genital arch, bends backwards at level of trochanters III and reaches midlevel of opisthosomal lobes, 223–237 in length from the bend (at level of trochanters III) to tip; genital arch 35–44 in length and 44–52 in width. Distance between ventral setae: 3a–*g* 63–71, *g*–*ps3* 71–73, *ps3*–*ps3* 57–63. Anal suckers 14–19 in diameter, separated by 19–33, corolla edentate. Opisthovenal shields occupying lateral margin of opisthosoma and entire lobes; inner projections situated at level of anal suckers, enlarged apically and bear setae *ps3*.

Setae *cG* and *mG* of genu I and II spine-like. Solenidion *σ1* of genu I stick-like, 7 long, situated at midlevel of segment. Setae *sR* on trochanter and solenidion *σ* on genu III present. Tarsus IV 38–44 in length, without apical claw-like process; setae *d* and *e* button-like, situated at midlevel of segment and apically, respectively (Fig. 5A).

**Female** (Figs 6A–B, 7A–C) (*n* = 2). Length of idiosoma 627–660, width 220–242. Prodorsal shield: 174–177 in length and 150 in width; general form as in male, surface lacking lacunae; setae *ve*, scapular setae *si* and *se* as in male. Setae *se* 114–122 in length, their bases separated by 102–105; setae *si* separated by 82–86. Humeral shields as in male. Setae *cl* on anterior hysteronotal shield; setae *c2* on striated tegument, anterior to humeral shield; setae *cp* set on humeral shield; setae *c3* lanceolate, 33–36 in length and 8 in width.

Distance between prodorsal and anterior hysteronotal shields 22–24. Anterior hysteronotal and lobar shields separated by thin bow-shaped band of soft cuticle. Anterior hysteronotal shield: 330–341 in length and 140 in width, anterior margin straight, anterior angles right-angular; surface without lacunae but with several pairs of weakly expressed pale-sclerotized areas along lateral margins, normally with four pairs. Lobar region 109–122 in length, 120–122 in width, with a strong narrowing between *h1* and *f2*, resulting in a conspicuous “waist”; lobar shield almost completely split into two pieces by narrow median band of soft tegument running from supranal concavity to anterior end of terminal cleft; anterior third of lobar shield with several little circular lacunae. Terminal cleft as a narrow inverted U, 63–65 in length, reaching level of setae *h2*. Supranal concavity distinct. Setae *h2* dagger-like, without terminal filament, 54 in length and 9–10 in width. Setae *h1* inserted posterior to supranal concavity; setae *h1* and *f2* in trapezoidal arrangement. Setae *ps1* set at midlevel of setae *h2* and *h3*, distant from inner margin of lobar cleft (Fig. 6A). Distance between dorsal setae: *si*–*c1* 87–103, *c1*–*c2* 52–54, *c1*–*d1* 73–76, *d1*–*e1* 65–78, *d1*–*e1* 158–160, *d2*–*e1* 84–95, *e1*–*e2* 54, *e1*–*h1* 120–125, *e2*–*h1* 84–95, *h1*–*f2* 42–46, *f2*–*h2* 18–22. Setae *h3* 17–18 long, about 1/4 of terminal appendages.

Epimerites I almost contiguous by posterior ends, fused by sclerotized areas around them, posterior ends of epimerites with short and acute lateral extensions; epimerites II bent angle-like, entirely surrounded by narrow sclerotized areas. Coxal fields I and II open. Epimerites IVa indistinct. Distance between ventral setae: *1a*–*3a* 90–106, *3a*–*g* 16–22, *4a*–*ps3* 139–147, *g*–*4a*
32. Setae setiform, in a nearly rectangular arrangement, setae ps3 at level of anal opening, setae ps2 near to anterior margin of translobar apodeme. Spermatheca with slight variation among the specimens studied (Fig. 7A–C). Legs I and II as in the male; setae cG and mG of genu I and II spine-like. Solenidion σ1 of genu I stick-like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Pronounced rounded dorso-basal crests like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present.
Redescriptions of *Pterodectes* species

30–33 in length, without apical claw-like process; setae *d* and *e* button-like, situated in basal and apical parts of segment, respectively (Fig. 8A).

**Female** (Figs 9A–C) (*n* = 3). Length of idiosoma 484–528, width 176–209. Prodorsal shield: 122–133 in length and 128–147 in width, shape generally as in male except for concave posterior margin, surface without lacunae; setae *ve*, scapular setae *si* and *se* as in male. Setae *se* 141–166 in length, their bases separated by 73–84; setae *si* separated by 53–54. Humeral shields present dorsally, separated from epimerites III. Setae *c1* set on anterior hysteronotal shield, setae *c2* on striated tegument anterior to humeral shield, setae *cp* on

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**Fig. 8.** *Pterodectes sialiarum* (Stoll, 1893). Male: dorsal (A) and ventral (B) views.
striated tegument; setae $c3$ lanceolate, 27 in length and 8 in width.

Distance between prodorsal and hysteronotal shields 11–19. Anterior hysteronotal and lobar shields separated by thin band of soft cuticle. Anterior hysteronotal shield: 256–283 in length and 125–144 in width, anterior margin slightly straight, anterior angles right-angular; surface with few circular lacunae in posterior portion and two pairs of pale-sclerotized areas in postero-lateral parts near to setae $e1$ and $e2$, respectively. Lobar region: 84–92 in length and 92–101 in

Fig. 9. *Pterodectes sialiarum* (Stoll, 1893). Female: dorsal (A) and ventral (B) views; spermatheca (C).
width. Terminal cleft as an inverted V, 57–60 in length, reaching the level of setae h2. Supranal concavity well expressed. Setae h2 dagger-like, without terminal filament, 46–52 in length and 7–8 in width. Setae h1 inserted anterior to supranal concavity, near to anterior margin of lobar shield; setae h1 and f2 in trapezoidal arrangement. Setae ps1 closer to setae h3 than to h2, situated near margins of terminal cleft. Distance between dorsal setae: si–c1 65–76, c1–c2 41–45, c1–d1 76–95, d1–d2 50–57, d1–e1 125–137, d2–e1 68–91, e1–e2 41–52, e1–h1 63–76, e2–h1 38–49, h1–f2 27, f2–h2 16–22. Setae h3 17–18 long, about 1/4 of terminal appendages.

Epimerites I V-shaped; epimerites II with narrow sclerotized area on inner margins; coxal fields I and II open. Epimerites IVa indistinct. Distance between ventral setae: la–3a 68–73, 3a–g 24–27, 4a–ps3 76–103, g–4a 120–141, ps2–ps3 27–29, ps2–ps2 52–60, ps3–ps3 22–24. Setae ps2 and ps3 setiform, in trapezoidal arrangement, setae ps3 at level of anterior end of anal opening and setae ps2 approximately at midlevel of that opening. Spermatheca and spermatducts as in Fig. 9C. Legs I and II as in the male; setae cG and mG of genu I and II setiform; solenidion σ1 of genu I stick-like, 10 long, situated at midlevel of segment. Setae sR on trochanter and solenidion σ on genu III present. Rounded dorso-basal crests on genu IV (Fig. 9A). Legs IV extending by ambulacral discs at maximum to level of setae f2.

Remarks. During the preparation of the manuscript we were informed (B.M. OConnor, pers. comm., University of Michigan, USA) of a second species of Pterodectes collected from Sialia sialis in Guatemala, the type locality from where P. sialiarum was described. However, this second species, photos of which we received (female exemplar), probably represents an undescribed species, because differs from P. sialiarum by the following combination of characters: setae h2 with long terminal filament, prodorsal and hysteronotal shields are almost in contact with each other, the surface of dorsal shields is entirely covered with large ovate lacunae. These characters are clearly distinctive from the original description and illustrations of the female P. sialiarum presented by Stoll (1893: plate XX, fig. 4), in particular, the long terminal filament of setae h2 and the lesser pronounced narrowing in the lobar region in females. Based on these reasons we believe that the specimens treated and redescribed herein are true representatives of P. sialiarum.

**Pterodectes muticus** Banks, 1909

Figs 10–11

**Pterodectes muticus** Banks, 1909: 141, pl. 10, fig. 4 (part).

**Pterodectes muticus**: Park, Atyeo, 1971: 56 (part).

**Type host**: Poecetes gramineus (Gmelin, 1789) (Emberizidae) — the Vesper Sparrow, Canada.

**Material examined**: 1 male (NU 1242) and 1 female (NU 1242) from Vesper Sparrow Poecetes gramineus (Gmelin, 1789) (Passeriformes, Emberizidae), Lake Dallas, Dallas, Texas, USA, 26.X.1939, coll. unknown; 1 female (NU 1319) from same host species, 7 miles SE. Lytle, Atascosa CO., Texas, USA, 30.I.1949, coll. W.A. Thornton, at UMMZ. Several syntypes (MCZ 75521) from Vesper Sparrow (= P. gramineus), Canada, 19.IV.1907, coll. unknown.

**Differential diagnosis.** As in Pterodectes fissuratus, P. amaurochalinus and P. crassus, both sexes of P. muticus are characterized by the epimerites I fused into a simple U without any extensions, and the females of this species have setae ps2 and ps3 button-like and setae h2 with a terminal filament. Pterodectes muticus can be easily distinguished from these three species by the structure of the prodorsal shield in both sexes, surface of which is uniformly punctured and the posterior margin has just one pair of shallow concavities. In P. fissuratus, the prodorsal shield has a deep and heavily sclerotized median groove and numerous circular lacunae; in P. crassus, the posterior margin of this shield has a pair of deep incisions and solenidion σ1 is present on genu III (Figs 3A, 4A); in P. amaurochalinus, the entire surface of the prodorsal shield is covered with numerous circular lacunae.

**Male** (Figs 10A–B) (n = 1). Length of idiosoma 352, width 132. Prodorsal shield: 106 in length, 101 in width, antero-lateral extensions acute, lateral margins entire, posterior margin with pair of shallow concavities and short median extension, surface without lacunae and pale-sclerotized areas. Setae ve present. Scapular setae si and se arranged in transverse line. Setae se 139 in length, their bases separated by 60; bases of si separated by 41. Humeral shields absent. Setae cl on hysteronotal shield; setae c2 and cp on striated tegument; setae c3 lanceolate, 24 in length and 7 in width. Distance
between prodorsal and hysteronotal shields 33. Hysteronotal shield: 223 in length, 90 in width; anterior margin concave, anterior angles rounded, surface with a few circular lacunae situated mainly in posterior quarter of opisthosoma posterior to setae e2. Terminal cleft as an inverted U with strongly divergent branches, 22 in length; supranal concavity distinct. Setae h3 setiform, short, not longer than distance between their bases. Length of setae: ps1 minute, h3 24, h2 212, ps2 95, f2 8, ps3 35.

Fig. 10. Pterodectes muticus Banks, 1909. Male: dorsal (A) and ventral (B) views.
Redescriptions of *Pterodectes* species

Distance between dorsal setae: \( si-c1 \) 68, \( c1-c2 \) 41, \( c1-d1 \) 53, \( d1-d2 \) 35, \( d1-e1 \) 82, \( d2-e1 \) 54, \( e1-e2 \) 38, \( e1-h1 \) 49, \( e2-h1 \) 27, \( h1-f2 \) 19, \( h3-h3 \) 41.

Epimerites I U-shaped, coxal fields I–III open. Rudimentary epimeral sclerites rEpIIa absent. Epimerites IVa poorly sclerotized. Aedegus relatively short, not reaching level of anal suckers, 65 in length; genital arch 17 in length and 35 in width. Distance between ventral setae: \( 3a-4a \) 45, \( 4a-g \) 38, \( g-ps3 \) 53, \( ps3-ps3 \) 57. Anal suckers 11 in diameter, separated by 33, corolla edentate. Opisthoventral shields broad and restricted only to lateral borders of opisthosoma, posterior ends reach level of setae ps2, postero-mesal edges with inward claw-shaped projections; setae ps3 on inner margin of opisthoventral shield, approximately at level of posterior margin of anal suckers.

Setae \( cG \) and \( mG \) of genua I and II setiform. Solenidion \( \sigma I \) of genu I stick-like, 9 long, situated at midlevel of segment. Setae \( sR \) on trochanter and solenidion \( \sigma \) on genu III absent. Tarsus IV 35 in length, without apical claw-like process; setae \( d \) and \( e \) button-like, well separated from each other, situated on proximal and distal portions of segment, respectively (Fig. 10A).

Fig. 11. *Pterodectes muticus* Banks, 1909. Female: dorsal (A) and ventral (B) views; spermatheca (C).
Female (Figs 11A–C) (n = 2). Length of idiosoma 506–528, width 187–204. Prodorsal shield: 128–136 in length and 128–133 in width, surface and shape, setae ve, scapular setae si and se as in male. Setae se 166–177 in length, their bases separated by 79–84; pair si separated by 52. Humeral shields absent. Setae c1 on anterior hysteronotal shield, setae c2 and cp on striated tegument; setae c3 lanceolate, 27–30 in length and 8 in width.

Distance between prodorsal and hysteronotal shields 41–46. Anterior hysteronotal and lobar shields separated by thin band of soft cuticle. Anterior hysteronotal shield: 250 in length, 122–131 in width, anterior margin concave, anterior angles rounded, surface without lacunae, with two longitudinal pale-sclerotized areas anterior to level of setae e2. Lobar region: 90 in length, 76–79 in width; terminal cleft as a narrow inverted V, 35–38 in length, reaching the level of setae h2. Lobar shield almost completely split into two longitudinal halves by narrow longitudinal band of soft tegument stretching from supranal concavity to terminal cleft, surface with circular lacunae in anterior third. Supranal concavity well expressed. Setae h2 spindle-like, with terminal filament, 103–117 in length and 5 in width. Setae h1 inserted posterior to supranal concavity, setae h1 and f2 in trapezoidal arrangement. Setae ps1 set at midlevel of setae h2 and h3. Distance between dorsal setae: si–c1 87–90, c1–c2 46–52, c1–d1 73, d1–d2 46, d1–e1 114, d2–e1 76, e1–e2 52–60, e1–h1 92–95, e2–h1 53, h1–f2 24, f2–h2 14–19. Setae h3 11 long, about 1/7 of terminal appendages.

Epimerites I U-shaped; coxal fields I and II open. Epimerites IVa present, poorly sclerotized. Distance between ventral setae: 1a–3a 73–76, 3a–g 24–27, 4a–ps3 109, g–4a 122, ps2–ps3 10, ps2–ps2 37–41, ps3–ps3 38–41. Setae ps2 and ps3 button-like in rectangular arrangement. Spermatoecia and spermatoducts as in Fig. 11C. Legs I and II as in the male; setae cG and mG of genu I and II setiform. Solenidion s1 of genu I stick-like, 14–15 long, situated in distal part of segment. Setae sR on trochanter and solenidion s on genu III absent. Genua III and IV without pronounced dorsal crests. Legs IV extending by ambulacral discs at maximum to the level of setae h2 (Fig. 11A).

Remarks. Pterodectes muticus was described from two host species: “Guelph, Ontario, Canada, on vesper sparrow and phoebe” (Banks 1909: 142). Type series (syntypes from the Vesper Sparrow) is represented by many specimens mounted in Canadian balsam together with a piece of a feather. Therefore these specimens were not in good enough condition to take measurements or make drawings, which is why morphological and morphometric information was taken from the specimens recollected in Texas. The specimens used for the present redescription fit the original description presented by Banks (1909) and fit his syntypes. As the Vesper Sparrow was given first in the original description, we designate here the former bird species as the type host for P. muticus. Syntypes from the Eastern Phoebe (Sayornis phoebe) were not found in the Banks’ collection in MCZ (A. Johnston, pers. comm., MCZ, Harvard University, USA).

Pterodectes banksi Valim et Hernandes, sp. n.

Figs 12–13

Pterodectes muticus: Banks, 1909: 141, pl. 10, fig. 4 (part).


Type host: Sayornis phoebe (Latham, 1790) (Tyrannidae) — the Eastern Phoebe, USA.

Type material: male holotype (NU 1178A) from Sayornis phoebe (Latham, 1790) (Passeriformes, Tyrannidae), 20 mi. S. Dallas, Texas, USA, 1.X.1938, coll. unknown; 1 male (NU 1178B) and 2 female paratypes (NU 1178C and D), same data. Type series is deposited in UMMZ.

Differential diagnosis. Although this species was apparently treated as P. muticus (Banks 1909; Park and Atyeo 1971), P. banksi sp. n. can be readily separated from P. muticus by the following characters. In both sexes, setae c1 set off hysteronotal shield; in males, the anterior angles of hysteronotal shield are acute (rather than rounded in P. muticus), and opisthoventral shields have discrete inward projections (rather than claw-shaped projections in P. muticus); in females, setae ps2 and ps3 are setiform, setae h2 are dagger-like without terminal filament, and the lobar shield is split into two longitudinal halves. In both sexes of P. muticus, setae c1 are on the hysteronotal shield; in females, setae ps2 and ps3 are button-like, setae h2 have terminal filament, and parts of lobar shield remain connected anteriorly.

Male holotype (Figs 12 A–B) (measurement of 1 paratype in parentheses). Length of idiosoma 336 (330), width 149 (149). Prodorsal shield: 109 (98) in length, 101 (101) in width, antero-lateral extensions acute, lateral margins entire, posterior margin with pair of shallow concavities, surface...
Redescriptions of *Pterodectes* species

monotonously punctured. Setae *ve* present. Scapular setae *si* and *se* arranged in transverse line. Setae *se* 122 in length (missed in paratype), their bases separated by 57 (57) and surrounded by a lighter sclerotized area, but still set on prodorsal shield, bases of setae *si* separated by 27 (31). Humeral shields absent. Setae *c1*, *c2* and *cp* on striated tegument, setae *c3* lanceolate, 24 (19) in length and 7 (8) in width. Distance between prodorsal and hysteronotal shields 44 (54). Hysteronotal shield: 193 (193) in length, 87 (92) in width; anterior margin deeply concave, anterior angles acute, surface monotonously punctured, without ornamentation. Terminal cleft as an inverted U with divergent branches, 19 (19) in length; supranal concavity well expressed, and circular in form. Setae *h3* short and setiform, shorter than distance between their bases. Length of setae: *ps1* 5 (5), *h3* 24 (20), *h2* 204 (missed), *ps2* 79 (71), *f2* 8 (8), *ps3* 33 (38). Distance between dorsal setae: *si–c1* 54 (68), *c1–c2* 54 (38), *c1–d1* 52 (52), *d1–d2* 33 (29), *d1–e1* 71 (65), *d2–e1* 46 (46), *e1–e2* 41 (49), *e1–h1* 49 (54), *e2–h1* 24 (22), *h1–f2* 27 (31), *h3–h3* 35 (34).

Epimerites I U-shaped, transverse connection thin; coxal fields I–III open. Rudimentary epimeral sclerites rEpIIa absent. Epimerites IVa large,
extending by inner tips to genital arch, but poorly sclerotized. Aedeagus relatively short, not reaching level of anal suckers, 65 (65) in length; genital arch 13 (16) in length and 41 (44) in width. Distance between ventral setae: 3a–4a 41 (41), 4a–g 37 (35), g–ps3 63 (58), ps3–ps3 68 (65). Anal suckers, 14 (12) in diameter, separated by 31 (31), corolla edentate. Opisthoventral shields broad and restricted to lateral borders of opisthosoma until level of setae ps2, postero-mesal edges with discrete inward projections; setae ps3 on inner margin of opisthoventral shield at level of postero-lateral margins of anal suckers (Fig. 12B).

Setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 12 (12) long, situated at midlevel of segment. Setae sR on trochanter III absent and solenidion σ on genu III present. Tarsus IV 38 (35) in length, without apical claw-like process; setae d and e button-like, situated on proximal and distal portions of segment, respectively (Fig. 12A).

**Female** (Figs 13A–C) (measurements of 2 paratypes). Length of idiosoma 506–545, width 176–231. Prodorsal shield: 114–117 in length and 120–131 in width, shape as in male except for slightly convex posterior margin, surface, setae

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**Fig. 13.** *Pterodectes banksi* sp. n. Female: dorsal (A) and ventral (B) views; spermatheca (C).
ve, scapular setae si and se as in male. Setae se 155–158 in length, their bases separated by 79; pair si separated by 56. Humeral shield absent. Setae c1, c2 and cp on striated tegument; setae c3 lanceolate, 24–27 in length and 7–8 in width.

Distance between prodorsal and hysteronotal shields 49. Anterior hysteronotal and lobar shields separated by thin band of soft cuticle. Anterior hysteronotal shield: 231–234 in length, 122–125 in width; surface monotonously punctured, with one pair of postero-lateral pale-sclerotized areas anterior to setae e2. Lobar region 92–95 in length and 87 in width; lobar shield completely split into two longitudinal halves, surface without lacunae. Terminal cleft as a narrow inverted V, 46–49 in length, reaching level of setae h2. Supranal concavity well expressed. Setae h2 dagger-like, without terminal filament, 46–52 in length and 8 in width. Setae h1 inserted posterior to supranal concavity; setae h1 and f2 in low trapezoidal arrangement. Setae ps1 set at midlevel of setae h2 and h3. Distance between dorsal setae: si–c1 69, c1–c2 42, c1–d1 68, d1–d2 52, d2–e1 112, d2–e1 67, e1–e2 58–60, e1–h1 76–92, e2–h1 42–52, h1–f2 26–34, f2–h2 16–19. Setae h3 12 long, about 1/8 of terminal appendages.

Epimerites I U-shaped as described for the male. Coxal fields I and II open. Epimerites IVa present, poorly sclerotized. Distance between ventral setae: 1a–3a 68, 3a–g 20–26, 4a–ps3 101, g–4a 112, ps2–ps3 11, ps2–ps2 35, ps3–ps3 38. Setae ps2 and ps3 setiform, disposed in trapezoidal arrangement. Spermatheca and spermaducts as in Fig. 13C. Legs I and II as in the male; setae cG and mG of genua I and II setiform. Solenidion σI of genu I stick-like, 15 long, situated at midlevel of segment. Setae sR on trochanter III absent, solenidion σ on genu III present. Pronounced dorso-basal crests on genua IV (Fig. 13A). Legs IV extending by ambulacral discs to the level of setae h2.

Etymology. The epithet is in homage to Nathan Banks (1868–1953), the primary collector of this new species.

Remarks. Although Banks (1909) mentioned both the Vesper Sparrow and the Eastern Phoebe as hosts of Pterodectes muticus (see remarks above), we have found out that these hosts actually bear separate Pterodectes species. As the firstly mentioned bird was declared the type host of P. muticus, the latter host is chosen herein as the type host for P. banksi n. sp.. When N. Banks collected these mites, characters normally used to separate feather mite species were probably not enough to recognize them as separate species. Currently, the broader range of characters used in specific diagnosis can justify the placement of the Eastern Phoebe mites in a new species.

species inquirenda

Pterodectes trulla (Trouessart, 1885)

Proctophyllodes (Pterodectes) mainati var. trulla Trouessart, 1885: 81.
Pterodectes mainati var. trulla: Canestrini, Kramer: 1889, 126.

Type host: Tauraco macroxyncha (Fraser, 1839) (Musophagidae) — the Yellow-billed Touraco, Gabon; probably error.

This species was originally described by Trouessart (1885: 81) as a variety of Pterodectes mainati Trouessart, 1885 from the museum skin of Corythaix macroxyncha (= Tauraco macroxyncha) from Gabon. Gaud (1966: 337) stated that it should not be a variety of P. mainati but a separate species. Nevertheless, he was not confident to place it under a correct association with a touraco host. Park and Atyeo (1971: 60) considered that species as belonging to the genus Montesauria Oudemans, 1905. Probably they assumed the similarities of the two varieties described by E.L. Trouessart would mean that P. trulla belonging to the genus Montesauria as well.

In a partial revision of the genus Montesauria, Mironov (2006: 27), based on examination of the syntypes of P. trulla, concluded that this species belongs to the genus Pterodectes. However, since its odd association with musophagids (Musophagiformes), he suggested that it might be an accidental contamination, because no other species of Proctophyllidiidae are known to occur on birds of this order. Since specimens of the type series of P. trulla are in bad condition to allow a possible redescription (S.V. Mironov, pers. comm., Zoological Institute, Russia), and given the difficulty of correctly assigning this species to its true host, we suggest it is prudent to regard it as a species inquirenda.

Cotingodectes Valim et Hernandes, gen. n.
Pterodectes: Trouessart, 1899: 61 (part); Ptero-

Type species: Pterodectes interfolia Trouessart, 1899.
Description. Both sexes. Moderately elongated pterodectines. Vertical setae ve absent. All hysterosomal setae present. Prodorsal shield covering most of prodorsum. Scapular shields narrow. Humeral shields present, developed dorsally. Setae c2 situated dorsally, in anterior ends of humeral shields. Setae cG on legs I and II setiform. Solenidium sI of genu I about 1/3 the length of solenidion s3 of tarsus I. Setae wa anterior to setae la and ra on tarsi I and II. Segments of legs I and II without processes or other modifications. Trochanteral seta sR and genual solenidion sJ present on legs III. Supranal concavity well developed.

Male. Epimerites I fused into a Y, posterior tip of sternum connected with medial part of epimerites II by transverse sclerotized bands. Coxal fields I closed, coxal fields II–IV open; epimerites II and IV with extensive sclerotized areas. Opisthosomal lobes longer than wide, each dissected by narrow longitudinal incision into two lobules; outer lobules longer than inner ones and bearing setae h2 and ps1. Setae h3 lanceolate or foliform, situated at base of inner lobules, anterior to level of setae h2. Setae h1 at level of anterior end of supranal concavity. Setae ps1 setiform. Genital organ slightly posterior to level of trochanters IV. Genital arch as a small inverted V, posterolateral extremities of arch not connected to any portion of surrounding sclerotizations; aedeagus much longer than genital arch. Genital papillae anterior to genital arch. Genital area bearing genital apparatus, papillae and setae g surrounded by long and wide paragenital apodemes, anterior parts of which formed by epimerites IVa. Setae 4a situated on anterior end of paragenital apodemes. Pre-genital sclerite present, situated anterior to setae 4a. Opisthoventral shields well developed, occupying entire surface of opisthosomal lobes. Corolla of anal suckers edentate. Setae ps3 on soft tegument of anal field, situated lateral to anal suckers. Adanal shields absent. Setae g and ps3 in trapezoidal arrangement. Legs I and IV slightly thicker than legs II and III, which are subequal. Solenidia φ of legs III and IV subequal. Tarsi IV with apical claw-like process, setae d and e button-like.

Female. Epimerites I fused into a narrow U. Lobar region of opisthosoma separated from hysterosoma, opisthosomal lobes well developed, with long terminal appendages. Macrosetae h2 dagger-like. Epignyium horseshoe-shaped, large. Translobar sclerites present. Legs I–IV subequal in size; solenidia φ of tibiae III and IV subequal in length.

Differential diagnosis. The new genus, Cotingodectes gen. n., belongs to the Pterodectes generic group (Park and Atyeo 1971) and is most similar to Pterodectes by having the following features. In both sexes, there is a complete set of hysterosomal setae; in males, the genital papillae are situated anterior to the genital arch, setae ps3 are situated lateral to the anal suckers; in females, setae h2 are strongly enlarged, dagger-like in form. The new genus differs from Pterodectes by the following set of characters: in both sexes, the humeral shields are well developed dorso-laterally and encompass the bases of setae c2; in males, long paragenital apodemes extend from the midlevel of coxal fields IV to the level of anal suckers and encircle a large genital field, and the pregenital sclerite is present between coxal fields IV; in females, solenidia φ of tibiae III and IV are subequal. In known Pterodectes species, the humeral shields are either absent or rather small and do not encompass setae c2; in males, the paragenital and pregenital apodemes are absent; in females, solenidium φ of tibia III is usually longer than that on tibia IV.

It is necessary to note that males of Cotingodectes gen. n. superficially resemble those of Dolichodectes Park et Atyeo, 1971 in having elongated opisthosomal lobes with widely lanceolate setae h3 and extensive sclerotization around the genital field. However, the similarity between these genera is clearly convergent, because in Dolichodectes, the genital papillae are situated posterior to the genital arch, setae ps3 are posterior to the anal suckers, and sclerotization areas (shields and apodemes) around the anal and genital fields are of quite different structure.

Species content. The genus is monotypic.

Etymology. Contraction of the host family Cotingidae and Pterodectes.

Cotingodectes interfoliatus (Trouessart, 1899) comb. n.

Figs 14–16


Type host: Rupicola peruviana (Latham, 1790) (Cotingidae) — the Andean Cock-of-the-Rock. Peru.

Material examined: 4 males (FMNH 398136, BMOC 01-0102-140) and 4 females (FMNH 398136, BMOC 01-0102-140) from Rupicola peruviana (Latham, 1790) (Passeriformes, Cotingidae), Sucia, km 138.5 on Cuzco-Shintuya Hwy,
Redescriptions of *Pterodectes* species

1920m, Paucartambo, Cuzco, Peru (13°05′45″ S, 71°33′36″ W), 27.IX.1999, coll. D.F. Stotz (DFS 99-232).

**Male** (Figs 14 A–C, 15 A–B) (n = 4). Length of idiosoma 363–385, width 143–154. Prodorsal shield: 98–106 in length, 95–98 in width, antero-lateral extension rounded, lateral margins with large incisions around bases of setae se (these setae off prodorsal shield), posterior margin with two shallow concavities, surface without lacunae or pale-sclerotized areas. Setae ve absent. Scapular setae si and se arranged in transverse line. External scapular setae se 114–131 in length, their bases separated by 56–57; bases of si separated by 37–38. Humeral shields present, fused to bases of epimerites III. Setae c2 set on anterior end of humeral shields, setae cp set on ventral margin of humeral shields. Setae c3 lanceolate, 20–22 in length and 5 in width. Distance between prodorsal and hysteronotal shields 23–27. Hysteronotal shield: 248–265 in length, 76–82 in width, anterior margin slightly concave; surface with circular lacunae sparsely disposed in anterior half of shield. Opisthosomal lobes dissected into inner

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Fig. 14. *Cotingodectes interifolius* (Trouessart, 1899). Male: dorsal (A) and ventral (B) views; tarsus IV (C).
and outer lobules with acute apices, outer lobules longer than inner ones. Total length of terminal cleft (from anterior end to apices of outer lobules) 55, greatest width (distance between apices of outer lobules) 54–58. Anterior part of terminal cleft narrow, parallel-sided, length (from anterior end to apices of inner lobules) 33–35, width 6 (Figs 15A, B). Supranal concavity narrowly ovate, open posteriorly to terminal cleft. Setae \(h_3\) lanceolate, 68–73 in length, 14–15 in width. Setae \(ps_1\) situated slightly anterior to level of setae \(h_2\).

Length of other opisthosomal setae: \(ps_1\) 16–19, \(h_2\) 177–190, \(ps_2\) 71–84, \(f_2\) 14–16, \(ps_3\) 14–16.

Distance between dorsal setae: \(si–c_1\) 63–71, \(c_1–c_2\) 41–46, \(c_1–d_1\) 37–39, \(d_1–d_2\) 27–33, \(d_1–e_1\) 78–92, \(d_2–e_2\) 50–60, \(e_1–h_1\) 41–44, \(e_2–h_1\) 29–33, \(h_1–f_2\) 41–46, \(h_3–h_3\) 29–33, \(h_2–h_2\) 58.

Epimerites I fused as a Y, posterior tip of sternum connected with medial part of epimerites II by transverse sclerotized bands; epimerites II with large sclerotized areas; epimerites IIIa long and L-shaped; epimerites IVa incorporated into paragenital apodemes. Genital arch situated at level of posterior margin of trochanters IV, 22 in length, 22–27 in width. Aedeagus strongly attenuate to apex, reaching level of bases of setae \(h_3\), 125–126 in length. Genital area bearing genital papillae, genital arch and setae \(g\) encircled by long and wide paragenital apodemes stretching from midlevel of coxal fields IV to anal suckers; anterior part of paragenital apodemes formed by epimerites IVa and bears setae \(4a\). Rudimentary epimeral sclerites rEpIIa absent. Pregenital sclerite narrow stick-shaped, free from epimerites IVa, situated between levels of setae \(3a\) and \(4a\). Distance between ventral setae: \(3a–4a\) 27–33, \(4a–g\) 57–63, \(g–ps_3\) 41–46, \(ps_3–ps_3\) 56–63. Anal suckers 16–19 in diameter, separated by 35–37, corolla edentate. Opisthoven- tral shields completely covering opisthosomal lobes and flanking anal suckers from lateral sides. Setae \(ps_3\) situated on soft tegument, antero-lateral to anal suckers.

Solenidion \(\sigma I\) of genu I as a thin spine, 11 long, situated at midlevel of segment; setae \(cGI\) and \(cGII\) setiform; seta \(mGI\) spine-like, 5 long, setae \(mGII\) setiform (Fig. 14A). Tarsus IV with apical claw-like process, 27–33 in length, seta \(d\) and \(e\) button-like, situated in midlevel of segment and near apical claw, respectively (Fig. 14C).

**Female** (Figs 16A–C) (n = 4). Length of idiosoma 440, width 165–176. Prodorsal shield: 109–114 in length and 112–114 in width, shape, surface and arrangement of scapular setae as in male. Setae \(ve\) absent. Setae \(se\) 133–147 in length, their bases separated by 68–71; pair \(si\) separated by 46–48. Humeral shields present, fused with epimerites III. Setae \(c_2\) and \(cp\) on humeral shields as in male; setae \(c_3\) lanceolate 24 in length and 7–8 in width.

Distance between prodorsal and hysteronotal shields 24–35. Anterior hysteronotal and lobar shields separated only by thin transverse furrow. Anterior hysteronotal shield: 199–204 in length, 101–109 in width; anterior margin slightly concave, anterior angles acute, surface without lacunae or pale-sclerotized areas. Lobar region: 92–103 in length, 101–109 in width; surface without lacunae; terminal cleft as a narrow U, 60–68 in length, 18 in width. Supranal concavity circular, well expressed. Setae \(h_2\) dagger-like, 60–65 in length and 8–10 in width. Setae \(h_1\) inserted at
Redescriptions of *Pterodectes* species


Epimerites I fused as a U. Coxal fields I and II open. Epimerites IVa present. Distance between

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Fig. 16. *Cotingodectes interfolius* (Trouessart, 1899). Female: dorsal (A) and ventral (B) views; spermatheca (C).
ventral setae: 1a–3a 69–76, 3a–g 14–16, 4a–ps3 98–103, g–4a 79–87, ps2–ps3 16–19, ps2–ps2 44–52, ps3–ps3 19–24. Setae ps2 and ps3 setiform, disposed in trapezoidal arrangement at level of anal opening. Spermatheca and spermaducts as in Fig. 16C; secondary spermaducts 15 long.

Legs I and II as in the male. Solenidion σ I of genu I as thin spine, 17 long, situated at midlevel in Fig. 16C; secondary spermaducts 15 long.

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