

**A NEW GENUS OF FEATHER MITES  
FROM AFRICAN MUSCICAPIDAE  
(Analgoidea: Proctophyllodidae)<sup>1</sup>**

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ABSTRACT

*Bradyphylloides clavulus*, new genus and species, is described from *Bradornis mariquensis* Smith, 1847 (Muscicapidae) from the Republic of South Africa and South-West Africa.

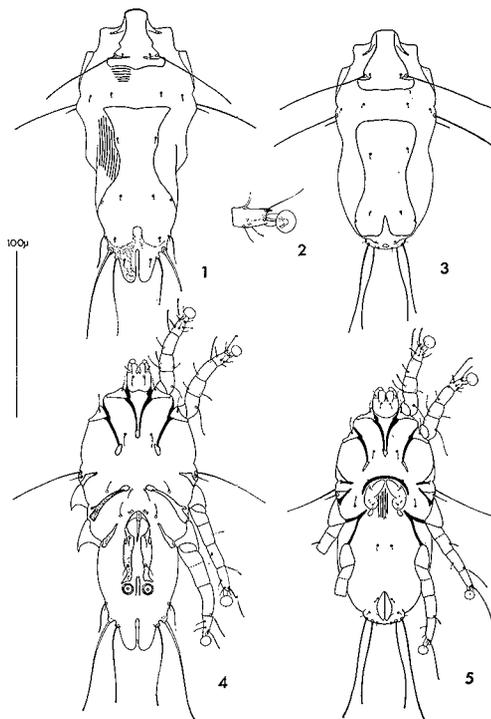
The majority of sarcoptiform mites known to be parasites of the skin and nasal cavities of birds and mammals are characterized in part by tarsal modifications. Each tarsus may bear a well developed claw at the apex of the *dorsal* surface or a simple or bifid claw ventral to the ambulacrum. A dorsal claw is a heavily sclerotized process extending the dorsal surface of the tarsus beyond the limit of the ventral surface and the small, stalked ambulacrum arises below the base of the claw. A ventral claw, a modification of seta *s* (not *p* and/or *q*), arises below the ambulacrum and is characteristic of mammal parasites of the genera *Accaroptes* Womersley, 1953, *Paracaroptes* Lavoipierre, 1955, and *Pan-gorillalges* Fain, 1962.

The sarcoptiform mites ectoparasitic on feathers (i.e., the Analgoidea) usually lack dorsal tarsal claws and have almost sessile ambulacra. In those groups with tarsal claws, there are three major modifications. The first type occurs apicodorsal on the tarsi and can be short, straight, and lightly sclerotized (e.g., legs I-II of *Analges* Nitzsch, 1818) to long, curved, and heavily sclerotized. The latter condition, especially apparent in some genera characterized by males with enlarged legs III-IV, results in a functional claw *below* the origin of the ambulacrum (e.g., *Analges*, *Anhemialges* Gaud, 1958). The second modification, observed in many genera, is an apicoventral clawlike process which usually bears seta *s* at the base; this type is common in the Syringobiinae (e.g., *Syringobia* Trouessart and Neumann, 1888, *Thecarthra* Trouessart, 1896) and the Analginae (e.g., *Mesalgoidea* Gaud and Atyeo, 1967). The last type of tarsal modification is observed in the genera *Mesalges* Trouessart and Neumann, 1888, *Psoroptoides* Trouessart, 1919, and the few related taxa. In these genera, ventral claws homologous to those of the mammal parasites are evident, that is, seta *s* is enlarged into a claw (Gaud and Atyeo, 1967).

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FIGS. 1-5. *Bradyphyllodes clavulus*, new genus and species. 1, 4, Dorsal and ventral aspects of male; 3, 5, Dorsal and ventral aspects of female; 2, Lateral aspect of male tarsus II.

In the taxon to be described, the males, females, and nymphs (larvae not available) have the dorsal apex of *each* tarsus extended into a well-defined claw (Fig. 2), a modification unique among the known Analoidea. Also in the new taxon, as in the first type of tarsal modification previously mentioned, seta *d* and *omega*<sub>3</sub> are situated at the base of the claw on the first pair of legs; legs II-IV, which lack *omega*<sub>3</sub>, have only seta *d* inserted at the claw base.

#### **Bradyphyllodes** new genus

The new taxon is assigned to the family Proctophyllodidae, subfamily Proctophyllodinae, and is considered to be in the *Proctophyllodes-Monojoubertia* complex. As currently defined, the genus *Proctophyllodes* Robin, 1868, includes males with terminal lamellae, epimerites I U-shaped, 5-segmented subequal legs, and the apex of tarsus IV with setae *d*, *e*, *f* (Atyeo and Braasch, 1966); the genus *Monojoubertia* Radford, 1950, includes males with or without terminal lamellae, epimerites I free (occasionally U-shaped), legs III-IV with the genua and femora partially fused, legs IV considerably larger than legs III, and the apex of tarsus IV with one seta (*d*) or three setae (*d*, *e*, *f*) (Gaud and Till, 1961). The typical females of both genera have deeply cleft termini bearing ensiform appendages (rarely a rounded terminus without appendages). *Bradyphyllodes clavulus* n. sp. is intermediate in the development of the aforementioned characters. The male has terminal lamellae; epimerites I are V-shaped but the connection reflects a secondary fusion; genua and femora of legs III-IV are partially fused; legs IV, although not longer than legs III, have a greater diameter, and the apex of tarsus IV has one seta. The terminal claws on the tarsi and the absence of setae *sR* on trochanters III are features unique to the known Proctophyllodidae.

**DIAGNOSIS.** Proctophyllodine mites ectoparasitic on Muscicapidae (Passeriformes). Both sexes with epimerites I V-shaped, femora and genua of legs III-IV partially fused, setae *vi*, *l*<sub>2</sub>, *l*<sub>3</sub>, and *sR* on trochanters III absent, all tarsi with apical claw. Males with legs IV slightly enlarged, with terminal lamellae, genital organ reflexed, setae *c*<sub>3</sub> and *a* widely separated, setae *e*, *f* absent from tarsus IV. Female similar to *Proctophyllodes* species with terminus entire; opening to bursa copulatrix dorsal, setae *l*<sub>5</sub> longer than *d*<sub>5</sub>, and pregenital apodeme independent of epimerites.

Type species. *Bradyphyllodes clavulus* new species.

Derivation. Contraction of *Bradornis* and *Proctophyllodes*: masculine.

#### **Bradyphyllodes clavulus** new species

When additional species of *Bradyphyllodes* are described, it is probable that the development of the male genital organ and supporting structures will differentiate the species. *Bradyphyllodes clavulus* males

have long, divided opisthogastric shields and the genital organ extends to the level of setae  $c_3$ .

MALE (holotype). Length, including lamellae,  $140\mu$ ; width  $56\mu$ . Dorsal shields reduced; propodosomal shield incised behind external scapular setae; hysterosomal shield constricted at level of legs IV, not bearing setae  $l_1$ ; humeral shield weakly developed, bearing seta  $h$  and spiculliform seta  $sh$ . Ventral idiosoma with epimerites I joined by secondary sclerotization; genital organ extending to setae  $c_3$ ; opisthogastric shields divided, elongate, and bearing setae  $c_3$  and  $a$  in rectangular arrangement. Legs I-II about  $48\mu$  in length, legs III-IV about  $60\mu$  in length; legs IV extending to apices of lamellae, with greater diameter than legs III; solenidion  $\sigma_{1a}$  on femur III short; seta  $sR$  on trochanter III absent; seta  $d$  on tarsus III long, extending well beyond ambulacrum.

FEMALE (paratype). Length  $146\mu$ ; width  $58\mu$ . Dorsal shields reduced; propodosomal and hysterosomal shields as in male, latter bearing only setae  $d_{2-3}$ ; subhumeral seta spiculliform. Epimerites as in male; pregenital apodeme independent of epimerites. Legs I-II about  $52\mu$  in length, legs III-IV about  $63\mu$  in length; legs IV arising posterior to midlength of hysterosoma and extending beyond idiosoma by length of tarsus; solenidia  $\phi_{hi}$  on tibia IV and  $\sigma_{1a}$  on femur III short, subequal; solenidia  $\phi_{hi}$  on tibiae I-III extending beyond apices of ambulacra; seta  $d$  on tarsi III-IV equal in length to tarsus + pretarsus. Opening to bursa copulatrix dorsal; spermatheca simple, similar to *Proctophyllodes pinnatus* (Nitzsch), 1818.

Types. From *Bradornis mariquensis* Smith, 1847 (Muscicapidae): holotype  $\delta$ , 2  $\text{♀}$  paratypes, Brakkloof, Transvaal, Republic of South Africa, August 20, 1961; 3  $\delta$  paratypes, Lake Ngami, Bechuanaland, January 8, 1955, F. Zumpt; 4  $\delta$ , 7  $\text{♀}$  paratypes, Tsitsib, West Okaranga, South-West Africa, July 18, 1967. The holotype and a portion of the secondary types are deposited in the South African Institute for Medical Research, Johannesburg; secondary types are deposited in the collections of J. Gaud and the University of Georgia.

Remarks. The males and females have eight pairs of dorsal hysterosomal setae rather than the maximal number of ten pairs. Only one pair of the second row and one pair of the third row of hysterosomal setae are evident. In species of the related genus *Proctophyllodes* with the full complement of ten pairs, the females have setae  $l_2$  positioned at the posterolateral angles of the hysterosomal shield and setae  $d_3$  midway between the meson and the lateral margins of the idiosoma; the small opening of the dorsal hysterosomal gland is anterior to seta  $l_2$  and slightly posterior to seta  $d_3$ . Comparison of the dorsal chaetotaxy and gland openings of the two genera indicates that the lateral pairs of setae of the second and third rows  $l_{2-3}$  are absent in *Bradyphyllodes clavulus*.

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