

REDESCRIPTION OF *FAINALGES ANNULIFER* (TROUESSART, 1899) WITH DESCRIPTIONS OF THE ONTOGENETIC SERIES

BY Tila M. PÉREZ *

MORPHOLOGY
FEATHERMITES
XOLALGIDAE

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XOLALGIDAE
ACAROS PLUMÍCOLAS

MORPHOLOGIE
SARCOPTIDES PLUMICOLES
XOLALGIDAE

ABSTRACT : The adults and immatures of *Fainalges* (= *Protalges*) *annulifer* (Trouessart) (Astigmata, Xolalgidae) are redescribed from *Deroptyus accipitrinus* (L.) (Aves, Psittacidae). Related species and their common morphological characteristics are listed.

RESUMEN : Se redescriben los adultos y estados inmaduros de *Fainalges* (= *Protalges*) *annulifer* (Trouessart) (Astigmata, Xolalgidae) asociados con *Deroptyus accipitrinus* (L.) (Aves, Psittacidae). Se incluyen las especies relacionadas y se mencionan sus características morfológicas comunes.

RÉSUMÉ : Les adultes et les immatures de *Fainalges* (= *Protalges*) *annulifer* (Trouessart) (Astigmata, Xolalgidae) sur *Deroptyus accipitrinus* (L.) (Aves, Psittaciidae) sont redécris. Les espèces apparentées et leurs caractères morphologiques communs sont énumérés.

Seven species of *Fainalges* Gaud & Berla (Xolalgidae) coexist on the Green Conure, *Aratinga holochlora* (Slater) (PÉREZ, 1995). From preliminary investigations of the *Fainalges* faunas of other New World parrots, it has been determined that many hosts have multiple *Fainalges* congeners. Thus, it is necessary to do detailed descriptions of adults and immatures for new and previously described taxa. A case in point is *Fainalges annulifer* (Trouessart); the type microslide included specimens of more than one species of *Fainalges*.

TROUESSART (1899) described *Protalges annulifer* from the New World parrot *Deroptyus accipitrinus* (L.); the taxon was eventually assigned to *Fainalges* Gaud and Berla (GAUD & ATYEO, 1981). Although TROUESSART's description is short, *annulifer* males have a pair of distinctive structures (annuli) associated with epimerites II (Fig. 1). The TROUESSART slide containing these males also has adults of other *Fainalges* species. Associating the *annulifer* males

with females and immatures was accomplished by comparing the setae of coxae I, ventral setae of the anterior tarsi and the modifications of epimerites I of the TROUESSART specimens plus other materials obtained from museum study skins of the type host.

In the study collection, there are males, females and immatures of *F. annulifer* and, in addition, five different males, five different females and some immatures of other *Fainalges* species (associations have not been established). The redescription of *F. annulifer*, including the ontogenetic series, will be useful for future investigations of a genus in which many congeners are known from individual host species.

Morphologies of *Fainalges* males and females are insufficient to establish species groups. It has been by the study of the immatures (ontogenetic series) that relationships among the species can be recognized. Among named and unnamed species of *Fainalges*, a discrete complex is known which

* Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, Apdo. Postal 70-153, 04510 México, D.F., México.

includes *F. annulifer*, *F. apicosetiger* Mejía-González & Pérez, *F. tanythrix* Pérez, *F. trichocheylus* Gaud & Berla, and several undescribed species from Neotropical parrots. All of these *Fainalges* species have in common :

- 1) Immatures lack pretarsi III and IV.
- 2) Tarsi II of all instars with setae *wa* long and lanceolate, and setae *s* setiform or spiculiform.
- 3) Pretarsi III and IV of females either long, slender and flexible with ambulacral discs atrophied, or pretarsi absent.
- 4) All instars with epimerites I well developed.
- 5) Males with long hypostomal setae.
- 6) Females and immatures setae *d* of legs III, IV extremely long and inserted on tarsal apices.

In the descriptive section, setal signatures follow GRIFFITHS et al. (1990) (for more information on setal signatures, see PÉREZ, 1995 ; MEJÍA-GONZÁLEZ & PÉREZ, 1988). Measurements are given in micrometers as the mean plus or minus the standard error (if N > 10) followed in parentheses by the observed limits and number of observations (N). Measurements include length (from palp apices to setal bases *h3*) ; width (distance between setae *cp*) ; gnathosomal length × width ; prodorsal shield length (measured along meson) × width ; (at widest part) ; distances between setal pairs, taken as center-to-center ; and leg segment lengths, taken parallel to the segmental axis along the dorsal surfaces between points of articulation.

The non-type material studied here is currently in the collection of the author. Acronyms for accession numbers are as follows : MNHN — Muséum national d'Histoire naturelle, Paris ; UGA — University of Georgia, Georgia ; YSU — Youngstown State University, Ohio. Bird specimens from which mites were obtained are in the American Museum of Natural History (AMNH).

Fainalges annulifer (Trouessart)
(Figs. 1-6)

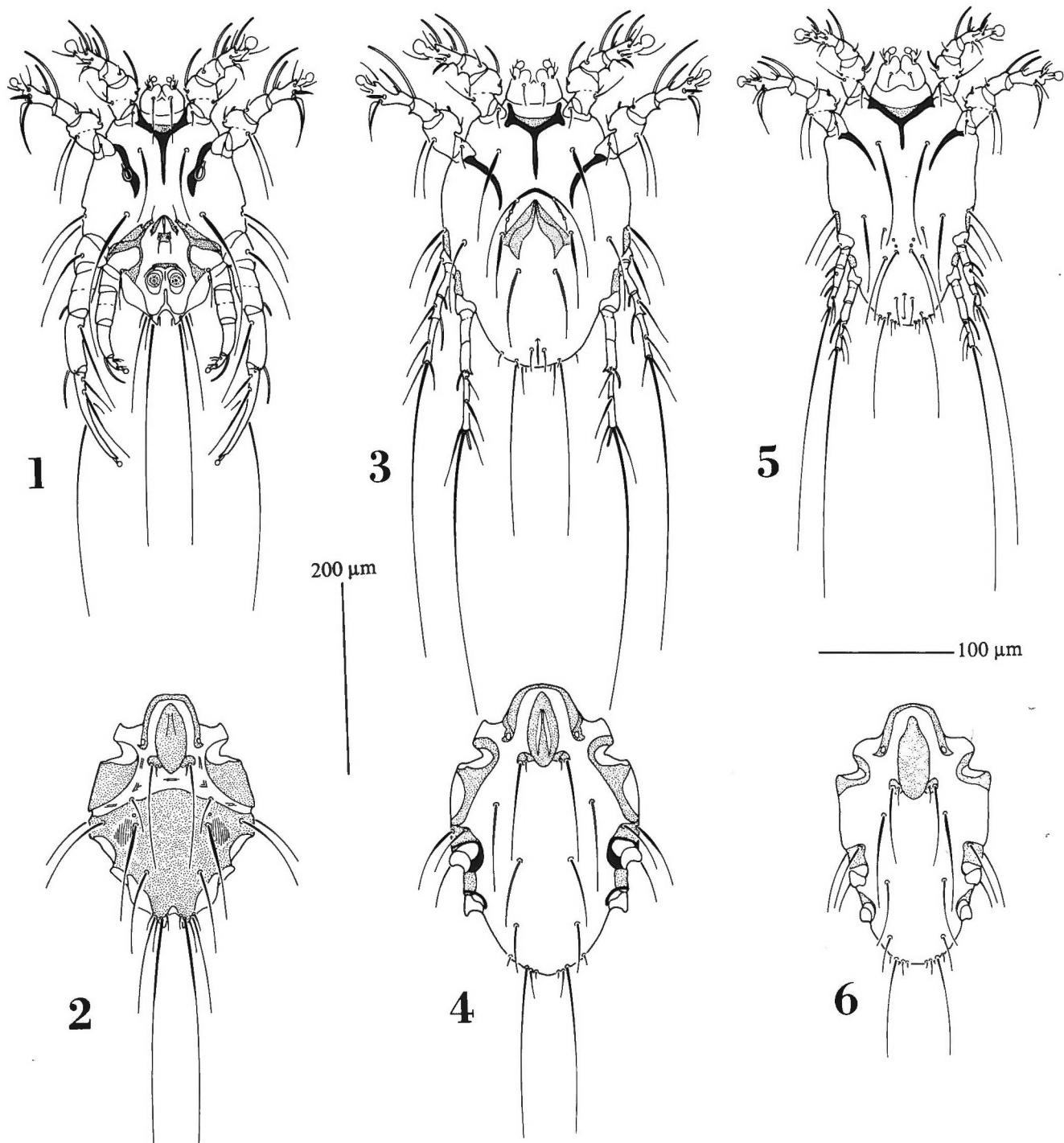
Protalges annulifer TROUESSART, 1899 : 31 ; CANESTRINI & KRAMER, 1899 : 92 ; FAVETTE & TROUESSART, 1904 : 126.

Dubininia annulifer, GAUD, 1980 : 10.

Fainalges annulifer, GAUD & ATYEO, 1981 : 61 ; PÉREZ & ATYEO, 1984 : 565 ; MEJÍA-GONZÁLEZ & PÉREZ, 1988 : 73 ; PÉREZ, 1995 : 204.

MALE (Figs. 1, 2). Length 244.6 (219.1-263.0, N = 10) ; width 168.1 (151.4-183.3, N = 10). *Gnathosoma* : 35.4 (31.5-37.4, N = 10) × 39.0 (35.4 (31.5-37.4, N = 10) ; hypostomal setae 54.5 (51.2-59.1, N = 4) extending beyond fork of epimerites I. *Idiosoma* : Prodorsal shield 65.4 (63.0-67.0, N = 10) × 28.3 (25.6-31.5, N = 10) ; *se:se* 38.0 (34.5-42.3, N = 10) ; *si:si* 30.1 (26.6-34.4, N = 10) ; *si* 14.8 (13.8-15.8, N = 2) ; *c2* 37.4 (29.5-43.3, N = 4) ; *c2:c2* 95.3 (81.7-102.4, N = 10) ; *d2:d2* 73.9 (68.9-81.7, N = 10) ; *e2:e2* 58.7 (55.1-63.0, N = 10) ; seta *h2* half size *h3*. Epimerites II with pair of ring structures ; seta *1a* slightly expanded at base, extending to *3a* ; *3a:g* 23.2 (19.7-30.5, N = 9) ; *g:ps3* 24.5 (22.6-27.6). *Legs* : Leg I with *σ1* 41.3 (37.4-43.3, N = 5) ; leg II with setae *wa* 47.0 (43.3-51.2, N = 8) ; *s* 20.9 (19.7-21.7, N = 9). Measurements (fused femur/genu, tibia, tarsus) (N = 10) : III, 43.5 (39.4-51.2), 64.4 (61.0-70.9), 98.3 (90.6-106.4) ; IV, 33.7 (31.5-39.4), 37.6 (32.5-43.3), 19.3 (17.7-21.6) ; pretarsal stalks I-IV : 11.2 (9.8-11.8, N = 9), 11.0 (9.8-11.8, N = 10), 3.5 (2.0-3.9, N = 8), 6.5 (5.9-7.9, N = 6).

FEMALE (Figs. 3, 4). Length 290.9 ± 3 (266.9-318.8, N = 20) ; width 169.7 ± 2.6 (143.4-199.2, N = 19). *Gnathosoma* : 46.3 ± 0.4 (42.3-50.2, N = 20) × 46.9 ± 0.7 (43.3-57.1, N = 20) ; hypostomal setae 15.7 (N = 1). *Idiosoma* : Proterosoma, legs I, II similar to male but without the rings next to epimerites II. Prodorsal shield 71.9 ± 0.61 (65.0-76.8, N = 19) × 29.3 ± 0.3 (27.6-31.5, N = 18) ; *se:se* 35.8 ± 0.5 (32.5-41.3, N = 18) ; *si:si* 26.2 ± 0.6 (23.6-32.5, N = 17) ; *sci* 17.1 (15.7-17.7, N = 4) ; *c2:d2* 56.7 ± 0.6 (53.1-63.0, N = 20) ; *d2:e2* 65.0 ± 0.7 (59.1-71.9, N = 20) ; setae *h2* four times bigger than *h3* ; *h3* < *e2* ; *1a* as in male (slightly expanded at base) extending to *3a* ; *g:g* 30.3 ± 0.7 (25.6-39.4, N = 20) ; *g:3a* 35.0 ± 0.4 (32.5-39.4, N = 20) ; *3a:4a* 38.2 ± 0.7 (31.5-43.3, N = 20). *Legs* : Leg I with *σ1* 38.0 (33.5-43.3, N = 7) ; leg II with setae *wa* 50.2 ± 0.7 (47.3-55.1, N = 16) ; *s* 17.3 ± 0.3 (13.8-19.7, N = 20) ; leg III with seta *kT*



FIGS. 1-6 : *Fainalges annulifer* (Trouessart). Ventral and dorsal aspects of male (1, 2), ventral and dorsal aspects of female (3, 4), ventral and dorsal aspects of tritonymph (5, 6).

48.2 ± 0.8 (43.3-55.1, N = 16). Measurements (fused femur/genu, tibia, tarsus) : III, 29.3 ± 0.3 (27.6-31.5, N = 19), 22.8 ± 0.2 (21.6-24.6, N = 19), 46.5 ± 0.4 (43.3-49.2, N = 19); IV, 28.5 ± 0.2 (23.6-29.5, N = 18), 28.3 ± 0.3 (25.6-30.5, N = 20), 56.1 ± 0.6 (51.2-61.0, N = 20). Pretarsal stalks : I, 12.4 ± 0.2 (10.8-13.8, N = 17); II, 13.8 ± 0.0 (N = 20); III, absent; IV, 16.5 (15.7-17.7, N = 10) with ambulacra atrophied.

TRITONYMPH (Figs. 5, 6). Length 230.5 (204.9-246.2, N = 4); width 116.6 (90.6-132, N = 5). *Gnathosoma* : 30.8 (29.5-31.5, N = 3) × 34.6 (31.5-36.4, N = 5). *Idiosoma* : Seta 1a as in adults, extending beyond 3a; h3 < ps3. Legs : Leg II with setae wa 34.1 (33.3-34.9, N = 2); s 15.5 (15.1-15.9, N = 3). Measurements (fused femur/genu, tibia, tarsus (N = 5) : III, 14.3 (12.7-15.9), 12.4 (11.1-13.5), 22.4 (19.8-25.4); IV, 13.5 (12.7-14.3), 13.8 (12.7-15.0), 25.2 (22.2-29.3); pretarsi III, IV absent.

PROTONYMPH. Similar to tritonymph. Length 167.4 (157.6-181.2, N = 3); width 82.7 (80.7-84.7, N = 2). *Gnathosoma* : 25.1 (23.6-26.5, N = 4) × 27.9 (27.5-28.5, N = 3). Legs : Leg II with setae wa 27.3 (26.2-28.5, N = 4); s 12.4 (11.9-12.7, N = 4). Measurements (fused femur/genu, tibia, tarsus (N = 4) : III, 11.5 (11.1-11.9), 9.6 (8.7-10.3), 17.0 (15.8-18.2); IV, 10.7 (9.5-11.0), 9.7 (8.7-10.3), 17.6 (16.6-19.0); pretarsi III, IV absent.

LARVA (N = 1). Similar to protonymph except lacking legs IV. Length 151.6; width 68.9. *Gnathosoma* : 17.7 × 22.6. *Idiosoma* : Scapular setae on platelets approximate to central shield. Legs : Leg II with setae wa 15.0; s 8.7. Measurements (fused femur/genu, tibia, tarsus) : 7.9, 7.1, 9.5; pretarsi III absent.

Type data : From *Deroptyus accipitrinus* (L.) : Guyana, Brazil; 3 ♂♂, 7 ♀♀ syntypes, mounted under coverslip no. 2 on slide no. 30 E 1 in TROUESSART Collection.

Additional material. From *Deroptyus accipitrinus fuscifrons* Hellmayr : 7 ♂♂, 16 ♀♀, 5 TNN, 4 PNN, 1 L, Limontuba, Rio Tapajós, Pará, Brazil, August 6, 1931, A. M. OLALLA (AMNH 288250, UGA 7589 = YSU 2970); 3 ♂♂, 8 ♀♀, same data except August 9, 1931 (AMNH 288251, YSU 2969); 5 ♀♀, same data except (AMNH 288252, YSU 2971).

Remarks. The type slide, which is in poor condition, has four coverslips numbered 1-4. As *Fainalges annulifer* is readily identifiable, all individuals of this species are under coverslip no. 2. The specimens were not remounted, consequently, a lectotype has not been designated. The redescription and drawings are based on the additional material.

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