

**TWO NEW HETEROMORPHIC DEUTONYMPHS (HYPOPI) (ACARINA:  
HYPODERIDAE) FROM THE GREAT FRIGATEBIRD  
(*FREGATA MINOR*)<sup>1,2</sup>**

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*Abstract:* *Neottialges (Caloenectes) fregatae* n. sp. and *Neottialges (Pelecanectes) hawaiiensis* n. sp. are described from heteromorphous deutonymph (hypopi) specimens taken from the gular pouch tissue of a Great Frigatebird on Lisianski I., leeward Hawaiian Is.

Early in 1963, the Pacific Ocean Biological Survey Program of the Smithsonian Institution engaged in studies of the ecology of seabirds in the Central Pacific Ocean. In these studies over 8900 birds of 104 species from 43 islands and at sea were examined for ectoparasites as were many of their nests. While examining tissue from the red throat (gular) pouch of a courting adult male Great Frigatebird from the leeward Hawaiian Is., Amerson collected 10 specimens of hypopi belonging to 2 new species of sarcoptiform mites. The mites could not be seen on the outer surface of the skin, but upon dissection were readily visible to the naked eye on the inner surface. They appeared as small, elongate, yellowish nodules in the reddish, subcutaneous tissue. Many more were present than were collected, but no tissue infection or damage was apparent.

Fain & Bafort (1966, 1967) have worked out the life cycle of the well known hypopi that live under the skin of pigeons in various parts of the world. Contrary to the classical opinion, they have shown that these hypopi are not the heteromorphous deutonymphs of the feather mite *Falculifer rostratus*, but those of a species with previously undescribed adults that are free living in the nests of the pigeons.

Fain & Bafort (1966) created a new family, Hypodectidae, for this group of mites. The name "Hypodectidae," however, must fall in synonymy with the name "Hypoderidae" proposed by Murray (1877: 227-330) for the hypopi of the genus *Hypoderas* (= *Hypodectes*) (see Fain 1968). In revising the family Hypoderidae, Fain (1966,

1967) described 9 new genera and 22 new species.

Family HYPODERIDAE Murray, 1877

Genus **NEOTTIALGES** Fain, 1966

The 2 new species belong to the genus *Neottialges* Fain, 1966. This genus has been divided into 3 subgenera, characterized as follows:

1. *Neottialges* Fain, 1966: the genital sclerite is completely absent; the cuticle is very poorly or not

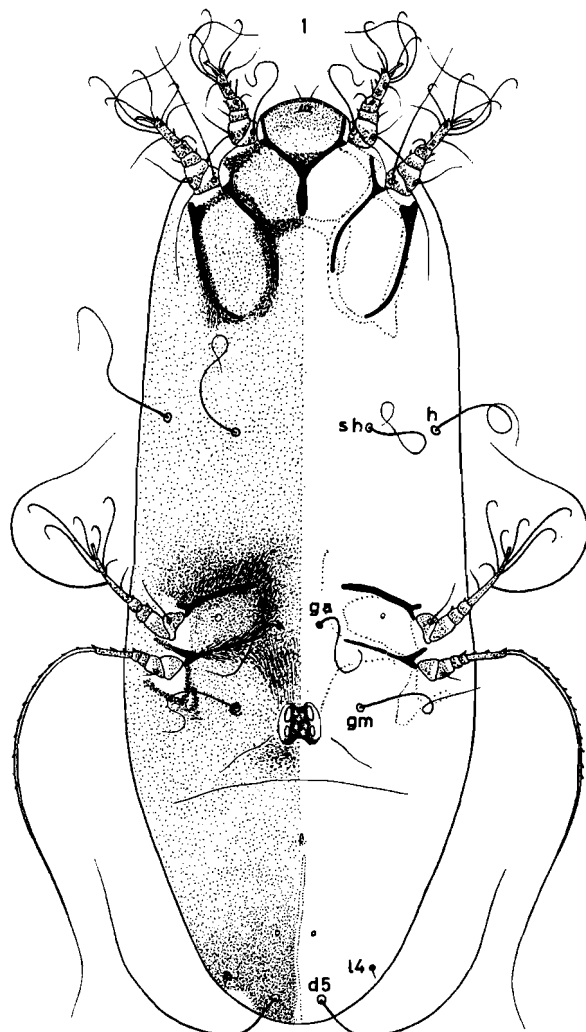


FIG. 1. *Neottialges (Caloenectes) fregatae* n. sp. Holotype. Hypopus in ventral view.

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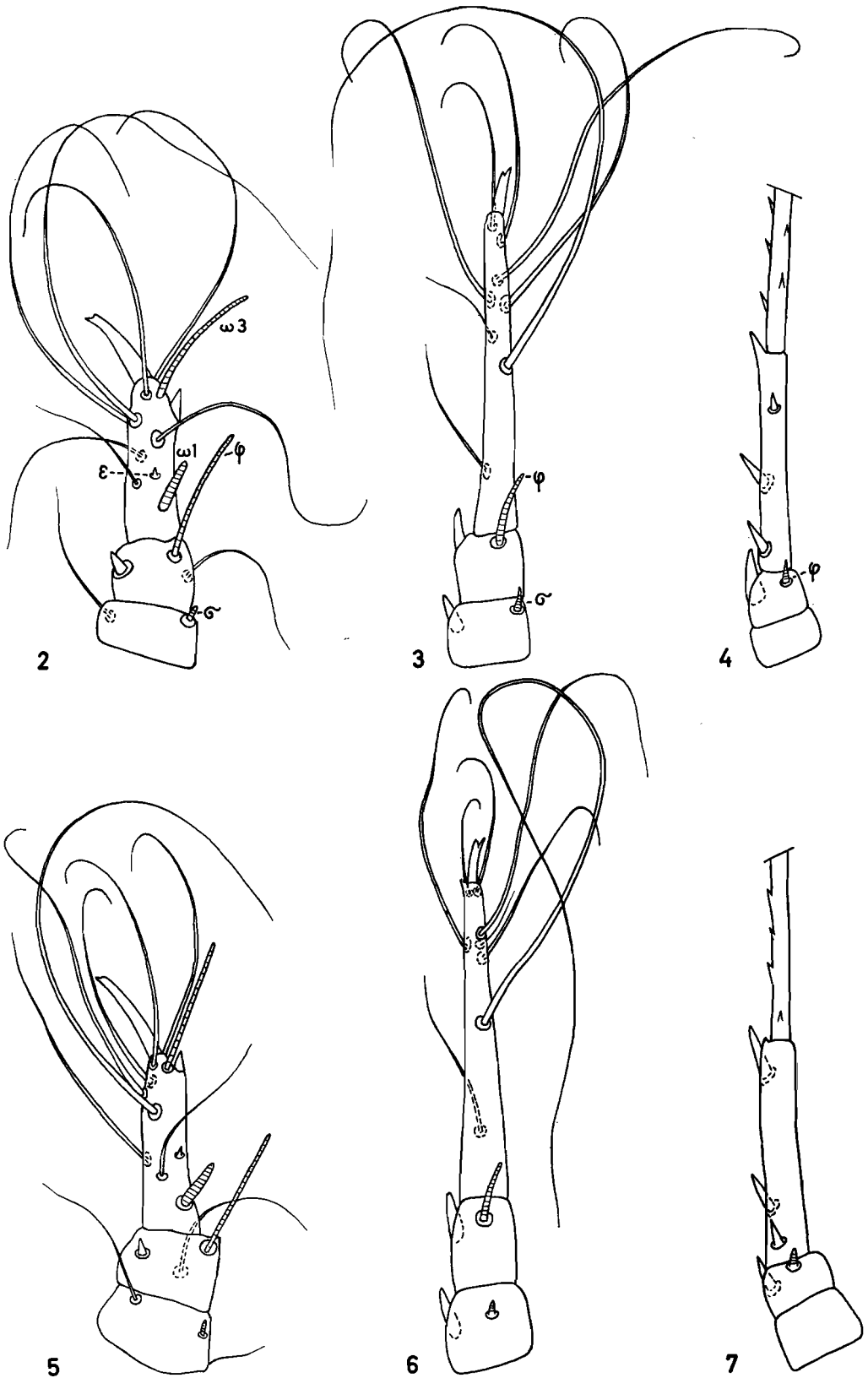


FIG. 2-7. Legs I, III, and IV of the hypopi of *Neottialges (Caloenectes) fregatae* n. sp. (Fig. 2-4) and of *Neottialges (Pelecaneetes) hawaiiensis* n. sp. (Fig. 5-7).

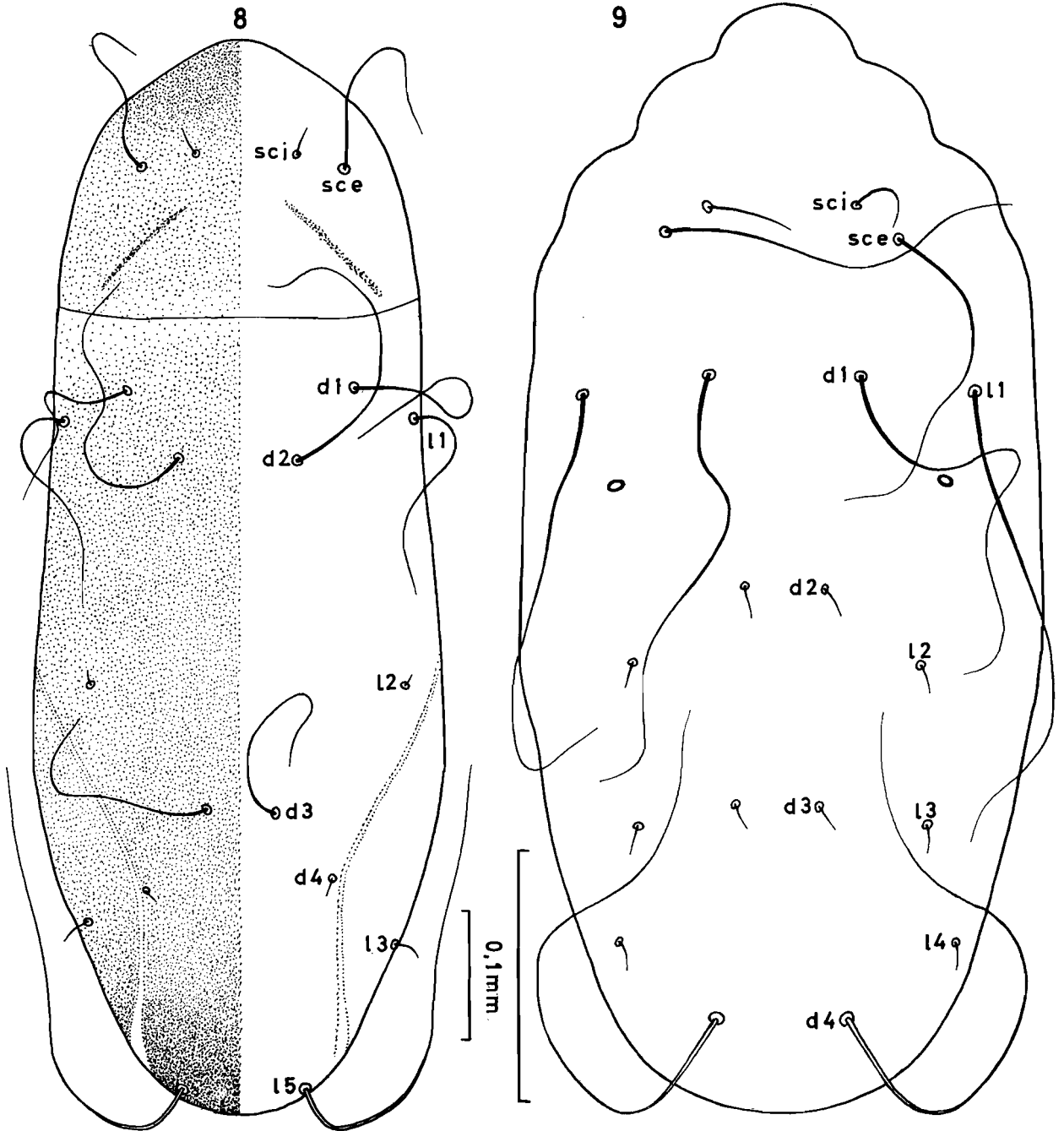


FIG. 8-9. Hypopi of *Neottialges (Caloenectes) fregatae* n. sp. (Fig. 8) and of *Neottialges (Pelecanectes) hawaiiensis* n. sp. (Fig. 9) in dorsal view.

sclerotized; the setae *d 2*, *d 3*, and *d 4* are very short. This subgenus contains 2 species.

2. *Caloenectes* Fain, 1966: the genital sclerite is absent, but in some species the mature specimens develop a secondary sclerotization of the cuticle of the genital area resembling a sclerite; the cuticle is strongly sclerotized; setae *d 2*, *d 3*, and *d 4* as in *Neottialges*. This subgenus comprises 4 species.

3. *Pelecanectes* Fain, 1966: the genital sclerite is present; the cuticle is poorly or not sclerotized; the setae *d 2* and *d 3* are long, setae *d 4* are variable. This subgenus contains 7 species.

In 1 of the new species herein described, the cuticle is strongly sclerotized, and there is no true genital sclerite but only a secondary sclerotization of the genital area; setae *d 2* and *d 3* are long, and *d 4*

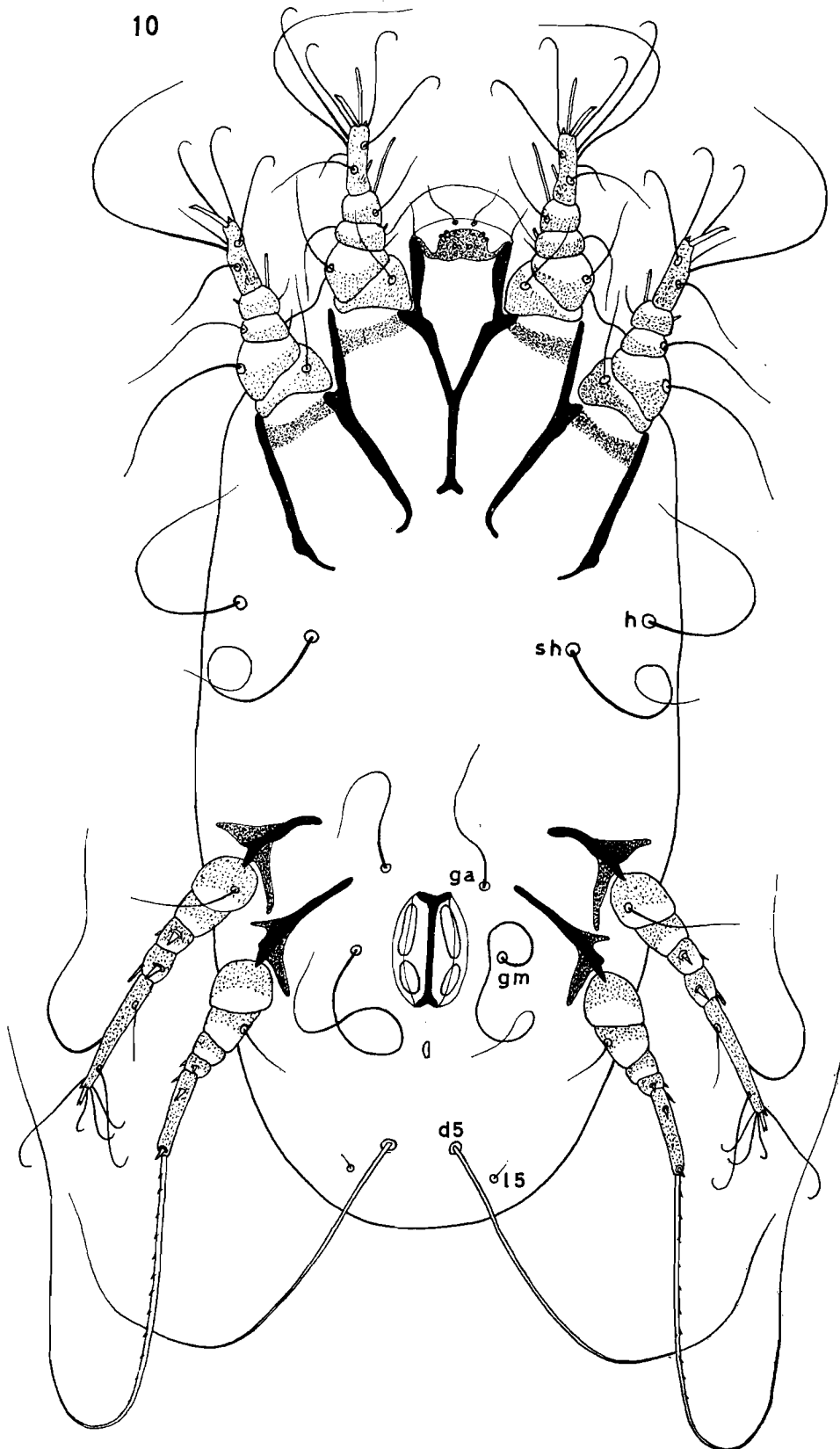


FIG. 10. *Neottialges (Pelecanectes) hawaiiensis* n. sp. Holotype. Hypopus in ventral view.

is very short. Except for the length of setae *d 2* and *d 3*, this species corresponds very well to the subgenus *Caloeneetes*.

The other new species, on the contrary, has a very weak, unsclerotized cuticle and a well developed genital sclerite. It corresponds perfectly to the subgenus *Pelecanectes*, except that the setae *d 2* and *d 3* are very short.

The presence in each of these species of a character that is found only in another subgenus (length of setae *d 2* and *d 3*) lessens the value of the subgeneric division in the genus *Neottialges*. We think, however, that the 2 other characters (genital sclerite and cuticular sclerotization) are sufficient to separate these subgenera.

**Neottialges (*Caloeneetes*) *fregatae* Fain & Amerson, n. sp.** FIG. 1-4, 8.

This species is known only from its heteromorphic deutonymph (hypopus).

**HYPOPUS** (holotype). Length of the body 825 $\mu$  maximum, width 280 $\mu$ . In 1 paratype (length  $\times$  width): 978 $\mu$   $\times$  315 $\mu$ . Sejugal furrow poorly developed. Cuticle uniformly punctate-sclerotized, except along the sejugal furrow and along 2 postero-lateral longitudinal lines—both of which seem to be the points of least resistance where the cuticle breaks at the moment of ecdysis. The sclerotization of the cuticle is particularly well marked in the posterior part (ventral and dorsal) and the anterior part (dorsal) of the body. Epimera I fused, forming a rather long (40 $\mu$ ) sternum. Other epimera free. Epimerites II recurved internally. Anterior genital suckers longer than posterior ones. The cuticle between the suckers (in the midline) is sclerotized, but there is no true genital sclerite. Anal aperture very small, situated 90 $\mu$  behind the genital suckers. Palposoma (=gnathosoma) poorly developed. Legs relatively well developed. Tarsi I and II long, 30 $\mu$  and 33 $\mu$ , respectively, each ending in a slightly recurved spine shorter (18–20 $\mu$ ) than its respective tarsus. This spine is slightly forked apically. Tarsus IV with a strong, long (330 $\mu$ ), and barbed apical hair.

**Chaetotaxy of idiosoma:** setae *v i*, *sc i*, *d 4*, *l 2*, *l 3*, and *l 4* very thin; length, respectively: 15 $\mu$ , 25–40 $\mu$ , 15 $\mu$ , 20–25 $\mu$ , 25 $\mu$ , and 10 $\mu$ . Setae *sc e*, *d 1*, *d 2*, *d 3*, *l 1*, *sh*, *h*, and *g m* thicker at their bases, but very thin apically; length: 120–160 $\mu$ . Setae *g a* 75 $\mu$  long; *d 5* and *l 5* approximately 300 $\mu$  long.

**Chaetotaxy of legs:** as in the other species of the genus. Tarsus IV bears 3 small spines and 1 long, barbed terminal hair.

**Type host and locality:** In the gular pouch tissue of a Great Frigatebird, *Fregata minor* (Fregatidae), Lisianski I., leeward Hawaiian Is., 12.III.1963, collector A. B. Amerson, Jr., POBSP Ectoparasite no. 70. Holotype deposited in the U. S. National Museum (USNM 3250). Three paratypes in the collections of the authors.

**Neottialges (*Pelecanectes*) *hawaiiensis* Fain & Amerson, n. sp.** FIG. 5-7, 9-10.

This species is known only from its hypopus form.

**HYPOPUS** (holotype). Length of idiosoma 394 $\mu$ , width 196 $\mu$ . In 2 paratypes (length  $\times$  width): 392 $\mu$   $\times$  190 $\mu$  and 440 $\mu$   $\times$  220 $\mu$ . Sejugal furrow very weak. Cuticle soft. In some specimens a faint punctation is visible on the propodosoma dorsally. The palposoma (=gnathosoma) is represented by a sclerotized plate, wider (25 $\mu$ ) than long (13 $\mu$ ). Anal aperture very small, situated 15 $\mu$  behind the genital sclerite. Epimera I fused with formation of a long sternum (36 $\mu$ ). Other epimera free. Genital sclerite well developed, 45 $\mu$  long. Legs relatively long. Length of tarsi I-IV, respectively: 28 $\mu$ , 30 $\mu$ , 52 $\mu$ , and 36 $\mu$ . Terminal spine of tarsi I and II 15 $\mu$  long.

**Chaetotaxy of idiosoma and palposoma:** setae *v i*, *sc i*, *d 2*, *d 3*, *l 2*, *l 3*, *l 4*, *l 5* very thin and short or very short (less than 15 $\mu$ , except the *sc i* approximately 25–30 $\mu$ ). The other setae thicker and much longer: setae *g a* are 60 $\mu$  long; other setae from 100–250 $\mu$  and very finely attenuated apically. A pair of small, oval, sclerotized rings (? orifices of glands) is visible behind the *l 1* setae. The 2 palposomal setae are very thin and about 20 $\mu$  long.

**Chaetotaxy of legs:** Tarsi IV with 3 spines and a long, barbed terminal seta.

**Type host and locality:** In the gular pouch tissue of a Great Frigatebird, *Fregata minor* (Fregatidae), Lisianski I., leeward Hawaiian Is., 12.III.1963, collector A. B. Amerson, Jr., POBSP Ectoparasite no. 70 (taken from same bird as *Neottialges fregatae*). Holotype deposited in the U. S. National Museum (USNM 3251). Five paratypes in the collections of the authors.

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