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ISCHNOCERA (MALLOPHAGA) INFESTING PARROTS (PSITTACIFORMES). V. FOUR NEW SPECIES OF *FORFICULOECUS* CONCI, 1941 (PHILOPTERIDAE) FROM THE SOUTH PACIFIC.

LINDOLPHO R. GUIMARÃES

ABSTRACT

Four new species of *Forficuloecus Conci*, 1941 are described from birds from the South Pacific: *F. emersoni*, type host *Alisterus chloropterus* (Ramsay); *F. pilgrimi*, type host *Cyanoramphus novaezelandiae chathamensis* Oliver; *F. greeni*, type host *Neophema chrysostoma* (Kuhl), and *F. palmai*, type host *Barnardius zonarius* (Shaw).

Guimarães (1974) revalidated *Forficuloecus* (then in the synonymy of *Echinophilopterus*) to contain *F. forficula* (Piaget, 1871) and *F. meinertzhageni*, a new species. The four species described below closely fit Guimarães' generic diagnosis.

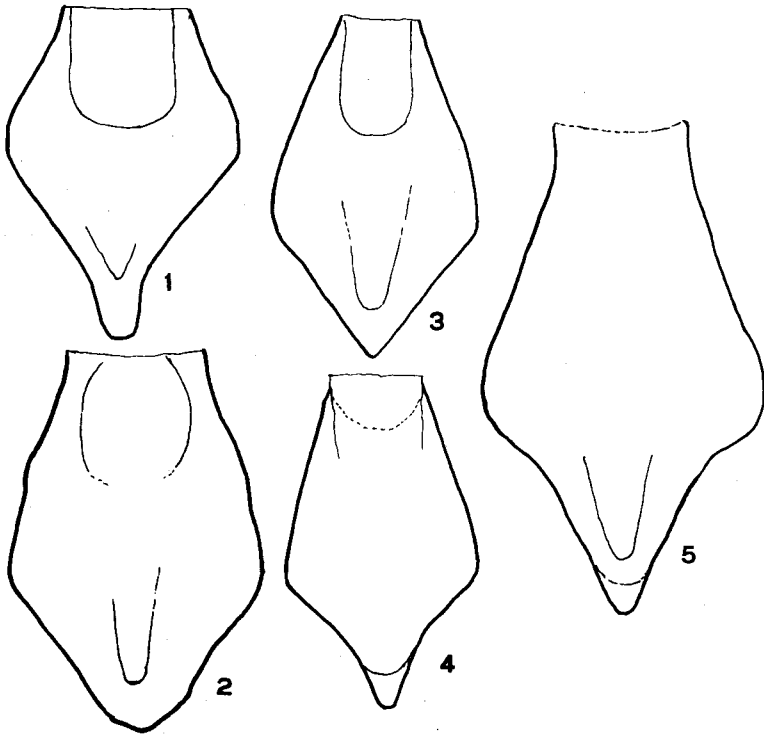
***Forficuloecus meinertzhageni* Guimarães, 1974**

(Figs. 1, 9)

Forficuloecus meinertzhageni Guimarães, 1974: 177

Specimens examined: A couple collected on *Nestor m. meridionalis*, from Paterson Creek, Canterbury, New Zealand, and a couple collected on *Nestor notabilis*, from New Zealand (all from the Pilgrim Collection).

Guimarães (1974) noted that a couple of *Forficuloecus* found on *Nestor notabilis* differed from typical *meinertzhageni* in the shape of the anterior dorsal plate and in the number of setae on the ventral side of the terminal segment of the male. The specimens now examined show that the supposed differences may be confidently said to be non-existent. The anterior dorsal plate was incorrectly figured by Guimarães in 1974. Figure 1 in this paper, based on a specimen from *Nestor m. meridionalis*, shows the actual shape of the structure in *Forficuloecus meinertzhageni*, both in specimens from the type host and from *Nestor notabilis*. The number of setae on either side of the ventral region of the terminal segment of the male is practically the same in both cases, i.e., 6/9 in the lice from *meridionalis* and 10/11 on those from *notabilis*.



Anterior dorsal plate: Fig. 1, *F. meinertzhageni*, male; fig. 2, *F. emersoni*, male; fig. 3, *F. pilgrimi*, male; fig. 4, *F. greeni*, male; fig 5, *F. palmi*, female.

***Forficuloecus emersoni*, sp.n.**

(Figs. 2, 6, 10, 14)

Type host: *Alisterus chloropterus*, probably subspecies *chloropterus* (Ramsay).

Specimens examined: 1 male and 1 female, from Bulolo, New Guinea, H. Clissold col., 3 March, 1962.

Similar to *Forficuloecus meinertzhageni*. However, the pre-antennal region is longer in both sexes, especially the area in front of the dorsal pre-antennal suture; thus the anterior dorsal plate greatly differs in shape in the two species (Figs. 1 and 2).

In the specimens of *meinertzhageni* studied in 1974, the number of setae on each side of the terminal segment of males varied from 6 to 9; in the specimen now at hand there are 9. In *emersoni* there are only 4/5.

The main differences between the two species are found in the genitalia of both sexes. The apodeme on the distal end of the mesosome is shorter in the new species; the mesosome is differently shaped and does not show the gutterlike structure on the anterior region (fig. 6). The setae on the female genitalia (fig. 14) are not as uniformly distributed as in *meinertzhageni*.

Measurements in mm (types)

	Male		Female	
	length	width	length	width
Head	0.370*	0.360	0.400*	0.400
Prothorax	0.130	0.210	0.140	0.240
Pterothorax	0.100	0.400	0.110	0.380
Abdomen	0.470	0.470	0.630	0.540
Total	1.150*	—	1.300*	—

* from the anterior end of the dorsal anterior plate

Types: Holotype male and Allotype female in the K.C. Emerson Collection.

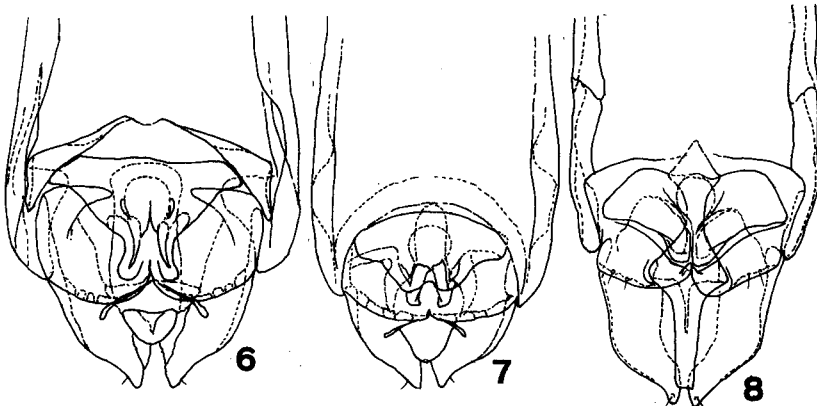
The species name honors Dr. K.C. Emerson for his many contributions to the knowledge of the Mallophaga.

Forficuloecus pilgrimi, sp.n.

(Figs. 3, 7, 11, 15)

Type host: *Cyanorhamphus novaezelandiae chathamensis* Oliver.

Specimens examined: 40 males and 40 females collected on *Cyanorhamphus novaezelandiae chathamensis* Oliver, from Little Mangere I., Chatham Is., New Zealand, X.1976, Wildlife Dept. New Zealand; 1 male and 4 females, same data as above, 29.v.1976, J.A. Flack col.; 1 female on *Cyanorhamphus novaezelandiae hochstetteri* (Reischek), Antipodes Is., New Zealand, 12.iii.1969, G. Kuschel; 2 males, same data as above, Wildlife Dept., New Zealand, 31.x.1970; 1 male, same data as above, 13.ii.1969, P. Jones col.; 5 males and 5 females, same host, Hut Cove, Antipodes Is., 4.xii.1978, D.S. Horning col.; 1 male, on *Cyanorhamphus n. novaezelandiae* (Sparrman), Wellington Zoo, New Zealand, v. 1968, K. Kuiper; 1 male and 1 female, Three Kings Is., Great Is., New Zealand, 1.xi.1970, N. Z. Ent. Div. Exp.; 1 male and 3 females, same host, Whitianga, New Zealand, 10.i.1974, J. Smuts-Kennedy col.:



Male genitalia: Fig. 6, *F. emersoni*; fig. 7, *F. pilgrimi*; fig. 8, *F. greeni*.

1 female on *Cyanorhamphus novaezelandiae*, E.F. Stead col., New Zealand; 5 males and 3 females, on *Cyanorhamphus unicolor*, Antipodes Is., New Zealand, G. Kuschel, 4-25.ii.1969; 6 females, same data as above, 9.xi.1950, E.G. Turbott; 4 males and 4 females, same data as above, R.T. & B.D.B. cols., 28.ii.1969; 1 female, same data as above, P.M. Johns col., 13.ii.1969; 2 females and 2 teneral, same data as above, Buller col., 1891.

Very similar to the preceding species. The region in front of the pre-antennal suture is shorter, although not as much as in *meinertzhageni*. The dorsal anterior plate (Fig. 3) is also shorter, with latero-posterior margins almost straight, ending in a fine point. There are 3 to 8 setae on each side of the ventral region of the terminal segment of the male. The major differences among the three species, shown by the male genitalia, may be seen in figs. 6, 7 and 8.

There is a small difference in the number of tergal setae as well as in the shape of the genitalia in the females (figs. 14 to 17). However, since only one female of *emersoni* is available, it is impossible to decide whether such differences are real or merely the result of individual variation, or even artifacts of preparation.

Measurements in mm (types)

	Male		Female	
	length	width	length	width
Head	0.310*	0.330	0.350*	0.360
Prothorax	0.100	0.190	0.110	0.260
Pterothorax	0.100	0.280	0.110	0.360
Abdomen	0.430	0.390	0.570	0.470
Total	0.940*	—	1.050*	—

* from the anterior end of the dorsal anterior plate.

Types: Holotype male and Allotype female, collected on *Cyanorhamphus novaezelandiae chathamensis*, from Little Mangere Is., Chatham Is., New Zealand, Wildlife Dept. N.Z., x.1976, in the collection of the National Museum of New Zealand, Wellington. Paratypes, 55 males and 60 females from the hosts above recorded in the same collection and in the collection of the University of Canterbury, Christchurch, New Zealand; paratypes, 5 males and 10 females presently in the British Museum (Natural History), to be deposited in the Department of Scientific and Industrial Research, New Zealand, and in the University of Canterbury, Christchurch, New Zealand; paratypes, 5 males and 4 females in the Museu de Zoologia da Universidade de São Paulo.

The species name honors Prof. R. L. C. Pilgrim, University of Canterbury.

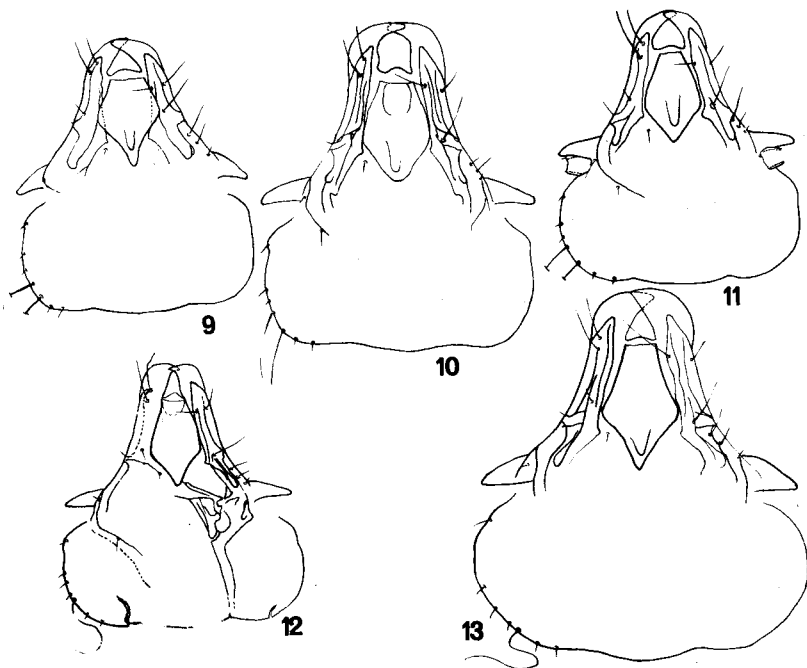
Forficuloecus greeni, sp.n.

(Figs. 4, 8, 12, 16, 18, 19)

Type host: *Neophema chrysostoma* (Kuhl)

Specimens examined: 4 males and 4 females from Exeter, Tasmania, 11 August, 1968, R.H. Green col.

Head similar to that of *emersoni*, except for m.t.s.4 long. Abdomen with 3/3 tergo-central setae on each side of the first visible tergite and 2



Outline of Head: Fig. 9, *F. meinertzhageni*, male; fig. 10, *F. emersoni*, male; fig. 11, *F. pilgrimi*, male; fig. 12, *F. greeni*, male, fig. 13, *F. palmi*, female.

on each side of tergites II to VII. Tergo-lateral setae on tergites III to VI stronger and longer than the tergo-centrals. One or two setae on each side of the ventral region of the terminal segment of the male. Male genitalia (fig. 8) characterized by the length of the central apodeme.

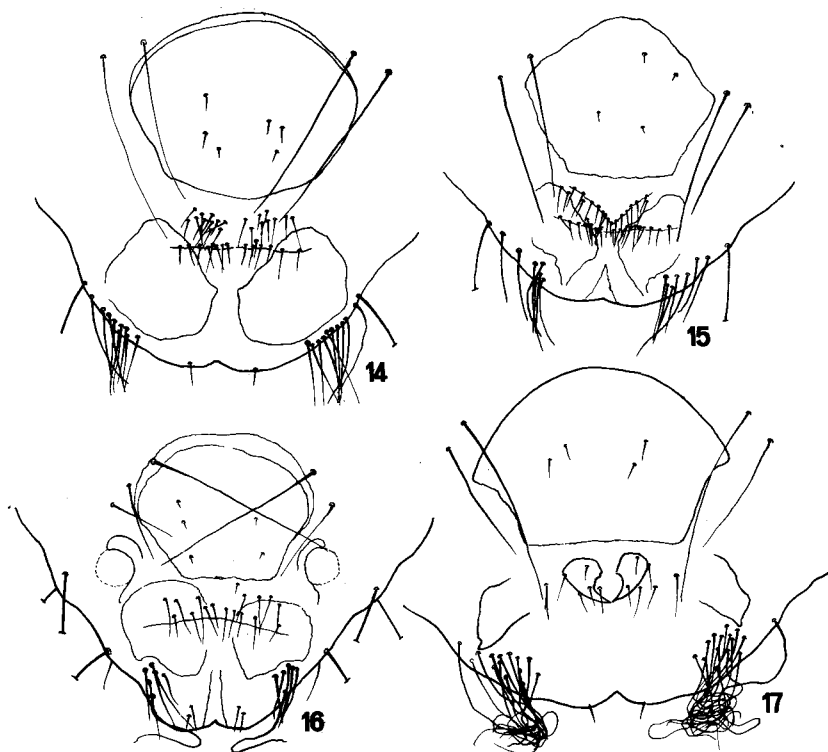
Female genitalia shown on fig. 16

	Measurements in mm (types)			
	Male		Female	
	length	width	length	width
Head	0.310*	0.330	0.340*	0.375
Prothorax	0.065	0.270	0.080	0.225
Pterothorax	0.075	0.260	0.093	0.300
Abdomen	0.360	0.390	0.560	0.450
Total	0.820*	—	1.070*	—

* from the anterior end of the dorsal anterior plate.

Types: Holotype male, Allotype female, and Paratypes 2 males and 2 females presently in the British Museum (Natural History), to be deposited in the Queen Victoria Museum and Art Gallery, Launceston, Tasmania; paratypes, 1 male and 1 female in the Museu de Zoologia da Universidade de São Paulo.

The species name honors its collector, Mr. R.H. Green.



Genital region of female: Fig. 14, *F. emersoni*; fig. 15, *F. pilgrimi*; fig. 16, *F. greeni*; fig. 17, *F. palmai*.

***Forficuloecus palmai*, sp.n.**

(Figs. 5, 13, 17, 20)

Type host: *Barnadius zonarius* (Shaw)

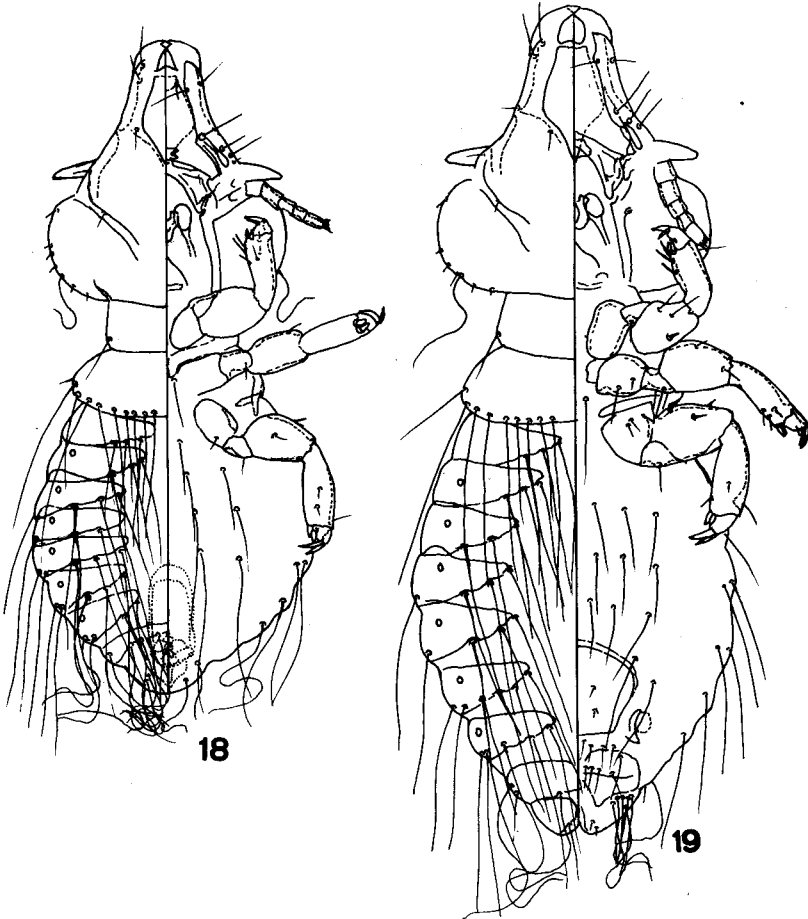
Specimens examined: 3 females collected on the type host, from Australia, by J.R. Jackson.

Although only females of this form are available, I have no doubts about its distinctiveness, so pronounced are the differences between it and the other species of the genus.

As in the preceding species, only m.t.s. 4 is long. The tergo-central and sternal setae are more numerous than in the other species. The tergo-centrals, although a little shorter than the tergo-laterals, stand on a continuous row with them on segments III to VI; setae of latero-posterior corners starting from segment III.

The female genitalia resemble (fig. 17) those of *F. forficula* (Piaget), i.e., they show two contiguous median structures in the shape of two thick commas, with the points turned in- and backwards.

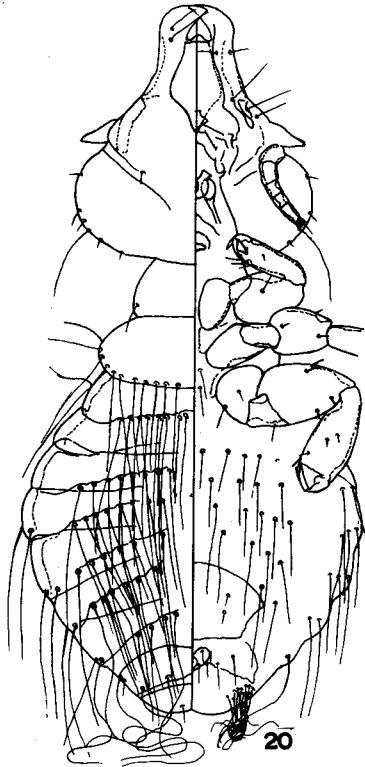
The general outline is very broad, but this may be due to the process of mounting.



F. greeni: Fig. 18, male; fig. 19, female.

	Measurements in mm					
	Holotype		Paratype		Paratype	
	length	width	length	width	length	width
Head	0.420*	0.470	0.430*	0.460	0.430*	0.470
Prothorax	0.110	0.250	0.110	0.260	0.110	0.250
Pterothorax	0.130	0.370	0.130	0.370	0.120	0.370
Abdomen	0.620	0.660	0.620	0.670	0.610	0.660
Total	1.300*	—	1.270*	—	1.290*	—

* from the anterior margin of the dorsal anterior plate.



F. palmai: Fig. 20, female.

Types: Holotype and paratype females to be deposited in the Australian National Insect Collection (A.N.I.C.), C.S.I.R.O., Canberra, Australia, by Prof. R.L.C. Pilgrim, of the Department of Zoology, University of Canterbury, Christchurch, New Zealand; a Paratype female in the Collection of the Museu de Zoologia da Universidade de São Paulo.

The specimen identified by Piaget (1871) as *Docophorus forficula* and considered by Guimarães (1974) as a *Forficuloecus*, may belong to the present species. Its host is *Platycercus baueri*, considered already by Salvadori (1891) as a synonym of *Barnardius zonarius*; Piaget notes that the "forficula" from this host had a larger number of abdominal setae.

The name honors Dr. Ricardo L. Palma, National Museum, Wellington, New Zealand.

ACKNOWLEDGMENTS

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