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Pacific Insects 9 (3): 511-517 **20 August 1967**

A NEW SUBGENUS AND NEW SPECIES OF FRANCISCOLOA CONCI (Mallophaga: Menoponidae)[1,2]

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Abstract: The genus is divided into the subgenus *Franciscoloa*, which includes all 9 species previously recognized in the genus in addition to a new species, *erythropteri* from *Aprosmictus erythropterus*, collected in New Guinea and the new subgenus *Cacamenopon*, which includes 2 new species, *hodsoni* and *kimi*, both from *Kakatoe ducrops*, collected in the Solomon Islands.

In a recent review of the genus *Franciscoloa* Conci, 1942, Price and Beer (1966) discuss the features in common to individuals in this genus and give descriptions for each of the 9 recognized species. It is the purpose of the present paper to describe 3 new species of *Franciscoloa*, and, at the same time, divide the genus into 2 subgenera, *Franciscoloa* and *Cacamenopon*. The subgenus *Franciscoloa*, with the type-species *F. pallida* (Piaget) (=*F. cacatuae* Conci), includes all 9 species previously recognized in the genus in addition to a new species herewith described. *Cacamenopon*, new subgenus, is described to include 2 new species from a parrot of the Solomon Islands.

I thank Dr J. L. Gressitt and Dr Nixon Wilson, Bishop Museum, for making these specimens available to me for study, and Mr P. Shanahan and Mr H. Clissold for their role as collectors of these specimens for the Bishop Museum.

1. Paper No. 6227, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul, Minnesota 55101.
2. Partial results of fieldwork supported by a grant to the Bishop Museum from the U.S. Army Medical Research and Development Command (G-65).

In the following descriptions, a value in parentheses following the statement of range is the mean. All measurements are given in millimeters. Unless otherwise stated, all references to tergites, pleura, and sternites pertain to the abdomen. The nomenclature of the psittaciform hosts follows that of Peters (1937). The holotype of each new species is at the Bishop Museum.

Subgenus **Franciscoloa** Conci

The characterization of the genus *Franciscoloa* by Price & Beer (1966) applies to the 10 species placed within this subgenus. Additionally, the ♂ has (1) sternites VI-VII symmetrical in both shape and chaetotaxy, (2) sternite VIII at most only partially separated from IX, (3) posterior margin of sternite IX (genital plate) at or near to terminal margin of abdomen, (4) no conspicuous broad ventral terminal plate on the abdomen, and (5) genitalia located posteriorly within abdomen, extending at least well into segment VIII, often IX.

Franciscoloa (Franciscoloa) erythropteri Price, new species Figs. 1-4.

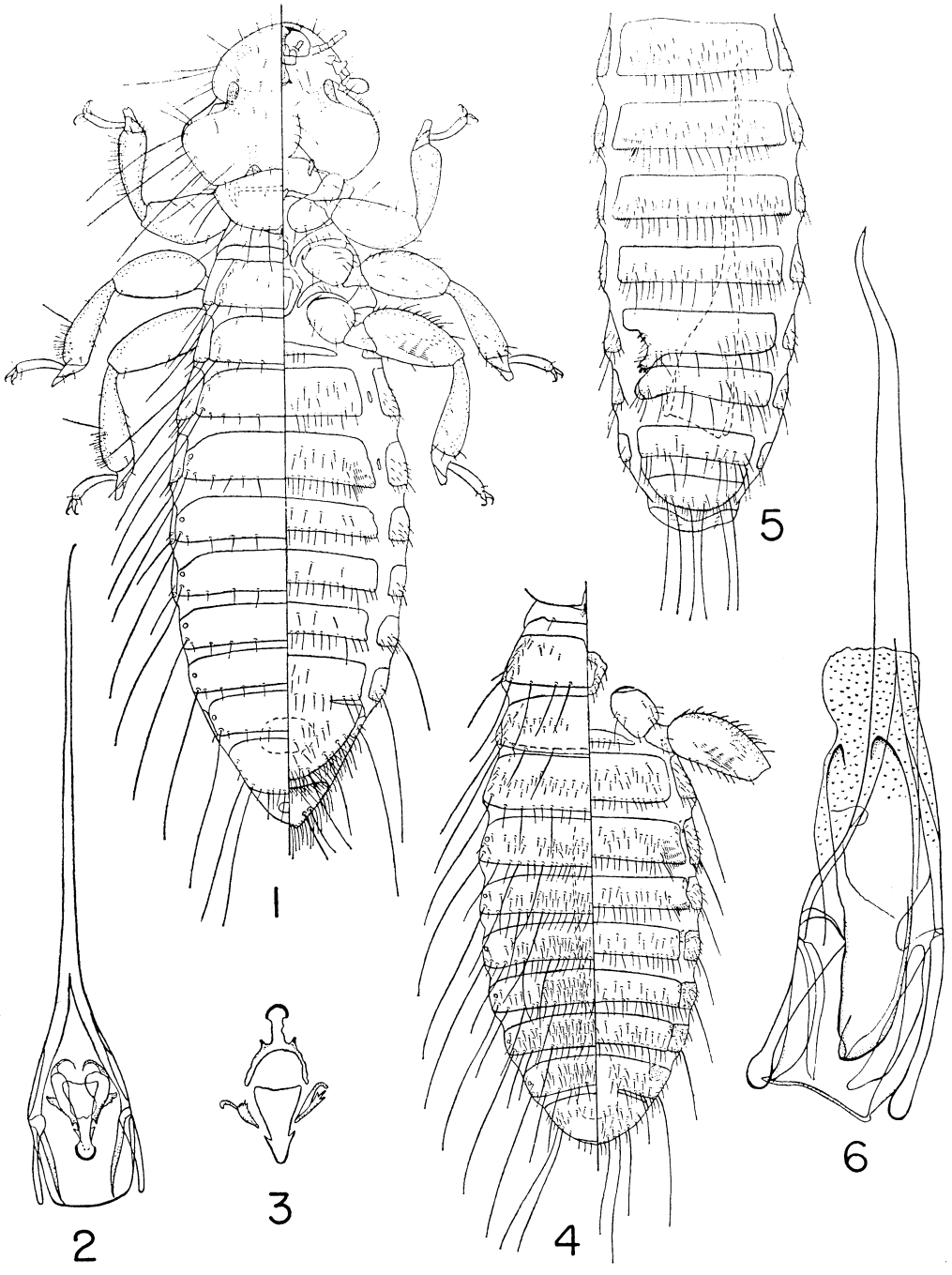
Type-host: *Aprosmictus erythropterus* (Gmelin), a parrot.

♀. As in fig. 1. Occipital setae minute. Gular setae 5+5 or 5+6. Pronotum with 16-19 short to long marginal setae; outer dorsal pronotal seta very short. Marginal metanotal setae, 8-9, all short except outer seta; metasternal plate with 2, rarely 3, setae. Venter of each femur III with 3-5 comb rows. Marginal tergal setae, except for very long postspiracular setae, mostly short: I, 8-9; II, 9-12 (10.4); III, 10-17 (12.5); IV, 10-11; V, 9-11; VI, 9-10; VII, 10; VIII, 8-9. Last segment with 2 very long setae on each side, preceded by 2 short setae, and with 9-12 (10.6) short to medium inner posterior setae; with small dorsal median terminal plate. Each side of sternite III with 3 well-developed comb rows, sternite IV with 1. Sternal setae: I, 8-10; II-III, 37-50 (43.2); IV-VI, 28-40 (33.9); VII, 23-31 (28.3). Both ventral and dorsal anal fringes with about 40 setae.

♂. Head and thorax as for ♀, except for longer occipital setae, longer median marginal metanotal setae, and 12-15 (13.6) setae on metasternal plate. Abdomen as in fig. 4. Tergal chaetotaxy quite different from that of ♀. Marginal tergal setae, with lengths as shown: I, 8-14 (10.9); II, 17-23 (19.6); III-V, 28-38 (32.0); VI, 25-29 (27.4); VII, 20-26 (22.5); VIII, 13-18 (14.5). Anterior tergal setae: I, 16-29 (23.8); II, 33-60 (44.3); III-VI, 40-67 (49.7); VII, 38-55 (46.0); VIII, 31-47 (39.3). With internal pleural thickenings on III-VIII. Last segment with 2 very long setae on each side, total of 2 short inner posterior setae, and 2-15 (7.1) short setae in anterior row. Sternal comb rows as for ♀. Sternal setae: I, 8-10; II, 55-66 (60.9); III-V, 44-57 (49.2); VI, 39-51 (43.8); VII, 29-45 (36.9); VIII, 35-47 (42.8). Genitalia as in fig. 2, with extruded penis and genital sclerite as in fig. 3; genitalia length, 0.81-1.01, width, 0.15-0.16.

Dimensions: Preocular width, ♀ 0.48-0.49, ♂ 0.49-0.50; temple width, ♀ 0.67-0.68, ♂ 0.71-0.72; head length, ♀ 0.46-0.49, ♂ 0.48-0.51; prothorax width, ♀ 0.46-0.48, ♂ 0.46-0.49; metathorax width, ♀ 0.61-0.63, ♂ 0.58-0.61; total length, ♀ 2.73-2.80, ♂ 2.47-2.60.

Holotype ♂ (BISHOP 7465), Weam, Papua, SE New Guinea, 29.V.1964, ex *Aprosmictus erythropterus* (BBM-NG 50765), H. Clissold. Paratypes: 7♀♀, 10♂♂ (BBM-NG 50765, 50766, 50777, 50782), same data as holotype or 31.V.1964 or 1.VI.1964; 1♀, 2♂♂, Daru, Papua,



Figs. 1-6. 1-4, ***Franciscoloa erythropteri*** n. sp.: 1, ♀(×40); 2, ♂ genitalia (×95); 3, extruded ♂ genital sclerite (upper), penis (lower) (×105); 4, ♂ abdomen (×40). 5-6, ***F. kimi*** n. sp.: 5, ♂ ventral abdomen (×40); 6, ♂ genitalia (×100).

SE New Guinea, 23.V.1964, ex *A. erythropterus* (BBM-NG 50761, 50762), H. Clissold.

This species presents an interesting combination of similarities to both *F. temporale* (Piaget) and *F. fulgidi* Price & Beer. The ♀ is closest to that of *F. temporale*, differing by the shorter outer dorsal pronotal seta, shorter marginal pronotal setae between the longer ones, and fewer sternal setae; but, while the ♂ genitalia of *F. erythropteri* are essentially identical to those of *F. temporale*, the ♂ is otherwise quite different, with many more anterior tergal setae on I–VIII, margin of tergites including some much longer setae, last tergite with fewer inner posterior setae, last tergite with medioanterior setae, and metasternal plate with more setae. The ♂ is generally closest to that of *F. fulgidi*, but differs by having fewer marginal setae on tergites I–II, many more anterior tergal setae on each of I–V, usually row of short medioanterior setae across last tergite, fewer sternal setae, and different genitalic features; the ♀ differs from *F. fulgidi* more than from *F. temporale* by having fewer marginal tergal setae on I–VII, fewer inner posterior setae on last tergite, and fewer sternal setae.

Subgenus **Cacamenopon** Price, new subgenus

Type-species: *Franciscoloa* (*Cacamenopon*) *hodsoni* Price.

♀. As for those of subgenus *Franciscoloa*, except for much larger size in all dimensions.

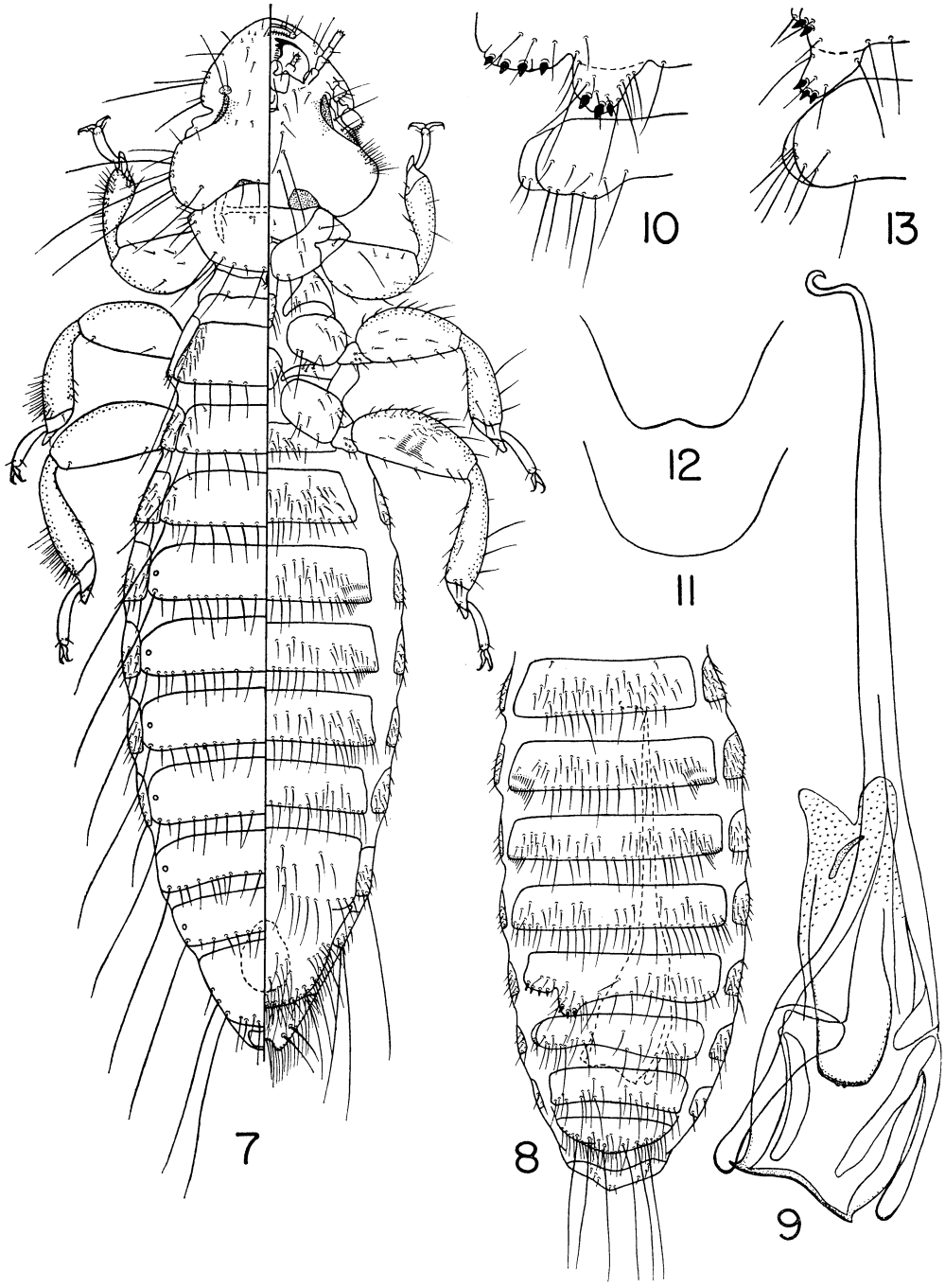
♂. Not only much larger, as for ♀, but with several other features leading to the placement of these 2 species in a separate subgenus: (1) sternites VI–VII markedly asymmetrical in both shape and chaetotaxy (figs. 5, 8, 10, 13), (2) sternite VIII distinctly separate from IX, (3) posterior margin of sternite IX well removed from terminal margin of abdomen, (4) with ventral terminal plate of abdomen, and (5) genitalia invariably located more anteriorly in abdomen than is ordinarily encountered, usually at most only half way into segment VIII, never into IX, and with distal portion flexed slightly toward side of sternites VI–VII having unusual development. Compared to those of the other subgenus, the genitalia are very large (figs. 6, 9), with slight asymmetry, parameres somewhat swollen apically, endomeral plate laterally expanded at apical corners, penis large and rounded, and without distinct genital sclerites near penis base.

The many basic similarities of the species of *Cacamenopon* to *Franciscoloa* are obvious, and have led to hesitancy to place them in a separate category. However, the genitalia are quite different and the modification of the ♂ ventral abdomen profoundly differs from what I have encountered in any other members of the large comb-bearing *Colpocephalum*-complex. This has dictated the placement of the following 2 species in their own subgenus, maintaining in this way their postulated phylogenetic relationship with the other *Franciscoloa*, yet emphasizing their uniqueness.

Franciscoloa (Cacamenopon) hodsoni Price, new species Figs. 7–11.

Type-host: *Kakatoe ducrops* (Bonaparte), a parrot.

♀. As in fig. 7. Head gently tapered anteriorly. Both pairs of middorsal head setae short, with inner slightly longer than outer. Occipital setae medium length. Gular setae typically 4+4. Margin of pronotum with 19–21 setae. Metanotal margin with 10–11 setae; metasternal plate with 8–9 setae. Venter of each femur III with 2 comb rows. Marginal tergal setae, aside from very long postspiracular setae, of short to medium length: I, 13–17 (16.8); II, 16–20 (18.2); III–VI, 18–21 (19.7); VII, 16–19 (17.0); VIII, 13–16 (14.2).



Figs. 7–13. 7–11, *Franciscoloa hodsoni* n. sp.: 7, ♀ (×40); 8, ♂ ventral abdomen (×40); 9, ♂ genitalia (×100); 10, lateral portion of ♂ sternites VI–VII (×100); 11, vulval shape (×50). 12–13, *F. kimi* n. sp.: 12, vulval shape (×50); 13, lateral portion of ♂ sternites VI–VII (×100).

Last segment with 2 very long setae on each side, preceded by 1 medium seta, and with total of 4–8 (6.0) medium inner posterior setae; with median dorsal terminal plate. Each side of sternite III with 2 well-developed comb rows, IV with single row. Sternal setae: I, 14–20 (16.5); II, 48–67 (56.0); III, 37–52 (43.0); IV, 49–58 (53.8); V, 47–65 (55.5); VI, 39–49 (44.5); VII, 29–39 (34.2). Vulval margin evenly rounded, as in fig. 11. Dorsal anal fringe of around 50 setae. Internal reticulate structure of genital chamber longer than wide. Specimens always weakly pigmented, appearing white to light yellow in uncleared state.

♂. Head, thorax, dorsal abdomen, and sternites I–V essentially as for ♀, except only 2 inner posterior setae on last tergite and no median dorsal terminal plate. Ventral abdomen as in fig. 8. Sternites VI–VII markedly asymmetrical, left portion as in fig. 10, with 4–6 (4.7) stout spiniform setae on comparatively wide outer lobe of VI and 2–3(2.2) such setae on inner lobe. Total setae on sternites VI, 25–41 (34.2); VII, 26–38 (32.0); VIII, 22–29 (25.3). Genital plate with 6 very long and about 40–50 shorter setae. Genitalia as in fig. 9, 1.30–1.47 long, 0.27–0.28 wide, with rounded symmetrical penis.

Dimensions: Preocular width, ♀ 0.52–0.55, ♂ 0.51–0.54; temple width, ♀ 0.71–0.77, ♂ 0.66–0.73; head length, ♀ 0.50–0.57, ♂ 0.50–0.53; prothorax width, ♀ 0.50–0.54, ♂ 0.49–0.53; metathorax width, ♀ 0.66–0.69, ♂ 0.64–0.66; total length, ♀ 3.37–3.54, ♂ 3.22–3.32.

Holotype ♂ (BISHOP 7466), Boala, ±20 m, Santa Ysabel I., Solomon Is., 18.VIII.1964, ex *Cacatua ducorpsi* (BBM-SI 24237), P. Shanahan. Paratypes: 12♀♀, 22♂♂, *C. ducorpsi* (BBM-SI 23813, 23838, 23881, 23909, 24237, 24445), Solomon Islands.

Each of the above 6 collections of *F. hodsoni* also contained specimens of *F. pallida.* Even though both of these species are very pale, resembling each other superficially, they are readily separable macroscopically by their size differential.

This species is named for Dr Alexander C. Hodson, whose encouragement and support of my studies in Mallophaga has been most gratifying.

Franciscoloa (**Cacamenopon**) **kimi** Price, new species Figs. 5, 6, 12, 13.

Type-host: *Kakatoe ducrops* (Bonaparte).

♀. Close to that of *F. hodsoni,* differing as follows. Tendency for fewer marginal tergal setae: I, 11–13 (12.1); II, 14–17 (15.4); III–VI, 16–22 (18.5); VII, 14–21 (16.4); VIII, 11–16 (13.9). Only 3–5 (3.7) inner posterior setae on last tergite. Fewer sternal setae: I, 4–12 (8.4); II, 32–50 (42.1); III, 33–38 (36.1); IV, 38–46 (42.8); V, 37–49 (42.5); VI, 29–37 (33.4); VII, 24–31 (27.3). Vulval margin concave medially, as in fig. 12.

♂. Head, thorax, dorsal abdomen, and sternites I–V essentially as for ♀, except only 2 inner posterior setae on last tergite and no median dorsal terminal plate. Ventral abdomen as in fig. 5. Sternites VI–VII markedly asymmetrical, left portion as in fig. 13, with only 2–3 (2.2) stout spiniform setae on narrow indefinite outer lobe of VI, and 2–3 (2.5) such setae on elongate slender inner lobe. Total sternal setae on VI, 23–28 (26.5); VII, 21–31 (25.8); VIII, 22–24 (22.8). Genitalia as in fig. 6, close to those of *F. hodsoni,* but shorter, 1.18–1.30, narrower, 0.21–0.24, and with asymmetrical portion of penis.

Dimensions: Preocular width, ♀ 0.48–0.50, ♂ 0.46–0.50; temple width, ♀ 0.66–0.71, ♂ 0.62–0.70; head length, ♀ 0.47–0.50, ♂ 0.45–0.49; prothorax width, ♀ 0.46–0.49, ♂ 0.45–0.49; metathorax width, ♀ 0.61–0.66, ♂ 0.56–0.59; total length, ♀ 2.98–3.32, ♂ 2.70–3.04.

Holotype ♂ (BISHOP 7467), *Cacatua ducorpsi* (BBM-SI 24110), Solomon Is. Paratypes: 8♀♀, 5♂♂, same data as holotype.

Even though *F. kimi* is quite close to *F. hodsoni* and apparently occurs on the same host species, all specimens available are reliably separable in both sexes, the ♀ by the shape of the vulval margin, the ♂ by the shape and chaetotaxy of sternite VI and structure of the genitalia, and both sexes by quantitative aspects of abdominal chaetotaxy and consistent size differential. Contrasted to the collection of *F. hodsoni* in all 6 cases with *F. pallida*, *F. kimi* in its single collection was not taken with any *F. pallida*.

This species is named for Dr K. C. Kim, my colleague in the study of systematics of lice.

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