

A New Species of *Fulicoffula* (Mallophaga: Philopteridae) from Thailand

K. C. EMERSON, Arlington, Virginia, and ROGER D. PRICE,
University of Minnesota, St. Paul

The genus *Fulicoffula* Clay and Meinertzhagen, 1938, was erected for the elongated forms of *Ischnocera* found on the avian family Rallidae (order Gruiformes). Later the elongated form found on *Podica senegalensis* (Vieillot), family Heliornithidae, was included in the genus. Recently the authors obtained specimens from a second host of the family Heliornithidae, *Heliopais personata* (G. R. Gray); these lice are herewith described as new and illustrated.

***Fulicoffula personata*, n. sp.**

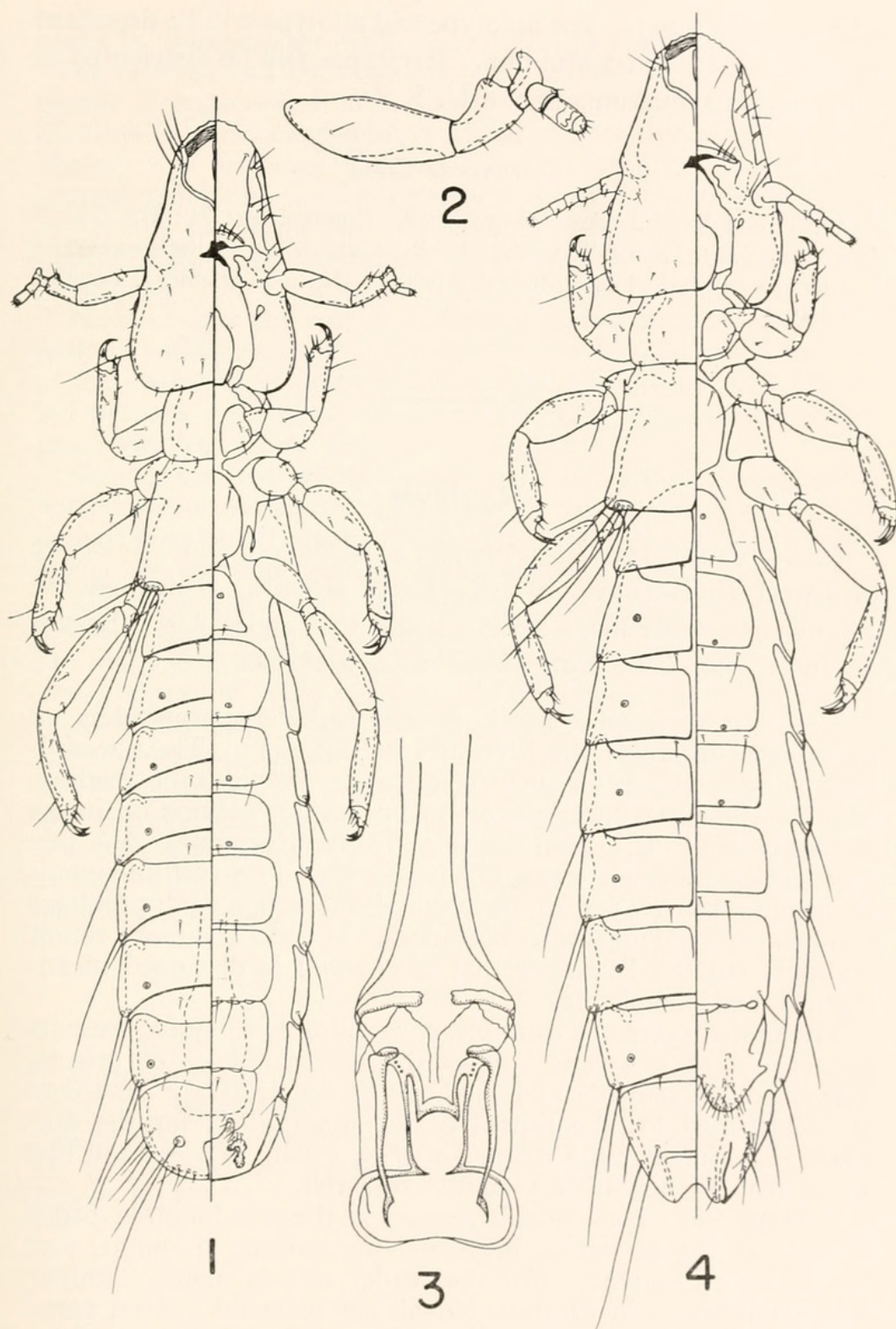
Male. Total length 2.54 mm. External morphology and chaetotaxy as shown in Fig. 1. Head, except for antennae, typical of genus. Dorsal anterior plate of forehead transversely striated anteriorly and partially divided medially by narrow suture with almost parallel sides. Antennae enlarged and elongated as shown in Fig. 2. Pronotum with only short setae, otherwise typical for genus. Pterothorax with a notch on each latero-anterior margin producing an anteriorly pointing small projection. Elongated legs and chaetotaxy of pterothorax typical for genus. Abdominal tergites II–VIII entire (the first apparent abdominal segment is here referred to as II, even though it probably represents composite I and II), each of III–VIII with spiracles near posterior margin. A pair of short medio-posterior setae on or near tergites II–VIII. Tergite of last segment (IX + X fused) with long and medium-length setae marginally, a pair of very long setae on the dorsal surface, and with posterior margin broadly rounded. Sternite II bell-shaped with a pair of short setae on posterior margin. Abdominal sternites III–VIII longer than tergites. Sternites II–V with paired sensilli. Shape and chaetotaxy of terminal abdominal segment as shown in Fig. 1. Genitalia, less sac, as shown in Fig. 3.

Female. Total length 2.82 mm. External morphology and chaetotaxy as shown in Fig. 4. Head (except for filiform antennae), thorax, and legs similar to those of the male. Tergites of abdominal segments II–VI divided medially, VII partially divided, and VIII entire; all longer than in the male with spiracles more anteriorly placed, but chaetotaxy essentially as for male. Tergite of terminal segment typical for the genus. Abdominal sternites II–VII much as for male, but with VIII and fused IX + X as shown in Fig. 4. Posterior margin of abdomen bifurcate.

Discussion. As might be suspected by the systematic position of the host, this species of louse is not entirely typical of the genus *Fulicoffula*. In size it suggests *Ardeicola*, a genus found on members of the Ciconiiformes. The divided abdominal tergal plates of the female are characteristic of *Ardeicola* as well as of certain *Fulicoffula* species. The striated divided anterior dorsal plate of the forehead, the general chaetotaxy (except for that on the terminal abdominal segment of the male), the shape and chaetotaxy of the terminal abdominal segment of the female, and the shape of abdominal sternite II are all characteristic of *Fulicoffula*. The male antennae, the broadly rounded terminal abdominal segment of the male, the structure of the male genitalia, and the presence of paired sensilli on abdominal sternites II–V are characters not heretofore included in either genus. After consideration of these characters, it has been determined more appropriate to include this species in *Fulicoffula* than to erect a new monotypic genus or to include it in *Ardeicola*. The combination of characters given above, in addition to other features of structure and chaetotaxy, easily distinguish it from all known species of *Fulicoffula*.

Type host. *Heliopais personata* (G. R. Gray).

Type material. Holotype male, allotype female, and 34 paratypes collected off the type host at Ban Saen Tung, Chanthaburi, Thailand, on 23 April 1966. Seventy-seven paratypes collected off the type host at Ban Saen Tung, Trat, Thailand, on 22 April 1966. Four paratypes collected off the type host from Sumatra (no other collection data) are in the British Museum



FIGS. 1-4. *Fulicoffula personata*, n. sp. 1. Dorsal-ventral view of male. 2. Male antenna. 3. Male genitalia. 4. Dorsal-ventral view of female.

(Natural History). The holotype and allotype will be deposited in the U. S. National Museum. Paratypes will be distributed to other leading museums in the U. S.

LITERATURE CITED

- CLAY, T. and R. MEINERTZHAGEN. 1938. *Entomologist* 71: 275-279.
HOPKINS, G. H. E. and T. CLAY. 1952. A check list of the genera and species of Mallophaga. British Museum (Natural History), London. 362 pp.

Reviews

INSECT HORMONES; Physiology, Morphology and Phylogeny of Insect Endocrines. By **V. J. A. Novak**. Third edition (translation), Methuen & Co., Ltd. Pp. xvii + 478. Barnes & Noble, Inc., New York, 1967. Price: \$16.00.

Recent reviews on insect hormones include appropriately an up-to-date survey of the literature in this field. Their usefulness as reference books may compensate for tiresome reading, but one still feels the need for an interesting volume on insect endocrinology. V. J. A. Novak's "Insect Hormones" fills this void in that the book seems to have been written with the intent of helping the reader to understand the scope and problems involved in studying insect hormones. It lacks the more recent findings, but the literature that is covered is discussed meaningfully and completely.

The first chapter, for example, concerning techniques, presents an account of how one studies the endocrinology of insects. The novel implements and methods of the craft are described and illustrated for the benefit of the uninitiated; for the seasoned experimenter the chapter offers a wealth of ideas and tips which may be helpful in planning research.

Perhaps the most valuable section is the one hundred pages devoted to the activation hormone, the molting hormone, and the juvenile hormone. For the reader who is mainly familiar with publications in English, Novak has included a short paragraph at the outset of each discussion to clarify the synonyms used for the three hormones. For example, the activation hor-



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