

The Type Specimens of Sucking Lice (Anoplura) Deposited in the Entomological Collection of Instituto Oswaldo Cruz, Rio de Janeiro, RJ, Brazil

Margareth Cardozo-de-Almeida/⁺, Pedro Marcos Linardi*, Jane Costa

Núcleo de Informatização, Coleção Entomológica, Departamento de Entomologia, Instituto Oswaldo Cruz, Av. Brasil 4365, 21045-900 Rio de Janeiro, RJ, Brasil *Departamento de Parasitologia, ICB, Universidade Federal de Minas Gerais, Caixa Postal 486, 30161-970 Belo Horizonte, MG, Brasil

This study presents a list of 34 Anoplura type specimens deposited in the Werneck Collection of Instituto Oswaldo Cruz, Rio de Janeiro, RJ, Brazil. It includes 18 holotypes, 16 allotypes, 88 paratypes and 10 neotypes, distributed among the genera: Enderleinellus, Fahrenholzia, Haematopinus, Hoplopleura, Linognathus, Microthoracius, Pecarococcus, Polyplax and Pterophthirus. The types are related according to their respective data and literature.

Key words: type specimens - Anoplura - sucking lice - Werneck Collection - Entomological Collection - Instituto Oswaldo Cruz - Brazil

The Entomological Collection of the Instituto Oswaldo Cruz (IOC) includes approximately 1.2 million specimens, representing all the orders, being one of the most expressive of Latin America. It is constituted by a general collection and by the Herman Lent Collection of Hemiptera, which presents specimens of Reduviidae and mainly of subfamily Triatominae, the vectors of Chagas disease. It also includes other historical collections such as Adolpho Lutz, Cesar Pinto, Costa Lima, Henrique Aragão, Lauro Travassos, Otavio Mangabeira Filho, FL Werneck and JF Zikan. These historical collections were closed after the death of their dedicated researchers, being a rich historical and scientific holding that integrates specimens captured by the researchers themselves during the first expeditions undertaken in Brazil since 1900.

The historical Werneck Collection includes specimens of the orders Anoplura, Hemiptera, Mallophaga and Siphonaptera, deriving from captures undertaken by Werneck and other researchers, performed in 1911-1960, in Brazil and other countries, as well as by donations to IOC, provided by international and Brazilian institutions. In the

Werneck Collection, there are 1,246 slides of Anoplura containing 120 species, from which 34 are type specimens and other 88 paratypes and 10 neotypes, summing 125 slides.

In attention to the determination 72D of the International Code of Zoological Nomenclature, which says that "every institution in which types are deposited should publish lists of type-material in its possession or custody", some surveys on the type species of various groups have been carried out in the entomological collections of IOC: triatomines (Gonçalves et al. 1994), culicids (Marchon-Silva et al. 1996) and specimens of superfamily Apoidea (Ferraz 1997). Intending update and disseminate the content of the Entomological Collection of IOC, the present study addresses the type specimens deposited in the Werneck Collection of this institution.

Anoplura are ectoparasitic insects, exclusively of mammals, presenting an obligatory hematophagy in nymphal and adult stages, commonly known as sucking lice. Their parasitological importance derives from the actions they exert on hosts as infesting agents (Nelson et al. 1977), or as vectors diseases: to human beings - louse-borne typhus (epidemic typhus), trench fever, relapsing fever, transmitted by *Pediculus humanus* (reviewed by Weidhaas & Gratz 1982) - or among rodents: murine typhus (endemic typhus), transmitted by species of *Polyplax* and *Hoplopleura* (Traub et al. 1978).

Given their parasitic specificity, Anoplura are of fundamental importance to studies on co-evolution with their respective hosts (Hopkins 1949, Vanzolini & Guimarães 1955, Kim 1988, Barker 1994). Until now, 33 species were recorded in Bra-

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*Research fellow CNPq.

⁺Corresponding author. Fax: +55-21-2909339. E-mail: margarethalmeida@hotmail.com

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zil, including 17 cosmopolitan (Durden & Musser 1994). Among Brazilian or Neotropical species, eight were described by Werneck (1932a, b, 1933, 1937, 1942), four by Ferris (1916, 1921), two by Linardi et al. (1984a, b), one by Guimarães (1950) and another by Johnson (1972). According to the geographical distribution presented by Durden and Musser (1994), we might consider the possibility of other 10 species also occurring in Brazil.

The methodology applied here was the same used by Marchon-Silva et al. (1996). Besides the information about type specimens we added the name of the host on which the material was collected.

Family Enderleinellidae

Genus *Enderleinellus* Fahrenholz, 1912

- *brasiliensis* Werneck, 1937. *Enderleinellus*. (118) Holotype 1 male (447). Allotype 1 female (448). Paratypes 2 females (449, 450); *Sciurus aestuans*; Abaeté, Pará, Brazil; 1936.
- *urosciuri* Werneck, 1937. *Enderleinellus*. (766) Holotype 1 male (1312). Allotype 1 female (1313). Paratypes 4 females (1314 - 1317); *Urosciurus igniventris*; Acajutuba, Rio Negro, Amazonas, Brazil.

Family Haematopinidae

Genus *Haematopinus* Leach, 1815

- *acuticeps* Ferris, 1933. *Haematopinus*. (696) Paratype 1 female (1184); *Hippotigris burchelli*; Mpwapwa, Takanica Territory (=Tanzânia); 11-II-1931.
- *gorgonis* Werneck, 1952. *Haematopinus*. (2911) Paratype 1 female (3618); *Gorgon taurinus albojabatus*; Ukerewe Peninsula, Tanganyika (=Tanzânia); GHE Hopkins coll., X-1944.
- *phacochoeri meinertzhageni* Werneck, 1952. *Haematopinus*. (2780, 2781) Holotype 1 male (4064). Allotype 1 female (4065). Paratypes 1 female (3500) and 2 males (3501, 3502); *Hylochoerus meinertzhageni meinertzhageni*; near Lukiri, Buhwezu Co., Ankole, Uganda; EU Hines coll., VI-1946. Synonym of *Haematopinus meinertzhageni* Werneck, 1952. Durden & Musser, 1994 : 16 (syn.).

Family Hoplopleuridae

Genus *Hoplopleura* Enderlein, 1904

- *affinis argentina* Werneck, 1937. *Hoplopleura*. (831) Holotype 1 female (1653). Paratypes 2 females (1654, 1655); *Reithrodon* sp. (wild rat); Argentina; D Ponte coll. Synonym of *Hoplopleura argentina* Werneck, 1937. Ferris, 1951 : 133 (syn.).
- *brasiliensis* Werneck, 1937. *Hoplopleura*. (23) Holotype and Allotype 1 female (186) and 1 male (186). Paratypes 3 females (187, 189, 190) and 3

males (190, 192, 193); (wild rat); Veadeiro, Goiás, Brazil.

- *capensis* Werneck, 1954. *Hoplopleura*. (3334) Paratype 1 female (3917); *Tatera* sp.; Seepduik, Hay District, Cape Province, South Africa; South African Biol. Survey coll., 8-XII-1943.
- *disgrega chilensis* Werneck, 1937. *Hoplopleura*. (957) Holotype 1 female (1951). Allotype 1 male (1952). Paratypes 4 females (1953 - 1956) and 3 males (1957 - 1959); *Octodon degus* (rat); Chile. Synonym of *Hoplopleura chilensis* Werneck, 1937. Ferris, 1951 : 134 (syn.).
- *fonsecai* Werneck, 1933. *Hoplopleura*. (441) Holotype 1 female (916). Allotype 1 male (917). Paratypes 4 females (918 - 921) and 1 male (922); *Oxymycterus judex* (wild rat); Humboldt, Sta. Catarina, Brazil; W Etrhardt coll., 5-VII-1918.
- *malabarica* Werneck, 1954. *Hoplopleura*. (3384) Paratypes 4 females (3918) and 1 male (3918); *Bandicota malabarica*; Colombo, Ceylão (=Sri Lanka); CD Radford coll., 28-VII-1944.
- *multilobata* Werneck, 1954. *Hoplopleura*. (3295) Holotype 1 female (3893); *Proechimys (Proechimys) iheringi*; Santa Tereza, Espírito Santo, Brazil; 22-VI-1940.
- *travassosi* Werneck, 1932. *Hoplopleura*. (452) Holotype 1 female (908). Allotype 1 male (909). Paratypes 2 females (906, 907); *Oryzomys flavescens* (wild rat); Humboldt, Sta. Catarina, Brazil; W Etrhardt coll., 1-VIII-1918.

Genus *Pterophthirus* Ewing, 1923

- *imitans* Werneck, 1942. *Pterophthirus*. (1565) Holotype 1 male (2764). Allotype 1 female (2761). Paratypes 2 females (2762, 2763); *Cavia aperea*; Santo Amaro, São Paulo, Brazil; LR Guimarães coll., 6-I-37.
- *wernecki* Guimarães, 1950. *Pterophthirus*. (2759) Paratypes 1 female (3446) and 1 male (3447); *Proechimys iheringi iheringi*; Boracéia, São Paulo, Brazil; LT Filho coll.

Family Linognathidae

Genus *Linognathus* Enderlein, 1905

- *contractus* Werneck, 1959. *Linognathus*. (3980) Paratypes 1 female (4026) and 2 females (flask 368, support 37); *Ourebia ourebi*; Reserva de caça da Cameia, Angola; AB Machado coll., 3-XII-1954.
- *fractus* Ferris, 1932. *Linognathus*. (3964) Holotype 1 male (4066). Allotype 1 female (4067). Paratypes 4 females (4044 - 4047), 3 males (4048 - 4050) and genitalia of male (4051, 4052); *Strepsiceros s. strepsiceros*; Zululandia, South Africa; R. du Toit coll.
- *ourebiae* Werneck, 1959. *Linognathus*. (3984) Paratypes of both sexes (flask 369, support 37); *Ourebia ourebi*; Reserva de caça da Cameia,

Angola; AB Machado coll., 3-XII-1954.

- *raphiceri* Fiedler & Stampa, 1956. *Linognathus*. (3992) Holotype 1 female (4068). Allotype 1 male (4069). Paratypes 2 females (4040, 4041) and 2 males (4042, 4043); *Raphicerus campestris*; Zululandia, África do Sul; R. du Toit coll.
- *taeniotrichus* Werneck, 1937. *Linognathus*. (100) Holotype 1 female (421). Allotype 1 male (422). Paratypes 2 females (423, 424) and 1 male (425); *Cerdocyon guaraxa* (fox); São Bernardo das Russas, Ceará, Brazil; 1936.
- *vulpis* Werneck, 1952. *Linognathus*. (2909) Holotype 1 male (3613). Allotype 1 female (3612); *Vulpes rüppellii bengalensis* (fox); Kurackee, Paquistão; FL Werneck coll.

Genus *Solenopotes*

- *hologastrus* Werneck, 1937. *Linognathus*. (161) Holotype 1 female (634). Allotype 1 male (635). Paratypes 1 female (636) and 1 male (637); *Gorgon taurinus*; Grootfontein, South West Africa; 19-VI-1933. Synonym of *Solenopotes hologastrus* Werneck, 1937. Durden & Musser, 1994 : 45 (syn.).

Family Microthoraciidae

Genus *Microthoracius* Fahrenholz, 1916

- *cameli* (Linnaeus, 1758). *Microthoracius*. (668) Neotypes 5 females (1122 - 1126) and 5 males (1127 - 1131); *Camelus dromedarius* (camel); Hassi Bahbah, Depart Alger, Algeria; A Lepigre coll., V-1934.
- *mazzai* Werneck, 1932. *Microthoracius*. (50) Holotype 1 female (239). Allotype 1 male (240). Paratypes 8 females (241 - 248), 3 males (249 - 251), 5 nymphs (252 - 256), spermatheca (257); *Auchenia llama*; Sta. Catalina, Prov. Jujuy, Argentina; S Mazza coll.
- *minor* Werneck, 1935. *Microthoracius*. (808) Holotype 1 female (1514). Allotype 1 male (1515); *Lama pacos*; Abra Pampa, Prov. de Jujuy, Argentina; S Mazza coll.

Family Pecarocidae

Genus *Pecarocus* Babcock & Ewing, 1938

- *javalli* Babcock & Ewing, 1938. *Pecarocus*. (2288) Paratypes (Cotypes) 1 female (2855) and 1 male (2856); (Peccary); Juno, Texas, Estados Unidos; OG Babcock coll., 29-I-1932.

Family Polyplacidae

Genus *Fahrenholzia* Kellogg & Ferris, 1915

- *schwartzi* Werneck, 1952. *Fahrenholzia*. (2880) Holotype 1 male (3568). Allotype 1 female (3569). Paratypes 1 female (3571) and 1 male (3570); *Heteromys anomalus anomalus*; Sierra Maestra, Est. de Aragua, Venezuela; Amberson & Schwarz colls.

Genus *Polyplax* Enderlein, 1904

- *grammomys* Werneck, 1953. *Polyplax*. (2970) Paratypes 2 females (3684, 3685) and 2 males (3687, 3688); *Grammomys dolichurus*; Gowies Kloof, Albany, Prov. do Cabo, África do Sul; 2-II-1940.

Genus *Galeophthirus*

- *caviae* Werneck, 1934. *Eulinognathus*. (629) Holotype 1 female (1141). Allotype 1 male (1145). Paratypes 3 females and 3 males (1142-1144, 1146-1148); *Galea leucoblephara*; Perico, Prov. Jujuy, Argentina; S Mazza coll., III-1934. Synonym of *Galeophthirus caviae* Werneck, 1934. In Ferris, 1951 (syn.).

DISCUSSION

According to Kim and Ludwig (1978), the Neotropical region concentrates 11% of the whole world anoplurofauna. Presently, 15 families are known, and they are distributed in 49 genera and 532 species (Durden & Musser 1994), from which 120 (22.6%) are represented in the Werneck Collection of IOC. The contribution of Werneck for the improvement of our knowledge on Anoplura is highly significant, once he had described 34 species (6.4%), from those recorded in the world as a whole. It must be also stressed that until the middle of the century, while only 255 species were known (Ferris 1951), Werneck had already described 21 species from several regions of the world. Consequently, the result of this effort, now documented in the Werneck Collection of IOC, is indispensable for the modern taxonomy, noticing that through the comparative study of the characters, the reference collections represent nowadays a starting point to new investigations (Martins 1983).

In honour to his work, the author's name was given to one genera and two species, by different authors: *Werneckia*, by Ferris (1951); *Pterophthirus wernecki*, by Guimarães (1950) and *Eulinognathus wernecki*, by Castro and Cicchino (1986).

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