Rudolstädter nat.hist. Schr. **10** (2000), 53 - 58 Dezember 2000

Ricinus butleri n. sp. (Insecta, Phthiraptera, Amblycera, Ricinidae) from the Rufous-capped Spinetail *Synallaxis ruficapilla* (Aves, Passeriformes, Furnariidae)

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With 7 figures and 1 table

Introduction

Chewing lice from South America birds have not been extensively collected except for Colombia and Venezuela, where Melbourne A. CARRIKER (1879 - 1965) devoted many years of work collecting birds and lice (EMERSON 1967). *Ricinus* spp. are one of the largest chewing lice found only on Passeriformes, so that they are easily found and collected, except that they are not abundant on a healthy bird (ONIKI, MS).

NELSON (1972) revised the New World species of *Ricinus* but did not have material from any furnariid. Although several species of *Synallaxis* (other than *S. ruficapilla*) have been examined and several species of the ischnoceran genus *Furnaricola* have been described by CARRIKER (1944, 1963, 1966), this is the first report of a *Ricinus* found in the family Furnariidae (Suborder Tyranni).

Material and Methods

From 1974 to date, on a project of birds of São Paulo State, E. O. WILLIS and ONIKI have traveled throughout the state to observe the birds and study their present status as natural vegetation is down to less than 5%. On these occasions, E. O. WILLIS would wander through the forest and other habitats looking for birds, recording songs, registering species, taking pictures and ONIKI would set 8 - 10 nets to catch birds that many times are not seen otherwise.

From captured birds, data such as weight, cloacal temperature and, body measurements such as wing chord, bill length, tail and tarsus length were taken. Plumage condition was checked and presence of brood patch noted. After this, the bird's feathers were browsed with a forceps and any chewing lice and ticks were collected. In some cases, the bird, with its head out, was placed within a plastic bag containing a piece of cotton embedded in ethyl acetate. In a few minutes ticks and chewing lice fell inside the bag. In this way, most of the ectoparasites were collected. The plastic bag and cotton were discarded once used (they were never used twice).

Measurements of lice in millimeters were made with use of an ocular micrometer. The nomenclature of chaetotaxy developed for *Ricinus* by NELSON (1972) is used to describe the species.

Following NELSON l.c., total length of the specimen is the distance along the midline, from the tip of frons to the end of the posterior anal lappet, exclusive of setae. Greatest width is measured along tergites IV and VII where the width is largest. Abdominal width is subject to alteration during preparation of the specimen and suffers from shrivelling instead of swelling.

Head length is measured along the midline of the head from the tip of the frons to the dorsoposterior margin of the occiput. Head width is measured at the level of the eyes or posterior to the eyes where the measurement is greatest. Head index (HI) is the ratio between head width and head length. It is determined by the following formula HW/HL x 100 = HI.

Greatest prothoracic length is measured along the sideline of the dorsal surface of the prothorax; prothoracic width is taken at the greatest width of the prothorax. Greatest pterothoracic length and width are measured likewise.

Male genitalia length is taken from the superior tip of the genitalia to the posterior end of the paramere, while the greatest width of the mesosome is the widest measurement obtained along the horizontal line of mesosome.

Results

Ricinus butleri new species

Figs. 1 - 7

T y p e h o s t : *Synallaxis ruficapilla* VIEILLOT, 1819[1]

M a t e r i a l : Female holotype in the Museu de Ciências da Natureza (collection slide no. 1547) from the type

[1] *Synallaxis ruficapilla* is a shy insectivorous species that hops in the undergrowth or on the ground in forest or second growth. It has a closed stick nest with a long narrow funnel entrance.

Table 1.
Measurements (in millimeters) of *Ricinus butleri* n. sp. - * R = right, L = left (As one looks at the specimens with head up, under the microscope, the one on the right is R, the other L).

Character/slide no.	1547* ♀ R holo-type	1547* ♀ L para-type	1111 ♂ allo-type	1111 ♀♀ paratypes	1110	1110
Total length	3.27	3.10	2.92	3.12	3.26	3.24
Body width	0.93	0.90	0.82	0.93	0.94	0.90
Head length	0.78	0.81	0.84	0.86	0.78	0.78
Head width	0.62	0.66	0.69	0.62	0.52	0.79
Head index	0.79	0.62	0.69	0.72	0.79	0.79
Prothoracic length	0.40	0.39	0.36	0.42	0.36	0.36
Prothoracic width	0.54	0.54	0.51	0.56	0.55	0.54
Dist. bet. Prostern.	0.074	0.080	0.067	0.063	0.068	0.068
Pterothoracic length	0.60	0.58	0.52	0.54	0.54	0.56
Pterothoracic width	0.80	0.75	0.66	0.76	0.76	0.75
Length, genitalia			0.46			
Width, genitalia			0.18			

host from Fazenda Niágara (22° 56' S, 49° 22' W), near Óleo, São Paulo State, Brazil; collected by Y. Oniki on 22.7.1983. Four females (paratypes) and one male (allotype) from two different hosts of the same species and same collecting date and locality. There were also three immatures from these hosts.

Description: **1.** Total length 3.10 - 3.27 mm. Only chitinized adults were measured (see Table 1). **2.** Head subconical, with distinct postfrontal constriction; frons slightly convex with rounded lateral margins not continuous with that of marginal carinae; head longer than wide at the posterior end; as in Fig. 1. **3.** Mandible dimorphic as in Fig. 6; mandibles with short, heavy tips. **4.** Antennal, lunar and tentorial nodi present. **5.** Head setae a 1 with 2 sensillae near; a 2 and a 4 present and a 3 absent. **6.** Head setae pa 1 long barely reaching margin of head; pa 2 slightly shorter than pa 1. **7.** Preantennal setae are setose, the lower one being slightly longer than the one above. **8.** m 1, m 2, m 3, m 4 at the sides of head are present but m 4 longer than the 3 first ones. **9.** Setae d 1, d 2, and d 3 present. **10.** Labium with 12 pairs of setae; ovoid sclerites heavily ornamented, pitted as in Fig. 3. **11.** Occipital margin concave. **12.** Top of gular plate pointed. **13.** Gular plate with 3 or 2 long setae on each side and with long prosternal projections. **14.** Base of maxillary palpi genticuloid and palpi extend to the margin of head. **15.** Transverse carina is almost transparent and is lightly convex medially. **16.** Temples slightly convex with apices slightly hooked. **17.** Eyes slightly protruded. **18.** Setae along antennal lappets variable in number but an average of 5x5, relatively spaced. **19.** Sternites darker and well delimited; pleurites not pigmented to margin, being dark burned yellow.

Prothorax as in Fig. 2, barrel shaped with anterior and posterior margins concave; six setae in w series; sternal plate as in Fig. 2, bearing two pairs of long setae and one pair of short posterior setae.

In the abdominal segments each spiraculum is accompanied by a sensilla. The margins of tergites all present a diagonally accentuated mesh of lines that reach to the spiraculum (Fig. 7).

Terminal segments of females as in Fig. 7. The counts of these setae in variable sizes in two females were 49 and 46 setae in the out-

ermost lower part of the abdomen and 54 and 64 in the next inner roll, which then have tiny points as hooks in front of it (see Fig. 7). The male terminalia is different in that it has 15 very small setae at the tip and 3 - 4 a bit longer setae in the subterminal region. The vulvar plate has 2 to 4 (usually 3) medium long setae placed at the inner margin plus one very long seta near the terminal part of the plate. The general color of the specimens is yellow brownish with darkened areas where chitinization is heavier including the endoskeleton. Parameres not as pointed at the tip as in *Ricinus invadens* (KELLOGG, 1899) but slightly pointed with 4 setae at tip. Mesosome low with a slight median point (Fig. 5). *R. butleri* n. sp. belongs to the *R. invadens* group.

D i a g n o s i s : Small-sized species with head characteristic of many *Ricinus* species. Mandibles are dimorphic and heavily sclerotized (Fig. 6) as in *R. arcuatus* group, and large tips as in *R. mandibulatus* NELSON, 1972. Gular plate has 2 or 3 long setae in each side and the anterior apice is pointed while the posterior has straight projections. Temples slightly convex with apices slightly hooked. Labium with 12 medium-sized setae (Fig. 4) as in *R. invadens*; ovoid sclerite with ornaments as in Fig. 3. Prothorax characteristically bell-shaped but shorter than wide as in *R. mandibulatus*.

Derivatio nominis: The specific name, *butleri* is in honor of Jerry F. BUTLER, Professor at the Department of Entomology and Nematology at the University of Florida, in Gainesville, U.S.A., for his extensive contribution to the field of Entomology and his enthusiastic encouragement and support given to South American students.

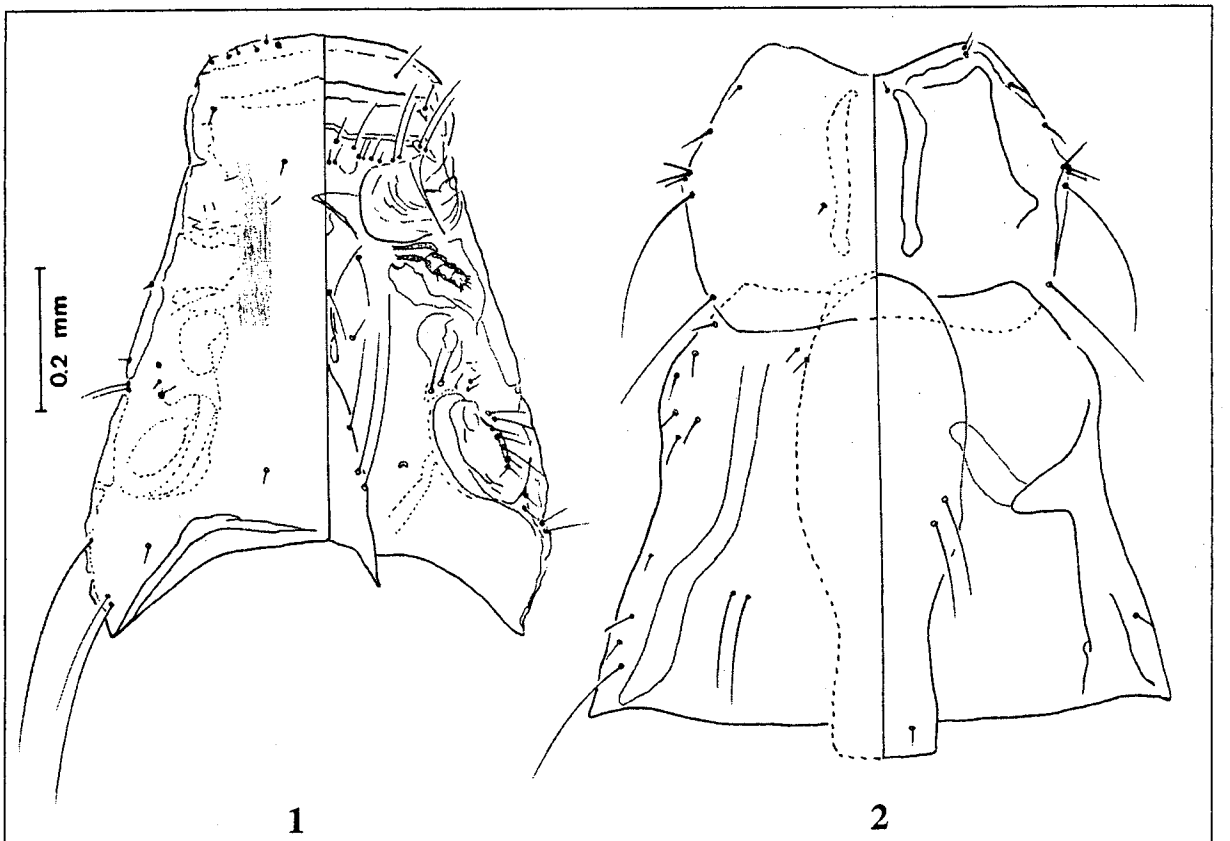

Fig. 1 - 2.
Ricinus butleri n. sp., ♀. 1: Head (holotype), 2: Thorax. Left side = dorsal view, right side = ventral view. - Y. ONIKI del.

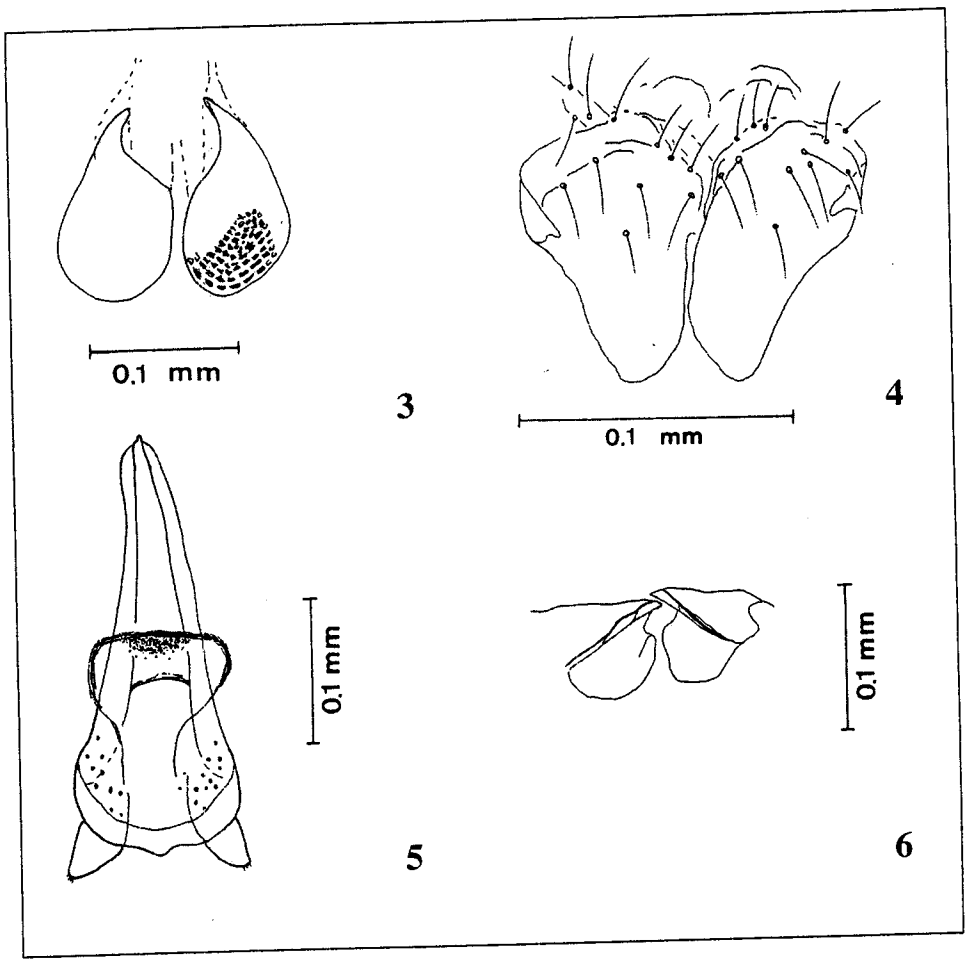

Fig. 3 - 6.
Ricinus butleri n. sp.
3: Ovoid sclerites, ♀,
4: Labium, ♀,
5: Genitalia, ♂,
6: Dimorphic mandibles, ♀.

Notes on *Ricinus* infestation

As discussed by NELSON (1972), on the intensity of infestation, *Ricinus* is considered rare on the host by some (MJÖBERG 1910) and common by others (RHEINWALD 1968; K. C. EMERSON, pers. comm.). Having handled thousands of birds for my projects, my impression is that the population of *Ricinus* in one bird is not very high and their elusive movements through the birds´ feathers make them very difficult to see and catch. On the other hand, from wild, healthy birds, a high infestation is not expected. Although BEER & COOK (1957) suggested that holding the live bird with its head out in a plastic bag which contained wads of cotton embedded in ether acetate is still the best collecting method in my opinion, we are still unsure that most or all the chewing lice have been collected from living birds. The only effective method I found so far would be dissolving the feathers (BEER & COOK 1957) but killing the bird and losing the skin is a great disadvantage. From use of the acetate and plastic bag method described above, a ratio of five females to one male was found. Also, three nymphs were found on 22 July 1983 and many eggs observed on the gular area. One egg was attached to the underside (concave side) of the rachis of a feather, another clue that infestation was not high, as otherwise we would find two or more eggs attached to each feather. This rarity of male *Ricinus* was also discussed by CARRIKER (1964) in that he had only 15 males in his collection of about 130 species of hosts.

While actively looking for them by checking the bird´s feathers, *Ricinus* can be seen slipping sideways, smoothly through them, so despite their size they are very difficult to catch with forceps. Their body is flattened and ventrally concave but between the ventral tergites and the lateral sagittal tergite, in the intersegmental membrane, there are slight

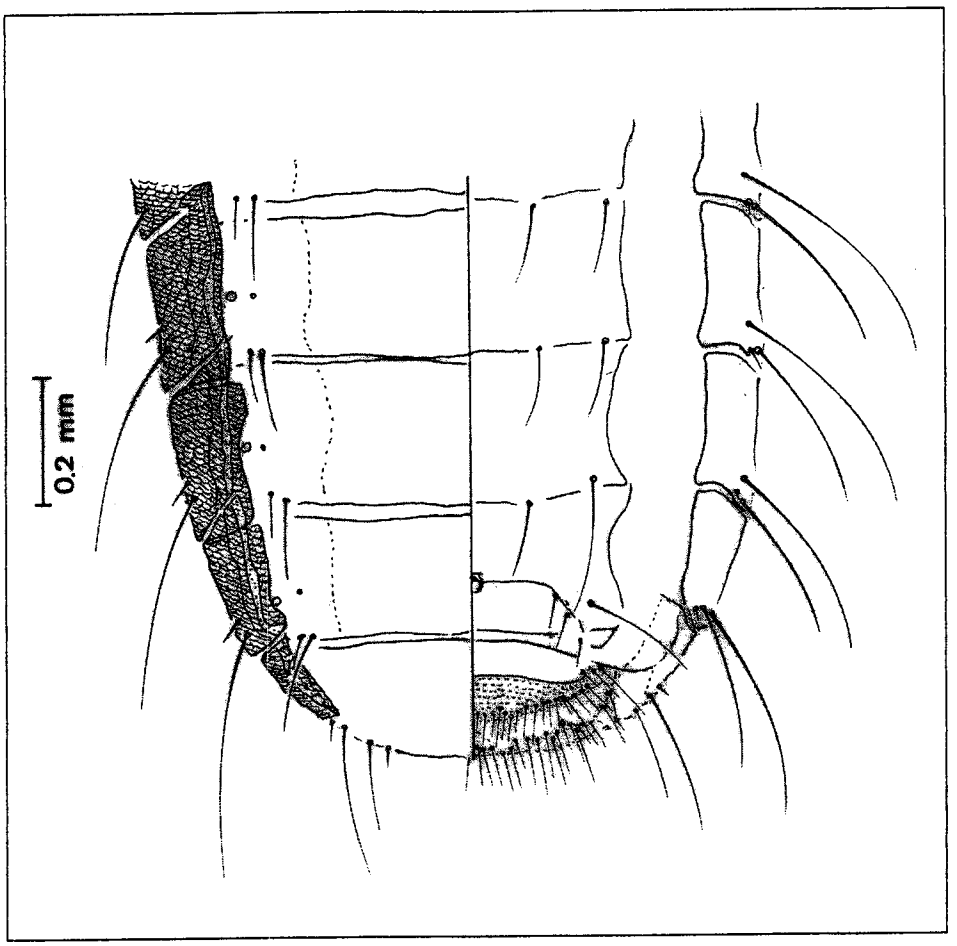

Fig. 7.
Ricinus butleri n. sp., ♀. Terminalia. Left side = dorsal view, right side = ventral view.

corrugations. At the edges of these membranes and at the meeting of the dorsal pleurite, corrugations become more accentuated and run vertically. In some cases those corrugations turn into very rough looking slight scales with two very short setae on each scale. I presume those corrugations may increase their tactile sense and also make them able to slip sideways very fast through the feathers when the bird is preening. I have never seen them escape to the rectrices or remiges when one is trying to catch them.

A freshly collected specimen or in alcohol 70% usually shows two black spots not far from the eyes. Close examination showed they were tiny pieces of feathers that were collected in the antennal grooves, possibly when they move through the feathers. Those spots disappear when they are being prepared for mounting in permanent slides, because they are dissolved by KOH solution.

Acknowlegdements: Field work was made possible thanks to several fellowships from the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) of Brazil to Edwin O. Willis and Y. Oniki (FAPESP 1994/6006-8) and Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP) to Edwin O. Willis. – Study of chewing lice was started at the Department of Entomology and Nematology of the University of Florida in Gainesville through a postdoctoral fellowship from CNPq and through generous logistical help from J. F. Butler and his assistants, D. Simon and D. Boyd. The writing of this paper was completed while I held a research fellowship from FAPESP (no. 1999/1132-9) and Deutscher Akademischer Austauschdienst (no. A/99/15325). Drs. Eberhard Mey and E. O. Willis commented on the manuscript but special thanks are due to Dr. E. Mey who kindly studied the Brazilian *Ricinus* as well as other lice with me. Publication no. 17 of the Institute for Studies of Nature.

Summary

The amblyceran chewing louse *Ricinus butleri* n. sp. (Ricinidae) is described and illustrated from a Brazilian

furnariid, the Rufous-capped Spinetail *Synallaxis ruficapilla* (VIEILLOT, 1819). It belongs to the *R. invadens* group. Some experiences about *Ricinus* infestation on South American passerines are presented.

Zusammenfassung

***Ricinus butleri* n. sp. (Insecta, Phthiraptera, Amblycera, Ricinidae) vom Rotkappenschlüpfer *Synallaxis ruficapilla* (Aves, Passeriformes, Furnariidae)**
Die neue amblyzere Federlingsart *Ricinus butleri* n. sp., die auf der Furnariide *Synallaxis ruficapilla* (VIEILLOT, 1819) lebt, wird aus Brasilien beschrieben. Sie gehört zur *R. invadens*-Artengruppe. Eigene Erfahrungen über den *Ricinus*-Befall bei südamerikanischen Singvögeln werden mitgeteilt.

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