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New records of chewing lice (Insecta, Phthiraptera) from Brazilian birds (Aves) collected by Helmut Sick (1910–1991)



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ABSTRACT

We list the genera and species of chewing lice collected from birds by Helmut Sick, mainly from central Brazil, and particularly during the Roncador-Xingu Expedition, between 1943 and 1949. From the 123 samples studied, a wide variety of chewing louse genera and species were found, including 34 species as new records for Brazil, 37 species recorded from new Brazilian localities and 23 new host records. All material is deposited in the ectoparasite collection of the Museu de Zoologia da Universidade de São Paulo.

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Introduction

Chewing lice (order Phthiraptera, suborders Amblycera and Ischnocera) are hemimetabolous insects that are obligatory ectoparasites of birds and mammals, carrying out their entire life history in the plumage of the pelage of their hosts (Guimarães et al., 2001; Johnson and Clayton, 2003; Linardi, 2012). They include species that are specialized to live on feathers of distinct regions of the body, such as head, wings or body feathers (Clay, 1949; Johnson and Clayton, 2003; Johnson et al., 2012). They are small and wingless, ranging from 0.3 to 11 mm in length with females usually larger than males. They have large mandibles, a dorsoventrally flattened body covered by setae and scissor-like legs that facilitate their hold on the feathers to avoid being removed during preening by the host (Guimarães et al., 2001; Linardi, 2012).

Most of the material we studied was collected during a historical period in Brazil, known as 'The March to the West' ("A marcha para o oeste"). This was a government initiative to explore and settle the Brazilian interior and was undertaken, in part, by the Roncador-Xingu Expedition (1943–1949), which went from the State of Goiás to that of Pará and had a German naturalist, Helmut Sick, in the team.

In 1942, earlier in his life, H. Sick was living in Espírito Santo, when Brazil declared war against Germany during the Second

World War. Together with other German citizens, he was arrested and imprisoned in the notorious jail on Ilha Grande, Rio de Janeiro, for three years until his release in 1945 (Vuilleumier, 1998). After his release he was hired as naturalist by the former "Fundação Brasil Central", created to organize the Roncador-Xingu Expedition, to identify and catalog the fauna collected during the exploration of the region (Galvão, 2011). Afterwards, he was hired as a professor at the Universidade Federal do Rio de Janeiro, where he carried out his career as an ornithologist until his death in March 1991 (Vuilleumier, 1998; Galvão, 2011). During his life, H. Sick collected vertebrates and invertebrates from all the places he had lived. This included avian chewing lice collected by the "Fundação Brasil Central" that was sent to the Museu de Zoologia da Universidade de São Paulo (MZUSP) for identification in the late 1940s.

The aim of this study is to increase knowledge about chewing lice from Brazil, especially regarding new records of species collected by H. Sick. Also to make an inventory of taxa from regions that were virtually unexplored at the time the specimens were collected.

Material and methods

All examined material was collected by Helmut Sick in Brazil and is deposited in the ectoparasite collection at the Museu de Zoologia da Universidade de São Paulo (MZUSP). Specimen numbers are given for each louse specimen studied as well as for host specimens, as MZUSP and Museu Nacional da Universidade Federal do Rio de Janeiro (MNRJ) numbers. When host voucher numbers were

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missing or not registered yet, only H. Sick's original unique field numbers were used (indicated by starting with the letter "A.", for 'Aves').

Geographic coordinates were taken from [Paynter and Traylor \(1991\)](#), besides the fifteen localities listed below by State:

Espírito Santo – Santa Teresa, 760 m (19°55' S 40°36' W);
Goiás – Aragarças, Rio Araguaia (15°53' S 52°15' W); same locality but at left bank of the river;
Mato Grosso – C. Teles Pires, Alto Tapajós (07°21' S 58°03' W); Chavantina, Rio das Mortes (14°40' S 52°21' W); Chavantina, Rio das Mortes, 4 leagues from SW (11°45' S 50°44' W); Diauarum, Alto Xingu (11°12' S 53°14' W); Garapu (13°13' S 52°37' W); Jacaré, Alto Xingu and Jacaré, Alto Xingu, Baixo Kuluene (12°00' S 53°24' W); and Pindaiba (14°58' S 52°19' W);
Pará – Jacaré, Alto Xinguacanga, Alto Tapajós (06°16' S 57°39' W);
Rio de Janeiro – Ilha Grande (23°09' S 44°14' W), Teresópolis (22°26' S 42°59' W) and Parque Nacional do Itatiaia, Estrada do Rio Itatiaia, Itatiaia, 1500 m (22°23' S 44°38' W).

Acronyms for Brazilian States and the federal district used in distribution are: AL, Alagoas; AP, Amapá; AM, Amazonas; BA, Bahia; DF, Distrito Federal; ES, Espírito Santo; GO, Goiás; MA, Maranhão; MT, Mato Grosso; MS, Mato Grosso do Sul; MG, Minas Gerais; PA, Pará; PR, Paraná; RJ, Rio de Janeiro; RS, Rio Grande do Sul; RR, Roraima; SC, Santa Catarina; SP, São Paulo; TO, Tocantins.

Louse specimens were preserved in 70% ethanol since they were collected about 60 years ago. Each vial was individually examined under a stereomicroscope Leica EZ-40. During this stage specimens were sorted by sex and developmental stage. Data present on the original labels was noted. Specimens were then permanently mounted on slides according to [Palma \(1978\)](#), except during the maceration stage in KOH where specimens were heated in a water bath. After slide-mounting they were examined under a Leica microscope DM5000B, and identified using available literature and by direct comparison with previously identified specimens deposited at MZUSP. All literature used is cited in the distribution and discussion of each species. The classification of hosts follows the worldwide checklist by [Dickinson \(2003\)](#).

Louse classification does not strictly follow the latest worldwide checklists ([Hopkins and Clay, 1952](#); [Price et al., 2003](#)), especially for genera of the family Heptapsogasteridae, which is not recognized in those checklists. Regarding South American tinamou lice, we followed [Carriker \(1936, 1944a\)](#), except for cases of obvious synonyms based on the description of immatures instead of adults. All these genera could be identified morphologically and include *Docophorocotes* [Carriker, 1936](#), *Tinamicola* [Carriker, 1936](#), *Hypocrypturellus* [Carriker, 1940](#) (= *Hypocryptus* [Carriker, 1936](#) nec Förster, 1868) and *Rhynchotura* [Carriker, 1936](#) as valid. For most of these genera, the distinctive morphological characters can be found in [Carriker \(1936\)](#) and [Cicchino \(2011\)](#). We separated *Hypocrypturellus* and the monotypic genus *Austrokelloggia* [Carriker, 1936](#) based on the former having vestigial crenulations on the external posterior margin of temple of the adults. These crenulations are truly serrated in nymphs (reducing from NI to NII), whilst the margin of temple of *Austrokelloggia intermedia* [Carriker, 1936](#) is completely smooth (Carriker's specimens studied at MZUSP #665).

Results

We document 88 species of chewing lice, plus 21 records at generic level, from various localities of Brazil. Seventeen further samples were of doubtful origin, so are herein considered as stragglers or contaminants and listed and commented in [Appendix A](#). All

samples were collected from 68 species of native birds, belonging to 32 families and 19 orders (see [Appendix B](#)).

Thirty-four species of chewing lice are recorded for the first time in Brazil, a further 37 species are recorded from new localities, and 23 were recorded from new host species. Additionally, precise locality information is given for six species previously only known as originating from "Brazil".

The louse-host list includes all the genera and species collected by H. Sick and deposited in MZUSP. For each species we list bibliographic citations with information regarding their global distribution in chronological order, then by country and finally, for Brazilian records, by State.

LOUSE-HOST LIST

Order Phthiraptera Haeckel, 1896

Suborder Amblycera [Kellogg, 1896](#)

Family Laemobothriidae [Mjöberg, 1910](#)

Eulaemobothrion [Ewing, 1929](#)

Eulaemobothrion opisthocomi ([Cumings, 1913](#))

Distribution: Brazil ([Guimarães, 1940](#)).

Distribution in Brazil: AM, PA ([Guimarães, 1940](#)), PA (present study).

Material examined: 2♂, 2♀, 2 nymphs (MZUSP#6665–6670), ex *Opisthocomus hoazin* (Statius Müller, 1776) (MNRJ#32564, A.1694), Alto Tapajós, Alto Xinguacanga, Jacareacanga, PA, Brazil, 11.VII.1957.

Eulaemobothrion setigerum ([Piaget, 1889](#))

Distribution: no locality ([Piaget, 1889](#)).

Distribution in Brazil: MT (present study).

Material examined: 3♂, 4♀, 5 nymphs (MZUSP#6575–6586), ex *Phimosus infuscatus nudifrons* (Spix, 1825) (MZUSP#32219, A.22), Rio das Mortes, Chavantina, MT, Brazil, 11.X.1946.

Laemobothrion [Nitzsch, 1818](#)

Laemobothrion glutinans [Nitzsch \[in Giebel\], 1861](#)

Distribution: Brazil ([Nelson and Price, 1965](#); [Brum and Rickes, 2003](#); [Valim et al., 2005a](#)), Guyana, Colombia, Costa Rica, Mexico, Panama, USA, Venezuela ([Nelson and Price, 1965](#)).

Distribution in Brazil: no locality ([Nelson and Price, 1965](#)), RS ([Brum and Rickes, 2003](#)), SP ([Valim et al., 2005a](#)), GO (present study).

Material examined: 1♀, 1 nymph (MZUSP#6546–47), ex *Sarcophagus papa* (Linnaeus, 1758) (A.2315), Rio Araguaia, Aragarças, GO, Brazil, 21.VII.1952.

Laemobothrion tinnunculi (Linnaeus, 1758)

Distribution: Algeria, Australia, Democratic Republic of Congo, Colombia, India, Ireland, Israel, Kenya, Nicaragua, Philippines, South Africa, Sudan, Sweden, Taiwan, Tanzania, USA, Venezuela, Vietnam ([Nelson and Price, 1965](#)), New Zealand ([Pilgrim and Palma, 1982](#)), Chile ([González-Acuña et al., 2008](#)).

Distribution in Brazil: MT (present study).

Material examined: 1♂ (MZUSP#6600), ex *Falco femoralis* [Temminck, 1822](#) (MZUSP#32244, A.165), 4 leguas SW, Rio das Mortes, Chavantina, MT, Brazil, 10.XI.1946.

Family Ricinidae [Neumann, 1906](#)

Ricinus [DeGeer, 1778](#)

Ricinus sp.

Material examined: 1♀ (MZUSP#6742), ex *Corythopsis delalandi* ([Lesson, 1830](#)) (MZUSP#32459, A.292), Rio das Mortes,

Chavantina, MT, Brazil, 23.XI.1946; 1♀ (MZUSP#6749), ex *Nemosia pileata* (Boddaert, 1783) (MNRJ#30805, A.2270), Rio Araguaia, Aragarças, GO, Brazil, 17.V.1952; 1♀ (MZUSP#6762), ex “Thraupidae” (A.1605), Alto Tapajós, C. Teles Pires, MT, Brazil, 22.VIII.1950; 1♂, 1♀ (MZUSP#6743), ex *Cnemotriccus fuscatus* (Wied, 1831) (A.1343), Alto Xingu, Xingu, Diauarum, MT, Brazil, 18.VII.1949.

Family Menoponidae Mjöberg, 1910

Actornithophilus Ferris, 1916

Actornithophilus ochraceus (Nitzsch, 1818)

Distribution: Ireland (Clay, 1962), USA (Emerson, 1972), Argentina (Cicchino and Castro, 1998a), New Zealand (Pilgrim and Palma, 1982).

Distribution in Brazil: MT (present study).

Material examined: 3♂, 1♀, 1 nymph (MZUSP#6562, 6564–65), ex *Vanellus chilensis* (Molina, 1782) (MZUSP#32256, A.419), Rio das Mortes, Chavantina, MT, Brazil, 22.I.1947; 1♂, 1♀ (MZUSP#6563), ex *V. chilensis* (A.1757), Rio das Mortes, Chavantina, MT, Brazil, 08.IX.1951; 1 nymph (MZUSP#6552), ex *V. cayanus* (Latham, 1790) (MZUSP#32259, A.484), Rio das Mortes, Chavantina, MT, Brazil, 15.II.1947.

Amyrsidea Ewing, 1927

Subgenus *Cracimenopon* Carriker, 1950

Amyrsidea (Cracimenopon) aff aburris Carriker, 1950

Distribution: Colombia, Guyana, Paraguay, Peru (Scharf and Emerson, 1984).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6651), ex *Penelope superciliaris* Temminck, 1815 (A.1550), Alto Tapajós, C. Teles Pires, MT, Brazil, VIII.1950; 2 nymphs (MZUSP#6654), ex *P. superciliaris* (MNRJ#31527, A.1360), Alto Xingu, Xingu, Diauarum, MT, Brazil, 25.VII.1949; 2♀, 2 nymphs (MZUSP#6652–53), ex *P. superciliaris* (MNRJ#31527, A.1359), Alto Xingu, Xingu, Diauarum, MT, Brazil, 25.VII.1949.

Amyrsidea (Cracimenopon) sp.

Material examined: 4♂, 4♀, 3 nymphs (MZUSP#6660–64), ex *Pauxi tuberosum* (Spix, 1825) (A.2182), Garapu, MT, Brazil, 25.IX.1952; 5♀ (MZUSP#6648–50), ex *Pipile cujubi nattereri* (Pelzeln, 1858) (MZUSP#32251, A.147), Rio das Mortes, Chavantina, MT, Brazil, 08.XI.1946.

Colpocephalum Nitzsch, 1818

Colpocephalum ateri Price & Beer, 1964

Distribution: Brazil, Guyana (Price and Beer, 1963, 1964).

Distribution in Brazil: no locality (Price and Beer, 1963, 1964), MT (present study).

Material examined: 12♂, 26♀, 22 nymphs (MZUSP#6601–28), ex *Daptrius ater* Vieillot, 1816 (MNRJ#31554, A.1573), Alto Tapajós, C. Teles Pires, MT, Brazil, 11.VIII.1950.

Colpocephalum maculatum Piaget, 1880

Distribution: Brazil (Guimarães, 1945; Price and Beer, 1963; Valente et al., 2001; Valim et al., 2005a), Colombia, Mexico (Price and Beer, 1963), Argentina (Price and Beer, 1963; Cicchino and Castro, 1998a), Chile (Price and Beer, 1963; Órdenes et al., 2005; González-Acuña et al., 2008).

Distribution in Brazil: PR (Guimarães, 1945), no locality (Price and Beer, 1963), RS (Valente et al., 2001), SP (Valim et al., 2005a), GO, MT (present study).

Material examined: 1♂, 1♀ (MZUSP#6598–99), ex *Caracara plancus* (J. F. Miller, 1777) (A.2104), Rio Araguaia, Aragarças, GO,

Brazil, 17.VIII.1952; 1♂ (MZUSP#6633), ex *Milvago chimachima* (Vieillot, 1816) (A.2297), Rio Araguaia, Aragarças, GO, Brazil, 20.XI.1952; 1♂, 3♀, 1 nymph (MZUSP#6631, 6634, 6638), ex *M. chimachima* (MNRJ#30513, A.2308), Rio Araguaia, Aragarças, GO, Brazil, 02.VII.1952; 1♂, 1♀ (MZUSP#6630), ex *M. chimachima* (MNRJ#31557, A.2294), Rio Araguaia, Aragarças, GO, Brazil, 22.VII.1952; 3♂, 1♀ (MZUSP#6629, 6632), ex *M. chimachima* (MNRJ#30508, A.2327), Rio das Mortes, Chavantina, MT, Brazil, 18.V.1952; 1♀, 2 nymphs (MZUSP#6635–37), ex *M. chimachima* (MNRJ#30510, A.2325), Rio das Mortes, Chavantina, MT, Brazil, 16.V.1952.

Colpocephalum megalops Giebel, 1874

Distribution: Trinidad and Tobago (Price and Beer, 1963).

Distribution in Brazil: MT (present study).

Material examined: 2♂ (MZUSP#6548), ex *Sarcoramphus papa* (Linnaeus, 1758) (A.1743), Rio das Mortes, Chavantina, MT, Brazil, 04.IX.1957.

Colpocephalum mycteriae Price & Beer, 1965

Distribution: Brazil (Price and Beer, 1965).

Distribution in Brazil: no locality (Price and Beer, 1965), MT (present study).

Material examined: 1♂ (MZUSP#6587), ex *Jabiru mycteria* (Lichtenstein, 1819) (A.1774), Rio das Mortes, Chavantina, MT, Brazil, 10.IX.1957.

Colpocephalum sp.

Material examined: 1 nymph (MZUSP#6525), ex *Spizaetus ornatus* (Daudin, 1800) (MNRJ#32553, A.1368), Alto Xingu, Xingu, Diauarum, MT, Brazil, 29.VII.1949.

Cuculiphilus Uchida, 1926

Subgenus *Cuculiphilus* Uchida, 1926

Cuculiphilus (Cuculiphilus) fasciativentris Carriker, 1955

Distribution: Venezuela (Carriker, 1955), Argentina (Cicchino and Castro, 1998a), New Zealand (Palma, 1999).

Distribution in Brazil: MT (present study).

Material examined: 2♀, 1 nymph (MZUSP#6595–96), ex *Piaya cayana* (Linnaeus, 1766), (MNRJ#30666, A.1990), Pindaiba, MT, Brazil, 07.II.1952.

Dennyus Neumann, 1906

Subgenus *Dennyus* Neumann, 1906

Dennyus (Dennyus) brevicapitis Carriker, 1954

Distribution: Trinidad and Tobago (Carriker, 1954).

Distribution in Brazil: RJ (present study).

Material examined: 1♂ (MZUSP#6541), ex *Chaetura meridionalis* Hellmayr, 1907 (MNRJ#30741–42, A.7, A.11), Parque Nacional do Itatiaia, Estrada do Rio Itatiaia, Itatiaia, 1500 m, RJ, Brazil, 08.III.1953.

Dennyus (Dennyus) limbus Carriker, 1954

Distribution: Costa Rica (Carriker, 1954).

Distribution in Brazil: RJ (present study).

Material examined: 1♀ (MZUSP#6537), ex *Chaetura meridionalis* Hellmayr, 1907 (MNRJ#30731), Teresópolis, RJ, Brazil, 08.X.1951; 1♂ (MZUSP#6536), ex *C. meridionalis* (MNRJ#30726), same data except, 14.X.1952; 1♀ (MZUSP#6538), ex *C. meridionalis* (MNRJ#30745, #30756), same data except, 03.X.1957; 2 nymphs (MZUSP#6545), ex *C. meridionalis* (MNRJ#30736), same data except, 21.XI.1949; 3 nymphs (MZUSP#6539–41), ex

C. meridionalis (MNRJ#30741–42, A.7, A.11), Parque Nacional do Itatiaia, Estrada do Rio Itatiaia, Itatiaia, 1500 m, RJ, Brazil, 08.III.1953.

***Dennyus (Dennyus) malagonensis* Valim, 2013**

Distribution: Brazil (Valim, 2013).

Distribution in Brazil: MG (Valim, 2013), RJ (present study).

Material examined: 1♂, 4♀, 7 nymphs (MZUSP#6532–35), ex *Streptoprocne zonaris* (Shaw, 1796) (MNRJ#30714–15), Teresópolis, RJ, Brazil, 18.VII.1952.

Dennyus (Dennyus) sp.

Material examined: 1♂ (MZUSP#6544), ex *Chaetura meridionalis* Hellmayr, 1907 (I.736), Teresópolis, RJ, Brazil, 21.XII.1952.

***Heteromenopon* Carriker, 1954**

Subgenus *Heteromenopon* Carriker, 1954

***Heteromenopon (Heteromenopon) anodorhynchi* Price, 1969**

Distribution: Brazil (Price, 1969).

Distribution in Brazil: GO (Price, 1969), MT (present study).

Material examined: 1♀ (MZUSP#6787), ex *Anodorhynchus hyacinthinus* (Latham, 1790) (MZUSP#32289–90, A.90–91), Rio das Mortes, Chavantina, MT, Brazil, 26–27.X.1946.

***Heteromenopon (Heteromenopon) sincipitalis* Carriker, 1954**

Distribution: Bolivia (Carriker, 1954), Trinidad and Tobago (Price and Beer, 1967).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6806), ex *Ara ararauna* (Linnaeus, 1758) (MZUSP#32295, A.357), Rio das Mortes, Chavantina, MT, Brazil, 08.I.1947.

***Hoazineus* Guimarães, 1940**

Hoazineus armiferus (Kellogg, 1910)

Distribution: Brazil (Guimarães, 1940).

Distribution in Brazil: AM, PA (Guimarães, 1940), PA (present study).

Material examined: 2♂, 1♀ (MZUSP#6671–72), ex *Opisthocomus hoazin* (Stadius Müller, 1776) (MNRJ#32564, A.1694), Alto Tapajós, Alto Xinguacanga, Jacareacanga, PA, Brazil, 11.VII.1957.

***Holomenopon* Eichler, 1941**

Holomenopon cairinae Eichler, 1943

Distribution: Brazil, Guyana, Ecuador (Price, 1971).

Distribution in Brazil: no locality (Price, 1971), MT (present study).

Material examined: 2♂, 1♀ (MZUSP#6526, 6528), ex *Cairina moschata* (Linnaeus, 1758) (MZUSP#32221, A.45) Rio das Mortes, Chavantina, MT, Brazil, 15.X.1946; 1♂, 8 nymphs (MZUSP#6527, 6529–31), ex *C. moschata* (MZUSP#32222, A.43), Rio das Mortes, Chavantina, MT, Brazil, 15.X.1946.

***Menacanthus* Neumann, 1912**

Menacanthus arctifasciatus (Piaget, 1885)

Distribution: Brazil (Guimarães, 1944), Argentina (Cicchino and Castro, 1998a).

Distribution in Brazil: MS (Guimarães, 1944), MT (present study).

Material examined: 2♂, 6♀, 29 nymphs (MZUSP#7065–93), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

***Menacanthus balfouri* Waterston, 1915**

Distribution: Brazil, Colombia, Costa Rica, Guyana, Mexico, Nicaragua, Panama, Peru, Venezuela (Price and Emerson, 1975).

Distribution in Brazil: no locality (Price and Emerson, 1975), MT (present study).

Material examined: 5♀, 1 nymph (MZUSP#6708–11), ex *Ramphastos cuvieri* (Wagler, 1827) (A.1516), Alto Xingu, Jacaré, MT, Brazil, 16.VII.1950.

***Menacanthus pici* (Denny, 1842)**

Distribution: Canada, Colombia, Costa Rica, Cuba, England, Estonia, India, Korea, Morocco, Nepal, Sweden, Taiwan, Thailand, USA, former “Yugoslavia” (Price and Emerson, 1975), Argentina (Castro and Cicchino, 1978), Chile (González-Acuña et al., 2014).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6681), ex *Melanerpes cruentatus* (Boddaert, 1783) (MNRJ#47214, A.1490), Alto Xingu, Jacaré, MT, Brazil, 02.VII.1950.

***Menacanthus tyranni* Price, 1977**

Distribution: Canada, USA, Puerto Rico, West Indies (Price, 1977), Argentina (Castro and Cicchino, 1992), Brazil (Valim et al., 2009).

Distribution in Brazil: RS (Valim et al., 2009), GO (present study).

Material examined: 1♂ (MZUSP#6764), ex *Pitangus sulphuratus* (Linnaeus, 1766) (A.2129), Rio Araguaia, Aragarças, GO, Brazil, 16.VII.1952; 1♀ (MZUSP#6765), ex *P. sulphuratus* (A.2272), Rio Araguaia, Aragarças, GO, Brazil, 1952.

***Menacanthus* sp.**

Material examined: 4♀ (MZUSP#6646–47), ex *Pipile cujubi nattereri* (Pelzeln, 1858) (MZUSP#32251, A.147), Rio das Mortes, Chavantina, MT, Brazil, 08.XI.1946; 1♂ (MZUSP#6655), ex *Penelope supercilialis* Temminck, 1815 (A.1550), Alto Tapajós, C. Teles Pires, MT, Brazil, 04.VIII.1950.

***Microctenia* Kéler, 1939**

***Microctenia heterocephalus* Guimarães, 1947**

Distribution: Brazil (Guimarães, 1947).

Distribution in Brazil: AM (Guimarães, 1947), MT (present study).

Material examined: 1♀ (MZUSP#6977), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952.

***Myrsidea* Waterston, 1915**

***Myrsidea aleixoi* Price et al., 2004**

Distribution: Brazil (Price et al., 2004).

Distribution in Brazil: MT (Price et al., 2004, present study)

Material examined: 2♀ (MZUSP#6686), ex *Pteroglossus beauharnaesii* Wagler, 1832 (MNRJ#30578–30580, A.1189–90), Alto Xingu, Jacaré, MT, Brazil, 02.V.1949.

***Myrsidea ceciliae* Carriker & Díaz-Ungría, 1961**

Distribution: Brazil (Price et al., 2004, Venezuela (Carriker and Díaz-Ungría, 1961)).

Distribution in Brazil: AM, PA, MT, SP (Price et al., 2004), MT (present study).

Material examined: 2♂ (MZUSP#6688–89), ex *Ramphastos culminatus* Gould, 1833 (MNRJ#30589, A.1339), Alto Xingu, Xingu, Diauarum, MT, Brazil, 14.IV.1949; 1♀ (MZUSP#6690), ex *R. culminatus* (MNRJ#30581, A.1216), Alto Xingu, Jacaré, MT, Brazil,

16.IV.1949; 1♂, 1♀ (MZUSP#6687), ex *R. culminatus* (MNRJ#30591, A.1618), Alto Tapajós, C. Teles Pires, MT, Brazil, 25.VIII.1950.

***Myrsidea cristatelli* Valim & Cicchino, 2015**

Distribution: Brazil (Valim and Cicchino, 2015).

Distribution in Brazil: SP (Valim and Cicchino, 2015), GO (present study).

Material examined: 1♀ (MZUSP#6723), ex *Cyanocorax cristatellus* (Temminck, 1823) (MNRJ#30643, A.2316), Rio Araguaia, Aragarças, GO, Brazil, 24.VII.1952; 1♂ (MZUSP#6722), ex *C. cristatellus* (MNRJ#30645, A.2282), Rio Araguaia, Aragarças, GO, Brazil, 24.VII.1952.

***Myrsidea dissimilis* (Kellogg, 1896)**

Distribution: USA (Kellogg, 1896).

Distribution in Brazil: GO, MT (present study).

Material examined: 1♂, 1♀ (MZUSP#6730) ex *Progne chalybea* (Gmelin, 1789) (MNRJ#31438, A.2291), Rio Araguaia, Aragarças, GO, Brazil, 29.V.1952; 2♀ (MZUSP#6731–32) ex *P. chalybea* (MNRJ#31436, A.1544), Alto Tapajós, C. Teles Pires, MT, Brazil, 04.VIII.1950; 1♀ (MZUSP#6735) ex *Tachycineta albiventer* (Boddaert, 1783) (MNRJ#31400, A.2314), Rio Araguaia, Aragarças, GO, Brazil, 07.VII.1952.

***Myrsidea extranea* (Carriker, 1903)**

Distribution: Colombia, Costa Rica (Carriker and Díaz-Ungria, 1961), Brazil, Ecuador, Guyana, Panama, Peru (Price et al., 2004).

Distribution in Brazil: AM, MT (Price et al., 2004), MT (present study).

Material examined: 6♂, 1 nymph (MZUSP#6699–6705), ex *Ramphastos cuvieri* (Wagler, 1827) (MNRJ#30592, A.1253), Alto Xingu, Jacaré, MT, Brazil, 10.VI.1949; 2 nymphs (MZUSP#6706), ex *R. cuvieri* (A.1516), Alto Xingu, Jacaré, MT, Brazil, 16.VII.1950.

***Myrsidea lightae* Price et al., 2008**

Distribution: Costa Rica, Venezuela, Panama (Price et al., 2008), Brazil (Enout et al., 2012).

Distribution in Brazil: TO (Enout et al., 2012), GO (present study).

Material examined: 1♂, 1♀ (MZUSP#6751–52), ex *Saltator* sp. (A.2319), Rio Araguaia, Aragarças, GO, Brazil, 09.VIII.1952.

***Myrsidea pseudofalax* Valim & Cicchino, 2015**

Distribution: Argentina (Valim and Cicchino, 2015).

Distribution in Brazil: MT (present study).

Material examined: 1♀, 1 nymph (MZUSP#6715–16), ex *Cyanocorax chrysops* (Vieillot, 1818) (MNRJ#30640, A.1609), Alto Tapajós, C. Teles Pires, MT, Brazil, 22.VIII.1950.

***Myrsidea ramphoceli* Price & Dalglish, 2006**

Distribution: Peru, Venezuela, Trinidad and Tobago (Price and Dalglish, 2006), Brazil (Sychra et al., 2009; Enout et al., 2012).

Distribution in Brazil: MS (Sychra et al., 2009), TO (Enout et al., 2012), GO (present study).

Material examined: 3♂ (MZUSP#6750), ex *Ramphocelus carbo* (Pallas, 1764) (MNRJ#31337, A.2307), Rio Araguaia, Aragarças, GO, Brazil, 01.VII.1952.

***Myrsidea rufi* Price & Dalglish, 2006**

Distribution: Trinidad and Tobago (Price and Dalglish, 2006).

Distribution in Brazil: GO (present study).

Material examined: 1♂, 1♀, 1 nymph (MZUSP#6753–55), ex *Tachyphonus rufus* (Boddaert, 1783) (MNRJ#30867, A.2322), Rio Araguaia, Aragarças, GO, Brazil, 1952.

***Myrsidea seminuda* Eichler, 1951**

Distribution: Argentina (Cicchino and Castro, 1998a), Costa Rica, Trinidad and Tobago (Price and Dalglish, 2006), Brazil (Sychra et al., 2009; Enout et al., 2012).

Distribution in Brazil: MS (Sychra et al., 2009), TO (Enout et al., 2012), GO, RJ (present study).

Material examined: 2♀, 1 nymph (MZUSP#6757, 6761), ex *Thraupis palmarum* (Wied, 1821) (A.2271), Rio Araguaia, Aragarças, GO, Brazil, 25.VI.1952; 4♀, 3 nymphs (MZUSP#6758–60), ex *T. palmarum* (497), Ilha Grande, RJ, Brazil, 16.IX.1944.

***Myrsidea witti* Price et al., 2004**

Distribution: Brazil (Price et al., 2004).

Distribution in Brazil: AP, PA (Price et al., 2004), GO, MT (present study).

Material examined: 8♀ (MZUSP#6692–94), ex *Ramphastos toco* Müller, 1776 (A.2292), Rio Araguaia, Aragarças, GO, Brazil, 26.V.1952; 2♂, 1 nymph (MZUSP#6691, 6695), ex *R. toco albogularis* (MZUSP#32382, A.319), Rio das Mortes, Chavantina, MT, Brazil, 29.XII.1946.

***Myrsidea* sp. 1**

Material examined: 2♂, 2♀, 2 nymphs (MZUSP#6743–48), ex *Sclerurus scansor* (Ménétrières, 1835) (501), Ilha Grande, RJ, Brazil, 21.IX.1944.

***Myrsidea* sp. 2**

Material examined 1♂ (MZUSP#6714), ex *Piranga flava* (Vieillot, 1822) (MNRJ#31340, A.2293), Rio Araguaia, Aragarças, GO, Brazil, 31.V.1952.

***Myrsidea* sp. 3**

Material examined: 1♂ (MZUSP#6728), ex *Euphonia chlorotica* (Linnaeus, 1766) (A.2304), Rio Araguaia, Aragarças, GO, Brazil, 23.V.1952.

***Myrsidea* sp. 4**

Material examined: 1♂ (MZUSP#6729), ex *Euphonia chlorotica* (Linnaeus, 1766) (A.2304), Rio Araguaia, Aragarças, GO, Brazil, 23.V.1952.

***Osborniella* Thompson, 1948**

***Osborniella crotophagae* (Stafford, 1943)**

Distribution: Venezuela (Stafford, 1943), Jamaica (Thompson, 1948), Colombia (Carriker, 1964), Argentina (Cicchino and Castro, 1998a), Brazil (Oniki, 1999), Ecuador (Palma and Peck, 2013).

Distribution in Brazil: MT (Oniki, 1999), GO (present study).

Material examined: 1 nymph (MZUSP#6597), ex *Crotophaga ani* Linnaeus, 1758, (A.2318), Rio Araguaia, Aragarças, GO, Brazil, 06.VII.1952.

***Osborniella guiraensis* (Kellogg, 1906)**

Distribution: Argentina (Kellogg, 1906; Palma, 1973; Cicchino and Castro, 1998a), Brazil (Valim et al., 2009; Marietto-Gonçalves et al., 2012).

Distribution in Brazil: RS (Valim et al., 2009), SP (Marietto-Gonçalves et al., 2012), GO (present study).

Material examined: 1♂ (MZUSP#6592), ex *Guira guira* (J.F. Gmelin, 1788) (A.2299), Rio Araguaia, Aragarças, GO, Brazil, 01.VII.1952; 2♂, 3 nymphs (MZUSP#6591, 6593–94), ex *G. guira* (A.2068), Rio Araguaia, Aragarças, GO, Brazil, 1952.

Psittacobrosus **Carriker, 1954*****Psittacobrosus hyacinthini* Price & Beer, 1968**

Distribution: Brazil (Price and Beer, 1968).

Distribution in Brazil: no locality (Price and Beer, 1968), MT (present study).

Material examined: 2♂, 5♀, 1 nymph (MZUSP#6779–86), ex *Anodorhynchus hyacinthinus* (Latham, 1790) (A.2002), Pindaíba, MT, Brazil, 11.II.1952.

***Psittacobrosus kelloggi* Carriker, 1954**

Distribution: Bolivia, Brazil, Colombia (Carriker, 1954), Trinidad and Tobago (Price and Beer, 1968).

Distribution in Brazil: PA (Carriker, 1954), AM, MT, MS, GO, SP (Price and Beer, 1968), MT (present study).

Material examined: 5♂, 7♀, 12 nymphs (MZUSP#6790–93, 6798–6801, 6803–05), ex *Ara ararauna* (Linnaeus, 1758) (MZUSP#32295, A.357), Rio das Mortes, Chavantina, MT, Brazil, 08.I.1947; 8♂, 2♀, 3 nymphs (MZUSP#6788–89, 6794–97, 6802), ex *A. ararauna* (MZUSP#32296, A.196), Rio das Mortes, Chavantina, MT, Brazil, 27.XI.1946.

Ramphasticola **Carriker, 1949*****Ramphasticola hirsuta* Carriker, 1949**

Distribution: Colombia, Peru (Carriker, 1949), Brazil (Hellental et al., 2005).

Distribution in Brazil: AM, PA, MT (Hellental et al., 2005), MT (present study).

Material examined: 1♂ (MZUSP#6707), ex *Ramphastos cuvieri* (Wagler, 1827) (MNRJ#30592, A.1253), Alto Xingu, Jacaré, MT, Brazil, 10.VI.1949.

Suborder Ischnocera **Kellogg, 1896**Family Heptapsogasteridae **Carriker, 1936***Docophorocotes* **Carriker, 1936*****Docophorocotes sexsetosus* (Piaget, 1885)**

Distribution: Bolivia (Carriker, 1936), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 2♂, 5♀, 4 nymphs (MZUSP#7040–47, 7140), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

Heptagoniodes **Carriker, 1936*****Heptagoniodes agonus* (Nitzsch [In Giebel], 1874)**

Distribution: Brazil (Guimarães, 1942a).

Distribution in Brazil: PA (Guimarães, 1942a), MT (present study).

Material examined: 3♂, 4♀, 8 nymphs (MZUSP#6978–79, 6981–82, 6984, 6986–87), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952; 1♂, 1♀, 4 nymphs (MZUSP#6980, 6983, 6985, 6988), ex *T. tao* (MNRJ#32659, A.1443), Alto Xingu, Jacaré, MT, Brazil, 05.IX.1952.

Heptarthrogaster **Carriker, 1936*****Heptarthrogaster grandis* Carriker, 1936**

Distribution: Bolivia (Carriker, 1936), Brazil (Guimarães and Lane, 1937; Kéler, 1939; Valim and Silveira, 2014), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: SP (Guimarães and Lane, 1937), SC (Kéler, 1939), AL, ES, MG (Valim and Silveira, 2014), MT (present study).

Material examined: 1♀ (MZUSP#6975), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952.

Heptapsogaster **Carriker, 1939*****Heptapsogaster mandibularis* Carriker, 1936**

Distribution: Brazil (Carriker, 1936; Kéler, 1939; Valim et al., 2005b), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MG (Carriker, 1936), SC (Kéler, 1939), RJ (Valim et al., 2005b), MT (present study).

Material examined: 2♀ (MZUSP#6948), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948.

***Heptapsogaster noctivagi* Clay, 1937**

Distribution: Brazil, Guyana (Clay, 1937).

Distribution in Brazil: no locality (Clay, 1937), MT (present study).

Material examined: 1♀ (MZUSP#6916), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32641, A.1179), Alto Xingu, Jacaré, MT, Brazil, 06.V.1949.

***Heptapsogaster temporalis* Carriker, 1936**

Distribution: Bolivia (Carriker, 1936).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6932), ex *Crypturellus tataupa tataupa* (Temminck, 1815) (MZUSP#32210, A.435), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947.

***Heptapsogaster yapuræ* Carriker, 1944**

Distribution: Peru (Carriker, 1944a).

Distribution in Brazil: MT (present study).

Material examined: 3♂, 1♀ (MZUSP#6929–31), ex *Crypturellus tataupa tataupa* (Temminck, 1815) (MZUSP#32210, A.435), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947.

***Heptapsogaster* sp.**

Material examined: 1♂, 2♀ (MZUSP#6894–95), ex *Crypturellus parvirostris* (Wagler, 1827) (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.XII.1948.

Hypocrypturellus **Carriker, 1940*****Hypocrypturellus genitalis* (Carriker, 1936)**

Distribution: Bolivia, Brazil (Carriker, 1936; Guimarães, 1953), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MG, PA (Carriker, 1936), ES, MG, SC, SP (Guimarães, 1953), MT (present study).

Material examined: 1♀, 3 nymphs (MZUSP#6933–35), ex *Crypturellus tataupa tataupa* (Temminck, 1815) (MZUSP#32210, A.435), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947.

***Hypocrypturellus mendax* Guimarães & Hopkins, 1949**

Distribution: Brazil (Guimarães and Hopkins, 1949), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MS, PA, SP (Guimarães and Hopkins, 1949), MT (present study).

Material examined: 38♂, 30♀, 14 nymphs (MZUSP#6872–93), ex *Crypturellus parvirostris* (Wagler, 1827) (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948.

***Hypocrypturellus strigulosus* Guimarães, 1953**

Distribution: Brazil (Guimarães, 1953).

Distribution in Brazil: AM, PA (Guimarães, 1953), MT (present study).

Material examined: 1♂, 1♀ (MZUSP#6915), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32641, A.1179), Alto Xingu, Jacaré, MT, Brazil, 06.V.1949.

***Hypocrypturellus undulatus* (Carriker, 1936)**

Distribution: Bolivia (Carriker, 1936), Brazil (Guimarães, 1953).

Distribution in Brazil: GO, MS, MT, SP (Guimarães, 1953), MT (present study).

Material examined: 1♂, 2♀ (MZUSP#6949), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948.

Kelloggia* Carriker, 1903**Kelloggia caquetae* (Carriker, 1962)**

Distribution: Colombia (Carriker, 1962).

Distribution in Brazil: MT (present study).

Material examined: 1♂ (MZUSP#6905), ex *Crypturellus soui albigularis* (Brabourne and Chubb, 1914) (MZUSP#32204, A.391), Rio das Mortes, Chavantina, MT, Brazil, 15.I.1947.

***Kelloggia* sp.**

Material examined: 6♂, 2♀ (MZUSP#6964–67), ex *Tinamus guttatus* Pelzln, 1863 (MNRJ#32650, A.1555), Alto Tapajós, C. Teles Pires, MT, Brazil, 1950.

Megapeostus* Carriker, 1936**Megapeostus asymmetricus* Carriker, 1936**

Distribution: Bolivia (Carriker, 1936).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6939), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948; 2♀, 3 nymphs (MZUSP#6938, 6940), ex *C. undulatus* (MNRJ#32585, A.1613), Alto Tapajós, C. Teles Pires, MT, Brazil, 23.VIII.1950; 2♀ (MZUSP#6937), ex *C. undulatus* (A.2022), Pindaiba, MT, Brazil, 16.II.1952; 1♀ (MZUSP#6954), ex *C. u. vermiculatus* (Temminck, 1825) (MZUSP#32209, A.436), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947.

***Megapeostus* sp.**

Material examined: 2♂, 3♀ (MZUSP#6901–03), ex *Crypturellus soui albigularis* (Brabourne and Chubb, 1914) (MZUSP#32204, A.391), Rio das Mortes, Chavantina, MT, Brazil, 15.I.1947.

Ornicholax* Carriker, 1903**Ornicholax alienus* (Giebel, 1874)**

Distribution: Brazil (Guimarães and Lane, 1937; Kéler, 1938a; Valim and Silveira, 2014), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: SP (Guimarães and Lane, 1937), SC (Kéler, 1938a); AL, ES, MG (Valim and Silveira, 2014), MT (present study).

Material examined: 2♂, 7♀ (MZUSP#6969–6972), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952; 3♀ (MZUSP#6973–74), ex *T. tao* (MNRJ#32659, A.1443), Alto Xingu, Jacaré, MT, Brazil, 05.IX.1952.

***Ornicholax olfersi* Guimarães, 1942**

Distribution: Brazil (Guimarães, 1942b).

Distribution in Brazil: AM (Guimarães, 1942b), MT (present study).

Material examined: 2♂, 5♀ (MZUSP#6960–63), ex *Tinamus guttatus* Pelzln, 1863 (MNRJ#32650, A.1555), Alto Tapajós, C. Teles Pires, MT, Brazil, 1950.

Pectenosoma* Ewing, 1929**Pectenosoma angusta* Carriker, 1936**

Distribution: Bolivia (Carriker, 1936).

Distribution in Brazil: MT (present study).

Material examined: 2♀ (MZUSP#6910), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32641, A.1179), Alto Xingu, Jacaré, MT, Brazil, 06.V.1949.

***Pectenosoma subparva* Guimarães & Hopkins, 1949**

Distribution: Brazil (Guimarães and Hopkins, 1949).

Distribution in Brazil: GO, MS, SP (Guimarães and Hopkins, 1949), MT (present study).

Material examined: 13♂, 15♀ (MZUSP#6860–68), ex *Crypturellus parvirostris* (Wagler, 1827) (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948.

***Pectenosoma yapuræ* Carriker, 1944**

Distribution: Bolivia, Peru (Carriker, 1944a), Brazil (Guimarães, 1950).

Distribution in Brazil: AM, GO, MS, MT, SP (Guimarães, 1950), MT (present study).

Material examined: 2♂, 3♀ (MZUSP#6941–42, 6944), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948; 1♂ (MZUSP#6943), ex *C. undulatus* (MNRJ#32585, A.1613), Alto Tapajós, C. Teles Pires, MT, Brazil, 23.VIII.1950; 1♀ (MZUSP#6956), ex *C. u. vermiculatus* (Temminck, 1825) (MZUSP#32209, A.436), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947; 1♀ (MZUSP#6955), ex *C. u. vermiculatus* (MZUSP#32205, A.86), Rio das Mortes, Chavantina, MT, Brazil, 25.X.1946; 1♂ (MZUSP#6928), ex *C. tataupa tataupa* (Temminck, 1815) (MZUSP#32210, A.435), Rio das Mortes, Chavantina, MT, v27.I.1947; 3♀ (MZUSP#6911–12), ex *C. strigulosus* (Temminck, 1815) (MNRJ#32639–32646, A.1577–78), Alto Tapajós, C. Teles Pires, MT, Brazil, 13.VIII.1950.

Rhopaloceras* Taschenberg, 1882**Rhopaloceras rudimentarius* Carriker, 1936**

Distribution: Bolivia, Colombia, Costa Rica, Peru, Venezuela (Carriker, 1936).

Distribution in Brazil: MT (present study).

Material examined: 1♀ (MZUSP#6904), ex *Crypturellus soui albigularis* (Brabourne and Chubb, 1914) (MZUSP#32204, A.391), Rio das Mortes, Chavantina, MT, Brazil, 15.I.1947.

***Rhopaloceras* sp.**

Material examined: 2♂, 4♀, 2 nymphs (MZUSP#6950–53), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948; 1 nymph (MZUSP#6959), ex *C. u. vermiculatus* (MZUSP#32205, A.86), Rio das Mortes, Chavantina, MT, Brazil, 25.X.1946; 1 nymph (MZUSP#6869), ex *C. parvirostris* (Wagler, 1827) (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948; 1♀ (MZUSP#6907), ex *C. soui* (Hermann, 1783) (MNRJ#32599, A.1998), Pindaiba, MT, Brazil, 09.II.1952; 1♀, 1 nymph (MZUSP#6913–14), ex *C. strigulosus* (Temminck, 1815) (MNRJ#32641, A.1179), Alto Xingu, Jacaré, MT, Brazil, 06.V.1949; 3♂, 1♀, 3 nymphs (MZUSP#6993–95, 6997, 7000–02), ex *Tinamus tao* Temminck, 1815 (MNRJ#32659, A.1443), Alto Xingu, Jacaré, MT, Brazil, 05.IX.1952; 3♂, 1♀ (MZUSP#6989–91, 6998), ex *T. tao* (MNRJ#32658, A.1266), Alto Xingu, Diauarum, MT, Brazil, VI.1949; 1♂, 2♀, 2 nymphs (MZUSP#6992, 6996, 6999, 7003–04), ex *T. tao* (A.2195), Garapu, MT, Brazil, 16.IX.1952.

Rhynchotura* Carriker, 1936**Rhynchotura sexpunctata* (Piaget, 1885)**

Distribution: Bolivia (Carriker, 1936), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 9♂, 7♀, 6 nymphs (MZUSP#7048–64, 7041–42), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

Strongylocotes Taschenberg, 1882

***Strongylocotes albigularis* Guimarães & Lane, 1937**

Distribution: Brazil (Guimarães and Lane, 1937; Carriker, 1953).

Distribution in Brazil: GO (Guimarães and Lane, 1937), ES (Carriker, 1953), MT (present study).

Material examined: 1♀ (MZUSP#6906), ex *Crypturellus soui albigularis* (Brabourne and Chubb, 1914) (MZUSP#32204, A.391), Rio das Mortes, Chavantina, MT, Brazil, 15.I.1947.

***Strongylocotes limai* Guimarães, 1936**

Distribution: Brazil (Guimarães, 1936).

Distribution in Brazil: MT (Guimarães, 1936, present study).

Material examined: 2♂, 1 nymph (MZUSP#6917, 6919), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32639–32646, A.1577–78), Alto Tapajós, C. Teles Pires, MT, Brazil, 13.VIII.1950; 1♀ (MZUSP#6918), ex *C. strigulosus* (MNRJ#32640, A.2140), Garapu, MT, Brazil, 03.IX.1952.

***Strongylocotes lipogonus* (Nitzsch [in Giebel], 1866)**

Distribution: Bolivia (Carriker, 1936), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 22♂, 17♀, 17 nymphs (MZUSP#7005–39), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

***Strongylocotes orbicularis* (Carriker, 1936)**

Distribution: Brazil (Carriker, 1936; Guimarães and Hopkins, 1949).

Distribution in Brazil: PA (Carriker, 1936), GO, MS, SP (Guimarães and Hopkins, 1949), MT (present study).

Material examined: 1♀ (MZUSP#6858), ex *Crypturellus parvirostris* (Wagler, 1827) (MNRJ#32628, A.2138), Garapu, MT, Brazil, 02.IX.1952; 4♂, 5♀, 1 nymph (MZUSP#6853–57, 6859), ex *C. parvirostris* (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948.

***Strongylocotes taoi* Carriker, 1944**

Distribution: Brazil (Guimarães, 1948), Colombia (Carriker, 1944a).

Distribution in Brazil: PA (Guimarães, 1948), MT (present study).

Material examined: 1♂ (MZUSP#6976), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952.

***Strongylocotes variegatus* Carriker, 1936**

Distribution: Brazil (Valim and Silveira, 2014), Guyana, Peru (Carriker, 1936).

Distribution in Brazil: AL (Valim and Silveira, 2014), MT (present study).

Material examined: 2♀ (MZUSP#6946), ex *Crypturellus undulatus* (Temminck, 1815) (MNRJ#32582, A.1398), Alto Xingu, Diauarum, MT, Brazil, 08.VIII.1948; 3♀ (MZUSP#6945, 6947), ex *C. undulatus* (A.2022), Pindaiba, MT, Brazil, 16.II.1952; 1♀ (MZUSP#6957), ex *C. u. vermiculatus* (Temminck, 1825) (MZUSP#32209, A.436), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947; 1 nymph (MZUSP#6958), ex *C. u. vermiculatus* (MZUSP#32205, A.86), same locality, except 25.X.1946; 1♂, 2♀, 4 nymphs (MZUSP#6921–27), ex *C. tataupa tataupa*

(Temminck, 1815) (MZUSP#32210, A.435), same locality, except 27.I.1947.

Tinamicola Carriker, 1936

***Tinamicola latithorax* Carriker, 1936**

Distribution: Bolivia (Carriker, 1936), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 3♂, 6♀, 32 nymphs (MZUSP#7094–7118, 7140, 7142), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

***Tinamicola rotundata* (Rudow, 1869)**

Distribution: Bolivia (Carriker, 1936), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 8♂, 7♀, 20 nymphs (MZUSP#7119–39, 7141), ex *Rhynchotus rufescens* (Temminck, 1815) (A.2227), Garapu, MT, Brazil, 24.IX.1952.

Family Philopteroidea Burmeister, 1838

Acutifrons Guimarães, 1942

***Acutifrons vieirai* Guimarães, 1942**

Distribution: Brazil (Guimarães, 1942c, 1945).

Distribution in Brazil: MS, SP (Guimarães, 1942c), PR (Guimarães, 1945), GO (present study).

Material examined: 1♂ (MZUSP#6639), ex *Milvago chimachima* (Vieillot, 1816) (MNRJ#30513, A.2308), Rio Araguaia, Aragarças, GO, Brazil, 02.VII.1952.

Austrophilopterus Ewing, 1929

***Austrophilopterus cancellosus* (Carriker, 1903)**

Distribution: Trinidad and Tobago (Carriker, 1950), Bolivia, Colombia, Costa Rica, Mexico, Peru (Carriker, 1950; Price and Weckstein, 2005), Argentina (Cicchino and Castro, 1998b), Brazil, Ecuador, Guyana, Panama, Venezuela (Price and Weckstein, 2005).

Distribution in Brazil: AM, AP, MA, MT, PA, RR, SC, SP (Price and Weckstein, 2005), MT (present study).

Material examined: 1♂, 1♀, 1 nymph (MZUSP#6696–98), ex *Ramphastos toco* Muller, 1776 (MNRJ#30594, A.2005), Pindaiba, MT, Brazil, 12.II.1952; 5 nymphs (MZUSP#6712–13), ex *Ramphastos cuvieri* (Wagler, 1827) (A.1516), Alto Xingu, Jacaré, MT, Brazil, 16.VII.1950.

Bizarrifrons Eichler, 1938

***Bizarrifrons picturatus* Carriker & Díaz-Ungría, 1961**

Distribution: Colombia, Venezuela (Carriker and Díaz-Ungría, 1961), Brazil (Valim and Palma, 2012).

Distribution in Brazil: AM (Valim and Palma, 2012), GO (present study).

Material examined: 1♂, 3♀ (MZUSP#6737–40), ex *Cacicus cela* (Linnaeus, 1758) (A.2281), Rio Araguaia, Aragarças, GO, Brazil, 1952.

Brueelia Kéler, 1936

***Brueelia nitzschi* Kéler, 1938b**

Distribution: Paraguay (Kéler, 1938b), Argentina (Cicchino and Castro, 1998b), Brazil (Valim et al., 2005a).

Distribution in Brazil: SP (Valim et al., 2005a), MT, GO (present study).

Material examined: 1♀ (MZUSP#6725), ex *C. cristatellus* (Temminck, 1823) (A.2057), Pindaiba, MT, Brazil, 29.III.1952; 4 nymphs (MZUSP#6726–27), ex *C. cristatellus* (MNRJ#30645, A.2282), Rio Araguaia, Aragarças, GO, Brazil, 30.V.1952.

***Brueelia keleri* Carriker, 1963**

Distribution: Bolivia (Carriker, 1963), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 1♂ (MZUSP#6721), ex *Cyanocorax chrysops* (Vieillot, 1818) (MNRJ#30640, A.1609), Alto Tapajós, C. Teles Pires, MT, Brazil, 22.VIII.1950.

***Brueelia straminea* (Denny, 1842)**

Distribution: England, Kenya, Mexico, USA (Dalglish, 1971), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: MT (present study).

Material examined: 1♂ (MZUSP#6682), ex *Melanerpes cruentatus* (Boddaert, 1783) (MNRJ#47214, A.1490), Alto Xingu, Jacaré, MT, Brazil, 02.VII.1950.

Craspedorrhynchus* Kéler, 1938**Craspedorrhynchus* sp.**

Material examined: 10♂, 7♀, 13 nymphs (MZUSP#6512–24), ex *Spizaetus ornatus* (Daudin, 1800) (MNRJ#32553, A.1368), Alto Xingu, Xingu, Diauarum, MT, Brazil, 29.VII.1949.

Degeeriella* Neumann, 1906**Degeeriella* sp.**

Material examined: 1♂, 1♀ (MZUSP#6510–11), ex *Gampsonyx swainsonii* Vigors, 1825 (MZUSP#32237, A.270), Rio das Mortes, Chavantina, MT, Brazil, 17.XII.1946.

Falcolipeurus* Bedford, 1931**Falcolipeurus ternatus* (Burmeister, 1838)**

Distribution: Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: GO (present study).

Material examined: 1♀ (MZUSP#6549), ex *Sarcoramphus papa* (Linnaeus, 1758) (A.2315), Rio Araguaia, Aragarças, GO, Brazil, 21.VII.1952.

Mayriphilopterus* Mey, 2004**Mayriphilopterus nystalicus* Mey, 2004**

Distribution: Argentina (Cicchino and Castro, 1998b), as "*Philopterus* sp.n. ex *Nystalus maculatus striatipectus*", Paraguay, Brazil (Mey, 2004; Valim and Linardi, 2007).

Distribution in Brazil: MG (Mey, 2004), BA, DF, MT, SC (Valim and Linardi, 2007), GO (present study).

Material examined: 2♂ (MZUSP#6641), ex *Nystalus chacuru* (Vieillot, 1816) (A.2116), Rio Araguaia, Aragarças, GO, Brazil, 21.VI.1952; 1♂, 1♀ (MZUSP#6642–43), ex *N. maculatus* (Gmelin, 1788) (A.2114), Rio Araguaia, Aragarças, GO, Brazil, 14.VI.1952.

Muldicola* Clay & Meinertzhagen, 1938**Muldicola sicki* Valim & Kuabara, 2015**

Distribution: Brazil (Valim and Kuabara, 2015)

Distribution in Brazil: MT, PA (Valim and Kuabara, 2015), MT (present study).

Material examined: 1♂, 2♀ (MZUSP#6278–79, 6285), ex *Chordeiles rupestris* (Spix, 1825) (MNRJ#35352, A.1380), Alto Xingu, Xingu, Diauarum, MT, Brazil, 03.VIII.1949; 1♀ (MZUSP#6280), ex *C. rupestris* (MN 35351–52, A.1379), Alto Xingu, Xingu, Diauarum, MT, Brazil, 03.VIII.1949.

Oxylipeurus* Mjöberg, 1910**Oxylipeurus rhynchoti* (Carriker, 1936)**

Distribution: Bolivia (Carriker, 1936, 1944b).

Distribution in Brazil: MT (present study).

Material examined: 4♀, 5 nymphs (MZUSP#6656–58), ex *Pauxi tuberosum* (Spix, 1825) (A.2182), Garapu, MT, Brazil, 12.IX.1952.

Paragoniocotes* Cummings, 1916**Paragoniocotes mirabilis* (Carriker, 1940)**

Distribution: Bolivia (Carriker, 1940), Brazil (Guimarães, 1947).

Distribution in Brazil: GO, MT, SP (Guimarães, 1947), MT (present study).

Material examined: 4♂, 10♀ (MZUSP#6807–13), ex *Ara arauana* (Linnaeus, 1758) (A.2142), Garapu, MT, Brazil, 03.IX.1952.

Pectinopygus* Mjöberg, 1910**Pectinopygus gyroceras* (Nitzsch [in Giebel], 1866)**

Distribution: no locality (Giebel, 1866).

Distribution in Brazil: MT (present study).

Material examined: 5♀, 1 nymph (MZUSP#6673–76), ex *Phalacrocorax brasilianus* (Gmelin, 1789) (A.1801), Alto Xingu, Jacaré, MT, Brazil, 1951.

Penenirmus* Clay & Meinertzhagen, 1938**Penenirmus auritus* (Scopoli, 1763)**

Distribution: Bolivia, Colombia, Paraguay, Peru (Dalglish, 1972), Argentina (Cicchino and Castro, 1998b), Brazil (Oniki, 1999; Johnson et al., 2001), Chile (González-Acuña et al., 2014).

Distribution in Brazil: MT (Oniki, 1999, present study), PA (Johnson et al., 2001), ES (present study).

Material examined: 1♀ (MZUSP#6680), ex *Colaptes campestris* (Vieillot, 1818) (MNRJ#26923, 839), Santa Teresa, 760m, ES, Brazil, 08.I.1940; 1♂, 1♀, 4 nymphs (MZUSP#6683–85), ex *Melanerpes cruentatus* (Boddaert, 1783) (MNRJ#47214, A.1490), Alto Xingu, Jacaré, MT, Brazil, 02.VII.1950.

Philopterus* Nitzsch, 1818**Philopterus* sp.**

Material examined: 1♀, 2 nymphs (MZUSP#6718–20), ex *Cyanocorax chrysops* (Vieillot, 1818) (MNRJ#30640, A.1609), Alto Tapajós, Teles Pires, MT, Brazil, 22.VIII.1950; 1♀ (MZUSP#6724), ex *C. cristatellus* (Temminck, 1823) (MNRJ#30645, A.2282), Rio Araguaia, Aragarças, GO, Brazil, 30.V.1952; 1♂ (MZUSP#6734), ex *Progne chalybea* (Gmelin, 1789) (MNRJ#31434, A.2278), Rio Araguaia, Aragarças, GO, Brazil, 01.VI.1952; 1♂ (MZUSP#6733), ex *P. chalybea* (MNRJ#31436, A.1544), Alto Tapajós, Teles Pires, MT, Brazil, 04.VIII.1950; 1♀ (MZUSP#6736), ex *Tachycineta albiventer* (Boddaert, 1783) (MNRJ#31437, A.2313), Rio Araguaia, Aragarças, GO, Brazil, 1952.

Picicola* Clay & Meinertzhagen, 1938**Picicola serrafrerei* Valim & Linardi, 2006**

Distribution: Argentina (Cicchino and Castro, 1998b, as "*Picicola* sp.n. ex *Nystalus chacuru*"), Bolivia (Price and Weckstein, 2006), Brazil (Valim and Linardi, 2006).

Distribution in Brazil: DF (Valim and Linardi, 2006), GO (present study).

Material examined: 2♂ (MZUSP#6644), ex *Nystalus maculatus* (Gmelin, 1788) (A.2114), Rio Araguaia, Aragarças, GO, Brazil, 14.VI.1952.

***Picicola* sp.**

Material examined: 8 nymphs (MZUSP#6678–79), ex *Celeus flavescens* (Gmelin, 1788) (A.2110), Rio Araguaia, Aragarças, MT, Brazil, 23.VII.1952; 1♀ (MZUSP#6756), ex *Tachyphonus rufus*

(Boddaert, 1783) (MNRJ#30868, A.2277), Alto Xingu, Jacaré, GO, Brazil, 24.VII.1952.

Pseudolipeurus Carriker, 1936

Pseudolipeurus longipes (Piaget, 1880)

Distribution: Brazil (Pessôa and Guimarães, 1935), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: ES, GO, MG, SP (Pessôa and Guimarães, 1935), MT (present study).

Material examined: 1♀, 2 nymphs (MZUSP#6870–71), ex *Crypturellus parvirostris* (Wagler, 1827) (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948; 1 nymph (MZUSP#6936), ex *C. tataupa tataupa* (Temminck, 1815) (MZUSP#32210, A.435), Rio das Mortes, Chavantina, MT, Brazil, 27.I.1947.

***Pseudolipeurus* sp.**

Material examined: 1♀ (MZUSP#6909), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32639–32646, A.1577–78), Alto Tapajós, C. Teles Pires, MT, Brazil, 14.VIII.1950; 3♀ (MZUSP#6968), ex *Tinamus tao* Temminck, 1815 (A.2150), Garapu, MT, Brazil, 05.IX.1952.

Pseudophilopterus Carriker, 1936

***Pseudophilopterus* sp.**

Material examined: 2♀ (MZUSP#6920), ex *Crypturellus strigulosus* (Temminck, 1815) (MNRJ#32639–32646, A.1577–78), Alto Tapajós, C. Teles Pires, MT, Brazil, 13.VIII.1950.

Quadriceps Clay & Meinertzhagen, 1939

Quadriceps elongatus (Piaget, 1885)

Distribution: Sudan (Timmermann, 1952), Brazil (Valim et al., 2009).

Distribution in Brazil: RS (Valim et al., 2009), MT (present study).

Material examined: 1♂, 4♀, 1 nymph (MZUSP#6566–69), ex *Rynchops niger* Linnaeus, 1758 (MNRJ#30601, A.1369), Xingu, Diauarum, MT, Brazil, 29.VII.1949.

Quadriceps hasei Timmermann, 1954

Distribution: Brazil, Peru (Timmermann, 1954).

Distribution in Brazil: MS (Timmermann, 1954), MT, GO (present study).

Material examined: 4♂, 5♀ (MZUSP#6554–56, 6559–61), ex *Vanellus cayanus* (Latham, 1790) (MZUSP#32259, A.484), Rio das Mortes, Chavantina, MT, Brazil, 15.II.1947; 2♂ (MZUSP#6557–58), ex *V. cayanus* (MNRJ#30712, A.2296), Rio Araguaia, Aragarças, GO, Brazil, 08.VII.1952.

Quadriceps macrocephalus (Waterston, 1914)

Distribution: Kenya, Uganda, South Africa (Timmermann, 1953), Australia (Green and Palma, 1991; Palma and Barker, 1996), Argentina (Cicchino and Castro, 1998b).

Distribution in Brazil: no locality (present study).

Material examined: 1♂, 1♀ (MZUSP#6550), ex *Charadrius collaris* Vieillot, 1818 (A.2306), no locality, 24.VII.1952.

Quadriceps ravus (Kellogg, 1899)

Distribution: Panama (Kellogg, 1899), Russia (Blagoveshtchensky, 1948), UK (British Isles), Costa Rica, Liberia, Sudan, Uganda, USA, Nepal, Philippines (Hopkins and Timmermann, 1954).

Distribution in Brazil: MT (present study).

Material examined: 3♀ (MZUSP#6571–72), ex *Actitis macularius* (Linnaeus, 1766) (MNRJ#35366, A.1755), Rio das Mortes, Chavantina, MT, Brazil, 07.IX.1957.

Saemundssonina Timmermann, 1936

Subgenus *Saemundssonina* Timmermann, 1936

Saemundssonina* (*Saemundssonina*) *anisorhamphos Timmermann, 1951

Distribution: Democratic Republic of Congo (Timmermann, 1951).

Distribution in Brazil: MT (present study).

Material examined: 1♂ (MZUSP#6570), ex *Rynchops niger* Linnaeus, 1758 (MNRJ#30601, A.1369), Alto Xingu, Diauarum, MT, Brazil, 29.VII.1949.

Saemundssonina* (*Saemundssonina*) *keleri Timmermann, 1955

Distribution: Guyana (Timmermann, 1955).

Distribution in Brazil: GO (present study).

Material examined: 2♂, 1♀ (MZUSP#6573–74), ex *Phaetusa simplex* (J.F. Gmelin, 1789) (A.2295), Rio Araguaia, Aragarças, GO, Brazil, 24.VII.1952.

***Saemundssonina* (*Saemundssonina*) sp.**

Material examined: 1♀ (MZUSP#6551), ex *Charadrius collaris* Vieillot, 1818 (A.2306), no locality, 24.VII.1952.

Trogoninirmus Eichler, 1944

***Trogoninirmus* sp.**

Material examined: 2 nymphs (MZUSP#6852), ex *Trogon curucui* Linnaeus, 1766 (MNRJ#30935, A.2329), Rio Araguaia, Aragarças, GO, Brazil, 1952.

Tyranniphilopterus Mey, 2004

Tyranniphilopterus bruneri (Carriker, 1903)

Distribution: Costa Rica (Carriker, 1903; Sychra et al., 2010).

Distribution in Brazil: GO (present study).

Material examined: 1♀ (MZUSP#6741), ex *Antilophia galeata* (Lichtenstein, 1823) (MNRJ#30285, A.2287), Rio Araguaia, Aragarças, GO, Brazil, 10.VI.1952.

***Tyranniphilopterus* sp.**

Material examined: 1♀ (MZUSP#6766), ex *Tyrannus melancholicus* Vieillot, 1819 (A.1584), Alto Tapajós, C. Teles Pires, MT, Brazil, 14.VIII.1950; 3♂, 20♀, 4 nymphs (MZUSP#6769–78), ex *Knipolegus poecilocercus* (Pelzeln, 1868) (MNRJ#30573, A.1121), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 02.XI.1948.

Discussion

This study is the largest of its kind so far published for Brazil in terms of the number of samples and host species examined and new country and locality records made. Most of the previously published records for Brazil are restricted to specific places and with far less material examined (e.g., Guimarães, 1944, 1945; Oniki, 1990, 1999; Roda and Farias, 1999; Brum et al., 2005; Valim et al., 2005a, 2009).

Host records and associations were compared primarily with data in Price et al. (2003). Based on these data, 23 new host records were found: *Eulaemobothrion setigerum* on *Phimosus infuscatus nudrifrons* (see Piaget, 1889), *Actornitophilus ochraceus* on *Vanellus chilensis* and *V. cayanus* (see Clay, 1962; Emerson, 1972; Cicchino and Castro, 1998a), *Amyrsidea* (C.) *aburris* on *Penelope superciliaris*

(see Scharf and Emerson, 1984), *Colpocephalum mycteriae* on *Jabiru mycteria* (see Price and Beer, 1965), *Dennyus brevicapitis* and *D. limbis* on *Chaetura meridionalis* (see Carriker, 1954), *Dennyus malagonensis* on *Streptoprocne zonaris* (see Valim, 2013), *Microctenia heterocephalus* on *Tinamus tao* (see Guimarães, 1947), *Myrsidea dissimilis* on *Tachycineta albiventer* (see Kellogg, 1896), *Heptapsogaster mandibularis* on *Crypturellus undulatus* (see Carriker, 1936; Kéler, 1939; Cicchino and Castro, 1998b; Valim et al., 2005b), *Heptapsogaster temporalis* on *Crypturellus tataupa tataupa* (see Carriker, 1936), *Heptapsogaster yapurae* on *Crypturellus tataupa tataupa* (see Carriker, 1944a), *Kelloggia caquetae* on *Crypturellus soui albigularis* (see Carriker, 1962), *Megapeostus asymmetricus* on *Crypturellus undulatus vermiculatus* (see Carriker, 1936), *Ornicholax olfersi* on *Tinamus guttatus* (see Guimarães, 1942b), *Pectenosoma yapurae* on *Crypturellus undulatus vermiculatus*, *C. tataupa tataupa* and *C. strigulosus* (see Carriker, 1944a; Guimarães, 1950), *Rhopaloceras rudimentarium* on *Crypturellus soui albigularis* (see Carriker, 1936), *Strongylocotes limai* on *Crypturellus strigulosus* (see Guimarães, 1936) and *Strongylocotes variegatus* on *Crypturellus undulatus*, *C. u. vermiculatus* and *C. tataupa tataupa* (see Carriker, 1936; Valim and Silveira, 2014).

Six species that were previously known as from “Brazil”, but without specific locality data, are herein reported from the State of Mato Grosso. They are: *Colpocephalum ateri*, *C. mycteriae*, *Psittacobrosus hyacinthinus*, *Holomenopon cairinae*, *Menacanthus balfouri*, and *Heptapsogaster noctivagi* (see Price and Beer, 1964, 1965, 1968; Price, 1971; Price and Emerson, 1975; and Clay, 1937, respectively).

Some samples were identified to the genus level only, for various reasons. An absence of adequate material for comparison and detailed literature were the reasons for *Ricinus* sp., *Menacanthus* sp., *Heptapsogaster* sp., *Kelloggia* sp., *Megapeostus* sp.; *Rhopaloceras* sp.; *Craspedorrhynchus* sp.; *Degeeriella* sp.; *Philopterus* sp.; *Tyranniphlopterus* sp., *Amyrsidea* (*Cracimenopon*) sp. and *Dennyus* (*Dennyus*) sp. Samples of *Colpocephalum* sp., *Trogoninirmus* sp. and *Picicola* sp. included only nymphs, whilst only one sex, lacking diagnostic characters, was collected of *Pseudolipeurus* sp., *Pseudophilopterus* sp. and *Saemundssonina* (*Saemundssonina*) sp.

The only other faunal survey of chewing lice previously undertaken from the same region of Brazil, predominantly sampled by H. Sick in the State of Mato Grosso, was published by Oniki (1999). She identified 15 species and a further 12 genera from 38 host species of 19 families. In the same State, we found 65 species of chewing lice, plus a further 15 records at generic level from 14 bird species of 20 families. Although there is an overlap of 14 host species between these two studies, only three species of chewing lice are recorded in both: *Osborniella crotophagae* (Menoponidae) from the smooth-billed ani (Cuculidae), *Hypocrypturellus mendax* (Heptapsogasteridae) from the small-billed tinamou (Tinamidae), and *Penenirmus auritus* (Philopteridae) from the campo flicker and the yellow-tufted woodpecker (Picidae) (Oniki, 1999). However, the comparison between these studies is based solely from the literature and, therefore, differences in methodologies make difficult a truly accurate comparison.

The present inventory provides a fundamental basis for future faunal studies in these regions, especially considering the virtually pristine nature of the localities at the time of collection. Therefore, it provides a good opportunity to compare against modern samples from the same region, and to investigate the effects of human development on avian chewing lice diversity and abundance.

Conflicts of interest

The authors declare no conflicts of interest.

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Appendix A.

A.1. List of stragglers and contaminants

We kept lice regarded as *stragglers* and/or *contaminants* because, even if the host information is incorrect, they are still interesting records for Brazil. A *straggler* is defined as a louse found occasionally on a host species but which do not appear to be regularly parasitic on that host, even if originating from field collection. A *contaminant* is a specimen with a host record due to human error, i.e. careless handling, placing two birds simultaneously in the same bag or one after another without first removing all parasites (Pilgrim and Palma, 1982). It is important to note that precautions against contaminations were not present in H. Sick's collection routine, and standardization for the collection of quantitative data were also lacking. This resulted in a massive number of contaminants (see below).

- *Laemobothrion* sp. (Laemobothriidae), 1 nymph (MZUSP#6908) ex *Crypturellus strigulosus* (MNRJ#32639–32646, A.1577–78), Alto Tapajós, C. Teles Pires, MT, Brazil, 14.VIII.1950.

Remarks: No species of the genus *Laemobothrion* is found on Tinamiformes (Nelson and Price, 1965; Price et al., 2003).

- *Ciconiphilus decimfasciatus* (Menoponidae), 23♂, 26♀, 53 nymphs (MZUSP#6815–51) ex *Trogon viridis* (MNRJ#30973, A.1972), Pindaíba, MT, Brazil, 1952; 1♀ (MZUSP#6900) ex *Crypturellus parvirostris* (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948.

Remarks: *Ciconiphilus decimfasciatus* is found on 32 species of Ardeidae (Ciconiiformes) (Price et al., 2003). No samples from Ardeidae were sent for identification by H. Sick. Nevertheless, regardless of its true host, this is a new locality record for this species which, in Brazil, was previously only found in SP and RS (Albano et al., 2005; Marietto-Gonçalves et al., 2012).

- *Colpocephalum maculatum* (Menoponidae), 2♂ (MZUSP#6677) ex *Picumnus albosquamatus guttifer* (MNRJ#44525, A.2317), Rio Araguaia (lado esquerdo), Aragarças, GO, Brazil, 19.VII.1952.

Remarks: This species is typically parasitic on falconids, but these 2 males are from the same locality where abundant records were made from their regular host species (*M. chimachima* and *C. plancus*) (see text above).

- *Colpocephalum* sp. (Menoponidae), 1♂, 1♀ (MZUSP#6898–99) ex *Crypturellus parvirostris* (MNRJ#32629, A.1160), Baixo Kuluene, Alto Xingu, Jacaré, MT, Brazil, 06.VII.1948. 1♂ (MZUSP#6768) ex *Xolmis cinerea* (A.2326), Rio das Mortes, Chavantina, MT, Brazil, 16.V.1952. 2♂ (MZUSP#6897) ex *Crypturellus parvirostris*

(MNRJ#32524, A.2312), Rio Araguaia, Aragarças, GO, Brazil, 19.VII.1952.

Remarks: Species of the genus *Colpocephalum* are not known to occur on either Tinamiformes or Passeriformes (Tyrannidae) (Price et al., 2003).

- *Myrsidea* sp. (Menoponidae), 2♀ (MZUSP 6553) ex *Vanellus cayanus* (MNRJ#30711, A.2280), Rio Araguaia, Aragarças, GO, Brazil, 25.V.1952. 1♀ (MZUSP#6717) ex *Cyanocorax chrysops* (MNRJ#30640, A.1609), Alto Tapajós, C. Teles Pires, MT, Brazil, 22.VIII.1950.

Remarks: There are no known species of *Myrsidea* found on the Charadriiformes (Price et al., 2003). Also, the single female from the plush-crested jay is morphologically unlike any *Myrsidea* species known from New World Corvids (Valim and Cicchino, 2015).

- *Osborniella crotophagae* (Menoponidae), 1♂, 1♀ (MZUSP#6896) ex *Crypturellus parvirostris* (MNRJ#32618, A.2328), Rio Araguaia, Aragarças, GO, Brazil, 06.VIII.1952. 1♂ (MZUSP#6588) ex *Columbina talpacoti* (MNRJ#30494, A.2289), Rio Araguaia, Aragarças, GO, Brazil, 23.V.1952. 1♀ (MZUSP#6767) ex *Casiornis rufa* (MNRJ#30443, A.2283), Rio Araguaia, Aragarças, GO, Brazil, 1952.

Remarks: This louse is a common parasite of the smooth-billed ani *Crotophaga ani* (Cuculiformes, Cuculidae) (Price et al., 2003). It is consistently a contaminant in H. Sick's samples, but only represented by a single nymph on its regular host (see text above).

- *Psittacobrosus kelloggi* (Menoponidae), 1♀ (MZUSP#6645) ex *Galbula ruficauda rufoviridis* (A.2300), Rio Araguaia, Aragarças, GO, Brazil, 24.VII.1952.

Remarks: Although we examined a single specimen of *Ara ara-rauna*, the most common host for this species (see below), it was collected at least six years earlier, in 1946. We suggest this to be a case of post-collection contamination.

- *Heptapsogaster* sp. (Heptapsogasteridae), 1♀ (MZUSP#6590) ex *Patagioenas speciosa* (MZUSP#32268, A.1), Rio Araguaia, Aragarças, GO, Brazil, 16.IX.1946.

Remarks: Species of the genus *Heptapsogaster* have not been found on Columbiformes (Price et al., 2003).

- *Megapeostus asymmetricus* (Heptapsogasteridae), 1♂ (MZUSP#6589) ex *Patagioenas speciosa* (MZUSP#32268, A.1), Rio Araguaia, Aragarças, GO, Brazil, 16.IX.1946.

Remarks: Species of the genus *Megapeostus* are not found on Columbiformes (Price et al., 2003). *Megapeostus asymmetricus* was the most commonly recorded species in this study (see text above).

- *Strongylocotes* sp. (Heptapsogasteridae), 1♀ (MZUSP#6659) ex *Pauxi tuberosum* (A.2182), Garapu, MT, Brazil, 12.IX.1952.

Remarks: Species of the genus *Strongylocotes*, as well as any other Heptapsogasteridae, are not found on Galliformes (Carriker, 1936).

- *Mulcticola bacurau* Valim and Kuabara, 2015 (Philopteridae), 1♂ (MZUSP#6286) ex *Furnarius figulus* (MNRJ#30335, A.1286), Alto Xingu, Diauarum, MT, Brazil, 25.VI.1949.

Remarks: *Mulcticola* species have only been recorded as parasites of the Caprimulgidae (Caprimulgiformes) (Price et al., 2003; Valim and Kuabara, 2015). This particular species is a common parasite on *Nyctidromus albicollis* and has been found in RN, SP and TO (Valim and Kuabara, 2015). The only other caprimulgid specimens sent for identification by H. Sick were *Chordeiles rupestris* (see text above).

- *Quadriceps macrocephalus* (Philopteridae), 1♀ (MZUSP#6640) ex *Milvago chimachima* (MNRJ#30513, A.2308), Rio Araguaia, Aragarças, GO, Brazil, 02.VII.1952.

Remarks: Species of *Quadriceps* are not known to parasitize Falconiformes (Price et al., 2003). Rather, this particular species is

common on a specimen of *Charadrius collaris* that was collected at the same place and month as the present sample (see text above).

- *Tyranniphlopterus* sp. (Philopteridae), 1 nymph (MZUSP#6814) ex *Brotogeris versicolurus* (MNRJ#30693, A.2320), Rio Araguaia, Aragarças, GO, Brazil, 06.VIII.1952.

Remarks: Although only a single nymph was collected, it has various morphological characteristics of species of the genus *Tyranniphlopterus* (e.g. absence of conii, and presence of sclerotization on hyaline margin). No members of the *Philopterus*-complex are known to parasitize Psittaciformes (Mey, 2004).

Appendix B.

B.1. Host-Louse List

Order TINAMIFORMES

Family Tinamidae Gray, 1840

Tinamus tao Temminck, 1815

Microtenia heterocephalus (Menoponidae)
Heptagoniodes agonus (Heptapsogasteridae)
Heptarthrogaster grandis (Heptapsogasteridae)
Ornicholax alienus (Heptapsogasteridae)
Strongylocotes taoi (Heptapsogasteridae)
Rhopaloceras sp. (Heptapsogasteridae)
Pseudolipeurus sp. (Philopteridae)

Tinamus guttatus Pelzln, 1863

Ornicholax ofersi (Heptapsogasteridae)
Kelloggia sp. (Heptapsogasteridae)

Crypturellus soui (Hermann, 1783)

Rhopaloceras sp. (Heptapsogasteridae)

Crypturellus soui albigularis (Brabourne & Chubb, 1914)

Kelloggia caquetae (Heptapsogasteridae)
Rhopaloceras rudimentarius (Heptapsogasteridae)
Strongylocotes albigularis (Heptapsogasteridae)
Megapeostus sp. (Heptapsogasteridae)

Crypturellus undulatus (Temminck, 1815)

Heptapsogaster mandibularis (Heptapsogasteridae)
Hypocrypturellus undulatus (Heptapsogasteridae)
Megapeostus asymmetricus (Heptapsogasteridae)
Pectenosoma yapurae (Heptapsogasteridae)
Strongylocotes variegatus (Heptapsogasteridae)
Rhopaloceras sp. (Heptapsogasteridae)

Crypturellus undulatus vermiculatus (Temminck, 1825)

Megapeostus asymmetricus (Heptapsogasteridae)
Pectenosoma yapurae (Heptapsogasteridae)
Strongylocotes variegatus (Heptapsogasteridae)
Rhopaloceras sp. (Heptapsogasteridae)

Crypturellus strigulosus (Temminck, 1815)

Heptapsogaster noctivagi (Heptapsogasteridae)
Hypocrypturellus strigulosus (Heptapsogasteridae)
Pectenosoma angusta (Heptapsogasteridae)
Pectenosoma yapurae (Heptapsogasteridae)
Strongylocotes limai (Heptapsogasteridae)
Rhopaloceras sp. (Heptapsogasteridae)
Pseudolipeurus sp. (Philopteridae)
Pseudophilopterus sp. (Philopteridae)

Crypturellus parvirostris (Wagler, 1827)

Pectenosoma subparva (Heptapsogasteridae)
Strongylocotes orbicularis (Heptapsogasteridae)
Heptapsogaster sp. (Heptapsogasteridae)
Hypocrypturellus mendax (Heptapsogasteridae)
Rhopaloceras sp. (Heptapsogasteridae)
Pseudolipeurus longipes (Philopteridae)

Crypturellus tataupa tataupa (Temminck, 1815)

Heptapsogaster temporalis (Heptapsogasteridae)
Heptapsogaster yapurae (Heptapsogasteridae)
Hypocrypturellus genitilis (Heptapsogasteridae)
Pectenosoma yapurae (Heptapsogasteridae)
Strongylocotes variegatus (Heptapsogasteridae)
Pseudolipeurus longipes (Philopteridae)

- Rhynchotus rufescens** (Temminck, 1815)
Menacanthus arctifasciatus (Menoponiidae)
Docophorocotes sexsetosus (Heptapsogasteridae)
Rhynchotura sexpunctata (Heptapsogasteridae)
Strongylocotes lipogonus (Heptapsogasteridae)
Tinamicola latithorax (Heptapsogasteridae)
Tinamicola rotundata (Heptapsogasteridae)
- Order ANSERIFORMES
Family Anatidae Leach, 1820
Cairina moschata (Linnaeus, 1758)
Holomenopon cairinae (Menoponiidae)
- Order GALLIFORMES
Family Cracidae Rafinesque, 1815
Penelope superciliaris Temminck, 1815
Amyrsidea (*Cracimenopon*) aff *aburris* (Menoponiidae)
Menacanthus sp. (Menoponiidae)
- Pipile kujubi nattereri** (Pelzeln, 1858)
Amyrsidea (*Cracimenopon*) sp. (Menoponiidae)
Menacanthus sp. (Menoponiidae)
- Pauxi tuberosum** (Spix, 1825)
Amyrsidea (*Cracimenopon*) sp. (Menoponiidae)
Oxylipeurus rhynchoti (Philopteridae)
- Order CICONIIFORMES
Family Ciconiidae Sundevall, 1836
Jabiru mycteria (Lichtenstein, 1819)
Colpocephalum mycteriae (Menoponiidae)
- Order SULIFORMES
Family Phalacrocoracidae Reichenbach, 1849
Phalacrocorax brasilianus (J.F. Gmelin, 1789)
Pectinopygus gyroceras (Philopteridae)
- Order PELECANIFORMES
Family Threskiornithidae Poche, 1904
Phimosus infuscatus nudifrons (Spix, 1825)
Eulaemobothrion setigerum (Laemobothriidae)
- Order CATHARTIFORMES
Family Cathartidae Lafresnaye, 1839
Sarcoramphus papa (Linnaeus, 1758)
Laemobothrion glutinans (Laemobothriidae)
Colpocephalum megalops (Menoponiidae)
Falcolipeurus ternatus (Philopteridae)
- Order ACCIPITRIFORMES
Family Accipitridae Vigors, 1824
Gampsonyx swainsonii Vigors, 1825
Degeeriella sp. (Philopteridae)
- Spizaetus ornatus** (Daudin, 1800)
Colpocephalum sp. (Menoponiidae)
Craspedorrhynchus sp. (Philopteridae)
- Order CHARADRIIFORMES
Family Charadriidae Leach, 1820
Vanellus cayanus (Latham, 1790)
Actornithophilus ochraceus (Menoponiidae)
Quadriceps hasei (Philopteridae)
- Vanellus chilensis** (Molina, 1782)
Actornithophilus ochraceus (Menoponiidae)
- Charadrius collaris** Vieillot, 1818
Quadriceps macrocephalus (Philopteridae)
Saemundsonia (*S.*) sp. (Philopteridae)
- Family Scolopacidae Rafinesque, 1815
Actitis macularius (Linnaeus, 1766)
Quadriceps ravus (Philopteridae)
- Family Sternidae Vigors, 1825
Phaetusa simplex (Gmelin, 1789)
Saemundsonia (*S.*) *keleri* (Philopteridae)
- Family Rynchopidae Bonaparte, 1838
Rynchops niger Linnaeus, 1758
Quadriceps elongatus (Philopteridae)
Saemundsonia (*S.*) *anisorhamphos* (Philopteridae)
- Order OPISTHOCOMIFORMES
Family Opisthocomidae Swainson, 1837
- Opisthocomus hoazin** (Statius Müller, 1776)
Eulaemobothrion opisthocomi (Laemobothriidae)
Hoazineus armiferus (Menoponiidae)
- Order CUCULIFORMES
Family Cuculidae Leach, 1820
Piaya cayana (Linnaeus, 1766)
Cuculiphilus (*C.*) *fasciatiiventris* (Menoponiidae)
- Crotophaga ani** Linnaeus, 1758
Osborniella crotophagae (Menoponiidae)
- Guira guira** (Gmelin, 1788)
Osborniella guiraensis (Menoponiidae)
- Order CAPRIMULGIFORMES
Family Caprimulgidae Vigors, 1825
Chordeiles rupestris (Spix, 1825)
Multicicola sicki (Philopteridae)
- Order APODIFORMES
Family Apodidae Olphe-Galliard, 1887
Streptoprocne zonaris (Shaw, 1796)
Dennyus (*D.*) *malagonensis* (Menoponiidae)
- Chaetura meridionalis** Hellmayr, 1907
Dennyus (*D.*) *limbus* (Menoponiidae)
Dennyus (*D.*) *brevicapitis* (Menoponiidae)
Dennyus (*D.*) sp. (Menoponiidae)
- Order TROGONIFORMES
Family Trogonidae Lesson, 1828
Trogon curucui Linnaeus, 1766
Trogoninirmus sp. (Philopteridae)
- Order GALBULIFORMES
Family Bucconidae
Nystalus chacuru (Vieillot, 1816)
Mayriphlopterus nystalicus (Philopteridae)
- Nystalus maculatus** (Gmelin, 1788)
Mayriphlopterus nystalicus (Philopteridae)
Picicola serrafreirei (Philopteridae)
- Order PICIFORMES
Family Ramphastidae Vigors, 1825
Ramphastos toco Statius Müller, 1776
Myrsidea witti (Menoponiidae)
Austrophlopterus cancellosus (Philopteridae)
- Ramphastos cuvieri** Wagler, 1827
Menacanthus balfouri (Menoponiidae)
Myrsidea extranea (Menoponiidae)
Ramphasticola hirsuta (Menoponiidae)
Austrophlopterus cancellosus (Philopteridae)
- Ramphastos culminatus** Gould, 1833
Myrsidea ceciliae (Menoponiidae)
- Pteroglossus beauharnaesii** Wagler, 1832
Myrsidea alexioi (Menoponiidae)
- Family Picidae Leach, 1820
Melanerpes cruentatus (Boddaert, 1783)
Menacanthus pici (Menoponiidae)
Brueelia straminea (Philopteridae)
Penenirmus auritus (Philopteridae)
- Colaptes campestris** (Vieillot, 1818)
Penenirmus auritus (Philopteridae)
- Celeus flavescens** (Gmelin, 1788)
Picicola sp. (Philopteridae)
- Order FALCONIFORMES
Family Falconidae Leach, 1820
Daptrius ater Vieillot, 1816
Colpocephalum ateri (Menoponiidae)
- Caracara plancus** (Miller, 1777)
Colpocephalum maculatum (Menoponiidae)
- Milvago chimachima** (Vieillot, 1816)
Colpocephalum maculatum (Menoponiidae)
Acutifrons vieirai (Philopteridae)

Falco femoralis Temminck, 1822
Laemobothrion tinnunculi (Laemobothriidae)

Order PSITTACIFORMES
 Family Psittacidae Rafinesque, 1815
Anodorhynchus hyacinthinus (Latham, 1790)
Heteromenopon (H.) *anodorhynchi* (Menoponidae)
Psittacobrosus hyacinthini (Menoponidae)

Ara ararauna (Linnaeus, 1758)
Psittacobrosus kelloggi (Menoponidae)
Heteromenopon (H.) *sincipitalis* (Menoponidae)
Paragoniocotes mirabilis (Philopteridae)

Order PASSERIFORMES
 Family Scleruridae (Ménétrières, 1835)
Sclerurus scansor (Ménétrières, 1835)
Myrsidea sp.1 (Menoponidae)

Family Pipridae Rafinesque, 1815
Antilophia galeata (Lichtenstein, 1823)
Tyranniphilopterus bruneri (Philopteridae)

Family Rhynchocyclidae Berlepsch, 1907
Corythopis delalandi (Lesson, 1830)
Ricinus sp. (Ricinidae)

Family Tyrannidae Vigors, 1825
Pitangus sulphuratus (Linnaeus, 1766)
Menacanthus tyranni (Menoponidae)

Tyrannus melancholicus Vieillot, 1819
Tyranniphilopterus sp. (Philopteridae)

Cnemotriccus fuscatus (Wied, 1831)
Ricinus sp. (Ricinidae)

Knipolegus poecilocercus (Pelzeln, 1868)
Tyranniphilopterus sp. (Philopteridae)

Family Corvidae Leach, 1820
Cyanocorax cristatellus (Temminck, 1823)
Myrsidea cristatelli (Menoponidae)
Brueelia nitzschi (Philopteridae)
Philopterus sp. (Philopteridae)

Cyanocorax chrysops (Vieillot, 1818)
Myrsidea pseudofalax (Menoponidae)
Brueelia keleri (Philopteridae)
Philopterus sp. (Philopteridae)

Family Hirundinidae Rafinesque, 1815
Progne chalybea (Gmelin, 1789)
Myrsidea dissimilis (Menoponidae)
Philopterus sp. (Philopteridae)

Tachycineta albiventer (Boddaert, 1783)
Myrsidea dissimilis (Menoponidae)
Philopterus sp. (Philopteridae)

Family Icteridae Vigors, 1825
Cacicus cela (Linnaeus, 1758)
Bizarrifrons picturatus (Philopteridae)

Family Thraupidae Cabanis, 1847
Saltator sp.
Myrsidea lightae (Menoponidae)

Nemosia pileata (Boddaert, 1783)
Ricinus sp. (Ricinidae)

Tachyphonus rufus (Boddaert, 1783)
Myrsidea rufi (Menoponidae)
Picicola sp. (Philopteridae)

Ramphocelus carbo (Pallas, 1764)
Myrsidea ramphoceli (Menoponidae)

Thraupis palmarum (Wied, 1821)
Myrsidea seminuda (Menoponidae)

Thraupidae
Ricinus sp. (Ricinidae)

Family Cardinalidae Ridgway, 1901
Piranga flava (Vieillot, 1822)
Myrsidea sp.2 (Menoponidae)

Family Fringillidae Leach, 1820
Euphonia chlorotica (Linnaeus, 1766)
Myrsidea sp.3 (Menoponidae)
Myrsidea sp.4 (Menoponidae)

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