

A checklist of 'Psocoptera' (Psocodea) from Brazil: an update to the list of 2009 of García Aldrete and Mockford, with an identification key to the families

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Abstract. The described species of Psocoptera currently known for Brazil are listed, with state distribution and biogeographic status. An identification key to the families recorded in Brazil is presented.

Key-Words. Geographic distribution; Psocids; Neotropics.

INTRODUCTION

Psocoptera have no popular name in Brazil, being known in other countries as book lice, bark lice or psocids. These insects are small, measuring from 1 to 10 mm in length and feed on algae, lichens, fungi and organic fragments (Smithers, 1991). Psocoptera is a paraphyletic group because the Phthiraptera are phylogenetically embedded in the Psocoptera infraorder Nanopsocetae (Johnson *et al.*, 2004; Yoshizawa & Johnson, 2010; Yoshizawa & Lienhard, 2010). To maintain monophyly on the order level, the former orders Psocoptera and Phthiraptera now constitute the order Psocodea (Yoshizawa & Johnson, 2006). As true lice and psocids have distinct habits, and are studied by different methods and by different experts, Psocoptera is often still treated as an order in the traditional way. Through the literature of 2014, Psocoptera includes 5,941 extant species, in 485 genera (Mockford, 2018). García Aldrete & Mockford (2009) listed for Brazil 425 species (including undescribed ones) in 94 genera and 28 families.

The present paper provides an update to the 2009 list of García Aldrete and Mockford and an identification key to the families of Psocoptera recorded in Brazil.

MATERIAL AND METHODS

The updating of the information on the Brazilian fauna in García Aldrete & Mockford

(2009) is derived mostly from the ongoing study of the vast Psocoptera collection in the Instituto Nacional de Pesquisas da Amazônia (INPA), in Manaus, Amazonas; from the study of the Psocoptera collected through the program PPBio-Semi-Árido, housed in the Entomological Collection Prof. Johann Becker of the Zoology Museum of the Universidade Estadual de Feira de Santana, in Feira de Santana, Bahia, Brazil (MZFS), from the study of the Psocoptera collected through the program Cave invertebrates in Brazil: threats, description of new taxa and definition of priority areas for conservation. Module I: Northeast Brazil, housed in the Invertebrate Collection of the Biology Department, Universidade Federal de Lavras, Minas Gerais, Brazil. Information was also extracted from the world catalogue of Lienhard & Smithers (2002), the country checklists of Lienhard (2016), a catalogue of type specimens of Psocoptera (Insecta: Psocodea) deposited in the collection of the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (Silva-Neto *et al.*, 2019a) and a list of Psocoptera species from Colombia (García Aldrete *et al.*, 2018). In addition, from 2009 to date, numerous articles have been published with new species or new records of Brazilian species of Psocoptera and these papers were also used to update the list (Lienhard *et al.*, 2010, 2012; Silva-Neto & García Aldrete, 2012; García Aldrete & Silva-Neto, 2013; Lienhard & Lopes-Ferreira, 2013a, 2013b; Silva-Neto *et al.*, 2013; García Aldrete & Silva-Neto, 2014; Lienhard & Lopes-Ferreira, 2014; Silva-Neto *et al.*, 2014a, 2014b, 2015; Silva-Neto & García Aldrete,

2015; Román-P. *et al.*, 2015, Lienhard & Lopes-Ferreira, 2015; García Aldrete *et al.*, 2016; Silva-Neto *et al.*, 2016a, 2016b, 2016c; Alves-Oliveira *et al.*, 2017; Yoshizawa *et al.*, 2017; García Aldrete *et al.*, 2018; Vinasco-Mondragón *et al.*, 2018; Silva-Neto *et al.*, 2018a, 2018b, 2018c, 2018d; García Aldrete & Silva-Neto, 2019; Moura-Lima *et al.*, 2019; Silva-Neto & García Aldrete, 2019; Silva-Neto *et al.*, 2019b; García Aldrete & Silva-Neto, 2020).

In the species list after the name of each species and its author, the Brazilian states appear in parentheses. If the species is not endemic to Brazil, the name of the country in which it was registered is provided or if it has a very wide distribution it is treated as tropical waif, widespread in the American tropics, widespread in the tropics, Holarctic, widely distributed or Cosmopolitan. In the cases that after the name of each species appears only "Brazil" without delimiting the Brazilian state of occurrence, it was because this species was described without providing information on the collecting locality in Brazil.

RESULTS

The list presented below includes 460 species in 97 genera and 30 families, with distribution in Brazilian states.

Trogiomorpha

Lepidopsocidae

1. *Nepticulomima brasiliensis* (Enderlein). (Pará).
2. *Notolepium brasiliense* New. (Mato Grosso).
3. *Proentomum personatum* Badonnel. (Roraima). Tropical waif.
4. *P. pulvillata* (New). (Mato Grosso).
5. *Soa flaviterminata* Enderlein. (Amazonas, Pará, Roraima). Widely distributed.
6. *S. violacea* New. (Amazonas, Mato Grosso).
7. *Echmepteryx angusta* New. (Mato Grosso).
8. *E. bishopi* New. (Mato Grosso).
9. *E. falco* (Badonnel). (Amazonas, Bahia). Tropical waif.
10. *E. fuscata* New. (Mato Grosso).
11. *E. lealae* New. (Pernambuco).
12. *E. lutosa* Mockford. (Roraima).
13. *E. madagascariensis* (Kolbe). (Rio de Janeiro, Bahia). Tropical waif.
14. *E. uniformis* Mockford. (Roraima).

Trogiidae

15. *Cerobasis guestfalica* (Kolbe). (Pernambuco, Rio de Janeiro). Widely distributed.

Psoquillidae

16. *Psoquilla marginepunctata* Hagen. (Mato Grosso, Santa Catarina). Widely distributed.
17. *Rhyopsocus rafaeli* García Aldrete. (Amazonas).

Psyllipsocidae

18. *Psocathropos lachlani* Ribaga. (Alagoas, Amazonas, Bahia, Ceará, Espírito Santo, Minas Gerais, Sao Paulo). Widely distributed.
19. *P. pilipennis* (Enderlein). (Ceará, Piauí, Rio Grande do Norte). Widely distributed.
20. *Psyllipsocus angustipennis* Lienhard. (Minas Gerais).
21. *P. clunioventralis* Lienhard. (Mato Grosso).
22. *P. clunijunctus* Lienhard. (Bahia, Goiás, Minas Gerais, Rio Grande do Norte, Tocantins).
23. *P. didymus* Lienhard. (Mato Grosso).
24. *P. falcifer* Lienhard. (Minas Gerais).
25. *P. fuscistigma* Lienhard. (Ceará).
26. *P. marconii* Lienhard. (Minas Gerais).
27. *P. proximus* Lienhard. (Amazonas).
28. *P. punctulatus* Lienhard. (Piauí).
29. *P. radiopictus* Lienhard. (Alagoas).
30. *P. ramburii* Selys-Longchamps. (Espírito Santo, Minas Gerais, Rio Grande do Sul, São Paulo). Widely distributed.
31. *P. serrifer* Lienhard. (Bahia, Minas Gerais).
32. *P. similis* Lienhard. (Minas Gerais).
33. *P. spinifer* Lienhard. (Bahia, Ceará, Goiás, Mato Grosso, Minas Gerais, Piauí, Rio Grande do Norte, São Paulo).
34. *P. subtilis* Lienhard. (Rio Grande do Norte).
35. *P. thaidis* Lienhard. (Piauí).
36. *P. yucatan* Gurney. (Alagoas, Bahia, Ceará, Espírito Santo, Minas Gerais, Pará, Rio Grande do Norte, São Paulo). Widespread in the tropics.

Prionoglarididae

37. *Neotroglia aurora* Lienhard. (Tocantins).
38. *N. brasiliensis* Lienhard. (Minas Gerais).
39. *N. curvata* Lienhard & Ferreira. (Bahia).
40. *N. truncata* Lienhard. (Bahia).

Troctomorpha

Troctopsocidae

41. *Troctopsocus brasiliensis* New. (Mato Grosso). Mexico.
42. *Troctopsocus separatus* (Roesler). (Santa Catarina). Trinidad.

Musapsocidae

43. *Musapsocus mockfordi* New. (Amazonas).
44. *M. newi* Mockford. (Roraima).

Amphientomidae

45. *Lithoseopsis brasiliensis* García Aldrete, Silva Neto & Lopes Ferreira. (Pará).
46. *Seopsocus acuminatus* Roesler. (Santa Catarina).
47. *S. albiceps* Mockford. (Roraima).

48. *S. fasciatus* Mockford. (Roraima).
 49. *S. rafaeli* Mockford. (Roraima).
 50. *S. rotundatus* Roesler. (Santa Catarina).

Liposcelididae

51. *Belaphopsocus badonneli* New. (Mato Grosso). Colombia, Mexico, Paraguay.
 52. *Belaphotroctes brunneus* Badonnel. (São Paulo).
 53. *B. ghesquieri* Badonnel. (Mato Grosso, Roraima, Sao Paulo). Widespread in Tropical Africa and America.
 54. *B. major* Badonnel. (Mato Grosso).
 55. *B. mimulus* Badonnel. (São Paulo).
 56. *B. ocularis* Badonnel. (São Paulo).
 57. *B. striatus* Badonnel. (São Paulo).
 58. *B. vaginatus* Badonnel. (São Paulo).
 59. *Chaetotroctes lenkoi* Badonnel. (Mato Grosso).
 60. *Embidopsocopsis newi* Badonnel. (Mato Grosso).
 61. *Embidopsocus brasiliensis* Badonnel. (São Paulo).
 62. *E. flexuosus parvulus* Badonnel. (Mato Grosso).
 63. *E. frater* Badonnel. (São Paulo).
 64. *E. leucomelas* (Enderlein). (Mato Grosso). Paraguay.
 65. *E. luteus* Hagen. (Mato Grosso). Cuba, Mexico.
 66. *E. mendax* Badonnel. (Mato Grosso, São Paulo). Argentina.
 67. *E. pilosus* Badonnel. (Mato Grosso, São Paulo).
 68. *E. similis* Badonnel. (Mato Grosso).
 69. *E. virgatus* (Enderlein). (Mato Grosso, São Paulo). Argentina, Paraguay.
 70. *Liposcelis bostrychophila* Badonnel. (Rio de Janeiro). Cosmopolitan.
 71. *L. entomophila* (Enderlein). (Amazonas, Rio de Janeiro). Cosmopolitan.
 72. *L. fusciceps* Badonnel. (São Paulo). Mexico.
 73. *L. lenkoi* Badonnel. (São Paulo).

Pachytroctidae

74. *Tapinella gamma* Mockford. (Roraima).
 75. *T. maracana* Mockford. (Roraima).
 76. *T. ornaticeps* Mockford. (Roraima). Venezuela.
 77. *Antilopsocus nadleri* Gurney. (D.F., Mato Grosso, Minas Gerais). Colombia, Trinidad.
 78. *Pachytroctes brasilianus* Roesler. (Santa Catarina). Venezuela.
 79. *Psyllotroctes plaumanni* Roesler. (Santa Catarina).

Psocomorpha

Epipsocidae

80. *Epipsocus acanthus* New. (Amazonas).
 81. *E. argutus* New. (Amazonas).
 82. *E. atratus* New. (Amazonas, Roraima).
 83. *E. badonneli* Mockford. (Pará, Roraima). Colombia.
 84. *E. borgmeieri* Karny. (Rio de Janeiro).
 85. *E. foliatus* Mockford. (Roraima).
 86. *E. fuscareolatus* New. (Amazonas).

87. *E. latistigma* Roesler. (Santa Catarina).
 88. *E. maculithorax* New. (Amazonas).
 89. *E. manausensis* García Aldrete & Silva-Neto. (Amazonas).
 90. *E. meruleus* New. (Amazonas).
 91. *E. pennyi* New. (Amazonas).
 92. *E. pereirai* Badonnel. (Amazonas, Mato Grosso, Rondônia).
 93. *E. phaeus* New. (Amazonas, Roraima).
 94. *E. quurcus* Roesler. (Santa Catarina).
 95. *E. roraimensis* Mockford. (Roraima).
 96. *E. serenus* Roesler. (Santa Catarina).
 97. *E. stigmaticus* Mockford. (Roraima).
 98. *E. uniformis* New. (Mato Grosso).
 99. *E. verrucosus* New. (Amazonas).
 100. *E. willineri* New. (Mato Grosso).
 101. *Goja nebulosa* (Roesler). (Santa Catarina).
 102. *G. picta* (Banks). "Brazil".
 103. *G. plaumanni* (Roesler). (Paraná, Santa Catarina).
 104. *Mesepipsocus brasilianus* (New). (Mato Grosso). Peru.
 105. *M. brasiliensis* (New). (Amazonas). Colombia.
 106. *M. brevistigma* (New). (Mato Grosso). Colombia. Peru.
 107. *M. brunellus* (New). (Mato Grosso).
 108. *M. capitulatus* (New). (Amazonas).
 109. *M. fuscatus* (New). (Mato Grosso). Peru.
 110. *M. newi* Badonnel. (São Paulo).
 111. *M. niger* (New). (Mato Grosso). Peru.
 112. *M. obscurus* (New). (Mato Grosso).
 113. *M. proctus* (New & Thornton). (Pará). Colombia. Peru.
 114. *M. roesleri* (New). (Mato Grosso).
 115. *M. roncadorensis* (New). (Mato Grosso).
 116. *M. semiclarus* (Mockford). (Roraima).
 117. *M. sinuatus* (New). (Mato Grosso). Peru.
 118. *M. taitubai* (New). (Mato Grosso).
 119. *Neurostigma dispositum* Roesler. (Amazonas, Mato Grosso, Santa Catarina, Sao Paulo). Mexico, Peru.
 120. *N. enderleini* New. (Amazonas).
 121. *N. paucivenosum* New. (Amazonas).
 122. *N. radiatum* Mockford. (Roraima).
 123. *N. roesleri* New. (Amazonas).
 124. *N. xanthopterum* New. (Amazonas). Colombia.
 125. *Papillopsocus oriximinaensis* García Aldrete. (Pará).

Dolabellopsocidae

126. *Dolabellopsocus carcinus* Mockford. (Roraima).
 127. *D. catenatus* Mockford. (Roraima).
 128. *D. ctenatus* (New). (Amazonas, Bahia, Mato Grosso). Peru.
 129. *D. eertmoedi* Badonnel. (Mato Grosso).
 130. *D. flavipennis* (Roesler). (Santa Catarina).
 131. *D. intermedius* Eertmoed. (Pará, Rondônia). Trinidad.
 132. *D. lobatus* Mockford. (Roraima). Colombia.
 133. *D. pectenatus* Eertmoed. (Bahia).
 134. *D. pictus* Mockford. (Roraima).
 135. *D. pygmaeus* (New). (Mato Grosso).

136. *D. similis* Mockford. (Roraima).
137. *D. spinosus* Mockford. (Roraima).
138. *Isthmopsocus barbatus* Mockford. (Roraima).
139. *I. breviceps* (New). (Mato Grosso).
140. *I. lanceatus* Mockford. (Roraima).
141. *I. luridus* New. (Amazonas).
142. *I. ornatus* (New). (Mato Grosso).
143. *I. radulatus* New. (Bahia).
144. *I. speculatus* Mockford. (Roraima).

Cladiopsocidae

145. *Cladiopsocus distinctus* Eertmoed. (Paraná, Santa Catarina).
146. *C. dolosus* (Roesler). (Santa Catarina).
147. *C. domesticus* (New). (Mato Grosso).
148. *C. fuscus* (New). (Mato Grosso).
149. *C. prionotus* (New). (Amazonas).
150. *C. uncinatus* (New). (Amazonas).

Ptiloneuridae

151. *Brasineura diamantina* Silva Neto & García Aldrete. (Bahia).
152. *B. jiboia* Silva Neto, García Aldrete & Rafael. (Bahia).
153. *B. serranortensis* Silva Neto, García Aldrete & Rafael. (Pará).
154. *B. spinosa* Silva Neto, García Aldrete & Rafael. (Espírito Santo).
155. *B. troglophilica* Silva Neto & García Aldrete. (Pará).
156. *Euplocania ariasi* Vinasco, González & García Aldrete. (Goiás).
157. *E. badonneli* New & Thornton. (Rondônia). Colombia. Peru.
158. *E. bujariensis* Silva Neto, García Aldrete & Rafael. (Acre).
159. *E. cearaense* Silva Neto, García Aldrete & Rafael. (Ceará).
160. *E. cerata* New. (Amazonas). Peru.
161. *E. equorum* Vinasco, González & García Aldrete. (Pará).
162. *E. hutchingsi* Silva Neto, García Aldrete & Rafael. (Acre).
163. *E. manausensis* Vinasco, González & García Aldrete. (Amazonas).
164. *E. marginata* New & Thornton. (Pará). Peru.
165. *E. picta* New. (Amazonas).
166. *E. pseudopictaoides* Silva Neto, García Aldrete & Rafael. (Acre).
167. *E. quinquedivisa* Silva Neto, García Aldrete & Rafael. (Amazonas).
168. *E. rafaelli* Vinasco, González & García Aldrete. (Paraná).
169. *E. tocantina* Vinasco, González & García Aldrete. (Pará).
170. *E. uariniensis* Silva Neto, García Aldrete & Rafael. (Amazonas).
171. *E. xavieri* Silva Neto, García Aldrete & Rafael. (Amazonas).
172. *Loneura amazonica* (New). (Amazonas).

173. *Loneura baiana* Lima, Silva-Neto, García Aldrete & Bravo. (Bahia).
174. *L. brasiliensis* Roesler. (Santa Catarina).
175. *L. maracaensis* García Aldrete. (Roraima).
176. *Ptiloneura baiana* (Silva Neto, García Aldrete & Rafael). (Bahia).
177. *Ptiloneuropsis diamantina* Silva Neto, García Aldrete & Rafael. (Bahia).
178. *P. immaculata* Roesler. (Rio de Janeiro).
179. *Timnewia greeni* (New). (Mato Grosso). Ecuador.
180. *T. jeaneae* Silva-Neto, García Aldrete & Rafael. (Roraima).
181. *Triplocania ariasi* New. (Amazonas, Bahia).
182. *T. calcarata* New. (Amazonas).
183. *T. calori* Silva Neto, García Aldrete & Rafael. (Bahia).
184. *T. capixaba* Silva Neto, García Aldrete & Rafael. (Espírito Santo).
185. *T. caudata* New. (Amazonas).
186. *T. fapeam* Silva Neto, García Aldrete & Rafael. (Amazonas).
187. *T. furcata* New. (Mato Grosso). Colombia.
188. *T. immaculata* New. (Amazonas).
189. *T. inpa* Silva Neto, García Aldrete & Rafael. (Amazonas).
190. *T. lamasi* Silva Neto, Rafael & García Aldrete. (Mato Grosso). Colombia.
191. *T. lamasoides* Silva Neto, Rafael & García Aldrete. (Rondônia). Colombia.
192. *T. lunulata* New. (Amazonas).
193. *T. lucida* Roesler. (Santa Catarina).
194. *T. magnifica* Roesler. (Santa Catarina, Paraná).
195. *T. manauara* Silva Neto, García Aldrete & Rafael. (Amazonas).
196. *T. manueli* Silva Neto, García Aldrete & Rafael. (Ceará).
197. *T. mariaelinae* Silva Neto, García Aldrete & Rafael. (Pará).
198. *T. mariateresae* Silva Neto, Rafael & García Aldrete. (Rio de Janeiro).
199. *T. newi* Silva Neto, Rafael & García Aldrete. (Amazonas, Tocantins).
200. *T. paranaensis* Silva Neto, García Aldrete & Rafael. (Paraná).
201. *T. plaumannii* Silva Neto, Rafael & García Aldrete & Rafael. (Santa Catarina).
202. *T. reflexa* Roesler. (Santa Catarina).
203. *T. rondoniensis* García Aldrete. (Rondônia).
204. *T. rosae* Silva Neto, García Aldrete & Rafael. (Paraná, Minas Gerais).
205. *T. trifida* Silva Neto, Rafael & García Aldrete. (Mato Grosso).
206. *T. umbrata* New. (Amazonas).

Spurostigmatidae

207. *Spurostigma caatinga* Silva Neto & García Aldrete. (Bahia).

Asiopsocidae

208. *Notiopsocus facilis* Mockford. (Roraima).

209. *N. neotropicus* (Machado Allison & Papavero). (Mato Grosso).
 210. *N. simplex* Banks. (Amazonas, Roraima).
 211. *Pronotiopsocus amazonicus* Mockford. (Amazonas).

Caeciliusidae

212. *Coryphaca inca* Enderlein. (Amazonas, Santa Catarina). Argentina, Peru.
 213. *C. matona* (New & Thornton). (Mato Grosso).
 214. *Stenocaecilius antillanus* (Banks). "Brazil". Widespread in the American tropics.
 215. *S. casarum* (Badonnel). (Bahia). Widespread in the tropics.
 216. *Valenzuela adrianae* (Mockford). (Roraima).
 217. *V. albofasciatus* (Mockford). (Roraima).
 218. *V. albomarginatus* (Enderlein). (Rio de Janeiro).
 219. *V. cinalus* (New & Thornton). (Mato Grosso).
 220. *V. claripennis* (Mockford). (Roraima).
 221. *V. claristigma* (New & Thornton). (Mato Grosso, Roraima). Venezuela.
 222. *V. clayae* (New & Thornton). (Mato Grosso).
 223. *V. fasciatus* (Enderlein). (Pará).
 224. *V. gemmatus* (Mockford). (Roraima).
 225. *V. micans* (New & Thornton). (Mato Grosso, Pará, Roraima).
 226. *V. nigroticta* (Williner). (Paraná).
 227. *V. obscuripennis* (Mockford). (Roraima).
 228. *V. paradistinctus* (New & Thornton). (Mato Grosso).
 229. *V. posticoides* (Mockford). (Roraima).
 230. *V. tuberculatus* (New & Thornton). (Mato Grosso, Roraima).
 231. *Enderleinella occidentalis* Mockford. (Roraima).
 232. *Xanthocaecilius eroticus* Mockford. (Santa Catarina).
 233. *X. granulatus* Mockford. (Roraima). Mexico, Panama, Venezuela.
 234. *X. pallidus* Mockford. (Roraima).

Stenopsocidae

235. *Graphopsocus cruciatus* (Linnaeus). (Pará, Rondônia). Holarctic. Probably introduced.
 236. *G. mexicanus* Enderlein. (Paraná, Santa Catarina). Mexico, Venezuela.

Amphipsocidae

237. *Dasypsocus nigrifrons* (Roesler). (Santa Catarina). Venezuela.
 238. *D. roesleri* (New & Thornton). (Mato Grosso). Mexico, Venezuela.
 239. *Polypsocus coleopterus* Roesler. (Santa Catarina).
 240. *P. delunatus* Roesler. (Santa Catarina).
 241. *P. falcifer* Roesler. (Santa Catarina).
 242. *P. fastosus* Roesler. (Santa Catarina).
 243. *P. fuscopterus* Mockford. (Roraima).
 244. *P. griseolineatus* (Enderlein). (Amazonas). Peru.
 245. *P. lineatus* Mockford. (Roraima).
 246. *P. ohausianus* (Enderlein). (Roraima). Ecuador.

247. *P. selenius* Roesler. (Amazonas, Santa Catarina). Venezuela.
 248. *P. serpentinus* Mockford. (Amazonas, Roraima).
 249. *P. suffuscus* Roesler. (Santa Catarina).
 250. *P. unicolor* Roesler. (Santa Catarina).

Dasydemellidae

251. *Dasydemella gynopeza* Roesler. (Santa Catarina).
 252. *D. setosa* Roesler. (Santa Catarina).

Lachesillidae

253. *Anomopsocus radiolosus* (Roesler). (Mato Grosso). Costa Rica, Mexico.
 254. *Graphocaecilius interpretatus* Roesler. (Paraná, Santa Catarina). Colombia.
 255. *Notolachesilla maracana* Mockford. (Roraima).
 256. *Amazolachesilla ariasi* García Aldrete & Mockford. (Amazonas). Colombia.
 257. *Waoraniella vidali* García Aldrete & Mockford. (Amazonas).
 258. *Lachesilla acuminata* Mockford. (Roraima).
 259. *L. aethiopica* Enderlein. (Roraima). Tropical waif.
 260. *L. amarilla* New. (Mato Grosso).
 261. *L. ariasi* García Aldrete. (Amazonas). Bolivia.
 262. *L. bahiana* García Aldrete. (Bahia).
 263. *L. belemensis* García Aldrete. (Pará).
 264. *L. bicornata* New & Thornton. (Mato Grosso, Roraima).
 265. *L. bimaculata* García Aldrete. (Pará). Belize, Colombia, Panama.
 266. *L. brasiliensis* García Aldrete. (São Paulo).
 267. *L. braticagua* García Aldrete. (Pará). Costa Rica, French Guiana.
 268. *L. breviforceps* García Aldrete. (Santa Catarina).
 269. *L. capreola* New. (Mato Grosso).
 270. *L. carioca* García Aldrete. (Rio de Janeiro).
 271. *L. cladoclasters* García Aldrete & Silva Neto. (Bahia).
 272. *L. columnaris* García Aldrete. (Santa Catarina).
 273. *L. concava* García Aldrete. (Rio Grande do Sul, Santa Catarina). Venezuela.
 274. *L. convexa* García Aldrete. (Bahia). Panama.
 275. *L. cuala* García Aldrete. (Pará, Paraná, Rio de Janeiro, Roraima, São Paulo). Mexico, Panama, Trinidad.
 276. *L. diamantina* García Aldrete & Silva Neto. (Bahia).
 277. *L. falcata* García Aldrete. (Roraima, Sao Paulo). Bolivia, Colombia.
 278. *L. garciai* Mockford. (Roraima).
 279. *L. lapadoce* García Aldrete & Silva Neto. (Bahia).
 280. *L. marabaensis* García Aldrete. (Pará).
 281. *L. marginata* New & Thornton. (Mato Grosso).
 282. *L. matogrossensis* García Aldrete. (Mato Grosso).
 283. *L. megaforcepeta* Mockford. (Roraima).
 284. *L. nevermanni* (Navás). (Pará). Costa Rica, Honduras, Panama, Trinidad.
 285. *L. nilopecanhensis* García Aldrete & Silva Neto. (Bahia).
 286. *L. oriximinaensis* García Aldrete & Silva Neto. (Pará).
 287. *L. palmera* New. (Mato Grosso, Goiás).

288. *L. papillata* García Aldrete. (Pará). French Guiana.
289. *L. patula* García Aldrete. (Rondônia).
290. *L. paulista* García Aldrete. (Sao Paulo). Argentina.
291. *L. pigmentithorax* García Aldrete. (Amazonas).
Colombia, Peru.
292. *L. pilosiforceps* García Aldrete. (Pará).
293. *L. rugosa* García Aldrete. (Rio de Janeiro, Santa
Catarina, São Paulo). Colombia, Peru, Trinidad.
294. *L. tectorum* Badonnel. (São Paulo). Widely
distributed.
295. *L. teresiana* García Aldrete. (Espírito Santo).
296. *L. trunca* García Aldrete. (Pará, Pernambuco).
Panama.
297. *L. valvula* New & Thornton. (Mato Grosso, Paraná).
Colombia.
298. *L. yanomami* Mockford. (Pará, Roraima).
299. *Nadleria alpha* Badonnel & García Aldrete. (Pará).
Trinidad.
300. *N. gamma* Mockford. (Amazonas). Belice, Peru.
301. *N. mockfordi* Badonnel & García Aldrete. (Pará).

Ectopsocidae

302. *Ectopsocopsis cryptomeriae* (Enderlein). (Rio Grande
do Sul). Cosmopolitan.
303. *Ectopsocus pumilis* (Banks). (São Paulo). Widely
distributed.
304. *E. ribagai* Enderlein. (Pará). Puerto Rico.
305. *E. richardsi* (Pearman). Brazil. Widely distributed.
306. *E. titschacki* Jentsch. (Bahia, Pará). Tropical waif.
307. *E. vilhenai* Badonnel. (Pará). Tropical waif.

Peripsocidae

308. *Peripsocus australis* Mockford. (Santa Catarina).
309. *P. nubifer* Mockford. (Roraima).
310. *P. pauliani* Badonnel. "Brazil". Widely distributed.
311. *P. phacellodomi* New. (Pernambuco).
312. *P. placidus* Mockford. (Roraima).
313. *P. subtristis* Mockford. (Roraima).
314. *P. teutonicus* Mockford. (Santa Catarina).
315. *P. tristis* Mockford. (Roraima).

Archipsocidae

316. *Archipsocopsis frater* (Mockford). (Sao Paulo). EUA,
Jamaica, Mexico.
317. *A. inornata* New. (Mato Grosso, Sao Paulo). Mexico,
Panama, Surinam, Trinidad, Venezuela.
318. *A. virgata* New. (Pará, Roraima). French Guiana,
Surinam, Venezuela.
319. *Archipsocus badonneli* New. (São Paulo). Colombia,
Venezuela.
320. *A. brasilianus* Enderlein. (Pará). Paraguay, Puerto
Rico.
321. *A. broadheadi* Badonnel. (Pará). Panama.
322. *A. castrii* Badonnel. (Sao Paulo). Colombia.
323. *A. cervinus* New. (Pará, Rio de Janeiro). Colombia,
Surinam, Venezuela.
324. *A. costalimai* New. (Pará, São Paulo).

325. *A. enderleini* New. (Mato Grosso).
326. *A. floridanus* Mockford. (São Paulo). Florida, Mexico.
327. *A. gibberophallus* New. (Mato Grosso). French Guiana.
328. *A. granulatus* Badonnel. (Mato Grosso).
329. *A. gurneyi* Mockford. (Roraima). EUA, Jamaica, Mexico.
330. *A. indentatus* Mockford. (Roraima).
331. *A. lenkoi* Badonnel. (Roraima).
332. *A. lineatus* New. (Pará).
333. *A. minutillus* New. (Amazonas, Mato Grosso).
334. *A. mockfordi* New. (Mato Grosso, Pará, Roraima, São
Paulo). Panama, Peru, Surinam, Trinidad, Venezuela.
335. *A. modestus* New. (Mato Grosso). Colombia.
336. *A. newi* Badonnel. (São Paulo).
337. *A. pearmani* New. (Mato Grosso). Panama.
338. *A. tenebricosus* New. (Mato Grosso).
339. *Notarchipsocus fasciipennis* Mockford. (Roraima).
340. *N. macrurus* (New). (Mato Grosso, Roraima)
Panama, Trinidad.

Pseudocaeciliidae

341. *Pseudocaecilius tahitiensis* (Karny). (Pará, Rio de
Janeiro, Roraima). Widespread in the tropics.
342. *Scytopsocus coriaceus* Roesler. (Santa Catarina).
Cuba, Jamaica, Mexico.
343. *S. difficilis* Roesler. (Santa Catarina).
344. *S. fluminis* Mockford. (Roraima).
345. *S. medialis* New & Thornton. (Mato Grosso).

Philotarsidae

346. *Haplophallus leopardina* (Williner). (Paraná).
Argentina, Colombia.
347. *Aaroniella bruchi* (Williner). (Roraima). Argentina.
348. *A. glabra* New & Thornton. (Santa Catarina).
349. *A. recta* New & Thornton. (Mato Grosso).

Elipsocidae

350. *Nepiomorpha brasiliiana* Badonnel. (São Paulo).
Mexico, Venezuela.
351. *N. cingulata* New. (Mato Grosso).
352. *N. dolosa* Badonnel. (São Paulo).
353. *N. pallida* New. (Mato Grosso, Roraima).

Hemipsocidae

354. *Hemipsocus pallidus* New & Thornton. (Mato Grosso).

Psocidae

355. *Blaste alfineta* New. (Mato Grosso).
356. *B. amazonica* García Aldrete. (Roraima).
357. *B. caudata* Mockford. (Roraima).
358. *B. forcepata* New. (Mato Grosso).
359. *B. fusimera* New & Thornton. (Paraná).
360. *B. hamata* Mockford. (Roraima).
361. *B. ligula* New & Thornton. (Paraná). Uruguay.
362. *B. longispina* Mockford. (Roraima).
363. *B. macrura* (New). (Amazonas, Mato Grosso, Roraima).

364. *B. obscura* (New). (Mato Grosso).
 365. *B. plaumanni* New. (Paraná).
 366. *B. richardsi* New. (Paraná).
 367. *Blastopsocidus brasiliensis* (New). (Mato Grosso).
 368. *Blastopsocus mockfordi* Badonnel. (Roraima). Colombia.
 369. *Elaphopsocus amazonicus* Román, González & García Aldrete. (Amazonas).
 370. *E. bahianus* Román, González & García Aldrete. (Bahia).
 371. *E. glaphyrostigma* Roesler. (Santa Catarina).
 372. *Cerastipsocus beaveri* New. (Mato Grosso, Paraná).
 373. *C. brasilianus* (Enderlein). (Espírito Santo).
 374. *C. consocius* (Navás). "Brazil".
 375. *C. fuscipennis* (Burmeister). "Brazil".
 376. *C. kolbei* New. (Mato Grosso).
 377. *C. rugosus* New & Thornton. (Paraná).
 378. *C. sivorii* (Ribaga). (São Paulo). Uruguay.
 379. *C. willineri* New & Thornton. (Paraná).
 380. *Cervopsocus medialis* New. (Amazonas, Pará, Rondônia). Belize, Colombia, Peru.
 381. *Dactylopsocus fumigatus* (Kolbe). (Santa Catarina).
 382. *D. similis* Mockford. (Roraima).
 383. *Eremopsocus crassicornis* (Kolbe). (Minas Gerais, Santa Catarina). Argentina, Uruguay.
 384. *E. infumatus* McLachlan. (Goiás). Venezuela.
 385. *E. nigripes* Mockford. (Santa Catarina).
 386. *Psococerastis amazonica* New. (Amazonas).
 387. *P. callangana* (Enderlein). (Amazonas Espírito Santo, Minas Gerais, Pernambuco, Rio de Janeiro, Santa Catarina). Panama, Peru.
 388. *P. fasciata* Mockford. (Amazonas, Espírito Santo, Pará, Rio de Janeiro, Santa Catarina). Belize, Mexico, Panama.
 389. *P. hageni* New. (Mato Grosso).
 390. *P. opulenta* (Navás). (Amazonas, Goiás, Mato Grosso, Pará, Pernambuco, Rio de Janeiro, São Paulo). Widely distributed in tropical America.
 391. *P. paraguayana* (Ribaga). (Santa Catarina, São Paulo). Paraguay.
 392. *P. pictiventris* (Kolbe). (Santa Catarina).
 393. *P. pyralina* (Kolbe). (Minas Gerais, Santa Catarina).
 394. *P. stictica* (Banks). "Brazil".
 395. *Brachinodiscus cinctipes* (Enderlein). "Brazil". Bolivia, Paraguay, Peru.
 396. *Metylophorus bishopi* New. (Mato Grosso).
 397. *M. calcaratus* Mockford. (Roraima).
 398. *M. ctenatus* New. (Mato Grosso).
 399. *M. fasciatus* New. (Amazonas).
 400. *M. hispidus* Mockford. (Roraima).
 401. *M. symmetricus* Mockford. (Roraima).
 402. *M. theresopolitanus* (Enderlein). (Rio de Janeiro).
 403. *Ophthalmopsocus ocularis* (Kolbe). "Brazil".
 404. *O. pallidus* New. (Mato Grosso, Roraima).
 405. *Indiopsocus paranensis* (New & Thornton). (Paraná).
 406. *I. sinuatistigma* (New). (Mato Grosso).
 407. *Psocidus allostigmus* (Banks). "Brazil".
 408. *P. manausensis* New. (Amazonas).
 409. *P. fuscatus* (Navás). "Brazil".
 410. *P. kotzbaueri* (Navás). "Brazil".
 411. *P. nigricornis* (Brauer). "Brazil".
 412. *P. proi* (Navás). (Rio Grande do Sul). Argentina.
 413. *P. punctaticeps* (Enderlein). "Brazil".
 414. *P. quadrisignatus* (Banks). (Amazonas).
 415. *P. simplex* (Enderlein). "Brazil".
 416. *P. zikani* (Navás). "Brazil".
 417. *Psocomesites continuatus* (Roesler). (Pará).
 418. *Ptycta lunulata* New. (Mato Grosso).
 419. *P. pearmani* New. (Mato Grosso).
 420. *P. reticulata* New. (Mato Grosso).
 421. *Steleops albertoneto* González, García Aldrete & Carrejo. (Bahia).
 422. *S. maculatus* New. (Mato Grosso).
 423. *S. pedunculatus* (Enderlein). Brazil. Paraguay, Peru.
 424. *S. pulcher* New. (Mato Grosso).
 425. *Trichadenotecnum circularoides* Badonnel. (Roraima). Widely distributed.
 426. *T. gonzalezi* (Williner). (Roraima). Argentina.
 427. *T. pardus* Badonnel. (Pará). Widely distributed.
 428. *T. roesleri* New. (Mato Grosso).
 429. *T. shawi* Yoshizawa & García Aldrete. (Goiás).
 430. *T. simile* Mockford. (Roraima).
 431. *T. sinuatum* New. (Mato Grosso).
 432. *T. ufla* Yoshizawa. (Minas Gerais).
 433. *Dictyopsocus pennicornis* (Burmeister). (Amazonas, Bahia, Ceará, Paraíba, Santa Catarina). Argentina, Venezuela.
 434. *Poecilopsocus anticus* (Walker). (Pará).
 435. *P. beaveri* (New). (Mato Grosso).
 436. *P. bishopi* (New). (Mato Grosso).
 437. *P. cinctus* (Enderlein). (Amazonas).
 438. *P. leucotelus* (Walker). (Pará).
 439. *P. richardsi* (New). (Mato Grosso).
 440. *Thyrsophorus formosus* Navás. "Brazil".
 441. *T. speciosus* Burmeister. (Pará). French Guiana, Panama, Peru, Surinam.
 442. *Thyrsopsocus aequatorialis* Enderlein. "Brazil". Ecuador.
 443. *T. bellus* (McLachlan). (Pará). Bolivia, Peru.
 444. *T. brasiliensis* New. (Amazonas).
 445. *T. elegans* (Enderlein). Brazil.
 446. *Thyrsosocopsis amazonicus* Román, García Aldrete & González. (Amazonas).
- Myopsocidae**
447. *Lichenomima ariasi* (New). (Amazonas, Roraima).
 448. *L. conspersa* Enderlein. (Espírito Santo). Paraguay.
 449. *L. onca* Mockford. (Roraima). Colombia.
 450. *L. pulchella* (New & Thornton). (Mato Grosso).
 451. *L. sparsa* (Hagen). (Espírito Santo). Canada, Cuba, Mexico, USA.
 452. *L. thorntoni* Mockford. (Roraima).
 453. *L. timmei* Mockford. (Roraima).
 454. *Myopsocus albomaculatus* (New). (Amazonas).
 455. *M. albus* García Aldrete. (Roraima).
 456. *M. cinctus* (New). (Amazonas).
 457. *M. minor* (New & Thornton). (Mato Grosso). Colombia.
 458. *M. parvus* Mockford. (Roraima).
 459. *M. pennyi* (New). (Amazonas).
 460. *M. vesperilio* Mockford. (Roraima).

Key to families of Psocoptera from Brazil

Adapted from García Aldrete & Mockford (2012) and García Aldrete *et al.*, 2018.

1. Adults with more than 18 flagellomeres; hypopharyngeal filaments separate in their entire length, never fused on midline; labial palpus with minute basal segment and rounded distal segment..... Suborder Trogiomorpha . . . 3
- Adults with less than 18 flagellomeres (usually 11-13); hypopharyngeal filaments fused along midline at least for part of their length; labial palpus as above, or only one-segmented..... 2
2. Adults with 13 flagellomeres (rarely less); at least some flagellomeres annulated with cuticular sculpture. Labial palpus usually with a minute basal segment and a rounded distal segment. Tarsi usually three-segmented. Forewing, when present, lacking sclerotized pterostigma..... Suborder Troctomorpha . . . 7
- Adults with 11 flagellomeres (rarely less); no flagellomeres annulated with cuticular sculpture but sometimes with reticulate sculpture in cuticle. Labial palpus lacking basal segment, consisting of a single rounded or triangular segment. Tarsi two- or three-segmented. Forewings, when fully developed, with sclerotized pterostigma Suborder Psocomorpha . . . 11
3. Lacinia slightly simplified. Paraprocts lacking anal spine..... Infraorder Prionoglaridetae: Prionoglarididae
- Lacinia normally developed. Paraprocts with anal spine..... 4
4. Forewings, when fully developed, with vein Cu₂ (CuP) and IA ending separately on wing margin; spur sensillum always present on the second segment of maxillary palpus (Mx₂). Ovipositor valvulae: v₃ elongate, partially joined together on midline by membrane; v₂ small or absent; v₁ absent..... Infraorder Atropetae . . . 5
- Forewings, when fully developed, with veins Cu₂ (CuP) and IA ending together on wing margin (point of junction called 'nodulus'); spur sensillum of Mx₂ present or absent. Ovipositor valvulae: v₃ never elongate, but sometimes very broad; v₂ usually present, slender; v₁ frequently present, slender Infraorder Psyllipsocetae: Psyllipsocidae
5. Body and forewings covered with scales or dense setae. Wings often pointed apically, with visible veins. Mesocoxae of the two sides capable of interlocking by a 'button and cavity' mechanism Lepidopsocidae
- Body and forewings never covered with scales or dense setae. Wings not pointed apically, with visible veins. Mesocoxae of the two sides not capable of interlocking..... 6
6. Wings, even when very small, with distinct, visible veins. Ovipositor only with valve 3. Opening of the spermatheca with two conspicuous accessory bodies... Psoquillidae
- Wings reduced, without distinct veins, occasionally absent. Ovipositor mainly with valve 3, but usually also with valve 2. Two denticulated accessory plates (maculas) attached to spermatheca Trogiidae
7. Small forms, rarely over 2 mm in length. Males wingless, females usually wingless or brachypterous. Forewings of winged females with not more than two M branches and lacking vein A₂. Pearman's coxal organ absent or represented by a slight bulge in cuticle Infraorder Nanopsocetae . . . 8
- Body size variable but usually at least 3 mm in length. Wings present in adults of both sexes, forewings with M three-branched and vein IIA usually present. Pearman's coxal organ represented by a mirror and a rasp Infraorder Amphientometae . . . 9
8. Body flattened; coxae of opposite sides widely separated by broad sternal plates. Forewings, when present (some females) with two parallel longitudinal veins occupying main body of wing Liposcelididae
- Body not flattened; coxae of opposite sides only narrowly separated. Forewings, when present (some females), with several branching veins occupying main body of wing Pachytroctidae
9. Body and forewings densely covered with scales. In forewing veins A₁ and A₂ separate for their entire length Amphientomoidea: Amphientomidae
- Body and forewings lacking scales. In forewing veins IA and IIA joined together before reaching wing margin superfamily Electrentomoidea . . . 10
10. Forewing with a long Rs-M crossvein; forewings unpigmented. Outer cusp of lacinial tip with only two denticles..... Musapsocidae
- Rs and M in forewing joined at a point; forewings with cloudy pigmentation throughout or with distinct spotting and banding pattern. Outer cusp of lacinial tip with three denticles Troctopsocidae
11. Meso-precoxal bridges narrow and corresponding mesotrochantins broad basally. Labrum curved on sides, well molded to contours of mandibles Infraorder Psocetae . . . 32
- Meso-precoxal bridges and mesotrochantins not as above (*i.e.*, the former wide and the latter narrow basally), or, if otherwise, labrum broad and flat, bearing a longitudinal pair of sclerites 12
12. Pretarsal claw lacking preapical denticle, forewings and body not densely-setose Infraorder Caeciliusetae . . . 18
- Pretarsal claw usually with a preapical denticle; if denticle absent (Family Archipsocidae) forewings and body densely-setose 13
13. V₃ largely fused to v₂. Labrum with a pair of longitudinal sutures running through it. Labrum usually flat, not conforming closely to contours of mandibles; mandibles elongate Infraorder Epipsocetae . . . 14
- V₃ largely free from v₂ and from body wall. Labrum curved on sides, well molded to contours of mandibles, lacking a pair of longitudinal sutures running through it..... Infraorder Homilopsocidea . . . 22
14. Forewings with one anal vein Epipsocidae
- Forewings with two anal veins 15
15. Forewings with length of A₂ equal to or greater than half the length of A₁; pterostigma with a spur-vein Spurostigmatidae
- Forewings with length of A₂ less than half the length of A₁; pterostigma without a spur-vein (except *Timnewia*) 16
16. Lacinial tip with outer cusp slender, bearing not more than three denticles. Pretarsal claw with pulvillus bent near base, expanded at tip..... Dolabellopsocidae
- Lacinial tip with outer cusp broader, bearing more than three denticles. Pretarsal claw with pulvillus straight and pointed distally 17
17. Pretarsal claw with a basal spine in addition to the more distal pulvillus. Forewings with or without spur veins, M with three branches. The two labral sutures reaching proximal margin of labrum and curving around to lateral margin Cladiopsocidae

- Pretarsal claw with only the spine-like pulvillus. Forewing veins lacking spur veins, M with three to nine branches. The two labral sutures never reaching proximal margin of labrum, except in *Willreevesia* Ptiloneuridae
18. Ventral abdominal vesicles absent. Mesepisternal sulcus absent. Mandibles short to moderate in length..... Superfamily Asiopsocidae: Asiopsocidae
- With one to three ventral abdominal vesicles. Mesepisternal sulcus present. Mandibles elongate Superfamily Caeciliusoidea . . . 19
19. Forewings with a crossvein from the pterostigma to Rs stem and another from the M stem to areola postica..... Stenopsocidae
- Forewings without crossveins as above..... 20
20. Ciliation of hindwing margin restricted to cell r3 or none. Mx4 longer than Mx2. Spine of free margin of paraproct large Dasydemellidae
- Ciliation of hindwing margin complete except for basal two-thirds of front margin. Mx4 shorter than or equal to Mx2. Spine of free margin of paraproct small or absent..... 21
21. Setae of veins in distal half of forewing on both dorsal and ventral surfaces, vein M 2 or 3-branched. Mx4 = Mx2 in length Amphipsocidae
- Setae of veins in distal half of forewing only on dorsal surface, vein M 3-branched. Mx4 shorter than Mx2 Caeciliusidae
22. In forewings, setae of wing margin in m cells in two series forming crossing pairs. Brachypterous and micropterous individuals with numerous long, backward-directed setae on vertex and thoracic dorsum 23
- Forewing margin lacking series of crossing hairs. Brachypterous and micropterous individuals with at most only moderate body ciliation 25
23. Venation in forewing vague; Rs in forewing often unbranched. Wings often greatly reduced; in both macropterous and short-winged forms numerous long, backward directed setae on vertex and thoracic dorsum. Usually colonial forms living under dense webbing Archipsocidae
- Venation in forewing distinct; Rs in forewing with two branches. Wings usually not reduced. Vertex and thoracic dorsum lacking numerous long, backward-directed setae. Generally solitary, or a few individuals living together, either in open or under light webbing 24
24. Adults with tarsi two-segmented. External parameres generally much longer than aedeagal arch. Leaf-inhabiting forms Pseudocaeciliidae
- Adults usually with three tarsal segments. External parameres only slightly longer or shorter than aedeagal arch. Bark-inhabiting forms Philotarsidae
25. Macropterous forms..... 26
- Micropterous or apterous forms 29
26. Forewings with vein CuA1 present and usually free from M. Wings either unciliated or lightly ciliated. Ovipositor reduced to one (v3), rarely two valvulae on each side Lachesillidae
- Forewings lacking vein CuA1. Wings lightly to moderately ciliated. Ovipositor usually with three valvulae, rarely reduced to one on each side..... 27
27. Vein R1 in pterostigma parallel to wing margin most of its length Ectopsocidae (part)
- Vein R1 in pterostigma curved 28
28. Both sexes macropterous. Phallosome elongate, with heavily sclerotized endophallic structure distally in form of a three-pronged fork..... Peripsocidae (part)
- Either males or females macropterous, not both. Endophallus not as above Elipsocidae (part)
29. Body with some spinous bristles facing upwards..... Elipsocidae (part)
- Body without spinous bristles..... 30
30. Antenna much shorter than the body. Subgenital plate with a distal median lobe, simple, thin (egg guide) Elipsocidae (part)
- Antenna about as long as the body. Subgenital plate with a relatively wide median distal protuberance or with two distal protuberances 31
31. Epistomal suture present dorsally, separating frons from postclypeus. Subgenital plate usually with two distal processes Ectopsocidae (part)
- Epistomal suture absent dorsally, postclypeus and frons continuous. Subgenital plate with a single, relatively broad median distal process..... Peripsocidae (part)
32. Vein M in forewing two-branched, the M stem joined to vein CuA1 by a long crossvein; hind tibia lacking longitudinal row of ctenidiobothria Hemipsocidae
- Vein M in forewing three-branched, the M stem usually fused for a short distance to vein CuA1; rarely the two joined by a short crossvein. Hind tibia with a longitudinal row of ctenidiobothria 33
33. Tarsi three-segmented; forewings heavily blotched with brown, the margins with alternating brown and colorless banding Myopsocidae
- Tarsi two-segmented; forewing markings variable, but margins not with alternating brown and colorless banding Psocidae

DISCUSSION

García Aldrete & Mockford (2009) listed 425 species, in 94 genera and 28 families of Psocoptera for Brazil; thirty-nine species not described and a new genus not described (Genus *ca. Goja*) were included in this list. Based on the data above, there were 385 species and 93 genera described or recorded for Brazil to 2009. In this paper, only described species were considered, totaling 460 species in 97 genera and 30 families for the Brazilian psocid fauna (Figs. 1, 2). The number of psocid species recorded in Brazil was increased from 2009 to the beginning of 2020 by seventy-six species, four genera (*Lithoseopsis* Mockford, *Neotroglia* Lienhard, *Ptiloneura* Enderlein and *Spurostigma* Eertmoed) and two families (Prionoglarididae Karny and Spurostigmatidae Eertmoed).

Lienhard & Smithers (2002) recorded for South America 762 species and also suggested that the num-

ber of species recorded in Brazil, and in general for South America was highly underestimated. Rafael *et al.* (2012) in the preface of the book "Insects from Brazil" estimated a total of 2.000 psocid species for Brazil. If this estimation made is close to reality, there would still be around 1.500 psocid species to be described or recorded for Brazil, and hence, these numbers suggest that we still do not know 75% of the Brazilian psocid fauna.

In 2018 a list of 720 species of Psocoptera recorded in Colombia (including species not described) was published and the number of Colombian psocids was therefore increased by 811.4% (García Aldrete *et al.*, 2018). In the list of Colombian species, out of the 720 listed species, only 320 were described species, and therefore Brazil is the country with the most diverse known psocid fauna of South America. Silva-Neto *et al.* (2014b) recorded 175 undescribed psocid species for the Northeast region of Brazil. In addition, direct observation made by

one of us (AMSN) confirm dozens of other undescribed species stored and identified at the level of genus in several Brazilian collections, especially in the collection of the Instituto Nacional de Pesquisas da Amazônia (INPA), in Manaus, Amazonas; the Entomological Collection Prof. Johann Becker of the Zoology Museum of the Universidade Estadual de Feira de Santana, in Feira de Santana, Bahia, Brazil (MZFS) and the Invertebrate

Collection of the Biology Department, Universidade Federal de Lavras, Minas Gerais, Brazil.

The largest and most diverse Brazilian psocid family is Psocidae, with 92 species in 23 genera, followed by Ptiloneuridae (56 species in 7 genera), Epipsocidae (46 species in 5 genera), and Lachesillidae (49 species in 7 genera) (Figs. 1, 2). Ptiloneuridae was the family that most increased its diversity in Brazil, from 19 species and

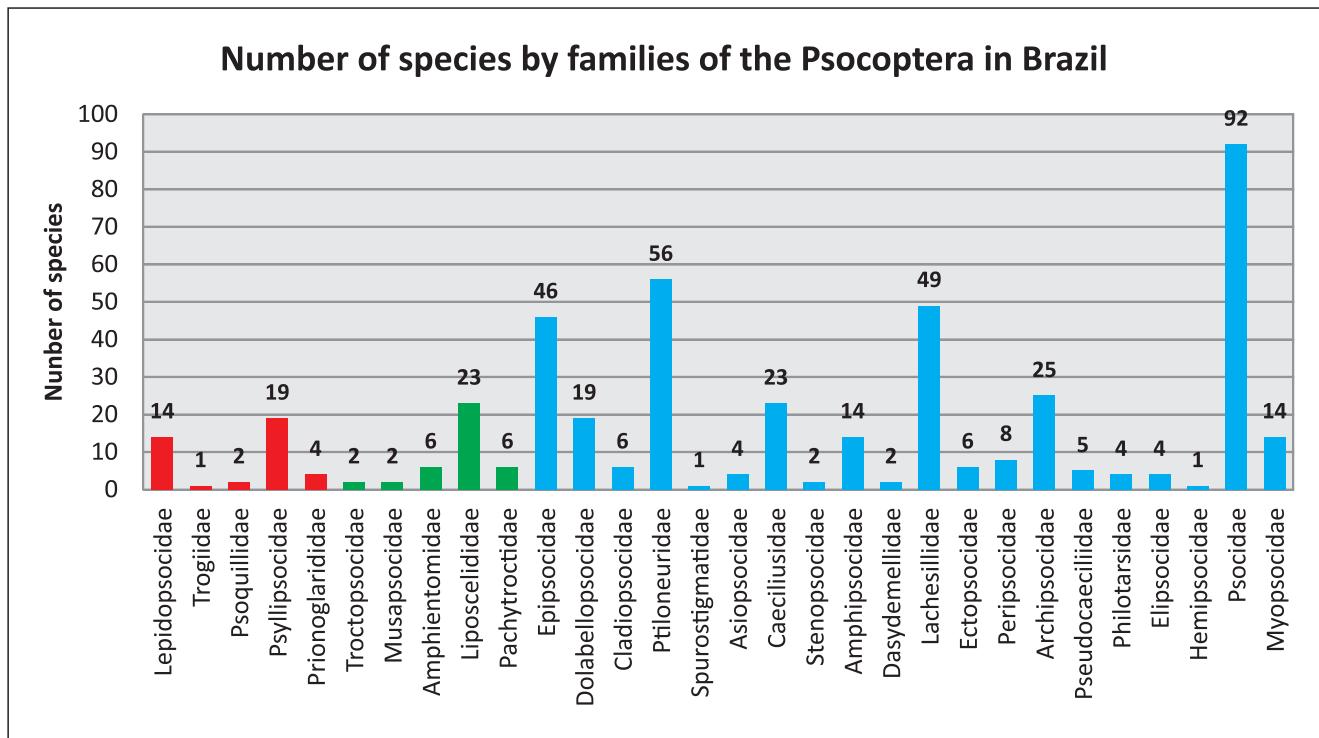


Figure 1. Number of Brazilian psocid species by family. Red Trogiomorpha families. Green Troctomorpha families. Blue Psocomorpha families.

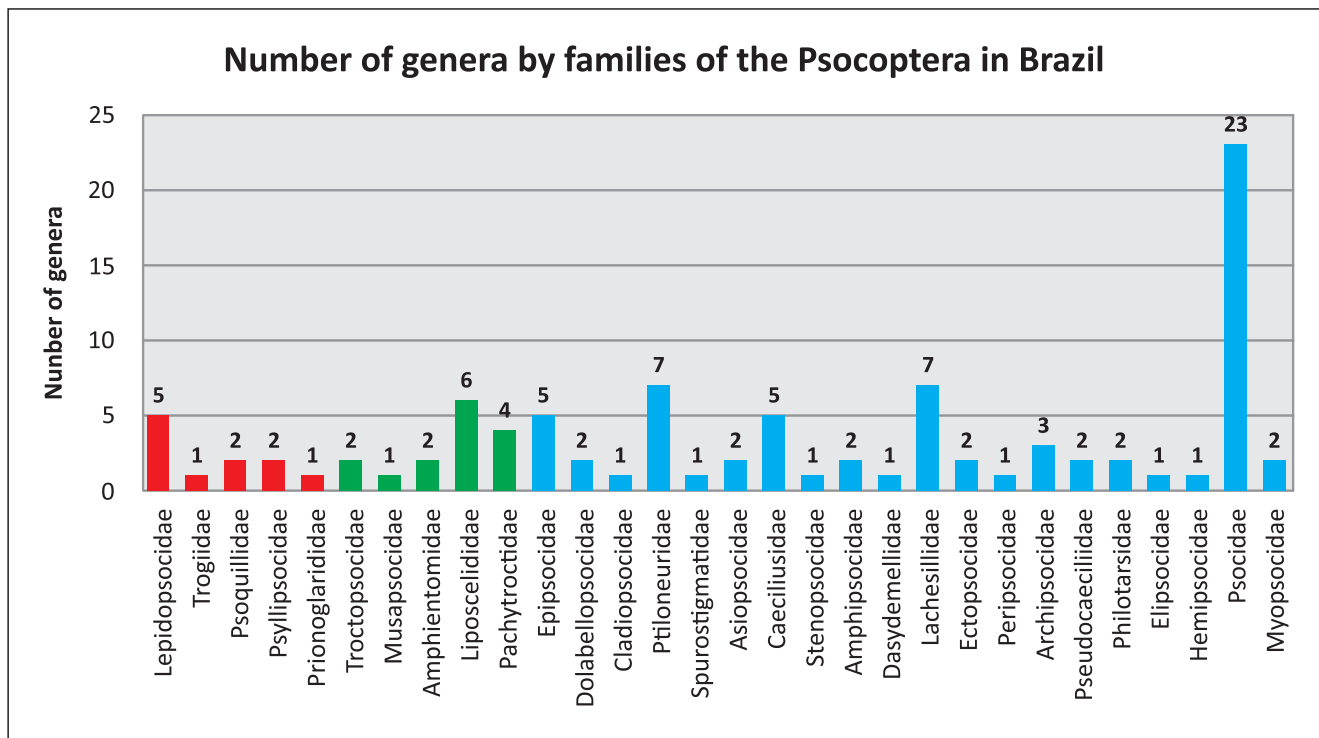


Figure 2. Number of Brazilian psocid genera by family. Red Trogiomorpha families. Green Troctomorpha families. Blue Psocomorpha families.

five genera in 2009 to 56 species and seven genera in 2020 (Figs. 1, 2).

Brazil is divided in 26 states and a Federal District. Psocid species were recorded in 23 of these Brazilian states (Fig. 3). The northern region of Brazil is the most diverse in number of species, with 228 species, totaling 49% of all the Brazilian psocid fauna and especially the following states: Roraima (91 species), Amazonas (77 species) and Pará (50 species) (Fig. 3).

Among the Brazilian regions, the Northeast region has the lowest number of Psocoptera species records (Fig. 3). This fact has already been emphasized by Silva-Neto *et al.* (2014a), but the number of psocids species recorded in this Brazilian region has increased considerably, from 22 species in 2009 to 58 species in 2020. The increase of 263% in the number of Psocoptera fauna in

the Northeast region is due to the study of fauna in the state of Bahia (fauna inventories of the program PPBio-Semi-Árido, Universidade Estadual de Feira de Santana) and studies of cave fauna in northeastern states (The program Cave invertebrates in Brazil, Universidade Federal de Lavras).

The most diverse Brazilian state in terms of number of families, genera and species is the Brazilian state of Mato Grosso, located in the Midwest region of Brazil (Fig. 3). Mato Grosso had its South region separated in 1977 to originate the state of Mato Grosso do Sul. The most species of Psocoptera described for that location were collected before 1977 and had information not so accurate on exact collection locations, sometimes just information: Mato Grosso. In this way, many of the species in these papers recorded in Mato Grosso, may have been

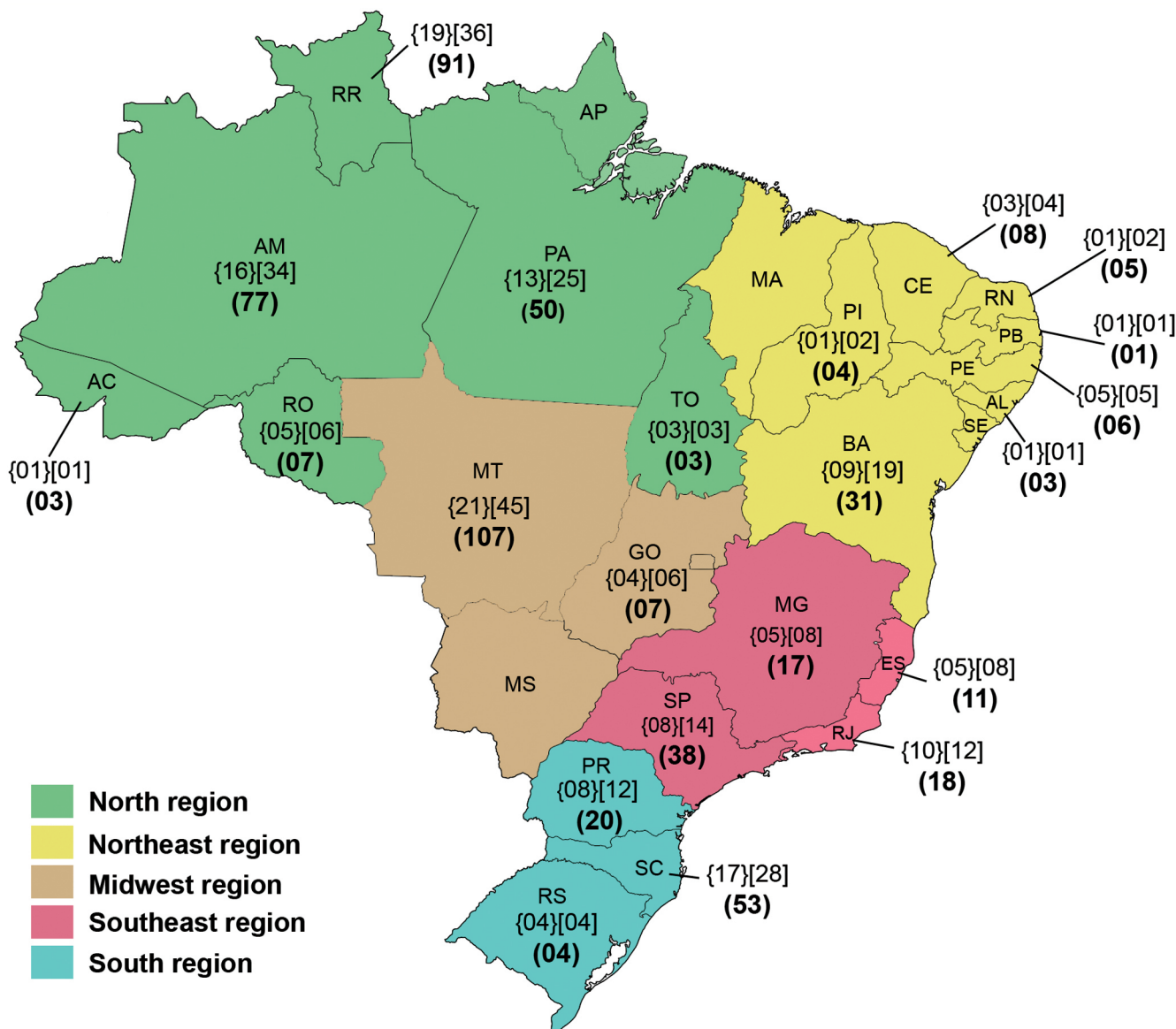


Figure 3. Distribution map of psocid families, genera and species by Brazilian states. Families between curly brackets, genera between square brackets and species between parentheses. The species number sum in the map does not represent the number of recorded species in Brazil, as one species may have been recorded in more than one State. Abbreviations of the Brazilian states: AC = Acre, AM = Amazonas, RR = Roraima, RO = Rondônia, AP = Amapá, PA = Pará, TO = Tocantins, MT = Mato Grosso, MS = Mato Grosso do Sul, GO = Goiás, MA = Maranhão, PI = Piauí, CE = Ceará, RN = Rio Grande do Norte, PB = Paraíba, PE = Pernambuco, AL = Alagoas, SE = Sergipe, BA = Bahia, MG = Minas Gerais, ES = Espírito Santo, RJ = Rio de Janeiro, SP = São Paulo, PR = Paraná, SC = Santa Catarina e RS = Rio Grande do Sul.

collected in the current region of the Mato Grosso do Sul and perhaps for this reason, the latter is one of the three Brazilian states without records of Psocoptera species.

In the southern region of Brazil, the state of Santa Catarina appears with a considerable diversity with 53 species recorded. Most of the psocids species in the Brazilian state of Santa Catarina were collected and sent to foreign Psocoptera specialists, by the German entomologist Fritz Plaumann, resident in Santa Catarina, who in 70 years of work (1924 to 1994), catalogued about 80 thousand specimens of 17 thousand different insect species, of which 1,500 were unknown to science and among these hundreds of psocid species.

In addition to the megadiversity of the Brazilian psocid fauna, its high level of endemism is remarkable, with 75% (343) of Brazilian psocid species exclusive to its na-

tional territory. In the future, with the increase of studies of psocid fauna in South America, many of the species endemic to Brazil may lose that status. For example, with the publication of the Colombian psocid fauna (García Aldrete *et al.*, 2018), twelve species (*Epipsocus badonneli* Mockford, *Mesepipsocus brasiliensis* (New), *Neurostigma xanthopterum* New, *Dolabellopsocus lobatus* Mockford, *Triplocania lamasi* Silva Neto, Rafael & García Aldrete, *Triplocania lamasoides* Silva Neto, Rafael & García Aldrete, *Triplocania furcata* New, *Graphocaecilius interpretatus* Roesler, *Amazolachesilla ariasi* García Aldrete & Mockford, *Lachesilla valvula* New & Thornton, *Lichenomima onca* Mockford and *Myopsocus minor* (New & Thornton)) that were considered endemic to Brazil in the list of García Aldrete & Mockford (2009) are no longer exclusive to the Brazilian fauna.

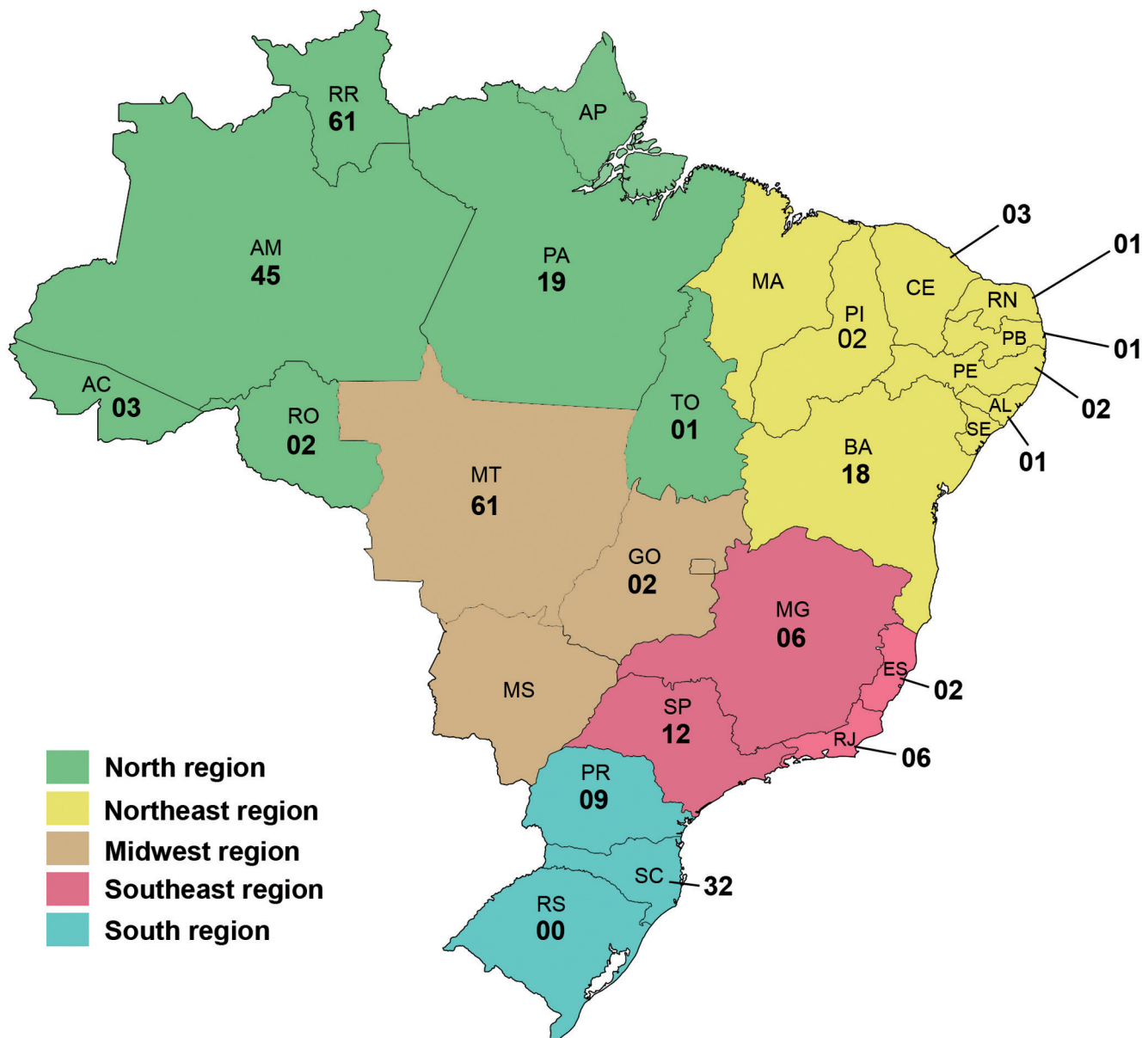


Figure 4. Distribution map of endemic psocid species by Brazilian states. Abbreviations of the Brazilian states: AC = Acre, AM = Amazonas, RR = Roraima, RO = Rondônia, AP = Amapá, PA = Pará, TO = Tocantins, MT = Mato Grosso, MS = Mato Grosso do Sul, GO = Goiás, MA = Maranhão, PI = Piauí, CE = Ceará, RN = Rio Grande do Norte, PB = Paraíba, PE = Pernambuco, AL = Alagoas, SE = Sergipe, BA = Bahia, MG = Minas Gerais, ES = Espírito Santo, RJ = Rio de Janeiro, SP = São Paulo, PR = Paraná, SC = Santa Catarina e RS = Rio Grande do Sul.

The Brazilian state with the largest number of endemic psocid species is Mato Grosso (61 species), followed by the states of Roraima (61 species), Amazonas (45 species), Santa Catarina (32 species) and Bahia 18 (species) (Fig. 4). In the future, with the increase of studies of the psocid fauna in different states and regions, the tendency is that cases of endemism by states and regions will have a considerable decrease, demonstrating more clearly the true patterns of distribution of species of Psocoptera in Brazil.

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