

Estado da publicação: O preprint foi publicado em um periódico como um artigo  
DOI do artigo publicado: <https://doi.org/10.1590/2236-8906-78/2020>

## Uma lista das briófitas do Estado do Amapá, norte do Brasil

Fúvio Rubens Oliveira-da-Silva, Luciana Priscila Costa Macedo, Anna Luiza Ilkiu-Borges

<https://doi.org/10.1590/2236-8906-78/2020>

Submetido em: 2021-05-01

Postado em: 2021-05-03 (versão 1)

(AAAA-MM-DD)

<https://doi.org/10.1590/2236-8906-78/2020>

## **A checklist of the bryophytes from Amapá State, Northern Brazil**

Fúvio Rubens Oliveira-da-Silva<sup>1,4</sup>, Luciana Priscila Costa Macedo<sup>2</sup> e Anna Luiza Ilkiu-Borges<sup>3</sup>

**Título resumido:** Bryophytes from Amapá State

### **NÚMEROS DOS ORCID<sup>s</sup> DE CADA AUTOR**

Fúvio Rubens Oliveira-da-Silva: <https://orcid.org/0000-0002-4871-6740>

Luciana Priscila Costa Macedo: <https://orcid.org/0000-0002-9950-4457>

Anna Luiza Ilkiu-Borges: <https://orcid.org/0000-0002-1266-7211>

Received: 29.06.2020; accepted: 26.10.2020

---

<sup>1</sup> Universidade Federal Rural da Amazônia/Museu Paraense Emílio Goeldi, Programa de Pós-graduação em Ciências Biológicas - Botânica Tropical, Avenida Perimetral 1901, 66530-070 Belém, Pará, Brasil

<sup>2</sup> Universidade Federal Rural da Amazônia, Rodovia PA 140 KM 3 S/N, Açailândia, 68680-000 Tomé-Açu, Pará, Brasil

<sup>3</sup> Museu Paraense Emílio Goeldi, Coordenação de Botânica, Avenida Perimetral 1901, 66530-070 Belém, Pará, Brasil

<sup>4</sup> Corresponding author: [oliveira.fuvio@gmail.com](mailto:oliveira.fuvio@gmail.com)

**ABSTRACT** – (A checklist of the bryophytes from Amapá State, Northern Brazil). A checklist is a good base for gathering registers of biodiversity and supporting further studies. The aim of this paper is to present a checklist of the bryophytes from Amapá State, including the distribution data of the species. In total, 174 species (80 mosses and 94 liverworts) in 78 genera and 30 families are registered for Amapá State, northern Brazil, based on examined specimens and on a review of the literature. A table with the species, distribution data for all municipalities of Amapá State, and the first record for all species are presented.

**Keywords:** Amapá State flora, bryoflora, compilation of data, floristic study, taxonomy

**RESUMO** – (Uma lista das briófitas do Estado do Amapá, norte do Brasil). Uma lista é uma boa base para reunir registros de biodiversidade e apoiar novos estudos. O objetivo deste artigo é apresentar uma lista de verificação das briófitas do Estado do Amapá, incluindo os dados de distribuição das espécies. No total, 174 espécies (80 musgos e 94 hepáticas) em 79 gêneros e 30 famílias são registradas no Estado do Amapá, norte do Brasil, com base em espécimes examinados e em uma revisão da literatura. Uma tabela com as espécies, dados de distribuição para todos os municípios do Estado do Amapá e o primeiro registro para todas as espécies são apresentados.

**Palavras-chave:** brioflora, compilação de dados, estudo florístico, flora do Estado do Amapá, taxonomia

## Introduction

The Amapá State presents several Amazonian physiognomies of high biological diversity mainly represented by dense Terra Firme forest, Várzea forest, mangrove, transition areas between forests, and savannah vegetation (IBGE 2004, Costa-Neto *et al.* 2006, ZEE 2008). The bryophyte flora in the State is still poorly known if compared to other States in Brazil (Lisboa *et al.* 2006, Oliveira-da-Silva & Ilkiu-Borges 2020), especially considering that it is one of the most preserved, with more than 72% of its territory divided into 19 conservation units (12 national, five States, and two municipal) (Drummond *et al.* 2008).

Herzog (1931) was the first work that made a study with bryophytes from the State of Amapá. He identified mosses and liverworts collected by von Lützelburg in northern Brazil, especially in the State of Amazonas and Pará. However, some collections of Herzog's study were cited as “Staat Pará: Rio Oyapock”. The Oiapoque River is in the municipality of Oiapoque, in Amapá State, on the border with French Guiana. At the time of the publication of Herzog, the Amapá territory belonged to the Grão-Pará province (currently Pará State). Only in 1943, the Amapá State was separated from Pará and become a separate federal unit.

Oliveira-da-Silva & Ilkiu-Borges (2020) had already listed most studies on bryophytes in Amapá State (Crosby 1969, Grolle 1984, Yano 1981, 1982, 1984b, 1992, Yano *et al.* 1985, Yano & Lisboa 1988, Churchill 1998, Gradstein & Costa 2003, Lisboa *et al.* 2006, Gentil & Menezes 2011) discussing its advances in the State. In this study, they investigated the richness and composition of bryophytes of two Parks in Amapá, registering 63 new records for the State and three new records for the North region of Brazil. Also, they pointed out the need for more comprehensive studies on the bryophyte flora in the State.

A checklist is a good base for gathering registers of biodiversity, serving as a data basis for other studies. The bryophyte flora in Brazil is currently represented by 1.521 species, of which 18.1% are endemic, according to the BFG (2018). This number of species was reached through several studies carried out by different researchers, which enable to know the bryophytes that compose the flora of specific localities or geographic regions (*e.g.*, Gradstein & Costa 2003, Costa & Luizi-Ponzo 2010, Costa *et al.* 2011, Costa & Peralta 2015, BFG 2018), or on checklists (*e.g.*, Yano 1981, 1984, 1989, 1995, 1996, 2006, 2008, Peralta & Yano 2001, Câmara *et al.* 2005, Costa *et al.* 2005).

No comprehensive list with distribution data of bryophyte species is available for Amapá State, but the knowledge is spread in a few local studies (*e.g.*, Oliveira-da-Silva & Ilkiu-Borges 2020). This paper aims to fulfill this gap presenting a checklist of the bryophytes in Amapá State, including distribution data.

### **Material and methods**

The checklist was based on the literature of bryophytes as guides, taxonomic revisions, and specific studies for Amapá already published, as follows: Herzog (1931), Crosby (1969), Yano (1981, 1982, 1984b, 1992), Grolle (1984), Yano *et al.* (1985), Yano & Lisboa (1988), Gradstein (1994), Churchill (1998), Gradstein & Costa (2003), Lisboa *et al.* (2006), Gentil & Menezes (2011), BFG (2018), Oliveira-da-Silva & Ilkiu-Borges (2020), and Macedo *et al.* (in press). The voucher cited for each species in table 1 was preferably the one examined by the authors.

Taxonomic classifications adopted are by Goffinet *et al.* (2009) and Crandall-Stotler *et al.* (2009) for Bryophyta and Marchantiophyta, respectively. The classification of Sematophyllaceae is following Carvalho-Silva *et al.* (2017), while for *Dibrachiella*

and *Cryptolophocolea* we followed Shi *et al.* (2015) and Söderström *et al.* (2013), respectively.

Data on municipalities of Amapá are following the Instituto Brasileiro de Geografia e Estatística - IBGE (2019). They were standardized for all specimens in which locality was registered in the publication. Species classified as “common” present records in more than four municipalities in the State of Amapá.

## Results

In Amapá State, 174 species in 78 genera and 30 families of bryophytes were registered. Mosses were represented by 80 species, 39 genera, and 21 families, while liverworts were represented by 94 species, 39 genera, and nine families (table 1). None hornwort was recorded.

Lejeuneaceae Cavers and Calymperaceae Kindb. were the most diverse families found in the State of Amapá, with 73 and 23 species, respectively. The two families represented more than 55% of the most diversified families for the State (figure 1). Genera with a higher number of species were *Syrrhopodon* Schwägr. and *Lejeunea* Lib., with 12 and 11 species, respectively. The most common species of the mosses (recorded in four or more municipalities) were *Callicostella pallida* (Hornsch.) Ångström, *Calymperes erosum* Müll. Hal., *Microcalpe subsimplex* (Hedw.) W.R. Buck, *Octoblepharum albidum* Hedw., *Syrrhopodon ligulatus* Mont., *Taxithelium planum* (Brid.) Mitt., and *Trichosteleum papillosum* (Hornsch.) A. Jaeger, and of the liverworts were *Ceratolejeunea coarina* (Gottsche) Schiffn., *C. cornuta* (Lindenb.) Steph., *Cheilolejeunea oncophylla* (Ångstr.) Grolle & M.E. Reiner, and *Leptolejeunea elliptica* (Lehm. & Lindenb.) Schiffn.

Among 16 municipalities from Amapá, bryophytes were recorded only from seven ones. The municipality of Serra do Navio presented the highest number of species (109 spp.), followed by Macapá (77 spp.), Amapá (60 spp.), Oiapoque (42 spp.), Mazagão (14 spp.), Calçoene (9 spp.), and Laranjal do Jari (2 spp.) (figure 2).

Herzog (1931) was the first to record 13 species for the Amapá State, followed by Crosby (1969) (1 sp.), Yano (1982) (3 spp.), Yano *et al.* (1985) (1 sp.), Yano & Lisboa (1988) (37 spp.), Gradstein (1994) (1 sp.), Churchill (1998) (5 spp.), Lisboa *et al.* (2006) (43 spp.), Oliveira-da-Silva & Ilkiu-Borges (2020) (61 spp.), and Macedo *et al.* (in press) (9 spp.). According to all studies on bryophytes in Amapá, 175 species were registered in the State (figure 3). The studies carried out by Yano & Lisboa (1988), Lisboa *et al.* (2006), and Oliveira-da-Silva & Ilkiu-Borges (2020) registered 80% of the bryophyte records for the State.

## Discussion

With about 70% of its territory included in legally protected areas, the Amapá State is the twentieth State (from 26 States) in the number of bryophyte species (Drummond *et al.* 2008, Costa & Peralta 2015). Although the bryoflora of Brazilian Amazon is being studied for over 200 years (Lisboa 1991), the bryophyte richness in Amapá is still poorly known despite the diversity of the biome where it is inserted, but it is notably low the number of studies carried out in this State, not including a great area of its territory. Amazonas and Pará States, although with larger territories, have many physiognomies that also occur in Amapá. However, these two States presented a much higher number of bryophyte species (466 and 332 species, respectively) and a great number of studies (*e.g.*, Costa *et al.* 2011, Costa & Peralta 2015, BFG 2018). Our results showed that Amapá presented almost as the number of species found in

Rondônia (166 spp.), but studies in this State was punctual (Lisboa 1993, Cerqueira *et al.* 2015, Costa & Peralta 2015, Sobreira *et al.* 2019).

*Macrocolura sagittistipula* (Spruce) R.M. Schust. is excluded from the list of species of Amapá. Gradstein & Costa (2003) cited the species as occurring in Amazonas and Amapá States based on the study of Grolle & Zhu (2002), but the latter authors recorded this species in Amazonas only.

Yano & Lisboa (1988) registered *Mastigolejeunea auriculata* (Wilson & Hook.) Schiffn. [= *Thysananthus auriculatus* (Wilson & Hook.) Sukkharak & Gradst.] in Mazagão municipality, however, the specimen deposited in MG herbarium (MG109797!) proved to be *Thysananthus amazonicus* (Spruce) Steph.

*Cheilolejeunea savannae* L.P.C. Macedo *et al.* is a species from savanna vegetation recently described by Macedo *et al.* (2020). This species was referred as *C. discoidea* (Lehm. & Lindenb.) Kachroo & R.M. Schust. by Oliveira-da-Silva & Ilkiu-Borges (2020).

The most abundant families, Lejeuneaceae and Calymperaceae, were expected to be since many studies in the Amazon recorded these families as the richest (*e.g.*, Gradstein *et al.* 2001, Macedo & Ilkiu-Borges 2014, Cerqueira *et al.* 2017, Oliveira-da-Silva & Ilkiu-Borges 2018). The two richest genera (*Syrrhopodon* and *Lejeunea*) were also expected since they are well distributed in Brazil (Gradstein *et al.* 2001, Gradstein & Costa 2003, Costa & Peralta 2015). *Syrrhopodon* is a widely distributed genus in the tropics and subtropics and assembles acrocarpous plants morphologically diverse (Reese 1993), additionally, it is the fourth richest genera of mosses in Brazil (Costa & Peralta 2015). *Lejeunea* is the more complex and the largest genus of liverworts in Brazil (Reiner-Drehwald 2007, Costa & Peralta 2015) and well distributed in the neotropical region (Gradstein *et al.* 2001).



The most common species of our list were already expected to be found in Amapá due to their wide distribution in the Amazon and frequent occurrence in various ecosystems from humid rainforests to open environments (Santos & Lisboa 2003, Brito & Ilkiu-Borges 2013, Moura *et al.* 2013, Tavares-Martins *et al.* 2014, Pantoja *et al.* 2015, Cerqueira *et al.* 2017, BFG 2018, Oliveira-da-Silva & Ilkiu-Borges 2018). Among these species, only *Ceratolejeunea coarina* was not reported in Marajó island (Brito & Ilkiu-Borges 2013), a large continental island neighbor to Amapá State.

The municipalities of Serra do Navio and Macapá harbored the largest number of bryophytes (figure 2). These results are due to intensive inventories of bryophytes in specific areas from Amapá, such as the studies conducted by Oliveira-da-Silva & Ilkiu-Borges (2020) in two municipal natural parks of upland Amazon forest in these two municipalities and by Lisboa *et al.* (2006) in coastal areas of the Amapá municipality with collections in different phytophysognomy such as várzea, mangrove, transition forest, and other vegetation types (figure 3).

There are still large areas lacking investigation works on bryophytes, such as the municipality of Laranjal do Jari. Alone, this municipality covers 30,783 km<sup>2</sup> which represents more than 20% of the territory of Amapá (IBGE 2019) and comprises important conservation units such as the National Park of Tumucumaque Mountains (Drummond *et al.* 2008). However, only *Octoblepharum pulvinatum* (Dozy & Molk.) Mitt. and *Leucobryum martianum* (Hornsch.) Müll. Hal. were registered in this municipality.

It is expected that with further expeditions to unexplored and important areas of Amapá, such as Parque Nacional Montanhas do Tumucumaque, Reserva Extrativista do Rio Jari and Floresta Nacional do Amapá, the number of species may considerably

increase. The results reinforced the need for more comprehensive studies on the bryoflora from Amapá.

### **Acknowledgements**

The authors are grateful to the Programa de Pós-Graduação em Ciências Biológicas - Botânica Tropical of Museu Paraense Emílio Goeldi/Universidade Federal Rural da Amazônia; to the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for the Doctoral fellowship grant of the first author (process n° 141523/2020-4) and for the productivity fellowship grant of the third author (process n°302374/2016).

### **Author Contributions**

Fúvio Rubens Oliveira-da-Silva: Contribution in the concept and design of the study; to data collection; to data analysis and interpretation; to manuscript preparation; to critical revision, adding intellectual content.

Luciana Priscila Costa Macedo: Contribution to data collection; to manuscript preparation; to critical revision, adding intellectual content.

Anna Luiza Ilkiu-Borges: Contribution in the concept and design of the study; to manuscript preparation; to critical revision, adding intellectual content.

### **Conflicts of interest**

There is no conflict of interest.

### Literature cited

- BFG - The Brazil Flora Group.** 2015. Growing knowledge: An overview of seed plant diversity in Brazil. *Rodriguésia* 66: 1085-1113.
- Brito, E.S. & Ilkiu-Borges, A.L.** 2013. Bryoflora of the municipalities of Soure and Cachoeira do Arari, on Marajó Island, in the state of Pará, Brazil. *Acta Botanica Brasilica* 27: 1-141.
- Câmara, P.E.A.S., Oliveira, J.R.P.M. & Santiago, M.M.M.** 2005. A Checklist of the bryophytes of Distrito Federal (Brasília, Brazil). *Tropical Bryology* 26: 133-140.
- Carvalho-Silva, M., Stech, M., Soares-Silva, L.H., Buck, W.R., Wickett, N., Liu, Y. & Câmara, P.E.A.S.** 2017. A molecular phylogeny of the Sematophyllaceae s.l. (Hypnales) based on plastid, mitochondrial and nuclear markers, and its taxonomic implications. *Taxon* 66: 811-831.
- Cerqueira, G.R., Ilkiu-Borges, A.L., Manzato, A.G. & Maciel, S.** 2015. Briófitas de um fragmento de floresta ombrófila aberta no município de Porto Velho e novas ocorrências para Rondônia, Brasil. *Biota Amazônia* 5: 71-75.
- Cerqueira, G.R., Ilkiu-Borges, A.L. & Ferreira, L.V.** 2017. Species richness and composition of epiphytic bryophytes in flooded forests of Caxiuanã National Forest, Eastern Amazon, Brazil. *Annals of the Brazilian Academy of Sciences* 89: 2371-2382.
- Churchill, S.P.** 1998. Catalog of Amazonian Mosses. *Journal of the Hattori Botanical Laboratory* 85: 191-238.
- Costa, D.P. & Luizi-Ponzo, A.P.** 2010. As briófitas do Brasil. *In: R.C. Forzza et al.* (eds). *Catálogo de Plantas e Fungos do Brasil*, v. 1. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Rio de Janeiro, pp. 61-68.

- Costa, D.P., Imbassahy, C.A.A. & Silva, V.P.A.V.** 2005. Checklist and distribution of mosses, liverworts and hornworts of Rio de Janeiro state, Brazil. *Journal of the Hattori Botanical Laboratory* 98: 259-298.
- Costa, D.P., Pôrto, K.C., Luiz-Ponzo, A.P., Ilkiu-Borges, A.L., Bastos, C.J.P., Câmara, P.E.A.S., Peralta, D.F., Bôas-Bastos, S.B.V., Imbassahy, C.A.A., Henriques, D.K., Gomes, H.C.S., Rocha, L.M., Santos, N.D., Siviero, T.S., Vaz-Imbassahy, T.F. & Churchill, S.P.** 2011. Synopsis of the Brazilian moss flora: checklist, distribution and conservation. *Nova Hedwigia* 93: 277-334.
- Costa, D.P. & Peralta, D.F.** 2015. Bryophytes diversity in Brazil. *Rodriguésia* 66: 1-9.
- Costa-Neto, S.V., Senna, C.S.F. & Coutinho, R.S.** 2006. Vegetação das Áreas Sucurijú e Região dos Lagos no Amapá. *In*: S.V. Costa-Neto (ed.). Inventário Biológico das Áreas do Sucurijú e Região dos Lagos, no Amapá. IEPA. Macapá, pp. 1-79.
- Crandall-Stotler, B.J., Stotler, R.E. & Long, D.G.** 2009. Morphology and classification of the Marchantiophyta. *In*: B. Goffinet & A.J. Shaw (eds.). *Bryophyte Biology*. Cambridge University Press, Cambridge, pp. 1-54.
- Crosby, H.A.** 1969 A Revision of the tropical American moss genus *Pilotrichum*. *The Bryologist* 72: 275-343.
- Drummond, J.A., Dias, T.C.A.C. & Brito, D.M.C.** 2008. Atlas das Unidades de Conservação do Estado do Amapá. MMA/IBAMA; Gea/SEMA. CDU, Macapá, pp.1-128.
- Gentil, K.C. & Menezes, C.R.** 2011. Levantamento de briófitas bioindicadoras de perturbação ambiental do campus Marco Zero do Equador da UNIFAP. *Biota Amazônia* 1: 63-73.

- Goffinet, B., Buck, W.R. & Shaw, J.A.** 2009. Morphology, anatomy, and classification of the Bryophyta. *In*: B. Goffinet & A.J. Shaw (eds.). *Bryophyte Biology*. Cambridge University Press, Cambridge, pp. 55-138.
- Gradstein, S.R. & Costa, D.P.** 2003. The Hepaticae and Anthocerotae of Brazil. *Memoirs of The New York Botanical Garden* 87: 1-318.
- Gradstein, S.R., Churchill, S.P. & Salazar-Allen, N.** 2001. Guide to the Bryophytes of tropical America. *Memoirs of The New York Botanical Garden* 86: 1-577.
- Gradstein, S.R.** 1994. Lejeuneaceae: Ptychanteae, Brachiolejeuneae. *Flora Neotropica* 62: 1-216.
- Grolle, R. & Zhu, R-L.** 2002. On Macrocolura and the Subdivision of Colura (Lejeuneaceae, Hepaticae). *Journal of the Hattori Botanical Laboratory* 92: 181-190.
- Grolle, R.** 1984. Zur Kenntnis der Lejeuneoideae in Cuba 1 *Cyclolejeunea*. *Wissenschaftliche Zeitschrift der Friedrich-Schiller-Universität Jena. Mathematisch-naturwissenschaftliche Reihe* 33: 759-764.
- Herzog, T.** 1931. Die Moose der Ph. V. Lützelburgschen Reisen durch Nordbrasilien. *Hedwigia* 71: 332-350.
- IBGE - Instituto Brasileiro de Geografia e Estatística.** 2004. Uso da Terra no Estado do Amapá. Relatório Técnico, pp. 1-143.
- IBGE - Instituto Brasileiro de Geografia e Estatística.** 2019. Available at <https://cidades.ibge.gov.br/brasil/ap/amapa/panorama> (access in 22-IV-2020).
- Lisboa, R.C.L., Tavares, A.C.C. & Costa-Neto, S.V.** 2006. Musgos (Bryophyta) e hepáticas (Marchantiophyta) da zona costeira do Estado de Amapá, Brasil. *Boletim do Instituto de Botânica* 18: 163-172.

- Lisboa, R.C.L.** 1991. Histórico da briologia na Amazônia brasileira. Boletim do Museu Paraense Emílio Goeldi 7: 69-78.
- Lisboa, R.C.L.** 1993. Musgos Acrocárpicos do Estado de Rondônia. Museu Paraense Emílio Goeldi, Belém, pp. 1-272.
- Macedo, L.P.C. & Ilkiu-Borges, A.L.** 2014. Richness of Marchantiophyta and Bryophyta in a protected area of the Brazilian Amazon. Acta Botanica Brasilica 28: 527-538.
- Macedo, L.P.C., Tavares-Martins, A.C.C. & Ilkiu-Borges, A.L.** (in press). Bryophytes in Amazon savannas: Richness and composition in disjunct patches in the Eastern Amazon. Annals of the Brazilian Academy of Sciences.
- Macedo, L.P.C., Bastos, C.J.P. & Ilkiu-Borges, A.L.** 2020. On a new species of *Cheilolejeunea* (Spruce) Steph. (Lejeuneaceae, Marchantiophyta) from Amazonian savannas. Nova Hedwigia 111: 77-85.
- Moura, O.S., Ilkiu-Borges, A.L. & Brito, E.S.** 2013. Brioflora (Bryophyta e Marchantiophyta) da Ilha do Combú, Belém, PA, Brasil. Hoehnea 40: 143-165.
- Pantoja, A.C.C., Ilkiu-Borges, A.L., Tavares-Martins, A.C.C. & Garcia, E.T.** 2015. Bryophytes in fragments of Terra Firme forest on the great curve of the Xingu River, Pará state, Brazil. Brazilian Journal of Biology 75: 238-249.
- Oliveira-da-Silva, F.R. & Ilkiu-Borges, A.L.** 2018. Briófitas (Bryophyta e Marchantiophyta) das cangas da Serra dos Carajás, Pará, Brasil. Rodriguesia 69: 1405-1416.
- Oliveira-da-Silva, F.R. & Ilkiu-Borges, A.L.** 2020. Bryophyte flora of two Natural Parks in Amapá: Richness, composition and new records. Annals of the Brazilian Academy of Sciences 92: 1-12.

- Peralta, D.F. & Yano, O.** 2001. Checklist de briófitas (Antocerotophyta, Bryophyta e Marchantiophyta) do estado de São Paulo. *Biota Neotropica* 11: 157-160.
- Reese, W.D.** 1993. Calymperaceae. *Flora Neotropica* 58: 1-102.
- Reiner-Drehwald, M.E.** 2007. Preliminary key to the genus *Lejeunea* in Brazil.  
Available at  
[http://www.drehwald.info/Lejeunea/Key\\_Lejeunea\\_Brazil\\_30\\_April.pdf](http://www.drehwald.info/Lejeunea/Key_Lejeunea_Brazil_30_April.pdf) (access in 21-X-2029).
- Santos, R.C.P. & Lisboa, R.C.L.** 2003. Musgos (Bryophyta) do Nordeste Paraense, Brasil - 1. Zona Bragantina, microrregião do Salgado e município de Viseu. *Acta Amazonica* 33: 415-422.
- Shi, X.-Q., Gradstein, S.R. & Zhu, R.-L.** 2015. Phylogeny and taxonomy of *Archilejeunea* (Marchantiophyta: Lejeuneaceae) based on molecular markers and morphology. *Taxon* 64: 881-892.
- Sobreira, P.H.M., Pereira, M.R.S., Pinilla, A.M.S. & Zartman, C.E.** 2019. Novos registros de briófitas para o estado de Rondônia, Brasil. *Biota Amazônia* 9: 57-58.
- Söderström, L., Crandall-Stotler, B. J., Stotler, R. E., Váña, J., Hagborg, A. & von Konrat M.** 2013. Notes on early land plants today. 36. Generic treatment of Lophocoleaceae (Marchantiophyta). *Phytotaxa* 97: 36-43.
- Tavares-Martins, A.C.C., Lisboa, R.C.L. & Costa, D.P.** 2014. Bryophyte flora in upland forests at different successional stages and in the various strata of host trees in northeastern Pará, Brazil. *Acta Botanica Brasilica* 28: 46-58.
- Yano, O., Pirani, J.R. & Santos, D.P.** 1985. O gênero *Sphagnum* (Bryopsida) nas regiões Sul e Sudeste do Brasil. *Revista Brasileira de Botânica* 8: 55-80.
- Yano, O. & Lisboa, R.C.L.** 1988. Briófitas do Território Federal do Amapá, Brasil. *Boletim do Museu Paraense Emílio Goeldi, sér. Bot.*, 4: 243-270.

- Yano, O.** 1981. A Checklist of Brazilian Mosses. *Journal of the Hattori Botanical Laboratory* 50: 279-456.
- Yano, O.** 1982. Distribuição geográfica de Leucobryaceae (Bryopsida) na Amazônia. *Acta Amazonica* 12: 307-321.
- Yano, O.** 1984. A Checklist of Brazilian liverworts and hornworts. *Journal of the Hattori Botanical Laboratory* 56: 481-548.
- Yano, O.** 1989. An Additional Checklist of Brazilian Bryophytes. *Journal of the Hattori Botanical Laboratory* 66: 371-434.
- Yano, O.** 1992. Leucobryaceae (Bryopsida) do Brasil. Tese de Doutorado. Universidade de São Paulo, São Paulo.
- Yano, O.** 1995. A new additional annotated checklist of Brazilian Bryophytes. *Journal of the Hattori Botanical Laboratory* 78: 137-182.
- Yano, O.** 2006. Novas adições ao catálogo de briófitas brasileiras. *Boletim do Instituto de Botânica* 17: 1-142.
- Yano, O.** 2008. Catálogo de antóceros e hepáticas brasileiros: literatura original, basônimo, localidade-tipo e distribuição geográfica. *Boletim do Instituto de Botânica* 19: 1-110.
- ZEE - Zoneamento Econômico Ecológico.** 2008. Macrodiagnóstico do Estado do Amapá: primeira aproximação do ZEE. GEA/IEPA, Macapá, pp.1-140.



Table 1. Checklist of bryophytes with the distribution in municipalities and reference of the first record of each species for Amapá State. AM: Amapá municipality; MC: Macapá; SN: Serra do Navio; OP: Oiapoque; CÇ: Calçoene; MZ: Mazagão; LJ: Laranjal do Jari; (n.v.): not seen.

Tabela 1. Lista das briófitas com dados de distribuição geográfica nos municípios e referência do primeiro registro de cada espécie para o Estado do Amapá. AM: município de Amapá; MC: Macapá; SN: Serra do Navio; OP: Oiapoque; CÇ: Calçoene; MZ: Mazagão; LJ: Laranjal do Jari; (n.v.): não visto.

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<b>LIVERWORTS</b>									
Aneuraceae									
<i>Riccardia regnellii</i> (Ångstr.) K.G.Hell		X	X					Yano & Lisboa [1988, as <i>Riccardia alata</i> (Steph.) K.G.Hell]	<i>Gentil 513</i>
<i>Riccardia metzgeriformis</i> (Steph.) R.M. Schust.		X						Yano & Lisboa (1988)	<i>Mori &amp; Souza 17602</i> (n.v.)

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
Calypogeiaceae									
<i>Calypogeia lechlerii</i> (Steph.) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 391</i>
Frullaniaceae									
<i>Frullania subtilissima</i> (Nees ex Mont.) Lindenb.		X	X			X		Oliveira-da-Silva & Ilkiu-Borges (2020, as <i>Frullania exilis</i> Taylor)	<i>Gentil 433</i>
<i>Frullania gibbosa</i> Nees	X	X						Lisboa <i>et al.</i> (2006)	<i>Macedo 1717</i>
<i>Frullania vitalii</i> Yuzawa & S. Hatt.		X						Macedo <i>et al.</i> (in press)	<i>Macedo 1672</i>
Lejeuneaceae									
<i>Archilejeunea fuscescens</i> (Lehm.) Fulford		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 385</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Acrolejeunea emergens</i> (Mitt.) Steph.		X						Macedo <i>et al.</i> (in press)	<i>Macedo 1723</i>
<i>Acrolejeunea torulosa</i> (Lehm. & Lindenb.) Schiffn.		X				X		Macedo <i>et al.</i> (in press)	<i>Macedo 2098</i>
<i>Caudalejeunea lehmanniana</i> (Gottsche) A. Evans	X	X						Lisboa <i>et al.</i> (2006)	<i>Gentil 94</i>
<i>Ceratolejeunea coarina</i> (Gottsche) Schiffn.	X	X	X	X				Herzog (1931, as <i>Ceratolejeunea connata</i> Steph.)	<i>Gentil 347</i>
<i>Ceratolejeunea cornuta</i> (Lindenb.) Steph.	X	X	X	X				Herzog [1931, as <i>Ceratolejeunea megalophysa</i> (Spruce) Steph.]	<i>Gentil 353</i>
<i>Ceratolejeunea cubensis</i> (Mont.) Schiffn.		X	X	X				Herzog (1931)	<i>Gentil 395</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Ceratolejeunea desciscens</i> (Sande Lac.) Schiffn.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 467</i>
<i>Ceratolejeunea guianensis</i> (Nees & Mont.) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 472</i>
<i>Ceratolejeunea minuta</i> G. Dauphin			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 345</i>
<i>Ceratolejeunea rubiginosa</i> Steph.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1307</i> (n.v.)
<i>Cheilolejeunea acutangula</i> (Nees) Grolle			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 363</i>
<i>Cheilolejeunea adnata</i> (Lehm.) Grolle	X							Lisboa <i>et al.</i> (2006)	<i>Gentil 464</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Cheilolejeunea clausa</i> (Nees & Mont.) R.M. Schust.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1491</i> (n.v.)
<i>Cheilolejeunea savannae</i> L.P.C. Macedo et al.		X	X					Oliveira-da-Silva & Ilkiu-Borges [2020, as <i>Cheilolejeunea discoidea</i> (Lehm. & Lindenb.) Kachroo & R.M.Schust.]	<i>Macedo 1600</i> (Paratype)
<i>Cheilolejeunea holostipa</i> (Spruce) Grolle & R.L. Zhu			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 497</i>
<i>Cheilolejeunea oncophylla</i> (Ångstr.) Grolle & M.E. Reiner	X	X	X			X		Lisboa <i>et al.</i> (2006)	<i>Gentil 113</i>
<i>C. rigidula</i> (Mont.) R.M. Schust.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 114</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Cheilolejeunea trifaria</i> (Reinw. <i>et al.</i> ) Mizut.	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 504</i>
<i>Cololejeunea cardiocarpa</i> (Mont.) A. Evans	X	X						Lisboa <i>et al.</i> (2006)	<i>Gentil 204</i>
<i>Cololejeunea contractiloba</i> A. Evans		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 192</i>
<i>Cololejeunea crenata</i> (A. Evans) Pócs			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 491</i>
<i>Cololejeunea gracilis</i> (Jovet-Ast) Pócs	X							Lisboa <i>et al.</i> (2006, as <i>Aphanolejeunea gracilis</i> Jovet-Ast)	<i>Costa Neto 1472</i> (n.v.)
<i>Cololejeunea obliqua</i> (Nees & Mont.) Schiffn.	X		X	X				Herzog [1931, as <i>Leptocolea scabriflora</i> (Steph) A.Evans]	<i>Gentil 510</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Cololejeunea sicaefolia</i> (Gottsche) Pócs & Bernecker			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 528</i>
<i>Colura greig-smithii</i> Jovet-Ast	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1499</i> (n.v.)
<i>Cyclolejeunea chitonia</i> (Lehm.) A. Evans			X	X				Herzog (1931)	<i>Gentil 366</i>
<i>Cyclolejeunea convexistipa</i> (Lehm. & Lindenb.) A. Evans			X	X				Herzog (1931)	<i>Gentil 376</i>
<i>Cyclolejeunea foliorum</i> (Nees) Grolle			X	X				Yano & Lisboa (1988)	<i>Gentil 547</i>
<i>Cyclolejeunea luteola</i> (Spruce) Grolle		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 347</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Dibrachiella parviflora</i> (Nees) X.Q. Shi <i>et al.</i>	X	X						Lisboa <i>et al.</i> (2006)	<i>Gentil 88</i>
<i>Dibrachiella auberiana</i> (Mont.) X.Q. Shi <i>et al.</i>	X							Lisboa <i>et al.</i> [2006, as <i>Achilejeunea auberiana</i> (Mont.) A.Evans]	<i>Costa Neto 1286</i> (n.v.)
<i>Diplasiolejeunea brunnea</i> Steph.	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 373</i>
<i>Diplasiolejeunea pellucida</i> (Spreng.) Schiffn.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 388</i>
<i>Drepanolejeunea araucarae</i> Steph.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1291</i> (n.v.)
<i>Drepanolejeunea crucianella</i> (Taylor) A. Evans			X	X				Herzog (1931, as <i>Drepanolejeunea trifida</i> Steph.)	<i>Gentil 471</i>



Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Drepanolejeunea fragilis</i> L. Söderstr.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 433</i>
<i>Harpalejeunea oxyphylla</i> (Nees & Mont.) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 401</i>
<i>Harpalejeunea tridens</i> (Besch. & Spruce) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 415</i>
<i>Lejeunea adpressa</i> Nees		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 101</i>
<i>Lejeunea aphanes</i> Spruce			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 501</i>
<i>Lejeunea asperrima</i> Spruce			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 531</i>
<i>Lejeunea boryana</i> Mont.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 537</i>
<i>Lejeunea cerina</i> (Lehm. & Lindenb.) Lehm. & Lindenb.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 532</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Lejeunea controversa</i> Gottsche		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Macedo 1899</i>
<i>Lejeunea flaccida</i> Lindenb. & Gottsche	X							Lisboa <i>et al.</i> [2006, as <i>Taxilejeunea lusoria</i> (Lindenb. & Gottsche) Steph.]	<i>Costa Neto 1486</i> (n.v.)
<i>Lejeunea flava</i> (Sw.) Nees			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 502</i>
<i>Lejeunea glaucecens</i> Gottsche		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020, as <i>Lejeunea caulicalyx</i> (Steph.) M.E.Reiner & Goda)	<i>Gentil 112</i>
<i>Lejeunea immersa</i> Spruce		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 454</i>
<i>Lejeunea laetevirens</i> Nees & Mont.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 135</i>
<i>Lepidolejeunea involuta</i> (Gottsche)	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 348</i>
Grolle									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Leptolejeunea elliptica</i> (Lehm. & Lindenb.) Schiffn.	X	X	X	X				Herzog (1931)	<i>Macedo 2091</i>
<i>Lopholejeunea subfusca</i> (Nees) Schiffn.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 503</i>
<i>Metalejeunea cucullata</i> (Reinw. <i>et al.</i> ) Grolle				X				Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 410</i>
<i>Microlejeunea epiphylla</i> Bischl.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 497</i>
<i>Myriocoleopsis minutissima</i> R.L. Zhu <i>et al. ssp. minutissima</i>		X				X		Macedo <i>et al.</i> (in press)	<i>Macedo 1525</i>
<i>Neurolejeunea breutelii</i> (Gottsche) A. Evans				X				Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 358</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Odontolejeunea lunulata</i> (F. Weber) Schiffn.	X		X	X				Herzog (1931)	<i>Gentil 371</i>
<i>Odontolejeunea rhomalea</i> (Spruce) Steph.				X				Gradstein (1994)	<i>von Lützelburg 20199 (n.v.)</i>
<i>Otigniolejeunea huctumalcensis</i> (Lindenb. & Gottsche) Y.M. Wei <i>et al.</i>			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 352</i>
<i>Pictolejeunea picta</i> (Steph.) Grolle			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 540</i>
<i>Prionolejeunea aemula</i> (Gottsche) A.Evans			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 500</i>
<i>Prionolejeunea denticulata</i> (F. Weber) Schiffn.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 351</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Prionolejeunea mucronata</i> (Sande Lac.) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 348</i>
<i>Prionolejeunea muricatoserrulata</i> (Spruce) Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 372</i>
<i>Pycnolejeunea contigua</i> (Nees) Grolle			X			X		Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 433</i>
<i>Rectolejeunea versifolia</i> (Schiffn.) L. Söderstr. & A. Hagborg	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 389</i>
<i>Stictolejeunea squamata</i> (F. Weber) Schiffn.			X	X				Herzog (1931)	<i>Gentil 355</i>
<i>Symbiezidium barbiflorum</i> (Lindenb. & Gottsche) A. Evans		X	X	X				Herzog (1931)	<i>Gentil 372</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Symbiezidium transversale</i> (Sw.) Trevis.	X	X		X				Yano & Lisboa (1988)	<i>Mori et al. 17147</i> (n.v.)
<i>Thysananthus amazonicus</i> (Spruce) Steph.						X		Yano & Lisboa [1988, as <i>Mastigolejeunea auriculata</i> (Wilson & Hook.) Schiffn.]	<i>Mori &amp; Cardoso</i> <i>17481</i> (n.v.)
<i>Thysananthus innovans</i> (Spruce) Sukkharak & Gradst.				X				Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Macedo 1640</i>
<i>Xylolejeunea crenata</i> (Nees & Mont.) X.-L. He & Grolle	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 434</i>
Lepidoziaceae									
<i>Protocephalozia</i> sp.		X						Macedo <i>et al.</i> (in press)	<i>Macedo 1639</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Zoopsidella serra</i> (Spruce) R.M. Schust.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 378</i>
Lophocoleaceae									
<i>Lophocolea liebmanniana</i> Gottsche			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 447</i>
<i>Cryptolophocolea martiana</i> (Nees) L. Söderstr. <i>et al.</i>			X	X				Yano & Lisboa (1988, as <i>Lophocolea martiana</i> Nees)	<i>Gentil 540</i>
<i>Cryptolophocolea perissodonta</i> (Spruce) L. Söderstr.		X						Yano & Lisboa [1988, as <i>Lophocolea perissodonta</i> (Spruce) Steph.]	<i>Mori et al. 17259</i> (n.v.)
Metzgeriaceae									
<i>Metzgeria aurantica</i> Steph.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 384</i>
Plagiochilaceae									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Plagiochila aerea</i> Taylor			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 537</i>
<i>Plagiochila disticha</i> (Lehm. & Lindenb.) Lindenb.		X	X					Yano & Lisboa (1988)	<i>Gentil 360</i>
<i>Plagiochila montagnei</i> Nees		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 205</i>
<i>Plagiochila gymnocalycina</i> (Lehm. & Lindenb.) Mont. & Nees		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 242</i>
<i>Plagiochila raddiana</i> Lindenb.		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 353</i>
<i>Plagiochila rutilans</i> Lindenb.		X						Yano & Lisboa (1988)	<i>Mori &amp; Souza</i> <i>17602 (n.v.)</i>
<i>Plagiochila subplana</i> Lindenb.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 346</i>
Radulaceae									



Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Radula flaccida</i> Lindenb. & Gottsche			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 349</i>
<i>Radula javanica</i> Gottsche	X		X	X				Yano & Lisboa [1988, as <i>Radula complanata</i> (L.) Dumort.]	<i>Mori et al. 17221</i> (n.v.)
<b>MOSSES</b>									
Bartramiaceae									
<i>Philonotis hastata</i> (Duby) Wijk. & Marg.		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 266</i>
Brachytheciaceae									
<i>Squamidium nigricans</i> (Hook.) Broth.				X	X			Yano & Lisboa (1988)	<i>Mori &amp; Cardoso</i> <i>17293</i> (n.v.)

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Zelometeorium patulum</i> (Hedw.) Manuel		X						Yano & Lisboa (1988)	<i>Gentil 512</i>
Bryaceae									
<i>Bryum coronatum</i> Schwägr.		X				X		Macedo et al. (in press)	<i>Macedo 1534</i>
Calymperaceae									
<i>Calymperes afzelii</i> Sw.	X							Lisboa et al. (2006)	<i>Costa Neto 1467</i> (n.v.)
<i>Calymperes erosum</i> Müll. Hal.	X	X	X	X		X		Yano & Lisboa (1988)	<i>Gentil 275</i>
<i>Calymperes lonchophyllum</i> Schwägr.		X	X	X				Yano & Lisboa (1988)	<i>Gentil 350</i>
<i>Calymperes nicaraguense</i> Renauld & Cardot							X	Yano & Lisboa (1988)	<i>Mori 17413</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Calymperes palisotii</i> Schwägr.	X	X				X		Churchill (1998)	<i>Gentil 185</i>
<i>Calymperes platyloma</i> Mitt.					X			Churchill (1998)	<i>Mori &amp; Cardoso</i> <i>17293 (n.v.)</i>
<i>Calymperes rubiginosum</i> (Mitt.) Reese			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 430</i>
<i>Octoblepharum albidum</i> Hedw.		X	X	X		X		Yano (1982)	<i>Gentil 79</i>
<i>Octoblepharum cocuiense</i> Mitt.		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 85</i>
<i>Octoblepharum cylindricum</i> Schimp.				X				Herzog (1931)	<i>von Lützelburg</i> <i>20312 (n.v.)</i>
<i>Octoblepharum pulvinatum</i> (Dozy & Molck.) Mitt.	X						X	Yano (1982)	<i>Egler &amp; Irwin</i> <i>46455 (n.v.)</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Syrrhopodon cryptocarpus</i> Dozy & Molk.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 114</i>
<i>Syrrhopodon cymbifolius</i> Müll. Hal.	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 436</i>
<i>Syrrhopodon disciformis</i> Dusén			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 510</i>
<i>Syrrhopodon flexifolius</i> Mitt.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 518</i>
<i>Syrrhopodon hornschuchii</i> Mart.		X	X	X				Yano & Lisboa (1988)	<i>Gentil 452</i>
<i>Syrrhopodon incompletus</i> Schwägr. var. <i>incompletus</i>		X	X	X				Yano & Lisboa (1988)	<i>Gentil 118</i>
<i>Syrrhopodon incompletus</i> var. <i>berteroanus</i> (Brid.) W.D. Reese		X	X	X				Churchill (1998)	<i>Mori &amp; Cardoso 17124</i> (n.v.)
<i>Syrrhopodon leprieurii</i> Mont.		X						Yano & Lisboa (1988)	<i>Rosário 212</i> (n.v.)

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Syrrhopodon ligulatus</i> Mont.	X	X	X		X			Yano & Lisboa (1988)	<i>Gentil 142</i>
<i>Syrrhopodon prolifer</i> Schwägr.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1279</i> (n.v.)
<i>Syrrhopodon rigidus</i> Hook. & Grev.			X					Churchill (1998)	<i>Gentil 369</i>
<i>Syrrhopodon simmondsii</i> Steere	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 379</i>
Dicranaceae									
<i>Dicranella hilariana</i> (Mont.) Mitt.		X						Macedo <i>et al.</i> (in press)	<i>Macedo 1736</i>
Fissidentaceae									
<i>Fissidens guianensis</i> Mont.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 412</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Fissidens lagenarius</i> Mitt. var. <i>muriculatus</i> (Mitt.) Pursell			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 438</i>
<i>Fissidens ornatus</i> Herzog		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 326</i>
<i>Fissidens pellucidus</i> Hornsch.		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 439</i>
<i>Fissidens prionodes</i> Mont.		X	X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 328</i>
<i>Fissidens radicans</i> Mont.			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 512</i>
<i>Fissidens submarginatus</i> Bruch		X						Macedo <i>et al.</i> (in press)	<i>Macedo 1732</i>
<i>Fissidens zollingeri</i> Mont.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1305</i> (n.v.)
Hookeriaceae									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Crossomitrium patrisiae</i> (Brid.) Müll. Hal.	X		X	X				Herzog (1931)	<i>Gentil 401</i>
Hypnaceae									
<i>Chrysohypnum diminutivum</i> (Hampe) W.R. Buck		X	X	X				Yano & Lisboa (1988)	<i>Gentil 410</i>
<i>Ectropothecium leptochaeton</i> (Schwägr.) W.R. Buck				X				Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 361</i>
<i>Rhacopilopsis trinitensis</i> (Müll. Hal.) E. Britton & Dixon					X			Yano & Lisboa (1988)	<i>Mori &amp; Cardoso 17108 (n.v.)</i>
<i>Vesicularia vesicularis</i> (Schwägr.) Broth.				X				Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 371</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
Leucobryaceae									
<i>Campylopus surinamensis</i> Müll. Hal.		X				X		Macedo et al. (in press)	<i>Macedo 2174</i>
<i>Leucobryum martianum</i> (Hornsch.) Müll. Hal.		X	X				X	Yano (1982)	<i>Gentil 417</i>
<i>Ochrobryum subulatum</i> Hampe			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 378</i>
Leucomiaceae									
<i>Leucomium strumosum</i> (Hornsch.) Mitt.		X		X				Yano & Lisboa (1988)	<i>Macedo 2006</i>
Neckeraceae									
<i>Neckeropsis disticha</i> (Hedw.) Kindb.	X							Lisboa et al. (2006)	<i>Costa-Neto 1301</i> (n.v.)



Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Neckeropsis undulata</i> (Hedw.) Reichardt			X	X				Yano & Lisboa (1988)	<i>Gentil 556</i>
Orthotrichaceae									
<i>Groutiella tomentosa</i> (Hornsch.) Wijk & Margad.	X							Lisboa <i>et al.</i> (2006)	<i>Costa-Neto 1490</i> (n.v.)
<i>Macromitrium cirrosum</i> (Hedw.) Brid.		X		X				Churchill (1998)	<i>Mori et al. 17541</i> (n.v.)
<i>Macromitrium punctatum</i> (Hook. & Grev.) Brid.		X		X				Yano & Lisboa (1988)	<i>Rosário 193</i> (n.v.)
Phyllodrepaniaceae									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Phyllodrepanium falcifolium</i> (Schwägr.) Crosby			X	X	X			Yano & Lisboa (1988)	<i>Gentil 369</i>
Pilotrichaceae									
<i>Callicostella merkelii</i> (Hornsch.) A. Jaeger	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1486</i> (n.v.)
<i>Callicostella pallida</i> (Hornsch.) Ångström	X	X	X	X				Yano & Lisboa (1988)	<i>Gentil 390</i>
<i>Lepidopilum affine</i> Müll. Hal.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1301</i> (n.v.)
<i>Lepidopilum scabrisetum</i> (Schwägr.) Steere			X	X				Yano & Lisboa (1988)	<i>Gentil361</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Lepidopilum surinamense</i> Müll. Hal.		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 240</i>
<i>Pilotrichum evanescens</i> (Müll. Hal.) Crosby		X						Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 177</i>
<i>Pilotrichum bipinnatum</i> (Schaeagr.) Brid.				X				Crosby (1969)	<i>Gentil 512</i>
Pottiaceae									
<i>Splachnobryum obtusum</i> (Brid.) Müll. Hal.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1277</i> (n.v.)
Pterobryaceae									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Henicodium geniculatum</i> (Mitt.) W.R. Buck	X	X						Yano & Lisboa [1988, as <a href="#">Leucodontopsis geniculata (Mitt.) H.A.Crum &amp; Steere</a> ]	<i>Mori &amp; Cardoso</i> 17556 (n.v.)
<i>Orthostichopsis tetragona</i> (Hedw.) Broth.	X			X				Yano & Lisboa (1988)	<i>Mori &amp; Cardoso</i> 17137 (n.v.)
Pylaisiadelphaceae									
<i>Isopterygium subbrevisetum</i> (Hampe) Broth.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1468</i> (n.v.)
<i>Isopterygium tenerum</i> (Sw.) Mitt.	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 88</i>
<i>Pterogonidium pulchellum</i> (Hook.) Müll. Hal.	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1305</i> (n.v.)

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Taxithelium concavum</i> (Hook.) J. Florsch.	X							Lisboa <i>et al.</i> (2006)	Costa Neto 1478 (n.v.)
<i>Taxithelium planum</i> (Brid.) Mitt.	X	X	X	X	X			Yano & Lisboa (1988)	Gentil 351
<i>Taxithelium pluripunctatum</i> (Renauld & Cardot) W.R.Buck			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	Gentil 404
Sphagnaceae									
<i>Sphagnum palustre</i> L.				X				Yano <i>et al.</i> (1985)	Egler 1448 (n.v.)
<i>Sphagnum perichaetiale</i> Hampe				X				Yano & Lisboa (1988, as <a href="#">Sphagnum erythrocalyx Hampe</a> )	Froés 26752 (n.v.)
Sematophyllaceae									

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Acroporium pungens</i> (Hedw.) Broth.				X	X			Yano & Lisboa (1988)	<i>Mori &amp; Cardoso</i> <i>17292</i> (n.v.)
<i>Brittonodoxa subpinnata</i> (Brid.) W.R.Buck <i>et al.</i>	X		X					Lisboa <i>et al.</i> (2006)	<i>Gentil 497</i>
<i>Microcalpe subsimplex</i> (Hedw.) W.R.Buck		X	X	X	X	X		Yano & Lisboa (1988)	<i>Gentil 92</i>
<i>Trichosteleum papillosum</i> (Hornsch.) A. Jaeger	X	X	X	X	X	X		Yano & Lisboa (1988)	<i>Gentil 520</i>
<i>Trichosteleum sentosum</i> (Sull.) A. Jaeger			X					Oliveira-da-Silva & Ilkiu-Borges (2020)	<i>Gentil 528</i>

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Trichosteleum subdemissum</i> (Besch.) A. Jaeger	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 359</i>
<i>Vitalia caespitosa</i> (Hedw.) P.E.A.S. Câmara <i>et al.</i>						X		Yano & Lisboa [1988, as <i>Sematophyllum caespitosum</i> (Hedw.) Mitt.]	<i>Mori et al. 17491</i> (n.v.)
Stereophyllaceae									
<i>Pilosium chlorophyllum</i> (Hornsch.) Müll. Hall.		X	X	X				Yano & Lisboa (1988)	<i>Gentil 153</i>
<i>Pelekium involvens</i> (Hedw.) Touw		X						Yano & Lisboa (1988)	<i>Rosário s.n.</i> (MG99129)

Family/Species	Municipalities of Amapá State							First record for Amapá State	Voucher
	AM	MC	SN	OP	CÇ	MZ	LJ		
<i>Pelekium scabrosulum</i> (Mitt.) Touw	X	X	X					Lisboa <i>et al.</i> (2006)	<i>Gentil 269</i>
<i>Pelekium schistocalyx</i> (Müll. Hal.) Touw	X							Lisboa <i>et al.</i> (2006)	<i>Costa Neto 1298</i> (n.v.)
Total	60	77	109	42	9	14	2		



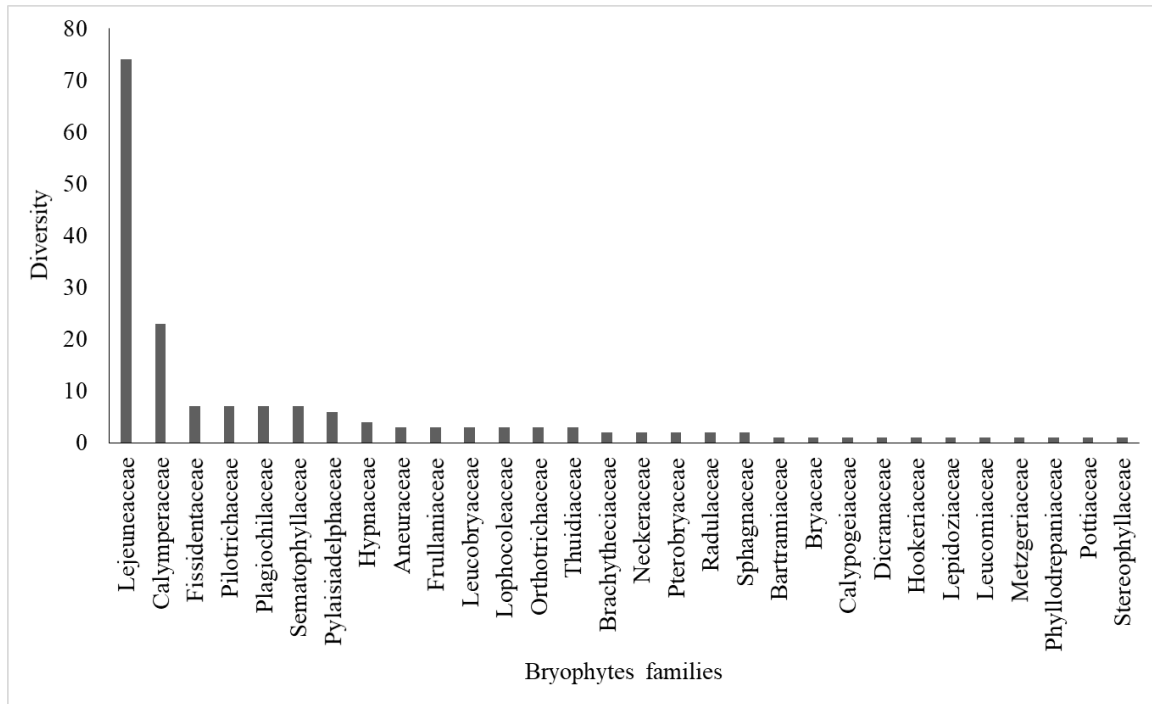


Figure 1. Species diversity by bryophyte families in the Amapá State.

Figura 1. Diversidade de espécies por famílias de briófitas no Estado do Amapá.

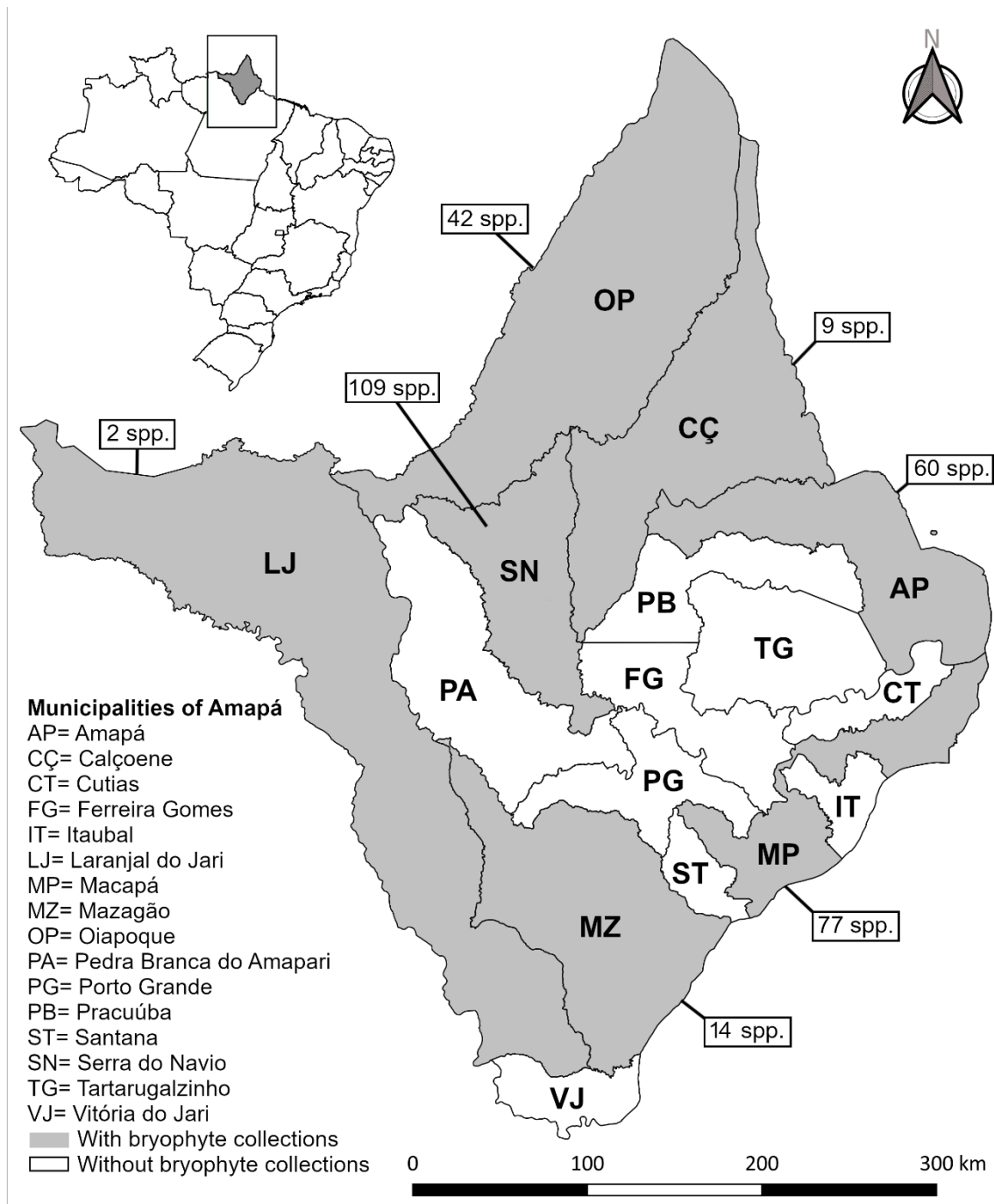


Figure 2. Localization map of Amapá State with number of species record from State municipalities.

Figura 2. Mapa de localização do Estado do Amapá com número de espécies registradas nos municípios do Estado.

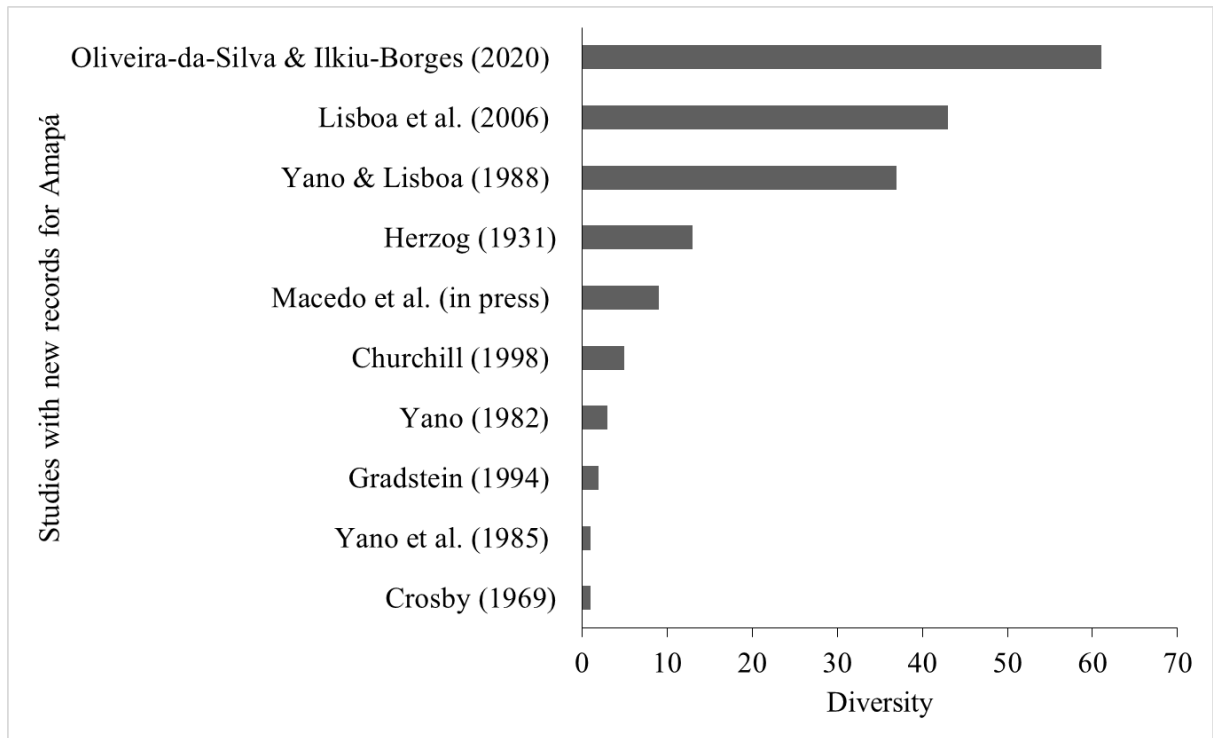


Figure 3. Measurement of new records by study of bryophytes in the State of Amapá.

Figura 3. Medida de novos registros por estudo de briófitas no Estado do Amapá.

## CARTA DE AUTORIZAÇÃO DE PUBLICAÇÃO NO PORTAL DE PREPRINTS DO SCIELO

Ao Comitê Editorial de HOEHNEA

Declaro, em meu próprio nome e nos dos demais Autores que concordo com a publicação do artigo Aceito pelo Corpo Editorial de Hoehnea, intitulado “A checklist of the bryophytes from Amapá State, Northern Brazil” de autoria de Fúvio Rubens Oliveira da Silva, Luciana Priscila Costa Macedo e Anna Luiza Ilkiu Borges, no Portal de Preprints do SciELO Brasil ([Biological Sciences | SciELO Preprints](#)).

Declaro, ainda, que o referido artigo é original, sendo que o conteúdo não foi ou não está sendo considerado para publicação em outra Revista, quer seja no formato impresso e/ou eletrônico.

São Paulo, 22 de Abril de 2021.



---

Assinatura do Autor Responsável pelo Artigo  
Nome Completo do Autor Responsável pelo Artigo