

Bryophytes of Rio Branco Municipality, Acre, Brazil

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Abstract: A survey of the bryophyte flora of Rio Branco Municipality, State of Acre, Brazil, has revealed a total of 76 species of bryophyte; 66 are new records for the State of Acre and two hepaticas, *Cololejeunea dzumacensis* P. Tix. and *Lejeunea bermudiana* (Evs.) Schust., are new records for Brazil. The Anthocerotae are represented only by *Notothylas vitalii* Udar & Singh.

Only thirteen papers are known to cite bryophytes from the State of Acre; these include six species of liverworts and 27 species of mosses.

Ten of these papers cite species which the present authors have not found in the study area. Thus, Irmscher (1921) described *Fissidens acreanus* Irmsch., *F. georgianus* Irmsch., *F. hylophylus* Irmsch. and *F. surumuensis* Irmsch.; this paper has so far escaped the attention of specialists in the family Fissidentaceae. Bischler (1969) reported *Leptolejeunea exocellata* (Spruce) Evs. Yano (1975) reported the occurrence of *Leucobryum martianum* (Hornsch.) Hampe and *Octoblepharum pulvinatum* (Dozy & Molk.) Mitt. Reese (1979) collected the following species of Calymperaceae around the town of Rio Branco: *Calymperes donnelli* Aust., (now = *C. afzelii* Sw.), *C. erosum* C. Müll., *C. lonchophyllum* Schwaegr., *C. uleanum* Broth., *Syrhodon incompletus* Schwaegr. var. *incompletus* Reese and *S. prolifer* var. *papillosus* (C. Müll.) Reese. Pursell & Reese (1980)

mentioned *Fissidens subulatus* Mitt. Yano (1982) reported *Leucobryum juniperoideum* (Brid.) C. Müll., *L. martianum* (Hornsch.) Hampe, *Ochrobryum stenophyllum* Besch., *Octoblepharum cocuiense* Mitt. and *O. stramineum* Mitt. Buck (1985) recorded *Taxithelium juruense* (Broth.) Broth. Gradstein & Buskes (1985) reported *Archilejeunea juliformis* (Nees) Gradst. (now = *A. fuscescens* (Hampe ex Lehm.) Fulf.) and *A. crispistipula* (Spruce) Steph. Lisboa & Yano (1987) reported *Fissidens mollis* Mitt. Recently Yano & Costa (1992) have recorded *Dumortiera hirsuta* (Sw.) Nees. The remaining species were also collected by the senior author and are treated in the present paper.

The purpose of this paper is to provide a list of the bryophyte species of Acre, specifically from the Municipality Rio Branco, based on the collections of the senior author.

The material includes 182 collections made by the senior author, during 24 May - 5

June 1987, and three made by other botanists in the town of Rio Branco and surroundings, including the Zoo and Botanic Garden (Parque Zoobotânico) of the Federal University Foundation of Acre (FUFAC-Fundação da Universidade Federal do Acre), the Catuaba Experimental Station (Estação Experimental de Catuaba) and the farm of the Socorro Family (Sítio da Família Socorro). All collected material is deposited in the Herbarium of the Botanic Garden (SP) of São Paulo, Brazil. Collection numbers given after the ecological data are those of Daniel Vital.

Seventy-six species of bryophytes have been identified; 66 of them are new records for the State of Acre. Only *Cololejeunea dzumacensis* P. Tix. and *Lejeunea bermudiana* (Evs.) Schust., are new records for Brazil. The only Anthocerotae recorded for the State of Acre is *Notothylas vitalii* Udar & Singh.

Hepaticae

Acrolejeunea torulosa (Lehm. & Lindenb.) Schiffn.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14896, 14931. City: Praça Central, on live trunk, 14847.

Archilejeunea auberiana (Mont.) Evs.

Forest: Estação Experimental de Catuaba, on liana, 14958. Sítio da Família Socorro, on live trunk, 15001, 15010.

Archilejeunea parviflora (Nees) Schiffn. var. *parviflora*

Forest: Parque Zoobotânico da FUFAC, on spine of *Bactris* sp., 14918, 14919. Sítio da Família Socorro, on root on the banks of a stream, 14994.

Ceratolejeunea cubensis (Mont.) Schiffn.

Forest: Parque Zoobotânico da FUFAC, on live trunk, 14872, 14873. Estação Experimental de Catuaba, on live trunk, 14950, 14961; on prop root and trunk base of a palm tree, 14954; on decayed log, 14966.

Ceratolejeunea laetefusca (Aust.) Schust.

Forest: Estação Experimental de Catuaba, on prop root and trunk base of a palm tree, 14953. Farm of the Socorro Family, on live trunk, 14982.

Cheilolejeunea rigidula (Nees ex Mont.) Schust.

Forest: Estação Experimental de Catuaba, on live trunk, 14961, 14962. Lisboa & Yano (1987) cite the occurrence of the species "15 Km E of Rio Branco along the road to Abunã, Reese & Mcpherson 13180 (MG110493; INPA101217)". *Cheilolejeunea trifaria* (Reinw. et al.) Mizut.

Parque Zoobotânico da FUFAC, on live trunk, capoeira vegetation, 14922; forest, 14855.

Chiloscyphus liebmannianus (Gott.) Engel & Schust.

Fazenda Catuaba, Maria do Socorro D'_vila do Nascimento s/n, 20-VI-1987.

Cololejeunea dzumacensis P. Tix.

Forest: on live trunk, Parque Zoobotânico da FUFAC, 14906; Sítio da Família Socorro, 14997, 14999. The species is cited for the first time for Brazil.

Cololejeunea minutissima (Sm.) Schiffn.

City: on live trunk, Praça Central, 14845, 14846, 14847, 14848; Pátio da Catedral Virgem Nazareth, 14850; Street, 15039.

Cylindrocolea obtusifolia Fulf.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on soil, 14891, 14902, 14903, 14904, 14920, 14921.

Diplasiolejeunea brunnea Steph.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14932.

Diplasiolejeunea lanciloba P. Tix.

Forest: Estação Experimental de Catuaba, on leaves of tree, 14946.

Diplasiolejeunea rudolphiana Steph.

Forest: Sítio da Família Socorro, on live trunk, 14998, 15014.

Frullania ecklonii (Spreng.) Spreng.

City: FUFAC, on live trunk, 15028.

Frullania tolimana Steph.

City: Praça Central, on live trunk, 14847.

Frullanoides liebmanniana (Lindb. & Gott.) Slageren

Forest: Sítio da Família Socorro, on live trunk, 15018.

Lejeunea bermudiana (Evs.) Schust.

Forest: Estação Experimental de Catuaba, on decayed log, 14967. The species is cited for the first time for Brazil.

Lejeunea caespitosa Lindenb.

Forest: on live trunk, Parque Zoobotânico da FUFAC, 14908, DV-14909; Sítio da Família Socorro, 14997.

Lejeunea cerina (Lehm. & Lindenb.) Gott. et al.
Forest: Parque Zoobotânico da FUFAC, on live trunk, 14905.

Lejeunea controversa Gott.

Forest: Estação Experimental de Catuaba, on prop root and trunk base of a palm tree, 14955.

Lejeunea flava (Sw.) Nees

Forest: Parque Zoobotânico da FUFAC, on live trunk, 14915.

Lejeunea glaucescens Gott.

Forest: Parque Zoobotânico da FUFAC, on decayed log, 14839, 14844; on soil, 14852, 14853; on live trunk, 14862, 14863; on spine of *Bactris* sp., DV-14918. Estação Experimental de Catuaba, on decayed log, 14967; on live trunk, 14970. Sítio da Família Socorro, on live liana, 14987; on root on the banks of a stream, 14992; on live trunk, 14997; on base and dead parts of a live trunk, 15008. Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of a trunk, 14886; on soil, 14892, 14920, 14921, 14926. Farm of the Socorro Family, on decayed log, 14981. Parque Zoobotânico da FUFAC, on sandy soil under a orange tree near a shed, 14877.

Lejeunea trinitensis Lindenb.

Forest: on live trunk, Parque Zoobotânico da FUFAC, 14908, 14909; Sítio da Família Socorro, 14997. Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14897. City: FUFAC, on live trunk, 15030.

Lejeunea ulicina subsp. *bullata* (Tayl.) Schust.

City: Street, on live trunk, 15039.

Leptolejeunea elliptica (Lehm. & Lindenb.) Schiffn.

Forest: Parque Zoobotânico da FUFAC, on live trunk, 14906, 14907; on leaves of tree, 14933. Sítio da Família Socorro, on live trunk, 14997, 15000. Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14899, 14932. Parque Zoobotânico da FUFAC, on leaves of *Citrus* sp. near a rubber-tapper's hut, 14878.

Lophocolea bidentata (L.) Dum.

Forest: Estação Experimental de Catuaba, on live trunk, 14968.

Lopholejeunea subfusca (Nees) Schiffn.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk 14885, 14895, 14932. Forest: Parque Zoobotânico da FUFAC, on liana, 14934. Sítio da Família

Socorro, on live trunk, 14984, 15012.

Mastigolejeunea auriculata (Wils.) Schiffn.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14883, 14890, 14898, 14922. Forest: on live trunk, Parque Zoobotânico da FUFAC, 14913; Estação Experimental de Catuaba, 14969; Sítio da Família Socorro, 15011, 15019. Parque Zoobotânico da FUFAC, on base of young plant, rubber plantation, 14881.

Metzgeria cf. *furcata* (L.) Dum.

The material has not been compared with holarctic specimens.

Forest: Estação Experimental de Catuaba, on leaves of small plants, 14944.

Plagiochila disticha (Lehm. & Lindenb.) Mont.

Capoeira: Parque Zoobotânico da FUFAC, on live trunk, 14923. Forest: Parque Zoobotânico da FUFAC, on live trunk, 14871. Estação Experimental de Catuaba, on stem, 14941, 14948; on leaves, 14943; on live trunk, 14951, 14960; on prop root and trunk base of a palm tree, 14953; on liana, 14956, 14957, 14963. Sítio da Família Socorro, on live trunk, 14985.

Plagiochila laetevirens Lindenb.

Forest: Estação Experimental de Catuaba, on live trunk, 14951; on prop root and trunk base of a palm tree, 14953; on liana, 14957.

Rectolejeunea berteriana (Gott.) Evs.

Forest: Sítio da Família Socorro, on live trunk, 14983; on live liana, 14987.

Rectolejeunea phyllobola (Nees & Mont.) Evs.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14884, 14897. City: on live trunk, Praça Central, 14848, 14849; Pátio da Catedral Virgem Nazareth, 14850. Forest: on live trunk, Parque Zoobotânico da FUFAC, 14854; Sítio da Família Socorro, 14997.

Riccardia cf. *chamedryfolia* (With.) Grolle

The material has not been compared with holarctic specimens.

On soil, Capoeira vegetation: Parque Zoobotânico da FUFAC, 14921, 14930; Forest: Estação Experimental de Catuaba, 14937.

Riccia membranacea Gott. & Lindenb.

City: Rio Acre, on banks, 15021, 15024, 15032. Forest: Parque Zoobotânico da FUFAC, on margin of an "igarapé" (creek), 14874.

Stictolejeunea squamata (Willd. ex Web.)

Schiffn.

Forest: Estação Experimental de Catuaba, on liana, 14963. Gradstein (1985) cite the occurrence of the species based on Maas P13267 and Reese & McPherson 13157.

Taxilejeunea tapajosensis (Spruce) Steph.

Forest: On live trunk, 15009.

Anthocerotae

Notothylas vitalii Udar & Singh.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on soil, 14930. City: Rio Acre, on banks, 15022, 15024, 15025, 15032. Street, on edge of a drainage ditch, 15037. Parque Zoobotânico da FUFAC, on sandy soil near a rubber-tapper's hut, 14876. Sítio da Família Socorro, on clay bank of an "igarapé" (creek), in a forest clearing with a small area for picnics, 14996.

Musci

Aptychella sp. Leaf shape and leaf cells and presence of uniseriate gemmae suggest *Aptychella*, but alar cells are as in *Sematophyllum*. The material is now being studied by Dr. W.R. Buck (NY).

Parque Zoobotânico da FUFAC, on base of a young plant, rubber plantation, 14879.

Barbula agraria Hedw.

City: Street, on wall, 15027.

Bryum coronatum Schwaegr.

On soil, Capoeira vegetation: Parque Zoobotânico da FUFAC, 14926; Forest: Estação Experimental de Catuaba, 14938.

Calypstrochaeta setigera (Mitt.) Buck

Forest: Estação Experimental de Catuaba, on prop root and trunk base of a palm tree, 14954.

Chryso-hypnum diminutivum (Hampe) Buck

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk 14887. Forest: Parque Zoobotânico da FUFAC, on live and dead parts the trunk, 14856, 14859, 14910, 14912. On live trunk, Estação Experimental de Catuaba, 14974; Sítio da Família Socorro, 15017.

Crossomitrium patrisiae (Brid.) C. Müll.

Forest: Parque Zoobotânico da FUFAC, on live trunk, 14869. Estação Experimental de Catuaba, on leaves, 14945.

Dicranella hilariana (Mont.) Mitt.

City: FUFAC, on damp bank, 14837. Rio Acre,

on bank, 15026. Forest: Estação Experimental de Catuaba, on soil, 14935, 14936.

Ectropothecium minutum Broth.

Forest: Estação Experimental de Catuaba, on soil, 14939.

Fissidens intermedius C. Müll.

On soil, Parque Zoobotânico da FUFAC, Capoeira vegetation: 14904; Forest: 14838. Pursell & Reese (1980) cite the occurrence of the species "15 Km E of Rio Branco along the road to Abunã, tall, mature forest with dense understory, sloping to a springy ravine, on ravine bank, Reese & McPherson 13154 (INPA, LAF, NY, PAC, US)".

Fissidens leptophyllus Mont.

Forest: Sítio da Família Socorro, on root on the margin of a stream, 14993. Vital & Pursell (1992) have already cited 14993.

Fissidens microcladus Thwait. & Mitt.

Forest: Estação Experimental de Catuaba, on liana, 14964.

Fissidens reticulosus (C. Müll.) Mitt.

On soil, Capoeira vegetation: Parque Zoobotânico da FUFAC, 14929; Forest: Estação Experimental de Catuaba, 14935, 14936.

Fissidens zollingeri Mont.

Forest: Estação Experimental de Catuaba, on soil, 14935.

Henicodium geniculatum (Mitt.) Buck

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14901, 14924. Forest: Parque Zoobotânico da FUFAC, on live liana, 14934. Sítio da Família Socorro, on live trunk, 14986; on live liana, 14987.

Isopterygium tenerum (Sw.) Mitt.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14888; on soil, 14891, 14894, 14921, 14929. City: FUFAC, on live trunk, 14840. Forest: Parque Zoobotânico da FUFAC, on decayed log, 14839; on live trunk 14862, 14863, 14915, 14916. Estação Experimental de Catuaba, on leaves of small plants, 14944. Sítio da Família Socorro, on base and dead parts of a live stipe, 15002, 15007. Parque Zoobotânico da FUFAC, on base of a young plant, rubber plantation, 14880.

Lepidopilum scabrisetum (Schwaegr.) Steere

Forest: Estação Experimental de Catuaba, on liana, 14959.

Leucomium strumosum (Hornsch.) Mitt.

Forest: Estação Experimental de Catuaba, on live trunk, 14952, 14975.

Macromitrium stellulatum (Hornsch.) Brid.

City: FUFAC, on live trunk, 15031. Lisboa & Yano (1987) cite the occurrence of the species "25-30 Km W of Rio Branco along the road to Sena Madureira, Reese 13231 (MG110496; INPA90711)".

Neckeropsis disticha (Hedw.) Kindb.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14900. Forest: on live trunk, Parque Zoobotânico da FUFAC, 14842, 14857, 14868; Sítio da Família Socorro, 14989, 14990. Estação Experimental de Catuaba, on stem, 14948, 14949.

Neckeropsis undulata (Hedw.) Reichardt

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live trunk, 14900. Forest: Parque Zoobotânico da FUFAC, on live trunk, 14870, 14875. Estação Experimental de Catuaba, on stem base, 14942; on liana, 14964. Sítio da Família Socorro, on live trunk, 14989, 14990, 15015. Parque Zoobotânico da FUFAC, on base of a young plant, rubber plantation, 14882.

Octoblepharum albidum Hedw.

City: Street, on trunk, 15034. Forest: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14861, 14862, 14911, 14917. Estação Experimental de Catuaba, on live trunk, 14962. Sítio da Família Socorro, on base and dead parts of a live stipe, 15005. Yano (1982) cite the occurrence of the species in Cruzeiro do Sul, Maas et al. P13052 (INPA31416), Ramos & Mota 232 (INPA56897; SP147653); 15 Km E de Rio Branco, em estrada à Abuná, Reese 13148 (INPA), Reese 13162 (INPA), 35 Km S of Rio Branco, em estrada à Brasília, Reese 13266 (INPA), 63 Km S of Rio Branco, em estrada à Brasília, Reese 13278 (INPA).

Philonotis uncinata (Schwaegr.) Brid.

City: Rio Acre, on bank, 15023, 15026. Street, on soil, 15036; on edge of a drainage ditch, 15037.

Pilosium chlorophyllum (Hornsch.) C. Müll.

Fazenda Catuaba, Maria do Socorro D'Avila do Nascimento s/n, 20-VI-1987.

Pohlia apiculata (Schwaegr.) Crum & Anders.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on soil, 14927. City: Pátio da Catedral Virgem Nazareth, on bank and base of the wall,

14851. Rio Acre, on bank, 15026. FUFAC, on soil with remains of masonry, 15029. Street, on soil, 15036; on edge of a drainage ditch, 15037. *Racopilum tomentosum* (Hedw.) Brid.

Forest: Estação Experimental de Catuaba, on live trunk, 14973.

Schizomitrium pallidum (Hornsch.) Crum & Anders.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14889. Sítio da Família Socorro, on decayed log, 14976. Forest: Parque Zoobotânico da FUFAC, on decayed log, 14839, 14844, 14866. Estação Experimental de Catuaba, on decayed log, 14965. Sítio da Família Socorro, on roots on the margins of a stream, 14992; on base and dead parts of a live stipe, 15004.

Sematophyllum amnigenom (Broth.) Broth.

Forest: Sítio da Família Socorro, on roots on the margins of a stream, 14992.

Sematophyllum subpinnatum (Brid.) Britt.

City: Street, on live trunk, 15038.

Sematophyllum subsimplex (Hedw.) Mitt.

Parque Zoobotânico da FUFAC, sobre tronco podre, Maria Rosélia Marques Lopes s/n, 18-IV-1987.

Splachnobruym obtusum (Brid.) C. Müll.

City: Rio Acre, on bank, 15020. Street, on soil, 15035. Forest: Estação Experimental de Catuaba, on soil, 14938. Vital & Pursell (1992) have also cited the occurrence of the species in the town of Rio Branco, 15020.

Syrrhopodon cryptocarpus Dozy & Molk.

City: Street, on trunk, 15033, 15034. Forest: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14912. Estação Experimental de Catuaba, on live trunk, 14962. Sítio da Família Socorro, on base and dead parts of a live stipe, 15007. Reese (1979) does not cite the exact habitat of this species which he collected in Acre.

Syrrhopodon parasiticus (Brid.) Besch. var. *parasiticus*

City: Street, on trunk, 15038.

Taxithelium planum (Brid.) Mitt.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14890; on soil, 14893, 14921, 14925. Sítio da Família Socorro, on decayed log, 14978. Forest: Parque Zoobotânico da FUFAC, on soil, 14852,

14853; on live trunk, 14859; on decayed log, 14864, 14865. Sítio da Família the Socorro, on roots on the margins of a stream, 14992, 14995; on base and dead parts of a live stipe, 15003; on live trunk, 15016. Buck (1985) cites the occurrence of the species at "Rio Juruá-Mirim, near Lucania, Maas et al. P12936 (NY)".

Thuidium involvens (Hedw.) Mitt.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on soil, 14928. Sítio da Família Socorro, on decayed log, 14980. Forest: Parque Zoobotânico da FUFAC, on creeping liana, 14841; on live trunk, 14842; on decayed log, 14844. Estação Experimental de Catuaba, on decayed log, 14965. Sítio da Família Socorro, on base and dead parts of a live stipe, 15006; on live trunk, 15017.

Thuidium shistocalyx (C. Müll.) Mitt.

Forest: Parque Zoobotânico da FUFAC, on decayed log, 14867. Estação Experimental de Catuaba, on live trunk, 14972.

Trichosteleum papillosum (Hornsch.) Jaeg.

Capoeira vegetation: Parque Zoobotânico da FUFAC, on live and dead parts of the trunk, 14889; on soil, 14902, 14903. Sítio da Família Socorro, on decayed log, 14977.

Vesicularia vesicularis (Schwaegr.) Broth.

Capoeira vegetation: Sítio da Família Socorro, on decayed log, 14979. Forest: Parque Zoobotânico da FUFAC, on soil, 14852, 14853; on decayed log, 14864. Estação Experimental de Catuaba, on soil, 14940.

Zelometeorium patulum (Hedw.) Manuel

Forest: Estação Experimental de Catuaba, on dead branch, 14947; on live trunk, 14971. Sítio da Família Socorro, on live liana, 14987, 14988; on live trunk, 14989, 14991. Manuel (1977) cites the occurrence of the species "Porangoba, Rio Juruá-Mirim, terra firme forest, Maas et al. INPA no. 31527 (FLAS)".

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