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A Checklist of the bryophytes of Distrito Federal (Brasília, Brazil)

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Abstract: The Distrito Federal, one of the most important centers of plant endemism in central Brazil, is located in the center of Brazil, with an area of 5,814 km^2 at coordinates 15^{o}30' S, 16^{o}03'W. Cerrado vegetation covers the region. The main city in the Distrito Federal is Brasília, the capital of Brazil with a population of 2.5 million. In the last two decades the anthropogenic action has reduced the original plant cover drastically. In this paper a checklist of the bryophytes (Marchantiophyta, Bryophyta and Anthocerotophyta) is presented. A total of 176 species are listed, 114 among Bryophyta, 61 among Marchantiophyta and 1 in the Anthocerotophyta. The families best represented are the Bryaceae and Sematophyllaceae (Bryophyta), and the Jubulaceae and Lejeuneaceae (Marchantiophya).

Resumo: O Distrito Federal, reconhecido com um dos principais centros de diversidade e endemismo de espécies vegetais do Brasil Central, está localizado no centro do pais, com uma área de 5.814 Km^2, entre as coordenadas 15°30' S, 16°03'O. A região é coberta pela vegetação de cerrado. A principal cidade do Distrito Federal é Brasilia, com uma população de 2,5 milhões de habitantes. Nas últimas duas décadas ação do homem tem reduzido draticamente a cobertura vegetal original. Neste trabalho é apresentado um cheklist das briófitas (Marchantiophyta, Bryophyta e Anthocerotophyta). Um total de 176 especies são listadas, 114 entre a Divisão Bryophyta, 61 na Divisão Marchantiophya e um entre Anthocerotophyta. As familias melhor representadas são: Bryaceae e Sematophyllaceae (Bryophyta) e Jubulaceae e Lejeuneaceae (Marchantiophyta)

Introduction

The Distrito Federal (DF) is a rectangular area of 5,814 km^2 in the center of Brazil at 15^{o}30' S, 16^{o}03'W, at an elevation of about 1100m above sea level, and hosts the city of Brasília, Brazil's capital, with 2.5 million inhabitants. The weather is that of a tropical savanna, Aw in the Koopen classification.

It is recognized as one of the most important centers of plant endemism in central Brazil (Gentry et al., 1997) and in the DF are found the headwaters of the three principal river basins in Brazil**:** São Francisco, Paraná and Amazonas.

Originally, cerrado vegetation covered the region. However, in 1964 the capital of Brazil was transferred to that area and since then the area has suffered serious disturbance and loss of natural areas and landscapes.

Until 1984, there was almost no information available about the bryoflora of the area. The first effort to collect in the region was made by Daniel Vital from the São Paulo Botanical Garden, but the results were never published. There are papers related to cerrado bryophytes as Egunyomi & Vital (1984) and Yano & Costa (2000) but not specifically related to the Distrito Federal area. In 1993 Pereira & Filgueiras published a list of bryophytes from Distrito Federal, based only on part of the literature available at this time; unfortunately the list contains several mistakes, making it very untrustworthy, although it was the very first effort to provide a list of the bryophytes from the area. Most of the data available are still dispersed in the bryological literature, sometimes of difficult access.

In 2000 an inventory of a suburban area (Câmara et al., 2003) was the first published paper on bryophytes specific to the DF. In 2002 an inventory of the gallery forest in the DF was made (Câmara, 2002).

With this work we intend to summarize the available data of the bryophytes making it more accessible to further studies in the area and allowing better knowledge of the biodiversity in central Brazil.

Material and methods

This is not a taxonomic work; it is based on the literature available and also consulted herbaria. The authors do not give opinion about the validation of any taxa. No types were studied and no specimens were checked to confirm the identification. The intention is bring together the data in order to facilitate further work.

The following papers was consulted: Buck & Schäfer-Verwimp (1993), Bastos e Vilas-Bôas-Bastos (2000), Bastos & Yano (1993), Câmara (2002, 2003), Castro et al (2002), Costa (1992, 1999), Costa & Yano (1988), Costa & Yano (1995), Filgueiras & Pereira (1993), Frahn (1991), Griffin III (1979), Hell (1969), Ilkiu-Borges (2000), Ireland & Buck (1994), Lisboa (1993), Lisboa & Ilkiu-Borges (1995), Michel (2001), Oliveira-e-Silva & Yano (2000a, 2000b), Pôrto et al (1999), Reese (1993), Schäfer-Verwimp (1991, 1992, 1996), Visnadi (1998), Visnadi & Vital (1995, 1997), Vital & Visnadi (1994), Yano (1981, 1984, 1992, 1994, 1995, 1996), Yano & Carvalho (1994), Yano & Costa (2000), Yano & Lisboa (1988) and Yano & Mello (1992). The herbaria consulted were UB, HEPH, CEN, IBGE and SP.

The results are presented in alphabetical order among the Divisions and following the systems of Buck & Goffinet (2000) to Bryophyta and Stotler & Crandall-Stotler (2000) to Marchantiophyta.

Results

There were found a total of 176 species, 114 among Bryophyta, 61 among Marchantiophyta and 1 in the Anthocerotophyta.

The families best represented in Bryophyta are Bryaceae (16) and Sematophyllacea (11), in the Marchantiophya, Jubulacae (9) and Lejeuneaceae (18). Only one representive of Anthocerotophyta was found.

Anthocerotophyta

Anthocerotaceae

Phaeoceros laevis (L.) Prosk.

Bryophyta

Bartramiaceae
Philonotis scabrifolia (Hook. f. & Wilson) Braithw.
Philonotis glaucescens (Hornsch.) Broth.
Philonotis uncinata (Schwaegr.)Brid.

Brachytheciaceae
Homalothecium pinnatifidum (Sull.) E. Lawton

Bruchiaceae
Trematodon longicollis Michx.
Trematodon norrisii Sharp

Bryaceae
Brachymenium globosum A. Jaeger
B. exile (Dozy & Molk) Bosch & Lac.
B. morasicum Besch.
Bryum apiculatum Schwaegr.
B. argenteum Hedw.
B. atenense R.S. Williams
B. capillare Hedw.
B. coronatum Schwaegr.
B. densifolium Brid.
B. leptocladon Sull.
B. limbatum Müll. Hal.
B. obtusum (Hedw.) Dicks. ex With.
B. paradoxum Schwägr.
B. subapiculatum Hampe
B. systylium Müll. Hal.
Rhodobryum beyrichianum (Hornsch.) Müll. Hal.

Calymperaceae
Calymperes uleanum Broth.
Octoblepharum albidum Hedw.
Octoblepharum cylindricum Schimp. ex Mont.
Syrrhopodon gaudichaudii Mont.
S. ligulatus Mont.
S. parasiticus (Brid.)Besch.
S. prolifer Schwaegr.
S. prolifer var. *acanthoneuros* (Müll. Hal.) Müll. Hal.

Cryphaeaceae
Schoenobryum concavifolium (Griff.) Gangulle
S. gardneri (Mitt.) Manuel
S. julaceum Dozy & Molk.

Dicranaceae
Campylopus carolinae Grout
C. controversus (Hampe) A. Jaeg.
C. cryptopodioides Broth.
C. gemmatus (Müll. Hal.) Paris

C. occultus Mitt.
C. pilifer fo. *angustifolius* (Warnst.) J.-P. Frahm
Holomitrium crispulum Mart.

Ditrichaceae
Ceratodon purpureus (Hedw.) Brid.

Entodontaceae
Entodon erythropus Mitt.
E. jamesonii (Taylor) Mitt.
E. macropodus (Hedw.) Müll. Hal.
Erythrodontium squarrosum (Hampe) Paris
Mesonodon regnellianus (Müll. Hal.) W.R. Buck

Erpodiaceae
Erpodium coronatum (Hook. & Wils.) Mitt.

Fabroniaceae
Fabronia ciliaris var. *polycarpa* (Hook.) W.R.Buck

Fissidentaceae
Fissidens mollis Mitt.
F. prionodes Mont.
F. reticulosus (Müll. Hal.) A. Jaeger
F. submarginatus Bruch

Funariaceae
Funaria hygrometrica Hedw.
F. serrata Brid.

Helicophyllaceae
Helicophyllum torquatum (Hook.) Brid.

Hypnaceae
Chryso-hypnum diminutivum (Hampe) W.R. Buck
C. elegantulum (Hook) Hampe
Hyocomium armoricum (Brid.) Wijk & Margad.
Isopterygium pygmaeocarpum (Müll. Hal.) Broth.
I. tenerifolium Mitt.
I. tenerum (Sw.) Mitt.

Pseudotaxiphyllum distichaceum (Mitt.) Z. Iwats.

Lembophyllaceae
Pilotrichella rigida (Müll. Hal.) Besch.

Leucobryaceae
Leucobryum albidum (Brid. ex P. Beauv.) Lindb.
L. clavatum Hampe
L. crispum Müll. Hal.
L. martianum (Hornsch.)Hampe
Ochrobryum gardneri (Müll. Hal.) Mitt.
O. subulatum Hampe

Meteoriaceae
Papillaria deppei (Hornsch. ex Müll. Hal.) A. Jaeg.
Papillaria nigrescens (Sw.) A.Jaeg.

Mniaceae
Pohlia wahlenbergii (F. Weber & D. Mohr) A.L. Andrews

Neckeraceae
Neckeropsis undulata (Hedw.) Reichdt.

Orthotrichaceae
Macrocoma sullivantii (Müll. Hal.) Grout
Macromitrium guatemalense Müll. Hal.
Schloteimia jamesonii (Arnott) Britt.
S .rugifolia (Hook.) Schwaegr.

Pilotrichaceae
Callicostella pallida (Hornsch.) Ångström

Polytrichaceae
Pogonatum pensilvanicum (Hedw.) P. Beauv.
Polytrichum commune Hedw.
P. juniperinum Wild. ex Hedw.

Pottiaceae
Barbula indica (Hook.) Spreng.
Hymenostylium recurvirostre (Hedw.) Dixon
Hyophila involuta (Hook.) A. Jaeg.
Hyophiladelphus agrarius (Hedw.) R.H. Zander
Leptophascum leptophyllum (Müll. Hal.) J. Guerra & Cano
Molendoa sendtneriana (Bruch & Schimp.) Limpr.
Pseudosymblepharis schimperiana (Par.) Crum
Tortella humilis (Hedw.) Jenn.
Weissia controversa Hedw.

Pterobryaceae
Jaegerina scariosa (Lorentz) Arzeni

Pterigynandraceae
Trachyphyllum dusenii (Müll. Hal. ex Broth.) Broth.

Racopilaceae
Racopilum tomentosum (Hedw.) Brid.

Regmatodontaceae
Regmatodon brasiliensis Lindb. ex Müll. Hal.

Rhachitheciaceae
Jonesiobryum termitarum Vital ex B.H. Allen & Pursell
Rhachithecium perpusillum (Thwait. & Mitt.) Broth.
Tisserantiella minutissima (Mitt.) Zand.

Sematophyllaceae
Acroporium estrellae (Müll. Hal.) W.R. Buck & Schaef.-Verw.
A. longirostre (Brid.) W.R. Buck
A. pungens (Hedw.) Broth.
Donnellia commutata (Müll. Hal.) W.R. Buck
Sematophyllum amnigenum (Broth.) Broth.
S. galipense (Müll. Hal.) Mitt.
S. sericifolium Mitt
S. subsimplex (Hedw.)Mitt.
S. subpinnatum (Brid.)Britt.
Trichosteleum fluviale (Mitt.) A. Jaeger
Trichosteleum intricatum Thér.

Stereophyllaceae
Entodontopsis leucostega (Brid.) Buck & Ireland
Pilosium chlorophyllum (Hornsch.) Müll. Hal.

Sphagnaceae
Sphagum perichaetiale Hampe

Thuidiacae
Cyrto-hypnum minutulum (Hedw.)W.R. Buck & H.A.Crum

C. involvens (Hedw.) W.R. Buck & H.A. Crum
C. scabrosulum (Mitt.) W.R. Buck & H.A. Crum

Marchantiophyta

Aneuraceae
Riccardia chamedryfolia (With.) Grolle

Balantiopsidiaceae
Isotachis inflata Steph.
Neesioschyphus argillaceus (Nees) Grolle

Bryopteridaceae
Bryopteris filicina (Sw.) Nees
B. fruticulosa Taylor
B. trinitensis (Lehm. & Lindenb.)Lehm. & Lindenb.

Calypogeiaceae
Calypogeia peruviana Nees & Mont.
C. uncinulatula Herzog

Cephaloziellaceae
Alobiella campanensis Steph.
Cylindrocolea rhizantha (Mont.) Schust.

Chonecoleaceae
Chonecolea doellingeri (Nees) Grolle

Fossombroniaceae
Fossombronia brasiliensis Steph.
F. *porphyrorhyza* (Nees) Prosk.

Geocalycaceae
Lophocolea coadunata (Sw.) Mont.
L. lindmannii Steph.

Jubulaceae
Frullania apiculata (Reinw et al.)Dum.
F. arecae (Spreng.) Gottsche.
F. brasiliensis Raddi
F. caulisequa (Nees) Nees
F. ecklonii (Spreng.) Gottsch & Lindenb.
F. ericoides (Nees ex Mart.) Mont.
F. gibbosa Nees in Mont.
F. neesi Lindenb.
F. riojaneirensis (Raddi) Aongst.

Lejeuneaceae
Acanthocoleus aberrans (Lindenb. & Gott.) Kruijt
Acrolejeunea emergens (Mitt.) Stephani
Aphanolejeunea truncatifolia Horik.
Brachiolejeunea phyllorhiza (Nees) Kruijt & Gradst
Cheilolejeunea acutangula Grolle
C. discoidea (Lehm. & Lindenb.)Kach. & Schust.
C. trifaria (Reinw., Blume & Nees) Mizut.
Lejeunea flava (Sw.) Nees
L. glaucescens Gott.
L. laetevirens Nees & Mont.
L. nigricans Lindenb.
L. phyllobola Nees & Mont.
Leptolejeunea elliptica (Lehm. & Lindenb.) Schiffner
Lopholejeunea subfusca (Nees) Schiffner
Mastigolejeunea auriculata (Wilson & Hook.) Schiffner
Neurolejeunea seminervis (Spruce) Schiffner
Microlejeunea bullata (Tayl.) Steph.
Schiffneriolejeunea polycarpa (Nees) Grad.

Lepidoziaceae
Arachniopsis diacantha (Mont.) Howe
Kurzia capillaris (Sw.) Grolle
Lepidozia brasiliensis Stephani
Micropterygium trachyphyllum Reimers
Telaranea nematodes (Austin) Howe
Zoopsis antillana Steph.

Marchantiaceae
Dumortiera hirsuta (Sw.) Nees
Marchantia chenopoda L.

Metzgeriaceae
Metzgeria albinea Spruce
M. dichotoma (Sw.) Nees
M. lechleri Stephani
M. myriopoda Lindb.
M. lechleri Steph.

Pallaviciniaceae
Pallavicinia lyelli (Hook.) Gray
Symphyogyna brasiliensis Nees & Mont

Plagiochilaceae
Plagiochila corrugata (Nees) Nees & Mont.

P. disticha (Lehm & Lindenb.) Mont.
P. martiana (Nees) Lindb.

Porellaceae
Porella brasiliensis (Raddi) Schiffner

Central Brazil remains one of the poorest collected areas in South America and more studies are needed. This survey shows a high number of species considering the low collecting effort made in the area. Hopefully with more expeditions to the area, more data will be added to this list.

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