

Bryophytes from the Republic of Equatorial Guinea (West-Central Africa) II.

Bryophytes collected by Emilio Guinea (1907-1985) in the Island of Bioco in 1947.

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Abstract: Some unidentified samples of bryophytes collected by Emilio Guinea in Bioco (Equatorial Guinea) in 1947 have been studied. Twenty-seven taxa are the result of this study, nine of them being new for Equatorial Guinea and two new for the island of Bioco.

Resumen: Se han estudiado varias muestras de briófitos sin identificar recogidas por Emilio Guinea en Bioco (Guinea Ecuatorial) en 1947. Veintisiete taxones son el resultado de este estudio, siendo nueve de ellos novedad para Guinea Ecuatorial y dos más, nuevos para la isla de Bioco.

Introduction

During a visit to the herbarium of the Madrid Royal Botanical Garden in 1994, fifteen samples containing bryophytes collected by the Basque botanist Emilio Guinea in the island of Bioco (formerly Fernando Poó) in the year 1947 were found. These samples remained unidentified and the results of their study are now presented.

Biographic notes on Emilio Guines

Emilio Guinea was born in Bilbao (Basque Country, Spain) in May 1907. He obtained his doctorate in Natural Science in the year 1932, at the Universidad Complutense in Madrid, at that time known as Universidad Central. He committed to docency, first at a Secondary School and later at the Universidad Complutense in Madrid.

His research was based on Botany, especially on

vascular plants and on mycology, but his abundant collections included specimens from all botanical groups. He was Head of the Botanical Section of the Institute for African Studies (Consejo Superior de Investigaciones Científicas), and later on, Director of the Madrid Royal Botanical Garden. In the forties and fifties, he travelled through Africa, mainly Equatorial Guinea, which by then possessed the status of Spanish province, and the North African deserts.

Among his many publications, his geobotanical essays on Vizcaya and Santander (Spain) and on Equatorial Guinea and the Sahara (Africa) are worth noting.

Already retired, he died in October 1985 (Castroviejo, 1988).

Results

A list containing twenty-seven taxa is offered: sixteen hepatics and eleven mosses. Among them, nine are new country records for Equatorial Guinea (marked with an asterisk *) and two, new records for the island of Bioco (marked with +). Emilio Guinea's localities are listed under each taxon. All specimens are lodged in the cryptogamic herbarium of the Madrid Royal Botanical Garden (MA).

Hepaticae

* *Aphanolejeunea truncatifolia* Horikawa (= *Aphanolejeunea subdiaphana* (Jovet-Ast) Pócs).

Moka, Las Cascadas, primary forest, MA 13201 (together with *Plagiochila integerrima*, *Lejeunea acuta*, *Ectropothecium regulare*, *Eurhynchium* cf. *spiculosum*, *Plagiomnium rhynchophorum*).

Two of the samples (Moka: Las Cascadas, primary forest, MA 13200, MA 13201) contained some branches of this genus. It was not possible to identify the material in MA 13200 to the species level due to its scarcity, but Dr. Tamás Pócs (Esterhazy Teachers' College, Eger, Hungary) was able to determine the material in MA 13201 as this species. The synonymy refers to Pócs & Lücking (1996). It represents both a generic and specific addition to the country.

+ *Bazzania decrescens* (Lehm. & Lindenb.) Trevisan ssp. *molleri* (Steph.) E.W. Jones

Finca Puente, MA 13198 (together with *Pyrrhobryum spiniforme*).

This taxon has been previously recorded from the island of Annobón (Santa Mina, Byström, Arnell 1956: 529). The type of the subspecies has recently been recorded from Bioco (Müller 1996).

* *Drepanolejeunea cultrella* (Mitt.) Steph.

Moka, Las Cascadas, primary forest, musci-
cole among *Pyrrhobryum spiniforme*, MA 13200 (together with *Prionolejeunea grata* and *Aphanolejeunea* sp.).

Frullania angulata Mitt.

Pico Santa Isabel (Basilé Peak), MA-Hepaticae 2584 (together with *Plagiochila effusa*, *Lejeunea acuta* and *Lejeunea flava* complex).

Previously recorded both from Bioco (*Newton*, G holotype of *F. newtonii* Steph.,

Vanden Berghen 1976: 71; Müller 1996) and Annobón (Mildbraed 1922: 158; Vanden Berghen 1976: 71).

Lejeunea acuta Mitt.

Trocha del Servicio Agronómico, MA 13192 (together with *Lejeunea flava* complex, *Microlejeunea africana* and *Orthostichidium involutifolium*); Moka, Las Cascadas, primary forest, MA 13195 (together with *Plagiochila pectinata*, *Lophocolea martiana*, *Telaranea nematodes*, *Prionolejeunea grata*, *Marchesinia excavata* and *Syrrhopodon lamprocarpus*), MA 13201 (together with *Plagiochila integerrima*, *Aphanolejeunea truncatifolia*, *Ectropothecium regulare*, *Eurhynchium* cf. *spiculosum*, *Plagiomnium rhynchophorum*); Pico Santa Isabel (Basilé Peak), MA-Hepaticae 2584 (together with *Plagiochila effusa*, *Frullania angulata* and *Lejeunea flava* complex). Previously recorded from Bioco (*Mann*, Mitten 1863: 168; Moka and Pico Basilé, *Byström*, Arnell 1956: 528, 529) and Annobón (Crater lake and Quioveo, *Byström*, Arnell 1956: 532).

Lejeunea flava complex.

Some infertile shoots have been found, which do not allow further identification: trocha del Servicio Agronómico, MA 13192 (together with *Lejeunea acuta*, *Microlejeunea africana* and *Orthostichidium involutifolium*); Pico Santa Isabel (Basilé Peak), MA-Hepaticae 2584 (together with *Plagiochila effusa*, *Lejeunea acuta* and *Frullania angulata*).

Lophocolea martiana Nees

Moka, Las Cascadas, primary forest, MA 13195 (together with *Plagiochila pectinata*, *Lejeunea acuta*, *Telaranea nematodes*, *Prionolejeunea grata*, *Marchesinia excavata* and *Syrrhopodon lamprocarpus*). Previously recorded from Bioco (Berg Caldera, Müller 1996).

Lophocolea muricata (Lehm.) Nees

Previously known from Bioco: Basilé Peak, 2430 m, *Mann* (Mitten 1863: 165) and Berg Caldera (Müller 1996).

Pico Santa Isabel, MA 13203 (together with *Pyrrhobryum spiniforme* and *Pilotrichella communis*).

Marchesinia excavata (Mitt.) Schiffn.

Moka, Las Cascadas, primary forest, mixed among *Syrrhopodon lamprocarpus*, MA 13195 (together with *Lejeunea acuta*, *Lophocolea martiana*, *Plagiochila pectinata*, *Telaranea nematodes* and *Prionolejeunea grata*).

Its presence is registered in Bioco (*Monkemeyer*, Stephani 1886: 94, Augier 1985: 77), as well as in Annobón (Quioveo and Santa Mina, *Mildbraed*, Mildbraed 1922: 158).

Microlejeunea africana Steph.

Trocha del Servicio Agronómico, MA 13192 (together with *Lejeunea acuta*, *Lejeunea flava* complex and *Orthostichidium involutifolium*).

Recorded from Annobón (Santa Mina and Quioveo, *Byström*, Arnell 1956: 533) and also from Bioco (Moka, *Byström*, Arnell 1956: 528).

Plagiochila effusa Steph.

Pico Santa Isabel (Basilé Peak), MA-Hepaticae 2584 (together with *Frullania angulata*, *Lejeunea acuta* and *Lejeunea flava* complex).

Recorded from Bioco (Mildbraed type of *P. oblongotrigona* Steph., Jones 1962: 321).

Plagiochila integerrima Steph.

Moka, Las Cascadas, primary forest, MA 13201 (together with *Aphanolejeunea truncatifolia*, *Lejeunea acuta*, *Ectropothecium regulare*, *Eurhynchium* cf. *spiculosum*, *Plagiomnium rhynchophorum*).

Previously known from Bioco: Mann, K. sub *P. sarmentosa* (Jones 1962: 269), Berg Caldera (Müller 1996).

* *Plagiochila pectinata* (Willd. ex Web.) Ldbg.

Moka, Las Cascadas, primary forest, MA 13195 (together with *Lejeunea acuta*, *Lophocolea martiana*, *Marchesinia excavata*, *Telaranea nematodes*, *Prionolejeunea grata* and *Syrrhopodon lamprocarpus*).

+ *Prionolejeunea grata* (Gott.) Schiffn.

Moka, Las Cascadas, primary forest, musci-cole among *Pyrrhobryum spiniforme*, MA 13200 (together with *Aphanolejeunea* sp. and *Drepanolejeunea cultrella*) and *Syrrhopodon lamprocarpus*, MA 13195 (together with *Lejeunea acuta*, *Lophocolea martiana*, *Marchesinia excavata*, *Plagio-*

chila pectinata and *Telaranea nematodes*) Recorded for Annobón (Santa Mina, *Byström*, Arnell 1956: 529).

Radula appressa Mitt.

Pico Serrano, MA 13199 (together with *Orthostichidium involutifolium*); Moka, Las Cascadas, primary forest, MA 13194 (together with *Floribundaria cameruniae* and *Orthostichidium involutifolium*).

Previously recorded from Bioco (*Monkemeyer*, Stephani 1886: 93) and Annobón (Santa Mina and Quioveo, *Byström*, Arnell 1956: 534).

* *Telaranea nematodes* (Gottsche ex Aust.) Howe

Moka, Las Cascadas, primary forest, MA 13195 (together with *Lejeunea acuta*, *Lophocolea martiana*, *Plagiochila pectinata*, *Prionolejeunea grata*, *Marchesinia excavata* and *Syrrhopodon lamprocarpus*).

Musci* *Breutelia diffracta* Mitt.

Pico Santa Isabel (Basilé Peak), summit, MA 13193, MA 13196.

* *Ectropothecium regulare* (Brid.) Jaeg.

Moka, Las Cascadas, primary forest, MA 13201 (together with *Aphanolejeunea truncatifolia*, *Lejeunea acuta*, *Plagiochila integerrima*, *Eurhynchium* cf. *spiculosum* and *Plagiomnium rhynchophorum*).

* *Eurhynchium* cf. *spiculosum* (Mitt.) Jaeg.

Moka, Las Cascadas, primary forest, MA 13201 (together with *Aphanolejeunea truncatifolia*, *Lejeunea acuta*, *Plagiochila integerrima*, *Ectropothecium regulare* and *Plagiomnium rhynchophorum*).

* *Floribundaria cameruniae* (Dusén) C. Müll.

Moka, Las Cascadas, primary forest, MA 13194 (together with *Radula appressa* and *Orthostichidium involutifolium*).

* *Leptodontium viticulosoides* (P. Beauv.) Wijk & Marg.

Pico Santa Isabel (Basilé Peak), summit, MA 13202.

Orthostichidium involutifolium (Mitt.) Broth.

Trocha del Servicio Agronómico, MA 13192 (together with *Lejeunea acuta*, *Lejeunea flava* complex and *Microlejeunea africana*); Moka, Las Cascadas, primary forest, MA 13194 (together with *Radula appressa*

and *Floribundaria cameruniae*); Pico Serrano, MA 13199 (together with *Radula appressa*).

Formerly recorded from Bioco (Argent 1973: 595; Schultze-Motel 1975: 503; O'Shea 1995: 150; Müller 1996).

Pilotrichella communis C. Müll.

Pico Serrano, MA 13190, MA 13191; Pico Santa Isabel (Basilé Peak), MA 13203 (together with *Lophocolea muricata* and *Pyrrhobryum spiniforme*).

Already cited for Bioco (Moka, Monod, Potier de la Varde 1953: 483, Schultze-Motel 1975: 504, O'Shea 1995: 153).

Plagiomnium rhynchophorum (Hook.) T. Kop.

Moka, Las Cascadas, primary forest, MA 13201 (together with *Aphanolejeunea truncatifolia*, *Lejeunea acuta*, *Plagiochila integerrima*, *Ectropothecium regulare*, *Eurhynchium* cf. *spiculosum*).

Cited from Bioco by Mann (Mitten 1863: 162, Schultze-Motel 1975: 498, O'Shea 1995: 155, Müller 1996).

Pogonatum gracilifolium (Besch.) De Sloover

Finca Puente, MA 13197.

Known from Bioco: Moka (De Sloover 1986: 286, 295, O'Shea 1995: 156).

Pyrrhobryum spiniforme (Hedw.) Mitt.

Finca Puente, MA 13198 (together with *Bazzania decrescens* spp. *molleri*); Moka, Las Cascadas, primary forest, MA 13200 (together with *Drepanolejeunea cultrella*, *Prionolejeunea grata* and *Aphanolejeunea* sp.); Pico Santa Isabel (Basilé Peak), MA 13203 (together with *Lophocolea muricata* and *Pilotrichella communis*).

Already collected in Bioco by Mann (Mitten 1863: 162, Schultze-Motel 1975: 498, O'Shea 1995: 160, Müller 1996).

Syrrhopodon lamprocarpus Mitt.

Moka, Las Cascadas, primary forest, MA 13195 (together with *Lejeunea acuta*, *Lophocolea martiana*, *Marchesinia excavata*, *Plagiochila pectinata*, *Prionolejeunea grata* and *Telaranea nematodes*).

This species is described from Bioco, by Mitten, based on Mann's collections (Mitten 1863: 151; Schultze-Motel 1975: 490; Orbán 1981: 173, O'Shea 1995: 173, Müller 1996).

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