

New and interesting records to the bryophyte flora of the Balearic Islands

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Abstract – One liverwort, *Riccia papillosa* Moris, and nine moss taxa, *Acaulon mediterraneum* Limpr., *Brachythecium salebrosum* (Hoffn. ex F. Weber et D. Mohr) Schimp., *Ceratodon purpureus* (Hedw.) Brid., *Cryphaea heteromalla* (Hedw.) D. Mohr., *Grimmia ovalis* (Hedw.) Lindb., *Pleuroidium subulatum* (Hedw.) Rabenh., *Sciuro-hypnum plumosum* (Hedw.) Ignatov et Huttunen, *Tortula israelis* Bizot et F. Bilewsky, *Weissia wimmeriana* (Sendtn.) Bruch et Schimp. are reported for Majorca and constitute new records for the bryophyte flora of the Balearic archipelago. In addition, the presence of *Hymenostylium recurvirostrum* (Hedw.) Dixon. and *Plagiomnium affine* (Blandow ex Funck) T. J. Kop. in the Balearic Islands is confirmed.

Flora / Mosses / Liverworts / Chorology / Majorca / Balearic Islands / Western Mediterranean

INTRODUCTION

The bryophyte flora of the Balearic archipelago has received increasing interest since the first reliable records of Cambessèdes (1827). Since then a considerable floristic knowledge has been gained and two check-lists of the Balearic flora have been published (Vives, 1976; Cros *et al.*, 2008). However, these compilations seem far to provide a definitive account of the bryological flora of the Balearic Islands. In this work we provide the most relevant results of extensive field prospectings conducted in Majorca. These allow to increasing and refining the bryological knowledge of the Balearic Islands, and strongly support the view that considerable fieldwork is still required for most islands to achieve stable inferences about the number of bryophyte species inhabiting the archipelago.

Our findings update the number of families (Cryphaeaceae) and moss genera (*Ceratodon*, *Cryphaea*, *Sciuro-hypnum*) previously reported from the Balearic Islands (Cros *et al.*, 2008), and provisionally increase the number of bryophyte taxa verified from these islands to 339, of which 309 occur on Majorca.

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SAMPLED LOCALITIES

Sampling was made at six sites (Fig. 1), of which five are located in mountainous areas (Puig d'en Galileu, Pla de Cúber, Puig Major, Puig Tomir, and Mortitx), and one was situated on littoral scrub ((Es Carnatge).

Sampled localities:

1. Escorca, Puig Tomir, 31SDE9310, 855 m
2. Escorca, Mortitx, Torrent de s'Hort des Molí, 31SDE9214, 320 m
3. Escorca, Puig d'en Galileu, 31SDE8706, 1.000 m
4. Escorca, Pla de Cúber, towards L'Ofre, 31SDE8002, 840 m
5. Escorca, Puig Major, 31SDE8206, 780-1.360 m
6. Palma de Mallorca, Es Carnatge, 31SDD7476, 1 m

Nomenclature and abbreviations of author names follow Grolle & Long (2000) and Ros *et al.* (2007) for liverworts, and Hill *et al.* (2006) for mosses. Vouchers specimens are deposited in the herbarium of the University of the Balearic Islands (UIB-Brief).

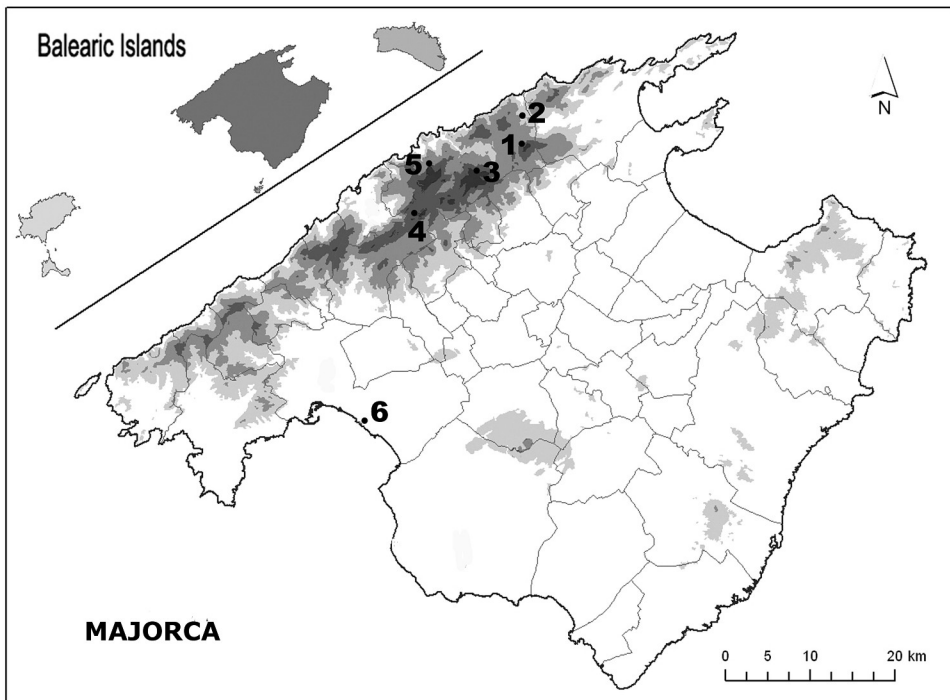


Fig. 1. Geographical location of the sampled localities. 1: Puig Tomir (Escorca). 2: Mortitx (Escorca). 3: Puig d'en Galileu (Escorca). 4: Pla de Cúber, towards L'Ofre (Escorca). 5: Puig Major (Escorca). 6: Es Carnatge (Palma de Mallorca). See text for geographical details of the localities.

NEW RECORDS***Riccia papillosa* Moris**

Locality 3. Carbonate-poor soils in a karstic landscape, 29-1-2009, *Pericàs & Rosselló* (UIB-Brief 1111).

***Acaulon mediterraneum* Limpr.**

Locality 3. Carbonate-poor soils in a karstic landscape, under *Ampelodesmos mauritanica* (Poiret) T. Durand & Schinz plants, with *Polytrichum juniperinum* Hedw. and *Pleuroidium acuminatum* Lindb., 10-2-2008, *Rosselló* (UIB-Brief 952).

***Brachythecium salebrosum* (Hoffm. ex F.Weber et D.Mohr) Schimp.**

Locality 4. Shady and wet calcareous rocks near a temporal spring, under a *Pinus halepensis* Miller canopy, 9-11-2008, *Pericàs & Rosselló* (UIB-Brief 268).

The presence of this species in the Balearic flora was not corroborated by Cros *et al.* (2008) who considered doubtful its presence in the archipelago. Earlier Balearic records of *B. salebrosum* were from dry areas near sea level (Koppe, 1965; Sloover, 1967; Stern, 1997) and did not match the ecological requirements shown by the species in the Iberian Peninsula (Cros *et al.*, 2008). The voucher specimens cited by Sloover (1967) belong in fact to *Rhynchostegium megapolitanum* (Blandow ex F.Weber et D.Mohr) Schimp. (Cros *et al.*, 2007). Our plants, collected at higher altitudes (840 m) and in wet environments, constitute the first verified records of *B. salebrosum* in the Balearic Islands.

***Ceratodon purpureus* (Hedw.) Brid.**

Locality 3. Carbonate-poor soils in a karstic landscape, under *Ampelodesmos mauritanica* plants, with *Pleurochaete squarrosa* (Brid.) Lindb., 29-1-2009, *Pericàs & Rosselló* (UIB-Brief 1100).

Locality 4. Slopes of calcareous rocks, on shady soils in a *Pinus halepensis* woodland, 9-11-2008, *Pericàs & Rosselló* (UIB-Brief 950).

***Cryphaea heteromalla* (Hedw.) D. Mohr**

Locality 4. Epiphyte on branches of *Juniperus oxycedrus* L. subsp. *oxycedrus*, 9-11-2008, *Pericàs & Rosselló* (UIB-Brief 949).

***Grimmia ovalis* (Hedw.) Lindb.**

Locality 4. Calcareous rocks near the freshwater reservoir, in open exposures, 15-5-2008 *Pericàs* (UIB-Brief 868); *ibidem*, towards L'Ofre, calcareous rocks near a temporary stream, 18-11-2007, *Pericàs* (UIB- Brief 869).

Locality 5. Calcareous rocks near the summit, 8-2-2006, *Pericàs* (UIB- Brief 870).

***Hymenostylium recurvirostrum* (Hedw.) Dixon**

Locality 1. Wet calcareous deposits (tufa), in shady and northern exposures, together with *Eucladium verticillatum* (With.) Bruch & Schimp., 29-6-2008, *Pericàs & Rosselló* (UIB-Brief 951).

Locality 2. Sunny and wet calcareous rocks in a temporary spring, 14-5-2009, *Pericàs & Rosselló* (UIB-Brief 1236).

The presence of this species in the Balearic Islands was considered doubtful since the revision of the voucher specimens sustaining the records of Koppe (1965) and Cano *et al.* (2001) by Cros *et al.* (2008) did not allow an accurate determination. Our findings here reported confirm the presence of the species on the archipelago.

Plagiomnium affine (Blandow *ex* Funck) T.J.Kop.

Locality 1. Soil under *Ampelodesmos mauritanica* leaves, on northern exposures, 29-6-2008, *Pericàs & Rosselló* (UIB- Brief 992).

Locality 3. Soil under *Hypericum balearicum* L. plants, on northern exposures, 29-1-2009, *Pericàs & Rosselló* (UIB- Brief 1110).

The presence of this species in the Balearic flora has been controversial. The single record sustaining its presence in the Balearic Islands (Koppe, 1965) was not corroborated by Koponen (1971, 1982), who claimed that records of this species from Mediterranean islands were mistakes with other species. Also, none of the Balearic samples of *P. affine*. was confirmed by Gómez-Menor & Fuertes (1993) and Gómez-Menor *et al.* (1999) in their revision of the Spanish and Balearic *Plagiomnium* species. Our records confirm the presence of the species on the Balearic archipelago.

Pleuridium subulatum (Hedw.) Rabenh.

Locality 3. Carbonate-poor soils in a karstic landscape, under *Ampelodesmos mauritanica* plants, with *Polytrichum juniperinum* and *Pleuridium acuminatum* Lindb., 29-1-2009, *Pericàs & Rosselló* (UIB- Brief 1092).

Sciuro-hypnum plumosum (Hedw.) Ignatov *et* Huttunen

Locality 4. Humid slopes of an artificial waterway near Cúber reservoir, 10-6-2008, *Pericàs* (UIB- Brief 218).

Tortula israelis Bizot *et* F.Bilewsky

Locality 6. Dry soils near the sea, on open exposures, 10-3-2007, *Pericàs* (UIB- Brief 948).

Weissia wimmeriana (Sendtn.) Bruch *et* Schimp.

Locality 5. Calcareous soil, on northern exposures, 870 m, 10-5-2006, *Pericàs* (UIB- Brief 953).

The collected individuals are paroicous, show long and subulate perichaetial leaves, and have spores 13-15 µm long. These characters correspond to subsp. *palescens* (Schimp. *ex* Besch.) Giacom., a taxon not unanimously recognized in taxonomic works (e.g., Hill *et al.*, 2006; Sérgio & Guerra, 2002; Guerra *et al.*, 2006).

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