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## A small collection of bryophytes from Ethiopia

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**Abstract.** 6 liverwort taxa and 21 moss taxa were collected at or near Lalibela, Wolo Province, Ethiopia, on 1–2 March 1997, of which 12 moss taxa are new to the country.

### INTRODUCTION

A few collections, comprising 6 taxa of liverworts and 21 taxa of mosses, were gathered by the author at or near Lalibela, Wolo Province, on 1–2 March 1997, during a lull in an otherwise natural history and cultural tour of northern Ethiopia. Most of the taxa listed below are published for the first time from Wolo, and 12 mosses are new to Ethiopia (O'Shea, 1999). All collections are from the 1 minute latitude / longitude square, 12°01'N, 39°01'E, and in the species list, the site is denoted by its number in square brackets. Identifications have been made by the author, unless otherwise indicated. The known African distribution is given for each taxon. Collections marked (E) will be held at the Royal Botanic Garden, Edinburgh.

Site details and collection date:

[1] 1.5 km N.E. of Lalibela, 2700 m, 1 March 1997.

[2] by Bet Gabriel-Rufa'el, Lalibela, 2630 m, 1 March 1997.

[3] near Bet Gabriel-Rufa'el, Lalibela, 2630 m, 2 March 1997

[4] by Bet Emanuel, 2630 m, 1 March 1997.

[5] head of small valley where spring emerges from hillside, *ca.* 1.5 km E. of Lalibela, 2590 m, 2 March 1997.

\* = Species new to Ethiopia

### LIVERWORTS

***Anthoceros* sp.** Soil bank by path on grassy hillside [1], *Wigginton 97/8e* (E). Though fertile, with some spores remaining in old and dehisced capsules, this plant is impossible to name to species in the present state of our knowledge of *Anthoceros* in Africa.

***Lunularia cruciata* (L.) Dumort.** Shaded, vertical walls of cut rock, with *Plagiochasma* spp. [2], *Wigginton 97/10b*. Previously recorded from Ethiopia (north); widespread in Africa from the Mediterranean countries to southern Africa.

***Plagiochasma eximium* (Schiffn.) Steph.** Open

soil on grassy hillside, with *Targionia hypophylla* [1], *Wigginton 97/8c* (E); shaded, vertical walls of cut rock [2], *Wigginton 97/11a* (E). Several previous collections from N. and E. Ethiopia; widespread in Africa, from Eritrea to South Africa.

***Plagiochasma microcephalum* var. *microcephalum* (Steph.) Steph.** Shaded, vertical walls of cut rock, growing with *P. rupestre* var. *rupestre* [2], *Wigginton 97/10a* (E). Previously recorded C. and E. Ethiopia, ranging south to South Africa.

***Plagiochasma rupestre* var. *rupestre* (J.R. & G.Forst.) Steph.** Shaded and sheltered vertical walls of cut rock [4], *Wigginton 97/7a* (E). Several previous records from Ethiopia; widespread in Africa, from the Mediterranean countries south to South Africa.

***Targionia hypophylla* L.** Open soil on grassy hillside, with *Plagiochasma eximium* [1], *Wigginton 97/8b* (E); soil on rock outcrop [2], *Wigginton 97/9b* (E). Previously recorded from N. and C. Ethiopia; widespread in Africa, from the Mediterranean countries to South Africa.

#### MOSESSES

***Anomobryum julaceum* var. *julaceum* (P.Gaertn. et al.) Schimp.** On exposed rocks with *Pseudocrossidium replicatum* and *Tortula muralis* [3], *Wigginton 97/6d* (E). Widespread in mainland Africa, with several previous records from Ethiopia; also in Madagascar.

**\**Barbula convoluta* var. *convoluta* Hedw.** Soil bank on grassy hillside [1], *Wigginton 97/8d* (E). Local in central and southern Africa.

**\**Bryoerythrophyllum campylocarpum* Müll.Hal.** Soil bank on grassy hillside [1], *Wigginton 97/8k*, conf. H.W. Matcham (E). Widespread in tropical and southern Africa from Chad and Ethiopia southwards; also in Réunion.

***Bryum argenteum* Hedw.** Soil bank on grassy hillside [1], *Wigginton 97/8a* (E). Previous records from N. Ethiopia; widespread throughout Africa, and on the E. African islands.

**\**Bryum apiculatum* Schwaegr.** Damp and

shaded rocks under overhang by periodic waterfall in deep cleft [5], *Wigginton 97/2a* (E). Widespread in Africa from Ethiopia southwards, with a possible record from Egypt; also from the E. African islands.

***Bryum pseudotriquetrum* var. *pseudotriquetrum* (Hedw.) P.Gaertn, B.Mey & Scherb.** On damp, basic rocks under overhang in deep gully by small spring [5], *Wigginton 97/12c*, det. H.W. Matcham (E). Dioicous; female inflorescences present. Previously recorded in Ethiopia from the Bale Mountains, and elsewhere in Africa in scattered localities south to South Africa.

***Bryum torquescens* Bruch ex De Not.** Soil bank on grassy hillside [1], *Wigginton 97/8m* (E). Synoicous plant, sporophyte present. Previously recorded from C. Ethiopia; widespread in N. and southern Africa, with a few records from tropical E. Africa.

**\**Cratoneuron filicinum* var. *filicinum* Hedw.** Encrusted with tufa, on damp rocks under overhang in deep gully by small spring [5], *Wigginton 97/12a*, conf. R. Ochyra (E). Apparently local in Africa, with other records only from Algeria, Morocco, Kenya, Tanzania, Uganda and South Africa (Natal).

***Didymodon australasiae* var. *australasiae* (Hook. & Grev.) R.H.Zander** Soil bank on grassy hillside [1], *Wigginton 97/8j*, det. P. Sollman (E). Previously recorded in Ethiopia from the Bale Mountains; also known from southern Africa.

**\**Didymodon rigidulus* var. *gracilis* (Schleich. ex Hook. & Grev.) R.H.Zander** Soil bank on grassy hillside [1], *Wigginton 97/8h* (E). In Africa, previously known from the Mediterranean countries, and from Sudan and Kenya.

**\**Didymodon tophaceus* (Brid.) Lisa** Damp, basic rocks under overhang in deep gully by small spring, with *Bryum pseudotriquetrum* and *Eucladium verticillatum* [5], *Wigginton 97/12h*, conf. H.W. Matcham. Widespread species in N. Africa, recorded also in the Cape Verde islands, Chad, D.R. Congo and South Africa.

**\**Eucladium verticillatum* (Brid.) Bruch, Schimp. & W.Gümbel** Encrusted with tufa, on damp rocks under overhang in deep gully

by small spring and periodic waterfall [5], *Wigginton 97/5a, 97/12d*, det. H.W. Matcham (E). Most of the collection consists of plants in which many leaves lack the recurved, basal, marginal teeth which usually provides one of the most diagnostic characters of the species. Furthermore, in many leaves, papillae are often sparse, or sometimes lacking. Fairly widespread in N. Africa, including Chad, Mali and Soqotra; elsewhere only from D.R. Congo, Rwanda and Tanzania.

\**Fissidens schmidii* Müll.Hal. Soil bank on grassy hillside [1], *Wigginton 97/8f*, det. M.A. Bruggeman-Nannenga (E). Recorded from W. and E. tropical Africa.

***Gymnostomum calcareum* Nees & Hornsch.**

On damp, basic rocks under overhang in deep gully by small spring [5], *Wigginton 97/12e*, conf. H.W. Matcham (E). Although this species is not listed from Ethiopia in O'Shea (1999), a collection from Ethiopia (*Schimper 1117*, 1 September 1861 [BM]) was published in Whitehouse & Crundwell (1992). Local in N. Africa, with records also from Chad, Malawi and Lesotho.

***Philonotis* sp.** On damp, basic rocks under overhang in deep gully by small spring, with *Bryum pseudotriquetrum*, *Didymodon tophaceus*, *Eucladium verticillatum* [5], *Wigginton 97/3a* (Hb. M.J. Wigginton). Characters of this species include: shoots quite strongly quinequefarious; leaves narrowly lanceolate, spreading, at times somewhat falcate, arranged in (gradually) spiral rows, sharply serrate  $\pm$  to the base; leaf cells with prominent papillae situated only at the distal end of the cells (prominently prorate); costa kinked or somewhat undulate. Though a distinctive plant, I have been unable to name it.

\**Platyhypnidium riparioides* (Hedw.) M.Fleisch. Encrusted with tufa, on damp rocks under overhang in deep gully by small spring [5], *Wigginton 97/12b*, det. R. Ochyra (E). This record provides a geographical link between records from northern and E. tropical Africa.

***Pleurochaete squarrosa* var. *squarrosa* (Brid.)**

**Lindb.** Soil bank on grassy hillside [1], *Wigginton 97/8g* (E). Two other species, *P.*

*beccarii* Venturi and *P. malacophylla* (Müll.Hal.) Broth., have been recorded from neighbouring Eritrea. However, Zander (1993) considered the former to be probably synonymous with *P. squarrosa*, and the latter doubtfully distinct from it; collection *97/8g* has not been compared with specimens of either. *P. squarrosa* has been previously recorded from central Ethiopia; elsewhere in Africa from the Mediterranean countries and from Djibouti, Soqotra, Kenya and Tanzania.

\**Pseudocrossidium replicatum* var. *replicatum* (Taylor) R.H.Zander On exposed rocks [3], *Wigginton 97/6e*, conf. H.W. Matcham (E). Recorded from Sudan (Jebel Marra), Somalia and southern Africa.

***Syntrichia fragilis* (Taylor) Ochyra** On exposed rocks [3], *Wigginton 97/6a* (E). Previously recorded in E. and S. Ethiopia, and widespread in Africa.

\**Timmiella barbuloidea* (Brid.) Mönk. Soil on rock outcrop [2], *Wigginton 97/9a* (E). Fertile, with paroicous inflorescences present. In Africa, confined to northern countries, including Djibouti and Eritrea.

\**Tortula muralis* var. *muralis* Hedw. On exposed rocks [3], *Wigginton 97/6c*, det. H.W. Matcham (E). Otherwise known in Africa only from the Mediterranean countries, Namibia and South Africa.

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