

Grimmia dissimulata E. Maier in Britain

Ron D. Porley

*English Nature, Foxbold House, Crookham Common, Thatcham, RG19 8EL;
ron.porley@english-nature.org.uk*

British localities for *Grimmia dissimulata*

In January 2003, several plants belonging to the family Grimmiaceae were sent to the author by Tim Pyner who was having difficulties getting them named. Sporophytes were lacking, and opinion was divided as to whether they were *Grimmia trichophylla* or *Schistidium apocarpum* s.l. One specimen was referable to *G. trichophylla*, but five other specimens were clearly not that taxon. I was not happy to refer the plants to *Schistidium apocarpum* s.l., and feeling unable to offer a definitive identification I returned the material. A little while later I read with interest a paper by Eva Maier (Maier, 2002), describing a new species of *Grimmia* (*G. dissimulata* E. Maier) in the *trichophylla-lisae* group, and I realised that the plants I had looked at a few days earlier might be that taxon. I asked Tim Pyner to let me see the plants again, and subsequent re-examination convinced me that these plants were indeed *G. dissimulata*. Eva Maier kindly confirmed the identifications.

Tim Pyner had collected his material between 1988 and 1996 from churchyards in North Essex, England. All localities are within a few kilometres of each other in the Braintree area. He remarked that the plants were distinctive in the field. Notably, they were growing on limestone tombs or on limestone-capped church walls. This agrees with the ecology of *G. dissimulata* in Europe, where nearly 70% of the specimens examined by Eva Maier were from limestone or dolomite. Maier (2002) listed Great

Britain in the known distribution of *G. dissimulata*, but did not provide details, as the record had been added just before going to press. It was based on a collection (in BM) made by Alan Crundwell in 1988, from a tombstone at Wherwell church, North Hampshire. I later searched for *G. dissimulata* at Wherwell without success. The tombstone had probably been cleaned in the intervening 15 years.

In April 2003, a chance conversation with Chris Preston revealed that the Cambridgeshire BBS group had become increasingly puzzled in recent years by finds of *G. trichophylla* on limestone in churchyards in their county. Later in the month Chris Preston and I visited three of the North Essex churches and all five churches in Cambridgeshire where *G. trichophylla* had been recorded since 2000. We found *G. dissimulata* at all the localities visited, always growing on limestone.

Examination of herbarium material has revealed several additional localities for the species. Richard Fisk and Howard Matcham sent selected specimens of '*G. trichophylla*' to the author, and five collections from Suffolk churches proved to be *G. dissimulata*. A specimen from limestone rock at Loch Ailsh in East Ross, collected by E.C. Wallace in 1960 (named as *G. stirtonii*) was determined as *G. dissimulata*. This is the first record for the species in Scotland. Material sent by Tom Blockeel 'on limestone boulder' from Derbyshire also turned out to be *G. dissimulata*. Meanwhile, Eva Maier (*pers. comm.*) examined further material from BM, after her

Table 1. Vice-county distribution and localities of *Grimmia dissimulata*. All specimens have been determined by Ron Porley and/or Eva Maier.

Vice-county	Locality	Grid reference	Date	Collector
12	Wherwell church	SU391408	10 October 1988	Alan Crundwell
19	Bradwell church	TL817221	4 December 1988	Tim Pyner
19	Thaxted church	TL610310	1886	H.N. Dixon
19	Thaxted church	TL610310	14 December 1989	Tim Pyner
19	Bocking church	TL756256	24 November 1991	Tim Pyner
19	Finchingfield church	TL686328	29 October 1995	Tim Pyner
19	Pentlow church	TL812461	29 October 1996	Tim Pyner
25	Flowton church	TM061468	18 February 2002	Richard Fisk
25	Kenton church	TM191659	13 March 2003	Richard Fisk
26	Culford church	TL833703	28 March 2002	Richard Fisk
26	Kentford church	TL706667	30 April 2003	Richard Fisk
26	Flempton church	TL814699	19 March 2000	Richard Fisk
29	Linton church	TL562466	18 April 2003	Ron Porley & Chris Preston
29	Bassingbourn church	TL330440	18 April 2003	Ron Porley & Chris Preston
29	Haslingfield church	TL403521	18 April 2003	Ron Porley & Chris Preston
29	Steeple Morden church	TL285424	18 April 2003	Ron Porley & Chris Preston
29	Ickleton church	TL495438	18 April 2003	Ron Porley & Chris Preston
29	Wimpole church	TL336509	9 November 2003	Mark Hill & Chris Preston
57	Long Dale	SK186606	11 May 2002	Tom Blockeel
106	Loch Ailsh	NC31-10-	4 September 1960	E.C. Wallace

paper had been published, and discovered a voucher of *G. dissimulata* collected in 1886 by H.N. Dixon. Moreover, Dixon's locality was Thaxted church, Essex, where it still occurs.

To date, *G. dissimulata* is known from seven vice-counties in Britain (Table 1). Its preliminary British distribution is shown in Figure 1. All material examined is in the private herbaria of the author or other collectors (except Crundwell's and Dixon's collections, which are in BM). It is likely that many more herbarium specimens, especially of '*G. trichophylla*' on limestone, will prove to be this species.

Grimmia lisae in southern England

Unexpectedly, while examining specimens of '*G. trichophylla*', three records of *G. lisae* came to

light. One specimen was from roof tiles at West Stoke, West Sussex (a site now destroyed), and two were collected by Chris Preston from Cambridgeshire churches. These records are significant extensions of range for *G. lisae* (as *G. retracta* in Hill, Preston & Smith, 1992), and we clearly need to reappraise our understanding of its ecology.

Identification

G. dissimulata is close to *G. lisae*, but the latter species has six (or more) guide cells in the nerve in transverse section at the point of insertion. *G. trichophylla* and *G. dissimulata* both have four guide cells in transverse section at the point of insertion; the distinction between these two species is based on the nerve anatomy and areolation of the leaf base. The following key

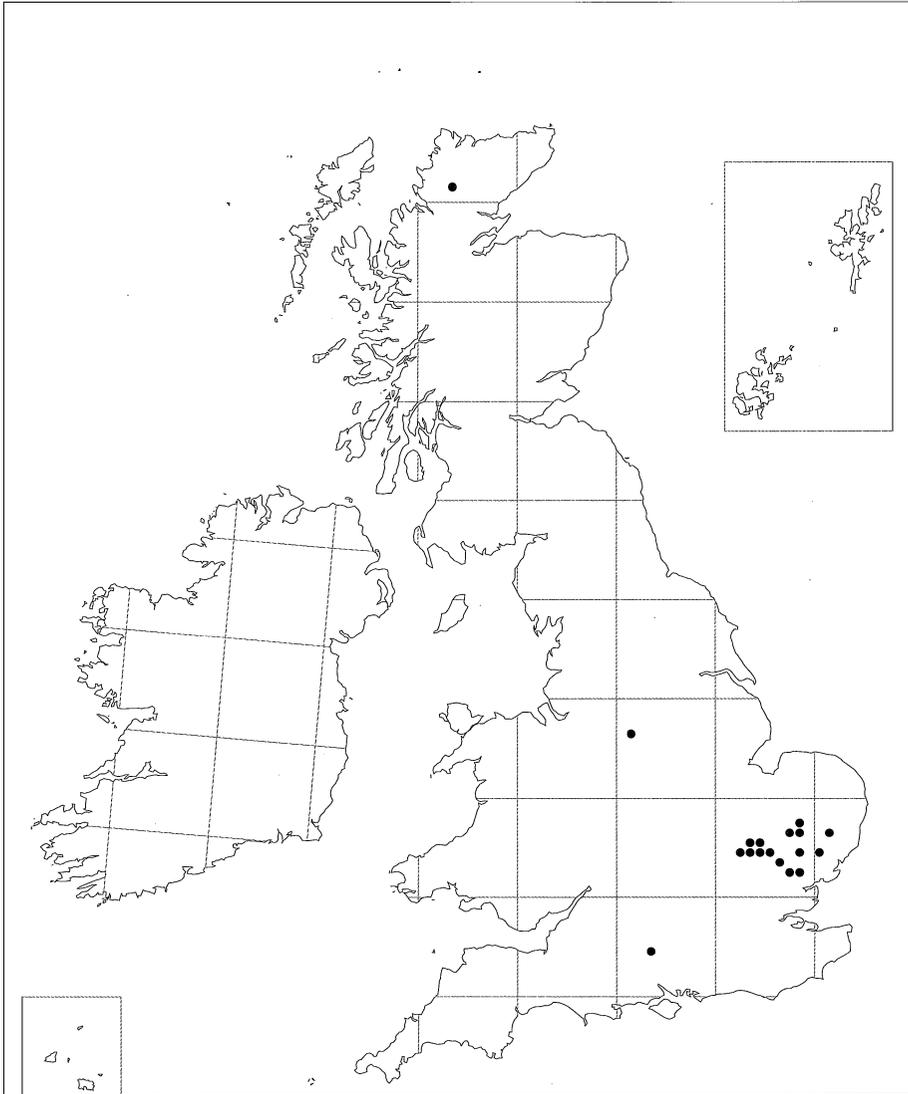


Figure 1. Distribution of *Grimmia dissimulata* in the British Isles.

has been adapted from Maier (2002), in which excellent illustrations are provided:

- 1 Nerve at insertion and in extreme leaf base with 6 guide cells.....*G. lisae*
- 1a Nerve at insertion and in extreme leaf base with 4 guide cells..... 2
- 2 Basal marginal cells shortly-rectangular, cells \pm nodulose in leaf base; guide cells in leaf base arranged in one layer
.....*G. dissimulata*

- 2a Basal marginal cells elongate-rectangular, cells \pm smooth in leaf base; guide cells in leaf base arranged in two layers, with a dorsal row of 1-3 cells slightly smaller than the ventral row, but larger than other costal cells..... *G. trichophylla*

In addition to the characters given in the key, the elongated basal cells adjacent to the nerve in *G. dissimulata* occupy a relatively narrow zone, whereas in *G. trichophylla* they occupy a wide

zone extending to the leaf margin. Another useful character in *G. dissimulata* is that in transverse section the two guide cells in the upper part of the leaf are relatively large compared to those in *G. trichophylla*.

The habit of the three species is similar. The leaves of *G. dissimulata* are moderately recurved when wet, reminiscent of *G. lisae*, and the upper leaves are crowded, forming comal tufts (see Figure 2). *G. dissimulata* forms cushions or more often extensive mats, which are yellow-green when wet (darker when dry). When dry, the leaves are slightly flexuose, contrasting with the more erect and stiffer leaves of *Schistidium apocarpum* s.l. with which it often grows. Typically, *S. apocarpum* s.l. has reddish stems and in the spring is usually abundantly fertile.

Ecology

It is too early to make definitive statements regarding the habitat of *G. dissimulata* in Britain, but it appears to be highly characteristic of churches/churchyards, at least in eastern England, where it occurs on flat or sloping (but not vertical) limestone tombs, coping stones of churchyard walls, and ledges of church walls and windows (see Figure 3). It appears to be indifferent to aspect, growing in full sun and in various degrees of shade. All records are from the lowlands, mostly at altitudes of 20-95 m, ascending to 160 m at Loch Ailsh.

Associated species include *Bryum capillare*, *Didymodon rigidulus*, *D. vinealis*, *Grimmia pulvinata*, *Homalothecium sericeum*, *Ortbotrichum anomalum*, *O. cupulatum*, *Schistidium apocarpum* s.l. (all *S. crassipilum* where checked microscopically), *Syntrichia intermedia* and *Tortula muralis*. *Saxifraga tridactylites* was growing in mats of *G. dissimulata* at one locality in Cambridgeshire.

Both male and female plants of *G. dissimulata* have been recorded, but none of the collections examined includes both sexes. Sporophytes are unknown in Britain.

The Scottish and Derbyshire records are from natural limestone outcrops, which raises the intriguing question as to the origin of *G. dissimulata* in Britain. It has clearly been associated with at least one churchyard for over 100 years, and is therefore not a recent colonist. Examination of more herbarium material and additional field survey may help to resolve these issues, and I am happy to examine further collections. Any plant superficially resembling *G. trichophylla* and growing on limestone should be regarded as a possible candidate for *G. dissimulata*.

Acknowledgments

I am indebted to Eva Maier for checking a draft of this paper, confirming the identifications, and making available as a gift a Greek specimen of *G. dissimulata* cfr. Thanks are also due to Tom Blockeel for bringing Eva Maier's paper to my attention and letting me see his Derbyshire specimen, Tim Pyner for sending his Essex plants to me, and Richard Fisk and Howard Matcham for making selected collections available. Finally, I would like to thank Chris Preston for his comments on the paper and his company during an enjoyable tour of churches in eastern England. Chris Preston and Henry Arnold provided the distribution map.

References

- Hill MO, Preston CD, Smith AJE. 1992. *Atlas of the bryophytes of Britain and Ireland. Volume 2. Mosses (except Diplolepidaceae)*. Colchester: Harley Books.
- Maier E. 2002. *Grimmia dissimulata* E. Maier sp. nova, and the taxonomic position of *Grimmia trichophylla* var. *meridionalis* Müll. Hal. (Musci, Grimmiaceae). *Candollea* 56: 281-300.



Figure 2. Plants of *Grimmia dissimulata*. Photo: Ron Porley.



Figure 3. *Grimmia dissimulata* on churchyard wall, Ickleton, Cambridgeshire. Photo: Ron Porley.