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Hedwigia ciliata var. *leucophaea* new to England and Wales (the first British records for over 100 years)

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Introduction

Until relatively recently *Hedwigia ciliata* was thought to be a species easily recognised and free from taxonomic uncertainty. However, Hedenäs (1994) showed that in Sweden and Fennoscandia this taxon comprised two species: *H. ciliata* and *H. stellata*. The former was shown to occur throughout Sweden, whereas the latter had a very marked southern distribution.

Subsequently, Crundwell (1995) examined several hundred British specimens assigned to *H. ciliata* and found that the vast majority were *H. stellata*. He showed that *H. stellata* occurred

from the Channel Islands to the Shetlands and throughout Ireland, but is absent from much of eastern and southern England. *H. ciliata* was much scarcer amongst the material studied by Crundwell (1995), although it was also widespread. *H. ciliata* was subsequently included in the British Red Data Book as 'Data Deficient' (Church *et al.*, 2001), pending a better understanding of its distribution and trends in population size.

Hedenäs (1994) found that *H. ciliata* contained a variety in Fennoscandia worth taxonomic recognition, i.e. *H. ciliata* var. *leucophaea*. The distinctive characters of *H. ciliata* var. *ciliata* compared to var. *leucophaea* were said to be:

- the length of the hair-point: (4-)7-33% versus (15-)22-55(-65)% of leaf length;
- less strongly papillose hair-points (macroscopically appearing greyer in var. *ciliata* than in var. *leucophaea*);
- more strongly recurved leaf margins; and
- slightly larger spores: (23-)25-35 µm versus 19.5-28(-30) µm.

A comprehensive, well-illustrated description of the taxon is provided by Hedenäs (1994), while some nice illustrations and a couple of fine SEM images of the leaf-tip and the branched papillae of the leaf-cells are provided in Erdağ, Kirmaci & Kürschner (2003).

Crundwell (1995) noted that he had seen *H. ciliata* var. *leucophaea* only twice amongst the British material he examined from the herbarium of the Department of Botany, University of Glasgow. The first British record was made by J. McAndrew in 1896 from ‘rocks in Grennan Holm and on rock in field, Newton Stewart Road, both New Galloway’ (v.-c. 73). This material included a little *H. stellata* (Crundwell, 1995). I examined the most recent 1:25,000 Ordnance Survey map for this area but could not locate ‘Grennan Holm’; ‘Newton Stewart Road’ is a short lane on the north-west border of New Galloway at NX632779. The second British record was made by W.E. Nicholson, E.S. Salmon and H.N. Dixon in 1899 on ‘boulder by lake’ at Glas Bheinn, Inchnadamph (v.-c. 108), which included a little var. *ciliata* (Crundwell, 1995). There is a complex of lakes around the northern and eastern sides of this mountain, the closest being Loch a’ Choire Dheirg (NC251271), Lochan a’ Choire Ghuirn (NC261269) and Loch Bealach na h-Uidhe (NC264256). Until now, these were the only British records of *H. ciliata* var. *leucophaea*.

***Hedwigia ciliata* var. *leucophaea* new to England**

In October 2005 I was passing through Herefordshire and, after reading about the

stronghold for *Grimmia ovalis* in this region (Porley & Hodgetts, 2005), I had previously contacted Jonathan Sleath for his advice on a suitable locality to see this moss. Jonathan had kindly provided me with information on a few localities and I had opted for the 12th century Dore Abbey (SO386304), located in Herefordshire’s Golden Valley. The abbey is constructed from the local Old Red Sandstone, including the stone-tiled roof. It is upon the roof that *G. ovalis* grows plentifully. Around the base of the abbey were frequent clumps of mosses that had blown from the roof. *G. ovalis* was amongst these, as was *H. ciliata* var. *ciliata*. I knew the latter taxon from the nearby Malvern Hills, where it was kindly shown to me in January 2005 by Lorna Fraser.

While picking up a couple of tufts of *H. ciliata* var. *ciliata* that had blown from the roof of the abbey I noticed one clump that had shoots with much paler tips (Figure 1). I immediately thought that this may be *H. ciliata* var. *leucophaea* as it was obviously different from the typical form. Subsequent microscopic examination convinced me of this, a view later shared by Jonathon Sleath, Gordon Rothero and Ron Porley. This is the first record from England and the first British record for over 100 years.



Figure 1. *Hedwigia ciliata* var. *leucophaea* from the roof of Dore Abbey, Herefordshire. Photo: Des Callaghan.

Stone-tiled roofs composed of the local sandstone and similar to that at Dore Abbey are

not uncommon in this region of Herefordshire (Sleath, 2001). For example, they cover over 600 other listed buildings in the area (Wood, 2002). They also occur on several churches in neighbouring Monmouthshire (Bosanquet, 2003), some of which are known to support *H. ciliata* and *G. ovalis*, and in Breconshire. Hence, it seemed likely that *H. ciliata* var. *leucophaea* would occur elsewhere in this region.



Figure 2. Dry and wet shoots of *Hedwigia ciliata* from Dore Abbey (left var. *ciliata*, right var. *leucophaea*). Photo: Des Callaghan.

Hedwigia ciliata var. *leucophaea* new to Wales

I showed a number of other bryologists my photographs of the *H. ciliata* var. *leucophaea* from Dore Abbey. Sam Bosanquet commented that they looked worryingly familiar and so checked his sole herbarium specimen of *H. ciliata*. This was collected in 2002 from the roof of Llangua

Church (SO389257) in north-east Monmouthshire, 4.5 km south of Dore Abbey, and proved to be var. *leucophaea*. There are four other Monmouthshire records of *H. ciliata*: a specimen identified as var. *ciliata* by Crundwell (1995) and three recent records not identified to variety (but assumed at the time to be var. *ciliata*) on stone-tiled church roofs (Bosanquet, 2003).

Field characters

The most noticeable feature of *H. ciliata* var. *leucophaea* is the size of the hyaline leaf-tips, which are most obvious in dry material (Figure 2). Hyaline leaf-tips of *H. ciliata* var. *ciliata* collected from Dore Abbey occupied an average of 19% of the leaf length (range = 10-34%) and in *H. ciliata* var. *leucophaea* occupied an average of 42% (range = 37-48%). These measurements agree well with those detailed by Hedenäs (1994). The more strongly recurved leaf margin of *H. ciliata* var. *ciliata* is also evident to a reasonable extent in the field. Hoary clumps of *H. stellata* occur with hyaline leaf-tips similar to *H. ciliata* var. *leucophaea*, but the leaf posture is different. In the latter, the apices are erect to patent when dry, or follow the leaf curvature (Figure 1), while in the former the apices are erecto-patent to recurved or reflexed (giving it a star-like appearance from above) (Hedenäs, 1994).

British status of *Hedwigia ciliata* var. *leucophaea*

Each of the three taxa within the *H. ciliata* complex grow on acidic or mildly basic rock in a wide range of habitats. They may grow alongside each other on the same rock, and there is no evidence of any significant differences in their habitat requirements (Hedenäs, 1994; Crundwell, 1995).

The locations of the new records of *H. ciliata* var. *leucophaea* contrast with historic British records in terms of latitude (Figure 3) and altitude. The former are from the lowlands of southern England and Wales, while the latter are

from the uplands of Scotland. It would seem likely that other locations across the British Isles await discovery, though evidence provided by Crundwell (1995) suggests this is a genuinely rare taxon.

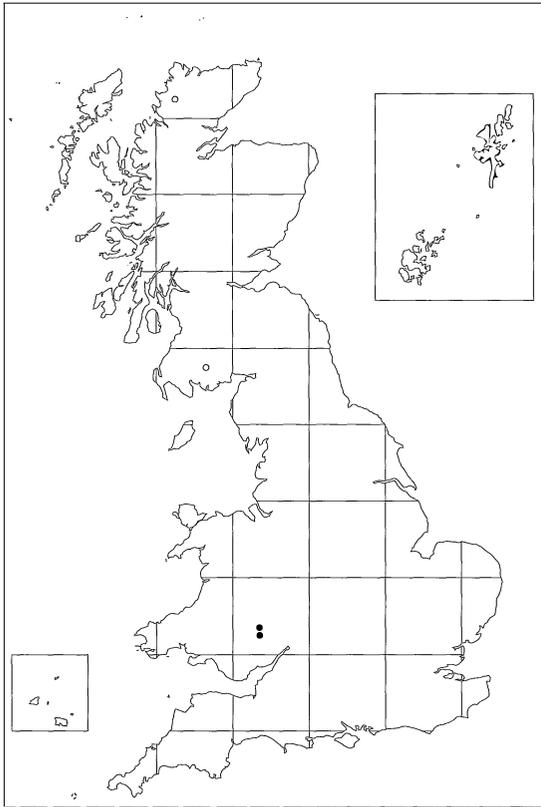


Figure 3. Distribution of *Hedwigia ciliata* var. *leucophaea* in Britain. Open dots denote pre-1950 records; solid dots denote post-1950 records.

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