



## Where is *Bruchia vogesiaca*?

**Des Callaghan** wonders about the status of this elusive moss after years of unfruitful searching

△Fig 1. Fresh green sporophytes of *Bruchia vogesiaca*. M. Lüth.

### Background

*Bruchia vogesiaca* (Fig. 1) is a globally rare and enigmatic moss, colonising damp, bare, acidic soil, with its occurrence at locations between years often extremely variable (Sérgio *et al.*, 1998; Hugonnot *et al.*, 2011). Due to the small and unremarkable (*Dicranella*-like) gametophyte it is almost impossible to find in the field without sporophytes, which are mature from mid to late summer. In Britain, the plant has only ever been recorded from a single site, famously found by David Holyoak in July 2006 on the vertical face of an eroding bank of the De Lank River at Delford Bridge, Bodmin Moor (Holyoak, 2007). Records from this location are summarised in Table 1. A return visit in May 2009 by David failed to refind the plant.

### Recent searching

Due in part to the inclusion of *Bruchia vogesiaca* on Annex II of The EU Habitats Directive, which requires Member States to protect and manage core areas of its habitat, there has been significant interest in relocating the species and documenting its distribution. Under contract to Natural England, I spent two days searching for it within the general area of Delford Bridge during August 2011, including the precise location of the original find (Fig. 2), but without success. During subsequent years I have stopped on four separate occasions while passing Bodmin Moor to make a quick search of the original location, but have never refound the moss.

In early September 2015 I made a visit to the Plateau de Millevaches (France), where Vincent

**Table 1.** Records of *Bruchia vogesiaca* from Delford Bridge

GR	Comments	Recorder	Day	Month	Year
SX11457589	Four capsules	Holyoak, D.T.	13	7	2006
SX11457589	Seven more capsules, all within 1.5 m of original location	Holyoak, D.T.	28	7	2006
SX11457590	Green immature capsules (in same place as 2006 records)	Holyoak, D.T. and Porley, R.D.	25	4	2007
SX11457590	Second site found by RDP 20-30 m further upstream than 2006 site. Small specimen collected had two immature capsules. Population size was unclear in the field because of algal film.	Holyoak, D.T. and Porley, R.D.	25	4	2007

Hugonnot very kindly provided me with a tour of some of the locations where *Bruchia vogesiaca* has been found recently. This region is a global hotspot for the plant and the landscape and vegetation is remarkably similar to Bodmin Moor, both being granite plateaus. For some inexplicable reason we found very little *Bruchia*, just a small amount at one spot (Figs. 3 and 4). It was not relocated in places where on previous occasions it could be found easily. Habitat conditions appeared unchanged and the timing was right; reasons for the absences were not fathomed. The typical habitat of the moss across Plateau de Millevaches is damp peaty soil where some form of disturbance occurs, often poaching by the local Limousin cattle (Fig. 5). The peaty soil often has intermixed coarse grit, derived from the underlying granite, and the general habitat is usually open, or at most partially shaded. Grazed *Juncus* mires and areas where cattle congregate beside streams and waterbodies (Fig. 6) are some of the best places to search. Eroding stream banks, very similar to that at Delford Bridge, are



▷ Fig 2. Upper image (D.T. Holyoak) – Site of the original discovery of *Bruchia vogesiaca* (arrowed) on 28 July 2006. Lower image (D.A. Callaghan) – Same location on 14 August 2011. Note the regression of the river bank due to erosion.



△ Fig 3 (top). Habitat of *Bruchia vogesiaca* (arrowed) near Le Longy, Plateau de Millevaches, on poached and wet peaty soil over granite, beside a small stream. D.A. Callaghan. △ Fig 4 (below). Patch of *Bruchia vogesiaca* from location shown in Fig. 2. Note the old, pale brown sporophytes lying prostrate, a useful field character, and the general resemblance of the gametophyte to *Dicranella heteromalla*. D.A. Callaghan.

also used though they do not lie at the core of the niche.

With better field experience of the habitat occupied by *Bruchia vogesiaca*, I returned to Bodmin Moor in September 2015 and undertook eight days of searching at sites throughout the plateau. Frequent habitat that looked good for the moss was located, in areas such as Bowthick (SX181825), Dewey Marsh (SX156723), Emblance Downs (SX129768), Lady Down (SX110767), Little Care Hill (SX136727), Lower Moor (SX141821), Pendrift Downs (SX109746) and Treswallack Downs (SX109781), but disappointingly the species was not found.

### Is it extinct?

The negative result of recent searches leads to the question of whether *Bruchia vogesiaca* should now be considered extinct in Britain. I would say not yet, for two reasons. Firstly, apparently suitable habitat for the moss is not uncommon across Bodmin Moor and whilst I have spent ten days scouring the area, much potential habitat remains unsearched. Neighbouring Dartmoor offers plenty of further potential, where nobody has yet searched for *Bruchia*. Secondly, sporophytes need to be present to stand a fair chance of finding the plant in the field and the occurrence of these, even within strong populations, is very variable between years. Reasons for this

▷Fig 5 (top). *Juncus* mire poached by Limousin cattle on Plateau de Millevaches, providing good habitat for *Bruchia vogesiaca*. D.A. Callaghan. ▷Fig 6 (bottom). Cattle-poached lakeside mire (*Molinia* and *Juncus*) at Étang des Oussines, a current location for *Bruchia vogesiaca*. D.A. Callaghan.

variation are unknown, though appear to be at least partly related to the timing of rainfall and disturbance events (V. Hugonnot *pers. comm.*). This combination of apparently suitable habitat patches in locally plentiful supply coupled with irregular sporophyte production leads me to believe it must be out there somewhere in the British landscape. The question is where? I hope this article inspires some searching from fellow bryologists.

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