



Bryophytes on Ben Nevis

The first of a new series in which **Gordon Rothero** will provide a bryologist's guide to some of his favourite Scottish hills

Ben Nevis (Fig. 1) is just one part of the Ben Nevis SSSI which extends a long way to the east, taking in Aonach Mor, Aonach Beag and the range of hills known as the Grey Coires. This latter area has a very rich montane bryophyte flora and an account of this will form the next part in this series. The numbers in the text refer to sites marked on the map (Fig. 2).

Ben Nevis is Britain's highest mountain at 1343 m and so it has always attracted the attention of hill-going botanists and has a long history of bryological exploration, but it has to be said that such exploration has been limited to the areas described here and that there is still much virgin territory. Geologically the mountain is very interesting as it is a 'ring-complex' with

a core of volcanic rocks, rhyolite in the main, which form the main peak and the line of huge crags on the north-east side. These volcanic rocks are set in the surrounding granite, most noticeable to the east on Carn Mor Dearg and Aonach Mor. Though this structure excites and divides geologists, the most salient point for botanists is that the rocks are almost all rather acid and not very productive and are often devoid of any vegetation (Fig. 1). As important as the rock chemistry for the plants is the pattern of late snow lie that gives areas of bryophyte-dominated snowbed vegetation. With such a large area of high ground, the Ben Nevis SSSI is second only to the Cairngorms in the amount

△Fig. 1. The north-east face of Ben Nevis from Tower Ridge to NE Buttress. All photos by **G.P. Rothero**.

of very late snow-lie, with patches of snow on Ben Nevis, Aonach Mor and Aonach Beag often persisting into late summer and sometimes not melting before the next snows.

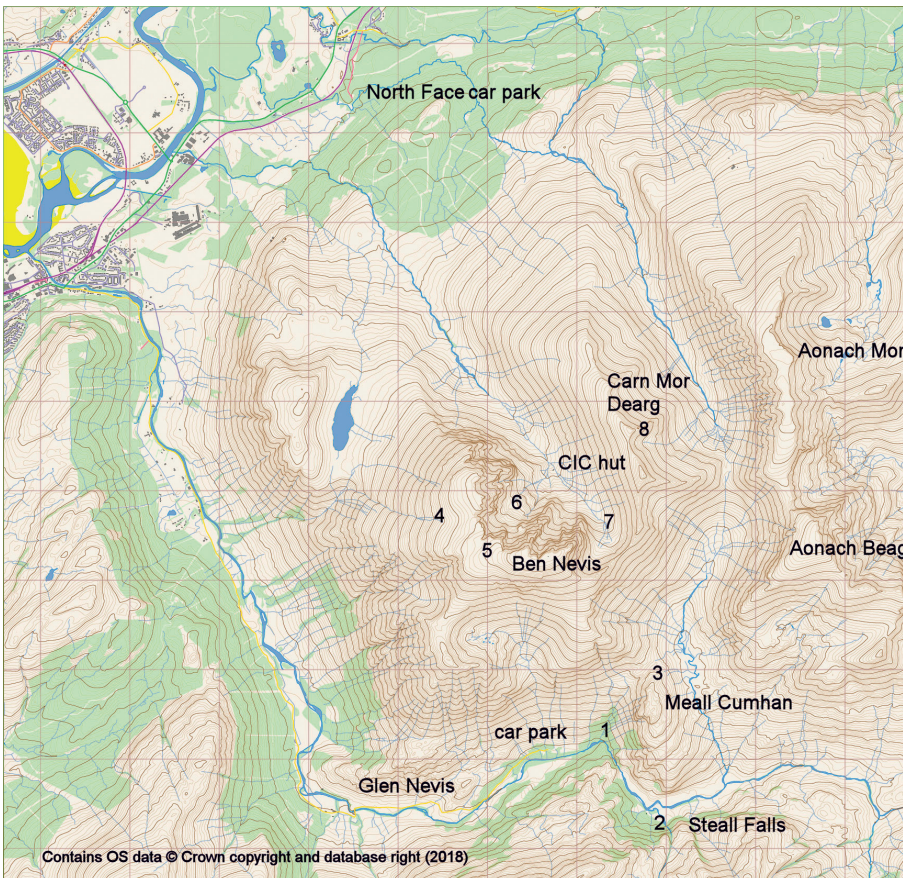
Much of the bryological interest on the SSSI is high on the hill, here divided into the summit plateau and the vast north-east facing crags, but there is an area of broadleaf woodland in the gorge on the River Nevis and by Steall Falls and these woods lie outside the granite and volcanic rocks and have schist bedrock. In the same area, Meall Cumhan, directly above the Glen Nevis car park, has extensive outcrops of metamorphosed limestone.

River Nevis Gorge and Steall Falls (1, 2)

At the end of the public road up Glen Nevis

is a big car park but in the summer and on fine weekends this can get very full so it is worth getting there early. From the car park, a well-managed path heads up the spectacular Nevis Gorge through fine woodland, with the river far below, surging through huge boulders and potholes, making a visit worthwhile for this alone. The woodland below the path (1) has a good bryophyte flora with a number of oceanic species; *Plagiochila punctata* and *P. spinulosa* are frequent and a few patches of *P. bifaria* and *P. heterophylla* (Figs 3, 4) occur on boulders near the river. In the river itself, in the accessible part below the main ravine, some of the rocks have silt-filled cushions of *Racomitrium macounii* and there is an old record of *Hygrohypnum duriusculum*. Wet rocks at the side of the spectacular path have lots of *Racomitrium*

▽Fig. 2. Map of Ben Nevis. The numbers are those given to the sites described in the text.





◁Fig. 3. Woodland in the River Nevis gorge with river just visible on the left.

△Fig. 4. *Plagiochila heterophylla*.

ellipticum but the community of small species of the Lejeuneaceae is not well developed, though *Lejeunea patens* is frequent and *Microlejeunea ulicina* is common on the trees. There are small populations of *Aphanolejeunea microscopica* and *Drepanolejeunea hamatifolia* on sheltered rock faces and *Harpalejeunea molleri* occurs on more basic rocks and occasionally on trees of ash and elm and on hazel.

Following the path, a final twist through huge boulders leads to the flat meadow above the gorge and up ahead you can see Steall Falls and the wire bridge over the Nevis Water. Cross the bridge (enjoy!) and head for the Falls passing

Steall cottage and move up into a hanging birch wood (2; Figs 5, 6). This is a well-known bryophyte site, probably much visited and with many common oceanic species, but the main interest here is localised patches of the Scottish liverwort heath, here with much *Herbertus hutchinsiae* and scattered stands of *Mastigophora woodsii* and *Scapania ornithopodioides*, one of the few instances of this community occurring in woodland in Scotland. There are also impressive cushions of *Dicranodontium uncinatum* on the crags and unimpressive but frequent patches of *Leptoscyphus cuneifolius* on the birch trees and, for the diligent, *Sphenolobopsis pearsonii* occurs

▷Fig. 5. Birch woodland with Steall Falls in the background.

▽Fig. 6. *Mastigophora woodsii* at Steall.



on damp, vertical rock faces. On a wet day, the Falls crashing down give a great atmosphere but make the bridge crossing a bit more challenging.

Meall Cumhann (3)

Above the Nevis gorge path are the very steep slopes of Meall Cumhann, a splendid little hill with fantastic views from the top; the botanical attraction is the band of metamorphosed limestone which forms much of the precipitous west-facing crags, but exploring these rocks is not for the faint-hearted. The easiest approach is up the Allt Garbh above the big bend in the Nevis Gorge path. This is still unrelentingly steep but not without interest; rocks in the burn do have *Radula aquilegia*. Eventually this approach ends at the col between Meall Cumhann and the bulk of Ben Nevis (3); the north-facing slopes above the col are quite calcareous and have *Cerastium alpinum* and an interesting bryophyte community with *Herbertus stramineus* and

Plagiochila bifaria occurring together at about 600 m on the broken wet crags along with occasional patches of *Oxystegus hibernicus*. The west-facing limestone crags and pillars are quite dry and are a bit disappointing (as well as being very steep) but do have a very large population of *Grimmia torquata* along with other common calcicoles (Fig. 7) and, very locally, more interesting upland species like *Encalypta ciliata* and what appears to be the only population of *Myurella julacea* on the Nevis SSSI. There is a lot of ground here to explore for someone with a head for heights.

Ben Nevis

As one would expect of Britain's highest hill, botanical exploration is quite complicated and you can't do it all in one day (or even two) and you need to remember that snow can hang on in the gullies well into July and sometimes longer. I will describe the summit area first and then the coires.

▽Fig. 7. *Grimmia torquata* on the limestone of Meall Cumhann.





△Fig. 8. Flushes at the head of the Red Burn with *Hygrohypnum molle*.

Tourist track, Red Burn and the summit plateau (4, 5).

There are several ways up Ben Nevis other than the traditional pony track with its tourist queues, but this is certainly the easiest approach to the summit plateau. Above the Halfway Lochan the path zig-zags up the steep slope and, after about the fourth zig-zag, straying off the path to the north takes you away from the hordes and to the upper Red Burn. The springs at the head of the burn (Fig. 8) have long been a well-known locality for *Hygrohypnum molle* with *Scapania uliginosa*, *Andreaea alpina* and *A. nivalis* and an

old record for *Marsupella boeckii*. Moving on upwards to the plateau, the hectares of broken rocks look barren but the fell-field has occasional areas of smaller stones and gravel amongst the larger blocks; these small patches can have a good flora with *Kiaeria falcata*, *K. glacialis*, *K. starkei*, *Marsupella brevissima*, *Gymnomitrium concinnatum* and rarely *G. apiculatum*.

There is a similar flora on the broken crags (McClean's Steep) near the path as it climbs up towards the summit, giving a good list of typical snowbed species (Fig. 9): *Andreaea nivalis*, *Arctoa fulvella*, *Conostomum tetragonum*, *Ditrichum zonatum*, *Kiaeria glacialis* (Fig. 10), *K. falcata*, *K. starkei*, *Oedipodium griffithianum*,

▽Fig. 9. The fell field on the plateau looking up towards McClean's Steep; better than it looks!



▽Fig. 10. The handsome cushions of *Kiaeria glacialis*.





△Fig. 11. *Pseudoleskea patens* occurs with *Saxifraga cernua* and *S. cespitosa* at the head of No. 4 Gully.

Pohlia ludwigii, *Polytrichum sexangulare*, *Anthelia juratzkana*, *Barbilophozia floerkei*, *Gymnomitrium apiculatum*, *G. concinnum*, *Lophozia opacifolia*, *L. sudetica*, *Marsupella adusta*, *M. alpina*, *M. brevissima*, *M. sphacelata*, *M. sprucei*, *M. stableri*, *Nardia breidlerii* and *Pleurocladula albescens*. Along the cornice line at the top of the gullies where the snow lies late, there can be very large stands of *Andreaea nivalis*, *Kiaeria falcata*, *K. starkei* and *Pohlia ludwigii* (extreme care is needed while exploring here). At the top of what is called Number 4 Gully the rocks are a

bit more productive; this area is better known for its vascular plants but there are stands of *Pseudoleskea patens* (Fig. 11) and *Sciuro-hypnum glaciale* here with *Racomitrium macounii* subsp. *alpinum*.

The North-east crags (6, 7)

If you want to explore the north-east-facing crags, the best approach is from the North Face car park at Torlundy. After a tiresome flat walk along the old tramway, a well-made path now climbs up through the trees to emerge at the hydro intake on the Allt a'Mhuilinn at which point the crags and the immediate target, the Charles Inglis Clark (CIC) hut (Fig. 12), come into view. The path continues up to the hut, a good spot for a breather, and then a decision needs to be made. Coire Leis is vast and the crags above are huge at over 2 km long and they can be 500 m high and more than a little intimidating. Much of the rock is rather dour and, away from the gullies, it is rather uninteresting and much of



Fig. 12. The view into Coire na Ciste with the CIC hut in the foreground and Tower Ridge on the left.



△Fig. 13. The wee lochan in Coire na Ciste.

the very extensive scree is too unstable for most species (and most bryologists). Even so, there is a vast amount of ground here worth exploring but a lot of it is quite difficult to access. The two big coires providing access to the crags and gullies are Coire na Ciste (6) and Coire Leis (7).

To get into Coire na Ciste from the CIC hut you need to turn hard right and climb very steeply up on grassy scree, avoiding the crags on the left. The coire with its small lochan (Fig. 13) is full of scree and broken crags and has many of the snowbed species seen on the plateau above with frequent *Andreaea nivalis*, *Arctoa fulvella*, *Conostomum tetragonum*, *Oedipodium griffithianum*, *Polytrichastrum sexangulare*, *Lophozia opacifolia* *Marsupella alpina*, *M. stableri* and *Pleurocladula albescens*. In the scree, particularly where there are stands of Alpine ladyfern and Parsley fern, there are occasional untidy patches of two uncommon pleurocarpous mosses, *Sciuro-hypnum glaciale* (Fig. 14) and *S. reflexum*, often with *Hylocomiastrum umbratum*, *Hypnum callichroum* and *Plagiothecium denticulatum* var. *obtusifolium*. There are also good stands of *Anastrophyllum donnianum* in more stable scree and there are flushes and flushed rocks with

Marsupella alpina, *M. stableri*, *Scapania paludosa*, *Philonotis seriata* and *Rhizomnium magnifolium*.

From near the lochan, taking the traverse line to the north along the base of the crags brings you round into Number 5 Gully; this traverse forms the start of what is called Ledge Route. Along the traverse to the gully, the broken crags are a bit less acidic and have some calcicoles with cushions of *Grimmia torquata* and *Tortella tortuosa* plus nice vascular plants. The gully is steep above the path but a little bit of scrambling will give further good stands of *Hygrohypnum*

▽Fig. 14. Patches of *Sciuro-hypnum glaciale* under *Athyrium distentifolium* in Coire na Ciste.



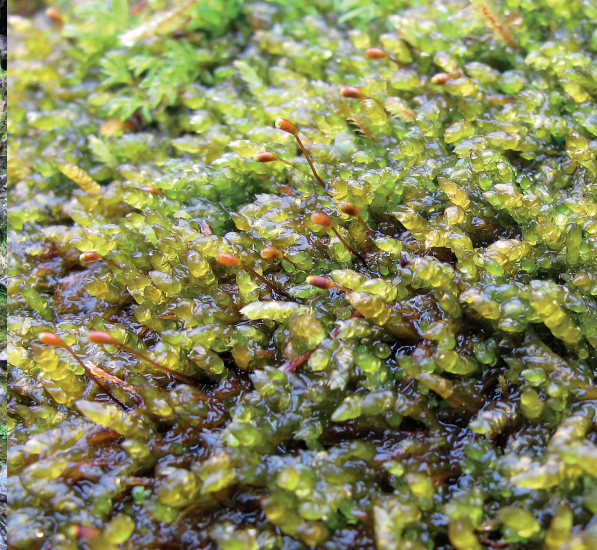


△Fig. 15. Will Rowlands at the site for *Hygrohypnum molle* in No. 5 Gully.

molle in the wet bed of the gully (Figs 15, 16) along with other snowbed species; the gully above may have other nice things but it is evil-looking terrain. Continuing on up Ledge Route to the plateau is just brilliant and is definitely the best 'easy' route up the Ben for those of you who don't mind taking your hands out of your pockets every now and then.

Coire Leis at the head of the glen is more open and, except on the slope up to the Carn Mor Dearg Arete, loses the snow earlier, although mosses like *Arctoa fulvella*, *Kiaeria falcata* and *K. starkei* are common enough (Fig. 17). There are lots of flushes in the coire with *Scapania uliginosa*, *Philonotis seriata* and occasionally *Scapania*

▽Fig. 17. *Arctoa fulvella* with its distinctive urn-shaped capsule is frequent on broken crags and scree over much of the coire.



△Fig. 16. A fruiting patch of *Hygrohypnum molle*.

paludosa and *Rhizomnium magnifolium*. In the scree and on broken crags are *Marsupella adusta*, *M. alpina*, *M. sphacelata*, *M. sprucei*, *Andreaea mutabilis*, *Ditrichum zonatum* and in the turf at the base of the crags, *Moerckia blyttii*. Where water tracks down the low crags at the head of the coire there are small stands of *Hygrohypnum molle* and *Bryum muehlenbeckii* in the cracks. The eroded path up to the arete above by what are known as the 'abseil posts', has broken crags on the west side which are a bit more base-rich and have cushions of *Amphidium lapponicum* (Fig. 18) and have good vascular plants but, like most of this huge coire, are mostly unexplored bryologically.

▽Fig. 18. Another moss with distinctive capsules, *Amphidium lapponicum* on the more productive rocks near the eroded path up to the ridge above Coire Leis.

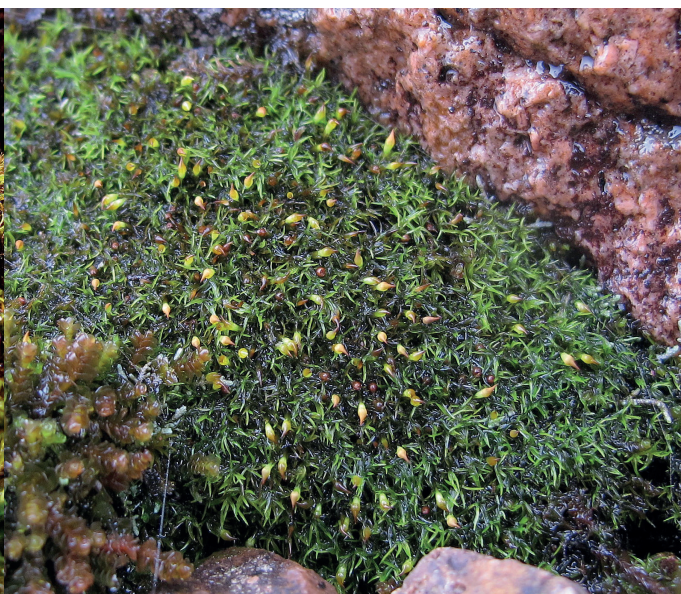


Fig. 19. A view of Carn Mor Dearg from the east.



Carn Mor Dearg (8)

This is the granite ridge to the east of Ben Nevis and connected to the Ben by the Carn Mor Dearg Arete, giving a great walk. It is little explored botanically as it is quite a long walk in to the big north-east facing coires, possibly best from the gondola on Aonach Mor or from the Allt a'Mhuilinn (Fig. 19). The more interesting ground is probably quite limited but there is much scope for exploration. The screes in the glen on the north-east side have good stands of oceanic-montane heath with *Anastrophyllum donnianum*, *Bazzania pearsonii*, *Scapania nimbosa* and *S. ornithopodioides*. I have only had a quick look at the coires under Carn Dearg Meadhonach and Carn Mor Dearg but both contain typical snow bed species with good patches of *Pleurocladula albescens* (Fig. 20) and

occasional stands of *Kiaeria glacialis*, *Sciurohypnum glaciale* and *Sciurohypnum reflexum*. There are also some good *Pohlia wahlenbergii* var. *glacialis* flushes (Fig. 21) with *P. ludwigii*, *Saxifraga rivularis*, *Andreea nivalis*, *Rhizomnium magnifolium* and *Scapania paludosa* and one richer crag has *Amphidium lapponicum*.

From the coires on Carn Mor Dearg, the bulk of Aonach Mor looms above you to the east and a bit further south is the finer and higher peak of Aonach Beag, at 1234 m the highest schist in Scotland and the easiest summit height to remember. An account of the bryophyte flora of these magnificent hills and the Grey Coires beyond will be the next instalment in this occasional series.

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▽Fig. 20. *Pleurocladula albescens* is frequent in the snowbeds on Carn Mor Dearg.



▽Fig. 21. *Pohlia wahlenbergii* var. *glacialis* flushes at the top of the coire have *Saxifraga rivularis*.

