



Kiaeria blyttii, *Racomitrium lanuginosum* and forestry in Roxburghshire

Rod Corner describes the restricted sites for *Kiaeria* in his home patch, and considers its future

In the course of exploring the hills of Roxburghshire (vc 80) in the Scottish Borders, I have come across rocky areas of block and stable scree, often with Parsley Fern (*Cryptogramma crispa*) and Fir Clubmoss (*Huperzia selago*), which have proved interesting bryologically. There are few habitats of this type in the smooth rolling Border hills which are being increasingly blanketed by commercial forests of Sitka Spruce. The harder basalts and porphyritic igneous rocks of Carboniferous age form some of the hills which are prominent in the landscape and these support bryophytes unknown elsewhere in the vice-county. The montane *Kiaeria blyttii* has proved to be scattered on acid rocks, mainly on the hills of the south-west of the county. It is quite a rare species in south-east Scotland and is normally found in the higher hills of the area. I thought it would be of interest to list the sites in which I have recorded it, together with some

△ Figure 1. Bare scree on the east side of Greatmoor Hill, 1981. All photographs Rod Corner

other local bryophytes. Specimens of *Kiaeria* from all sites are in herb. RWMC.

Sites where grazing is excluded

Several of the sites are within the boundaries of forested areas where grazing animals have been excluded for several decades and *Racomitrium lanuginosum* has become the dominant species in parts of the stable scree. *Kiaeria* has been adversely affected by the *Racomitrium* at the first of these sites.

Wolf Craigs, Carter Fell, NT676060, alt. 420 m. *Kiaeria blyttii* was first noted in the north-facing block scree in 1997, and in 1998 there were good healthy fruiting populations with *Douinia ovata* very locally as an associate. This



△ Figure 2. Dense *Racomitrium lanuginosum*, Wolf Craigs, 2015.



△ Figure 3. *Kiaeria blyttii* (circled), Wolf Craigs, 2015.

area had not been accessed by grazing animals for many decades as a result of forestry operations, and dominant mats of *R. lanuginosum* covered areas of the scree (Fig. 2). In 2012, the *Kiaeria* looked rather moribund and scarce, and in 2015 I had difficulty locating any at all and the *Douinia* appeared to have gone (Fig. 3). An unexpected hibernating Peacock butterfly in the scree in January 1998 added to the interest.

Wynburgh Hill (Windburgh Hill), NT552039, alt. 507 m. *Kiaeria* was first seen here new to vc 80 in 1985, with *Douinia*. *Gymnomitrium obtusum* had been noted in 1972. On subsequent visits in 1991 and 2011 I failed to refind the *Gymnomitrium*, which had always been scarce, although *Kiaeria* and *Douinia* were still present and *Orthocaulis atlanticus* was added. Tree-planting took place in 1992, and although *R. lanuginosum* was common in the block scree, it did not form large confluent mats to the same degree as on Wolf Craigs. The macrolichen cover

of *Cladonia*, *Stereocaulon* and *Parmelia* species seemed more prominent in 2011.

Catcleuch Shin, NT689065, alt. 540 m. *Kiaeria* occurred in a small area of north-facing block scree above the forest line. It was first noted in 1978 and again in 2012. *R. lanuginosum* occurred as small patches and the *Kiaeria* appeared unaffected.

Greatmoor Hill, NT488007, alt. 580 m. *Kiaeria* was present in 1993 in a small area of block scree on the west side, well above the planted forest line. It was unaffected by *R. lanuginosum*.

Sites open to grazing

Sites in vc 80 open to grazing with *Kiaeria* are listed below. An asterisk (*) indicates species at their only locality in the vice-county.

Carby Hill, Newcastleton, NY490843, alt. 260 m. This site had the largest and most widely

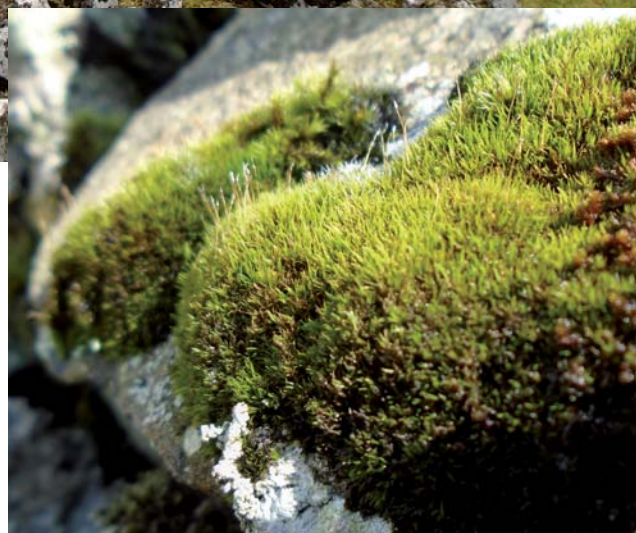


△ Figure 4. Scree, Carby Hill, 2017.

▷ Figure 5. *Kiaeria blyttii*, Carby Hill, 2017.

dispersed population of *Kiaeria*. It was first seen here in 1999 and again in 2017. The site is open to intensive sheep grazing and *Racomitrium lanuginosum* occurs as small, localised cushions in the scree. The summit area of this prominent little hill is circumscribed on the west-facing side by an area of stable scree partially derived from the remains of a pre-Roman fort (Fig. 4). *Kiaeria* was present on the scree and even on the small summit cairn itself and also in quantity along the east-facing side of the drystone dyke leading north from the top (Fig. 5). It descended to 220 m on rocks at the base of the old quarry on the west side of the hill.

Skelfhill Pen, Teviothead, NT441031, alt. 532 m. This sharply pointed hill had *Kiaera* limited in small quantity to rock niches on the low north-facing cliff in 1992. It was not seen on any of the screes, those on the south side being rather bare of lichen and bryophyte cover with only sparse *R. lanuginosum* (Fig. 6). *Gymnomitrium*



*concinatum** was first recorded from here by the eminent Borders botanist Andrew Brotherston (1880) and seen again in 1973 and in 2011 (Fig. 7). *G. obtusum* appeared to be absent. *Grimmia incurva** was recorded in 1973.

Greatmoor Hill, NT492006, alt. 533 m. *Kiaeria* was present sparingly in the large area of block scree on the steep east side in 1974 (Fig. 1), with *Gymnomitrium obtusum* being rather rare.

The Schil, north-west of The Cheviot, NT667323, alt. 570 m. *Kiaeria* was present on rocks on the west side below the rocky top in



△ Figure 6. Bare scree, Skelfhill Pen, 2011.



△ Figure 7. *Gymnomitrium concinnatum*, Skelfhill Pen, 2011.

1974 and 1994, with *Gymnomitrium obtusum* in 1974, but that was not refound in 1994. *Kiaeria* was commoner on the east side in vc 68 and is probably extant there. The lichen *Umbilicaria torrefacta* was present on the vc 80 side.

Pikethaw Hill, Ewes Water, NY369978, alt. 560 m. *Kiaeria* was noted in 2000 in a small rocky outcrop on the north-west side in vc 80.

Other sites

Kiaeria was not found on Maiden Paps, Shankend, NT500023, alt. 510m. This site has a large area of scree and block scree and has been ungrazed for over 40 years, with *R. lanuginosum* covering some areas (Fig. 8). *Gymnomitrium obtusum* has its largest population here in vc 80 and was new to the county when found in 1972. When last seen in 2012, some of the cushions appeared unhealthy (Figs 9, 10). *Marsupella funckii** was added then. In 1987 a section of scree appeared to have white paint sprayed over the rocks, which was in fact the uncommon

arctic-montane lichen *Ochrolecia inaequatula** (determined by Brian Coppins). It appeared to have gone in 2012.

Outwith Roxburghshire, *Kiaeria blyttii* was recorded in the Moorfoot Hills at Windlestraw

▽ Figure 8. *Racomitrium lanuginosum*, Maiden Paps, 2012.





△ Figure 9. Healthy *Gymnomitrium obtusum*, Maiden Paps, 2012.



△ Figure 10. Unhealthy *Gymnomitrium obtusum*, Maiden Paps, 2012.

Law in Peeblesshire (vc 78) in 2001 in two areas of north-west facing block scree at NT361422 and NT366426, alt. 625 m, both sites open to grazing. *Gymnomitrium obtusum* was present with the lichen *Umbilicaria proboscidea*.

Racomitrium sudeticum was recorded from all the *Kiaeria* sites apart from Wolf Craigs, Wynburgh Hill and Catcleuch Shin.

Discussion

The contrast between the performance of the *Kiaeria* on the ungrazed Wolf Craigs and grazed Carby Hill made me think about the changes that forestry is making to this ancient, specialised habitat. These areas of scree vary in the dominance of *R. lanuginosum*, which is partially related to grazing regimes on sites which have an annual rainfall of 1125–1500 mm (45–60 inches) per annum and are at altitudes of 220–625 m. The build up of this striking and aggressive moss must alter the ecology and microclimate of the rock surfaces, which in turn affects the performance of the smaller bryophytes. In addition, atmospheric

pollutants are likely to be scavenged by this moss and concentrated by snow melt in these exposed sites. As more areas of hill land are converted from sheep grazing to forestry, then the growth of *R. lanuginosum* will affect an increasing number of habitats and lead to the loss of plant diversity. It appears that *Gymnomitrium obtusum* exists under sub-optimal conditions here, judging from its general appearance. The screes of Greatmoor Hill and Skelfhill Pen may well be affected by *Racomitrium* in the future if the relevant farms are converted to forestry, although this is unlikely to occur at Carby Hill.

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Reference

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