

# *Grimmia anodon* rediscovered on Arthur's Seat

David G. Long

*Bryology Section, Royal Botanic Garden, Edinburgh, EH3 5LR*

## *Grimmia anodon* in Britain

Arthur's Seat is a volcanic plug of Lower Carboniferous age which dominates the Edinburgh skyline and has long been known as an important site for plants, including a number of local and rare lichens and mosses. *Grimmia anodon* is one of the most interesting of these. It was first reported as new to Britain from Arthur's Seat by Sadler (1869) based on a collection made in March 1869 although the oldest specimen in the Edinburgh herbarium is dated April 1864. The plant was described by Braithwaite (1872) and more fully in his *British moss-flora* (Braithwaite, 1888). Subsequently it was discovered near Kendal in Westmorland and survived there until as recently as 1961 (Blockeel, 1996). Other published records from Argyll and Cumberland (Smith, 1992) have been shown to belong to *G. tergestina* and *Coscinodon cribrosus* respectively (Greven, 1994; Blockeel, 1996).

*Grimmia anodon* has been searched for on Arthur's Seat by several bryologists in recent decades but without apparent success (Chamberlain, 2002), and it has been pronounced as one of eighteen extinct British bryophytes (Church *et al.*, 2001; Smith, 2004). A specimen (Long 1734 (E)) collected on Samson's Ribs below Arthur's Seat in 1971 as *G. anodon* later proved to be *Coscinodon cribrosus*.

Recent studies by the Swiss bryologist Eva Maier have clarified the status of a number of critical British *Grimmia* species, and during the course of her work on the *G. trichophylla* complex a large

loan of specimens was sent to her for study from Edinburgh. One specimen, collected on Arthur's Seat in 1971 and labelled *G. trichophylla* turned out to be mostly *G. orbicularis* (itself not recorded for many years from Arthur's Seat) mixed with a little *G. anodon* – exactly 100 years since the last confirmed sighting of the latter. Fortunately, this specimen was well-localised and in September 2005 I searched the area and refound the colony of *G. anodon*, growing with *G. orbicularis*. The plants grew on cracks on a dry, sun-exposed, south-facing rock face and bore abundant dehisced sporophytes (Figure 1). The steepness of the terrain and dense cover of gorse (*Ulex europaeus*) made a thorough survey impossible, but several cushions were seen on one outcrop. The risk of a gorse fire poses a significant threat to the site and gorse clearance combined with a detailed survey should be a priority for the future.

*G. anodon* can be readily recognised by its usually abundant immersed capsules (Figure 1) which could be confused for those of a *Schistidium* species, but in *G. anodon* are asymmetric, borne obliquely on the very short bent seta, and with a wide mouth that lacks a peristome. *Coscinodon* differs in its plicate leaves and peristomate capsules. Although very rare in Britain, *G. anodon* has a wide distribution in Eurasia and North America and extends south along the Andes to Argentina (Smith, 2004).

## Specimens studied

England, Westmorland, v.-c. 69: single cushion on railway bridge on A685, between Kendal and

Grayrigg, 34/557957, 2 September 1961, J.A. Paton & A.J.E. Smith 1047 (E).

Scotland, Midlothian v.-c. 83: Arthur's Seat, April 1864, J. Sadler *s.n.* (E); *ibid.*, March 1869, W. Bell *s.n.* (E); *ibid.*, June 1871, W. Evans *s.n.* (E); dry rocks, Arthur's Seat, NT278727, 12 x 1971, D.G. Long 1818-b (as *G. trichophylla*), det. E. Maier; Arthur's Seat, upper road below Crow Hill, NT27887266, dry igneous rocks by road, in crevices on rock face, 121 m, 22 September 2005, D.G. Long 35308 (E).

### Acknowledgments

I wish to gratefully acknowledge Eva Maier for her meticulous study of *Grimmia* material from the Edinburgh herbarium, and also Ron Porley, Tom Blockeel and David Chamberlain for their valuable comments.

### References

- Blockeel TL. 1996. The distribution of *Grimmia tergestina* and *G. anodon* in the British Isles. *Journal of Bryology* **19**: 181-194.
- Craithwaite R. 1872. Recent additions to our moss flora. *Journal of Botany* **10**: 193-199.
- Craithwaite R. 1888. *The British moss-flora*. Volume 2, part 11. London: Reeve & Co.
- Chamberlain DF. 2002. A bryophyte flora of the Lothians. In: Smith PM, Dixon ROD, Cochrane MP, eds. *Plant life of Edinburgh and the Lothians*. Edinburgh: Edinburgh University Press, 93-162.
- Church JM, Hodgetts NG, Preston CD, Stewart NF. 2001. *British red data books: mosses and liverworts*. Peterborough: Joint Nature Conservation Committee.
- Greven HC. 1994. *Grimmia tergestina* Tomm., new to Britain. *Journal of Bryology* **18**: 368.
- Sadler J. 1869. Notice of some new and rare British Mosses. *Transactions of the Botanical Society of Edinburgh* **10**: 173.
- Smith AJE. 1992. *Grimmia anodon* Br. Eur. In: Hill MO, Preston CD, Smith AJE, eds. *Atlas of the bryophytes of the British Isles*. Colchester: Harley Books, 345.
- Smith AJE. 2004. *The moss flora of Britain and Ireland*, 2<sup>nd</sup> ed. Cambridge: Cambridge University Press.



Figure 1. *Grimmia anodon* with dehiscent immersed capsules. Arthur's Seat, 22 September 2005. Photo: D.G. Long.