
SGURR MOR

C.K. Ballantyne

OS Grid Reference: NH204715

Highlights

The example of solifluction terraces on Sgùrr Mòr is one of the best in Scotland and one of the first to have been described.

Introduction

Sgùrr Mòr (NH 204715), the highest summit (1110 m OD) in the Fannich mountains, is important for one of the best examples in Scotland of a suite of solifluction terraces. The landforms were first described by Peach *et al.* (1913a), who included a photograph showing "plateau frost debris ... arranged in parallel lines or terraces due to soil creep aided by the movement of snow" on the ridge south-east of Sgùrr Mòr. This is possibly the earliest reference to solifluction features on the mountains of Scotland. Subsequently these impressive features were used by Sissons (1967a, plate 23A) as an illustration of mass movement of frost-weathered debris. The most recent investigation of the site is that of Ballantyne (1981), later summarized in Ballantyne (1987e).

Description

Sgùrr Mòr is composed of Moine pelitic schists that have weathered to produce a shallow, frost-susceptible regolith comprising slabby, angular clasts embedded in a matrix of silt and fine- to medium-grained sand (Type 3' regolith of Ballantyne (1981, 1984)). On the south-east flank of the mountain, from 1050 m to 950 m OD, on slopes of around 13° there is an unbroken sequence of broad steps which range from 6.6 m to 12.7 m in width (downslope) and 33 m to 86 m in length (across slope). The junction between adjacent sheets is marked by a steep, vegetated "riser", 0.5 m to 1.0 m high, interrupted in several places by the formation of small vegetation-covered solifluction lobes.

The vegetation cover of the "treads" ranges from 0–70%, the bare areas being covered with slabs of local mica schist embedded in a deflation surface of coarse sand and granules. Excavation of one sheet revealed a typical solifluction deposit consisting of slabs up to 0.3 m across embedded in a dark-brown, structureless, sandy soil.

Interpretation

Ballantyne (1981) interpreted the features as stepped solifluction sheets (terraces) and considered that they were probably still active. Late Holocene solifluction activity on the Fannich Mountains was subsequently established by Ballantyne (1986c) at a site at 840 m altitude on the flank of Sgùrr nan Clach Geala, approximately 2 km to the west of Sgùrr Mòr. Excavations at this site revealed an almost undisturbed soil horizon underlying a solifluction lobe. A series of radiocarbon dates indicated a very recent, very rapid advance of the lobe, which Ballantyne considered may have been due either to the Little Ice Age climatic deterioration in the 17th and 18th centuries AD or to vegetational disturbance due to overgrazing. Elsewhere in Scotland, Holocene solifluction has been established by radiocarbon dating of organic material from under or within solifluction lobes or sheets in the Cairngorms (Sugden, 1971) and Ben Arkle in Sutherland (Mottershead, 1978).

Frost-weathered regolith occurs widely on the mountain tops in Scotland and supports a range of solifluction deposits and landforms (see Ronas Hill, Ward Hill, An Teallach, Ben Wyvis and the Cairngorms). Sgùrr Mòr is probably the most outstanding example of these landforms in Scotland, both for the clarity of the individual features and the extent of their development. The site is also of historical interest as being probably the first recorded example of solifluction features on Scottish mountains.

Conclusions

Sgùrr Mòr is important for periglacial landforms developed on Moine Schist. It demonstrates one of the best, and earliest described, examples of solifluction terraces in Scotland, formed by the slow downslope movement of frost-weathered debris. Some of the terraces may have been active during the last few hundred years.

Reference list

- Ballantyne, C.K. (1981) Periglacial landforms and environments on mountains in the northern Highlands of Scotland. Unpublished PhD thesis, University of Edinburgh.
- Ballantyne, C.K. (1984) The Late Devensian periglaciation of upland Scotland. *Quaternary Science Reviews*, **3**, 311–43.
- Ballantyne, C.K. (1986c) Late Flandrian solifluction on the Fannich Mountains, Ross-shire. *Scottish Journal of Geology*, **22**, 395–406.
- Ballantyne, C.K. (1987e) The solifluction features of the Fannich Mountains. In *Wester Ross Field Guide* (eds C.K. Ballantyne and D.G. Sutherland). Cambridge, Quaternary Research Association, 171–2.
- Mottershead, D.N. (1978) High altitude solifluction and post-glacial vegetation, Arkle, Sutherland. *Transactions of the Botanical Society of Edinburgh*, **43**, 17–24.
- Peach, B.N., Horne, J., Gunn, W., Clough, C.T., Greenly, E., Hinxman, L.W., Cadell, H.M., Pocock, T.I. and Crampton, C.B. (1913a) The geology of the Fannich Mountains and the country around upper Loch Maree and Strath Broom. (Explanation of Sheet 92). Memoirs of the Geological Survey of Scotland. Edinburgh, HMSO, 127pp.
- Sissons, J.B. (1967a) *The Evolution of Scotland's Scenery*. Edinburgh, Oliver and Boyd, 259pp.
- Sugden, D.E. (1971) The significance of periglacial activity on some Scottish mountains. *Geographical Journal*, **137**, 388–92.