



## DEPARTMENT OF THE ENVIRONMENT

### DECLARATION OF AREA OF SPECIAL SCIENTIFIC INTEREST AT SLIEVE GULLION, COUNTY ARMAGH. ARTICLE 24 OF THE NATURE CONSERVATION AND AMENITY LANDS (NORTHERN IRELAND) ORDER 1985

The Department of the Environment (the Department), having consulted the Council for Nature Conservation and the Countryside and being satisfied that the area described and delineated on the attached map (the area) is of special scientific interest by reason of the flora, fauna and geological features and accordingly needs to be specially protected, hereby declares the area to be an area of special scientific interest to be known as the 'Slieve Gullion Area of Special Scientific Interest'.

The Slieve Gullion volcanic complex is the finest example of a Tertiary igneous centre in Ireland and is among the best topographic expression of a ring-dyke system in the British Isles. The volcanic rocks found here are of international geological importance, having played an important role in a number of theories related to the development of and interaction between igneous rocks.

The Slieve Gullion volcanic complex developed in an area of crustal weakness. In Tertiary times, some 60 million years ago, it was probably the site of a volcano, of which there is now little evidence. Subsidence of this central unit was related to a ring fault, some 20 km in diameter, the latter providing a natural weakness exploited by intrusive igneous rocks. This produced the ring-dyke complex which has been exposed, through erosion of the softer surrounding rocks, to reveal the near-circular system known as the Ring of Gullion.

The final volcanic phase saw activity return to the central area with layered igneous rocks, both acid and basic in nature, resulting. Past debate on the formation of the central complex has been largely resolved. The layered structure appears to have developed as a series of events, where the rocks were intruded or injected into pre-existing rocks, rather than building up mainly as successively extruded lava bodies.

Slieve Gullion contains exposures which have featured in a number of geological debates. Alteration of pre-existing rocks can be demonstrated here with the older Newry granite being altered in places by the more recent Tertiary volcanic activity. A small quarry to the southwest of the site shows residual blocks of the coarse-grained Newry granite within

another finer-grained acid volcanic rock, called granophyre. Here the older rock has been largely altered into granophyre by the nearby intrusion of the summit granites.

The summit area is mainly underlain by granites and granophyres of igneous origin. At one level, these are intruded by a later basic layer of dolerite. A complex interaction has occurred, where the very hot basic magma partially re-melted the acid rocks. This has resulted in a number of unusual features being produced with vertical pipes of granophyre intruding the solidified dolerite. Other outcrops within the site show evidence of partial shattering of the solid dolerite, producing a network of joints, which were then occupied by granophyre veining.

More commonly, there is evidence of an interaction between the two contrasting melts, that is where the intruded dolerite interacts, in a molten state, with the remelted granophyre. In such instances mixing is generally prevented by differences in viscosity resulting in a lobate or crenulate contact zone. Occasionally pillow-like structures develop where the molten dolerite is chilled against the cooler granophyre. Both curvilinear veining and a lobate contact are particularly well displayed at Ballynalack, where they formed at an earlier stage than those present in the summit area.

Biological interest relates to the size, quality and diversity of the habitats within Slieve Gullion, in addition to the presence of particular species of note. Heathland is a scattered resource and Slieve Gullion represents one of the largest areas of dry heath in Northern Ireland outside the Mourne Mountains. Blanket bog, grasslands and wetlands are also represented, producing a varied and diverse mosaic of habitats.

The heathland communities are very variable and depend upon local environmental conditions such as slope, aspect, wetness and altitude. The most extensive heath community on Slieve Gullion occurs on freely-draining slopes with shallow, acidic soils and is overwhelmingly dominated by Heather *Calluna vulgaris*. Associated species include Bilberry *Vaccinium myrtillis* on the cooler, shaded slopes at higher elevation, and Bell Heather *Erica cinerea* on the lower, south facing slopes, reflecting the milder micro-climate. *Hypnum cupressiforme* and occasional *Rhytidiadelphus loreus* form a dense moss layer beneath the dwarf-shrub canopy. Other associated species include scattered Wavy Hair-grass *Deschampsia flexuosa*, Velvet Bent *Agrostis canina* and Tormentil *Potentilla erecta*.

On the lowest slopes, the heath is often characterised by the abundance of Western Gorse *Ulex gallii* growing in association with Bell Heather *Erica cinerea*. This type of vegetation is generally restricted to the warm, oceanic (comparatively mild and wet) regions of lowland Britain, and its occurrence so far north is notable. In some parts of the area, wet heath has developed. This community is characterised by the prominence of Cross-leaved Heath *Erica tetralix*, Heather *Calluna vulgaris*, Purple Moor-grass *Molinia caerulea*, Bog Asphodel *Narthecium ossifragum*, Deergrass *Trichophorum cespitosum*, Carnation sedge *Carex panicea* and *Sphagnum* bog-mosses, including the uncommon species *S. compactum*. This community is associated with wet, acidic soils and like the Western Gorse *Ulex gallii* heath, it is usually confined to the relatively dry lowlands of Britain.

On flatter ground where the peat is deeper, blanket bog has developed. This is characterised by ericoid dwarf-shrubs, Deergrass *Trichophorum cespitosum*, Hare's-tail Cottongrass

*Eriophorum vaginatum* and occasional Common Cottongrass *E. angustifolium*, growing over a mixed moss and liverwort (bryophyte) mat. In some places, the peat surface is wetter, with species such as Bog Asphodel *Narthecium ossifragum*, Purple Moor-grass *Molinia caerulea* and *Sphagnum* bog mosses occurring. These blanket bog communities frequently occur with the heaths in a complex mosaic.

Grassland also occurs as part of the mosaic. Drier soils are generally dominated by Common Bent *Agrostis capillaris* with Velvet Bent *A. canina*, Mat Grass *Nardus stricta*, Sheep's Fescue *Festuca ovina*, and the herbs Heath Bedstraw *Galium saxatile* and Tormentil *Potentilla erecta*. Associated mosses include *Hypnum cupressiforme*, *Rhytidiadelphus loreus* and *Pseudoscleropodium purum*. Marshy grasslands with rushes *Juncus* spp., Common Cottongrass *Eriophorum angustifolium* and sedges *Carex* spp., over a carpet of *Sphagnum* mosses, occur around springs and seepage lines. The springs themselves are often dominated by a quaking mat of *Sphagnum auriculatum* and *S. recurvum* with Bog Stitchwort *Stellaria uliginosa*.

Wetland habitats add further diversity. An upland lake occurs close to the summit of Slieve Gullion. This natural water body is devoid of aquatic plants and the marginal vegetation is limited to a fringe of poor-fen with plants tolerant of acid water conditions. On the lower slopes of Slieve Gullion, within the northern section of the site, there are three basin fens surrounded by heathland. Although small, they are very 'natural' and rich in wetland species, with a number of associated fen communities. The central areas are dominated by *Sphagnum* mosses and sedges *Carex* spp., with localised stands of swamp characterised by Bottle Sedge *Carex rostrata* and Bogbean *Menyanthes trifoliata*. Other fen communities are dominated by Sharp-flowered Rush *Juncus acutiflorus*, growing with a variety of associated species depending on local edaphic conditions. Some of these rush-dominated communities are rich in plant species, with locally abundant Marsh Violet *Viola palustris*. Other communities are less rich, and include a variety of sedges *Carex* spp. associated with the rush. The fen areas also contain small pockets of acid grassland and Willow *Salix* spp. scrub.

A number of notable plants have been recorded for Slieve Gullion. The heath contains Cowberry *Vaccinium vitis-idaea* on the upper slopes, and Western Gorse *Ulex gallii*, an oceanic species associated with the lower, sheltered slopes. Some of the richer fen areas include Fen Bedstraw *Galium uliginosum*, Dioecious Sedge *Carex dioica* and Pale Butterwort *Pinguicula lusitanica*. Bryophytes include the mosses *Sphagnum squarrosum* from the fen and *Sphagnum compactum* from the wet heath.

Slieve Gullion is also important for animals. Red Grouse *Lagopus lagopus* has been recorded for the area, and there is also a rich invertebrate community, including the rove beetle *Gyrrinus brevicollis*. This has been recorded from several sites in Northern Ireland, but is a scarce species in the rest of the British Isles.

## SCHEDULE

**The following operations and activities appear to the Department to be likely to damage the flora, fauna and geological features of the area:**

1. Any activity or operation which involves the damage or disturbance by any means of the surface and subsurface of the land, including ploughing, rotovating, harrowing, reclamation and extraction of minerals, including rock, sand, gravel and peat.
2. Any change in the present annual pattern and intensity of grazing, including any change in the type of livestock used or in supplementary feeding practice.
3. Any change in the established method or frequency of rolling, mowing or cutting.
4. Any change in the annual pattern of application of manure, slurry or artificial fertiliser.
5. The application of herbicides, fungicides or other chemicals deployed to kill any form of wild plant, other than plants listed as being noxious in the Noxious Weeds (Northern Ireland) Order 1977.
6. The storage or dumping, spreading or discharge of any material not specified under paragraphs 4 or 5 above.
7. The destruction, displacement, removal or cutting of any plant, seed or plant remains, other than for
  - i) plants listed as being noxious in the Noxious Weeds (Northern Ireland) Order 1977;
  - ii) normal cutting or mowing regimes for which a consent is not required under paragraph 3 above.
8. The release into the area of any animal (other than in connection with normal grazing practice) or plant. 'Animal' includes birds, mammals, fish, reptiles, amphibians and invertebrates; 'Plant' includes seed, fruit or spore.
9. Burning.
10. Changes in tree or woodland management, including afforestation, planting, clearing, selective felling and coppicing.
11. Construction, removal or disturbance of any permanent or temporary structure including building, engineering or other operations.
12. Alteration of natural or man-made features, the clearance of boulders or stones and grading of rock faces.

13. Operations or activities which would affect wetlands (including rivers, streams and open water), e.g.
  - i) change in the methods or frequency of routine drainage maintenance;
  - ii) modification to the structure of any watercourse;
  - iii) lowering of the water-table, permanently or temporarily;
  - iv) change in the management of bank-side vegetation;
  - v) changes in field drainage or boundary field drainage.
14. The disturbance, killing or taking of any wild animal except where such killing or taking is treated as an exception in Articles 5, 6, 11, 17, 20, 21 and 22 of the Wildlife (Northern Ireland) Order 1985.
15. The following activities undertaken in a manner likely to damage the interest of the area:
  - i) educational activities;
  - ii) research activities;
  - iii) recreational activities;
  - iv) exercising of animals.
16. Changes in game, waterfowl, or fisheries management or fishing or hunting practices.
17. Sampling of rocks, minerals, fossils or any other material forming a part of the site, undertaken in a manner likely to damage the scientific interest.
18. Use of vehicles or craft likely to damage the wildlife or geological features of the area.

Sealed with the Official Seal of the  
Department of the Environment on 20 DECEMBER 1999



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**DR J S FAULKNER**  
**Senior Officer of the Department**  
**of the Environment**

## FOOTNOTES

(a) Please note that consent by the Department to any of the operations or activities listed in the Schedule does not constitute planning permission. Where required, planning permission must be applied for in the usual manner to the Department under Part IV of the Planning (Northern Ireland) Order 1991. Operations or activities covered by planning permission are not normally covered in the list of Notifiable Operations.

(b) Also note that many of the operations and activities listed in the Schedule are capable of being carried out either on a large scale or in a very small way. While it is impossible to define exactly what is "large" and what is "small", the Department would intend to approach each case in a common sense and practical way. It is very unlikely that small scale operations would give rise for concern and if this was the case the Department would normally give consent, particularly if there is a long history of the operation being undertaken in that precise location.