

## DEPARTMENT OF THE ENVIRONMENT

DECLARATION OF AREA OF SPECIAL SCIENTIFIC INTEREST AT  
CLOGHINNY, COUNTY ARMAGH. ARTICLE 28 OF THE ENVIRONMENT  
(NORTHERN IRELAND) ORDER 2002.

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 its 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 'Cloghinny Area of Special Scientific Interest'.

The area is of special scientific interest because of its geology, which is seen in outcrop at Cloghinny.

The Slieve Gullion volcanic complex, of which Cloghinny is a part, is the finest example of a Palaeogene igneous centre in Ireland and is among the best topographic expression of a ring-dyke system in the British Isles. The 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 complex developed in an area of crustal weakness, previously exploited by the much older Newry granite, around 400 million years old. In Palaeogene times, some 56 - 58 million years ago, it was the site of a major 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 phase saw activity return to the central area with apparently layered igneous rocks, both acid and basic in nature. Past debate on the formation of the central complex has been largely resolved. The layered structure apparent today appears to have developed as a series of igneous units intruded or injected into pre-existing rocks, rather than building up as a succession of extruded rock bodies.

The Slieve Gullion complex is historically important as it has featured in a number of major geological debates on the nature of igneous rocks and the processes by which they can be formed.

Cloghinny is part of the central Slieve Gullion volcanic complex and contains evidence of the interaction between the acid and basic igneous rocks that form Slieve Gullion.

At Cloghinny exposures of structures initially interpreted as pillow lavas can be seen. Pillow lavas form their characteristic shape when lava is erupted and chilled



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underwater. This would support the idea that these rocks, together with others in the wider area, formed from lavas extruded onto the surface rather than intruded into pre-existing rocks. However, further research has demonstrated that the pillow structures are bulges of dolerite on the mobile interface between the basic dolerite and acid granophyre while both were molten. This demonstrated that a high temperature basic melt could chill against a lower temperature acid melt to produce pillow-like structures. This location provides a fuller understanding of the geological history of the Slieve Gullion complex.

## **SCHEDULE**

**The following operations and activities appear to the Department to be likely to damage the 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 sand, gravel and peat.
2. The storage or dumping, spreading or discharge of any material.
3. Changes in tree or woodland management, including afforestation, planting, clearing, selective felling and coppicing.
4. Any change in the present annual pattern and intensity of grazing.
5. Construction, removal or disturbance of any permanent or temporary structure including building, engineering or other operations.
6. Alteration of natural or man-made features, the clearance of boulders or stones and grading of rock faces.
7. The following activities undertaken in a manner likely to damage the interest of the area:
  - i) educational activities;
  - ii) research activities;
  - iii) recreational activities;
8. 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.
9. Use of vehicles or craft likely to damage the interest of the area.

## 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.