



An Agency within the
Department of the Environment
for Northern Ireland

Document B



DEPARTMENT OF THE ENVIRONMENT FOR NORTHERN IRELAND

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

The Department of the Environment for Northern Ireland (the Department), having consulted the Council for Nature Conservation and the Countryside and being satisfied that the area delineated and described on the attached map (the area) is of special scientific interest by reason of the flora, fauna, geological and physiographical 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 'Portmuck area of special scientific interest'.

The coastal section from McIlroy's Port to Isle of Muck exhibits a range of notable geological and geomorphological features. These include, from oldest to youngest, the Mesozoic sediments west of Portmuck harbour, the volcanic vent and associated minerals at McIlroy's Port, the unusual minerals which occur near Isle of Muck and the gravel barrier or tombolo between Isle of Muck and the mainland. The cliffs also support a range of plant species typical of such habitat together with some saltmarsh. The cliffs at the Isle of Muck are the site of a small seabird colony.

At Portmuck, Mesozoic strata from the Lias Waterloo Mudstone Formation to the Cretaceous Glenarm Chalk Member are well exposed in a series of coastal cliffs.

The fossiliferous Lower Lias Waterloo Mudstone Formation is exposed as a foreshore outcrop of soft blue clay and limestone. The thin shelly limestone forms a foreshore reef. These are Jurassic in age, some 200 million years old.

The Hibernian Greensands Formation is well exposed in the cliffs to the west of Portmuck Harbour and includes sandstone and marl of the Kilcoan Sands, Island Magee Siltstone and Belfast Marls Members. These are the best exposures of the Hibernian Greensands Formation in Northern Ireland and form the oldest Cretaceous sediments present here, dating from some 97 million years ago. The Hibernian Greensands Formation is overlain by the slightly younger Cloghfin Sponge Beds Member. This series is approximately 1m thick and is a glauconitic chalk rich in fossil sponges; it contains fragments of *Inoceramus* shells, a bivalve common in these Cretaceous seas. This in turn is overlain by a sequence of the Ulster White Limestone Formation, 32 m. thick but often much affected by slippage and faulting.

McIlroy's Port to the north of Portmuck exhibits an explosive volcanic vent sited in a composite flow. These features date from the Tertiary period, some 60 million years old. This site contains the only known occurrence of the mineral sodalite in Ireland. The lava flow, which is divided into a composite flow, is the best example of this feature in the Antrim basalts. The upper component is some 15 m. thick while the lower basalt is about 3 m thick. The lower zone of the flow is particularly rich in olivine, a mineral which solidifies early in molten basaltic lava, and here has settled due to gravity. Within this lower zone, there are numerous patches and veins of a range of minerals including the sodalite.

South of McIlroy's Port a conspicuous dolerite dyke intrudes the older chalk and the overlying basalt. The development of a wide range of minerals in the metamorphosed, mineral-filled hollows or amygdales of the adjacent basalts has been noted. The White Limestone is disturbed and baked close to the dyke. The basalt flows just west of this dyke are thin pahoehoe units which exhibit ropey lava surfaces, evidence of a more viscous lava type.

A further dolerite dyke, opposite the Isle of Muck, has resulted in the chalk here being replaced by the minerals chalcedony, magnetite and garnet.

At the southern end of the site, faulting brings the Lower Basalts to sea-level as a cliff line. Contained in the basalts are a range of secondary minerals known as zeolites. These formed within cavities in the basalt as warm water circulated within the igneous rocks soon after they solidified. The warm water dissolved a range of minerals which solidified as zeolites as the water cooled. Among these is a type first identified from this area and named Gobbinsite; a range of other zeolites are also present.

South of Portmuck a gravel barrier, or tombolo, links the Isle of Muck and the mainland. This tombolo is the only such feature on the open sea coast of Northern Ireland. The gravel barrier, composed of rounded gravel and boulders of chalk, flint and basalt, appears to resemble a classic tombolo but it is possible that it did not form in the normal manner for such features. Rather, evidence points to it having originated through southward movement and eventual stranding of a gravel barrier in shallow water. As there is no evidence of fresh gravel input from the adjacent coastline, it is likely that the tombolo is in an advanced stage of development in which a fixed volume of sediment is redistributed within the structure.

Evidence of former higher sea-levels can be seen at a number of places within the area. Portmuck exhibits a number of stranded clifflines, notably opposite the Isle of Muck while abandoned seacaves, arches and raised beaches are present to the north of McIlroy's Port.

A range of plant communities are associated within the site. Although the cliffs within the site are composed of a variety of rock types, the distribution of these communities depends more on the nature and stability of the cliff section. While the composition of communities may vary in detail, there are a number of species which occur commonly throughout the site in most situations. These include Red Fescue *Festuca rubra*, Sea Mayweed *Tripleurospermum maritima*, Sea Plantain *Plantago maritima*, Common Scurveygrass *Cochlearia officinalis* and Thrift *Armeria maritima*.

Cliff sections which experience slippage, and so have a disturbed soil, support rank Red Fescue *Festuca rubra*, Common Ragwort *Senecio jacobea*, Common Nettle *Urtica dioica*, Perennial Sow-thistle *Sonchus arvensis* and Hogweed *Heracleum sphondylium*. Stable, near-vertical rock faces, generally have either high Ivy *Hedera helix* cover or, on less steep faces, Sea Campion *Silene uniflora*.

Where soil is very thin or almost non-existent on these slopes the grass component is reduced allowing a greater diversity of associated species including Harebell *Campanula rotundifolia*, Common Knapweed *Centaurea nigra*, Kidney Vetch *Anthyllis vulneraria*, Yarrow *Achillea millefolium*, Common Bird's-foot-trefoil *Lotus corniculatus*, Lady's Bedstraw *Galium verum*, Wild Carrot *Daucus carota* and Sea Campion *Silene uniflora*. These tend to be the most species rich areas within the site.

Isle of Muck supports a notable population of breeding seabirds. The most numerous group are the auks with Razorbill *Alca torda* and Guillemot *Uria aalga* present together with small numbers of Puffin *Fratercula arctica*. Kittiwake *Rissa tridactyla* and Fulmar *Fulmarus glacialis* are also present together with Black guillemot *Cepphus grylle* which utilises a series of small caves and crevices for nesting.

SCHEDULE

The following operations and activities appear to the Department to be likely to damage the flora, fauna, geological and physiographical 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 and gravel.
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 and planting.
- 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 and streams), eg,
 - (i) change in the methods or frequency of routine drainage maintenance;
 - (ii) modification to the structure of any watercourse;
 - (iii) change in the management of bank-side vegetation.
- 14. The disturbance, killing or taking of any wild animal except where such killing or taking is treated as an exception in Articles 5,6,11,12,16,17,20,21 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.
- 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 for
Northern Ireland on 23 OCTOBER 1997



ROBERT C. MARTIN
Assistant Secretary

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.