DEPARTMENT OF THE ENVIRONMENT

DECLARATION OF AREA OF SPECIAL SCIENTIFIC INTEREST AT CAREY VALLEY, COUNTY ANTRIM. 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 the flora, 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 'Carey Valley Area of Special Scientific Interest'.

The area is of special scientific interest because of its earth science features, and its fen communities and rare plants. The Carey Valley area is of importance in understanding the recent glacial history of Northern Ireland. The landscape of this area has been defined by events that occurred towards the end of the last Ice Age, between 17,000 and 13,000 years ago, a period of gradual climatic warming. The area contains meltwater channels, glaciofluvial terraces and a flat topped Gilbert type delta in pristine condition. The area is of national importance as an example of a deglacial landform association. It also contains nationally important exposures of the Dalradian age Runabay Head Formation of the Southern Highland Group.

A relatively small frontal moraine is found to the north of Loughareema, marking the frontal position of the ice at the time. The upper valley (to the south-east) acted as a subglacial conduit for meltwater, transporting water and sediments down valley to form the delta surfaces and other landforms. The Altdorragha section of the main (A2) Cushendall to Ballycastle Road passes through the centre of this channel.

At Loughareema the main water flow was enhanced by other subglacial drainage channels which created a plunge pool on the site of the present lake. Today the lake periodically 'vanishes' due to the underlying geology. The Ulster White Limestone strata that lies below the site contains a system of pores and fractures that would be expected to allow rapid drainage. However, the peat laden water blocks this system until the hydrostatic pressure of the accumulating water is sufficient to 'flush' the peat through, enabling the water to drain.

The available evidence suggests the upper sediments found in the Carey Valley were deposited in a proglacial water body, i.e. in front of an ice mass, as the ice was retreating to the south. Glacial melt water transported sand, gravel and mud from beneath the ice and deposited it in this water body, forming flat topped (Gilbert type) deltas. The flat tops of the deltaic sediments reach a height of approximately 100m above sea level, which therefore corresponds to the position of the surface of the water body. The best developed of the delta surfaces is found southeast of Ballyvoy, between the Drumadoon and Ballynagard townlands.

There are two possible explanations for the particular depth of water recorded; either

the relative sea level at this time was 100m higher than at present or the water was dammed in the valley by another ice mass to the north. A higher relative sea level would require greater ice loading on the land surface at this time than has been recorded for other parts of Northern Ireland, but there is also no evidence to suggest a re advance of Scottish ice to the north, which would be required to produce an impounded freshwater lake.

As the level of the proglacial water body dropped, the continuing flow of meltwater began to erode the deposited sediments, leading to the deeply incised landforms observed today. In the upper part of the valley, the Carey River flows through a steep sided meltwater eroded gorge and moving north, terraces at lower levels indicate modification by glaciofluvial processes.

The rocks exposed along the Altdorragha channel are from the Leckpatrick Green Bed Member and are of Upper Dalradian age, some 750 million years old. They constitute the uppermost stratigraphic levels of the Runabay Formation of the Southern Highland Group and are a mixture of contrasting siliciclastic and volcanogenic sediments typical of the Southern Highland Group throughout northern Britain. The sediments were originally laid down as turbidites in marine sedimentary basins on the edge of the Laurentian continent. These basins gradually filled and subsided due to the weight of sediment deposited from the continental landmass. Erosion and deposition of mafic extrusive and intrusive igneous rocks led to the formation of two distinct 'green beds' interbedded with the sands and muds of the Formation. The rocks were subsequently deformed and metamorphosed during the Caledonian Orogenesis, or mountain building event, into schists that contain diagnostic metamorphic minerals.

Biological interest within this large geological site is restricted to a mosaic of semi-natural upland habitats overlying the glacial landforms and the plants which they support. Of particular importance is the presence of a small population of Yellow Saxifrage *Saxifraga aizoides* and the fen communities associated with Loughareema.

Yellow Saxifrage *Saxifraga aizoides* is known only from a small number of sites in the north-east of Northern Ireland and from Fermanagh. At Carey Valley, it is found on a steep, semi-eroded face of loose, glacial deposits that continually seeps base-rich water. It is adjacent to the stream at Ess Bridge, in the townland of Coolnagoppogue. The population consists of several distinct colonies, with individual plants scattered in the immediate vicinity. Typical associated species include Glaucous Sedge *Carex flacca,* Red Fescue *Festuca rubra,* Jointed Rush *Juncus articulatus,* Lesser Clubmoss *Selaginella selaginoides,* Grass-of-Parnassus *Parnassia palustris,* occasional Coltsfoot *Tussilago farfara* and a range of bryophytes including Calk Comb-moss *Ctenidium molluscum,* Curled Hook-moss *Palustriella commutata* and Marsh Bryum *Bryum pseudotriquetrum.*

The fen communities around Loughareema are concentrated to the west of the road which remains permanently flooded unlike most of Loughareema which is subject to periodic drainage. Water Horsetail *Equisetum fluviatile* and Bottle Sedge *Carex rostrata* swamp has developed in the shallow waters around the periphery of the Lough with transitions to fen communities with Common Sedge *Carex nigra,*

Bogbean *Menyanthes trifoliata*, Marsh Horsetail *Equisetum palustre*, Marsh Pennywort *Hydrocotyle vulgaris* and Marsh Violet *Viola palustris*. The fen communities are more extensive and diverse to the south, where a series of flushes and soaks are concentrated into a narrow gully feeding into the Lough. The vegetation associated with the central soak is dominated by Cow-horn Bog-moss *Sphagnum denticulatum* and Perfoliate Pondweed *Potamogeton polygonifolius* with Dioecious Sedge *Carex dioica*, a widespread but localised upland species of alkaline flushes, also occurring. Where the stream enters the lake from the south, an extensive area of Bottle Sedge *Carex rostrata* fen has developed over a moss carpet of Flat-topped Bog-moss *Sphagnum fallax*. Notably, Stonewort *Chara* spp. is also present where the stream enters the lake, further reflecting the base-rich nature of the seepage waters. The upper region of the flush is dominated by more acidic species such as Star Sedge *Carex echinata* and Common Cottongrass *Eriophorum angustifolium* which is more characteristic of the blanket peat communities within which Loughaveema is set. More transitional fen communities dominated by Spiky Bog-moss *Sphagnum squarrosum* also occur where these acidic, upland flushes converge with the more base-rich waters.

Carey Valley also provides a mosaic of upland habitat that is valuable for associated invertebrates, birds and animals, including Common lizard *Lacerta vivipara*.

SCHEDULE

The following operations and activities appear to the Department to be likely to damage the geology, physiographical features and flora & fauna of the area:

Operations and activities that apply to the whole site

1. Any activity or operation which involves the damage or disturbance by any means of the surface and subsurface of the land, reclamation other than for normal agricultural practices.

2. Extraction of minerals, including rock, sand, gravel and peat

3. The storage or dumping, spreading or discharge of any material other than for normal agricultural practices.

4. Changes in tree or woodland management, including afforestation, planting, clearing, selective felling and coppicing.

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 large stones and grading of rock faces.

7. Sampling of rocks, minerals or any other material forming part of the area both surface and underground, undertaken in a manner likely to damage the scientific interest.

8. The following activities undertaken in a manner likely to damage or disturb the interest of the area:

    a. Educational activities;

    b. Research activities;

    c. Recreational activities.

9. Use of vehicles or craft likely to damage the earth science interest of the area other than for normal agricultural practices.

In addition to the above, the following operations and activities apply specifically to the localities highlighted by the solid blue lines on the attached map.

10. 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.

11. 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.

12. Any change in the application of manure, slurry or artificial fertiliser.

13. Any change in 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.

14. The destruction, displacement, removal or cutting of any plant, seed or plant remains, other than for:

    a. plants listed as noxious in the Noxious Weeds (Northern Ireland) Order 1977;

    b. normal cutting or mowing regimes for which a consent is not required under paragraph 11 above.

15. 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.

16. Burning

17. Operations or activities which would affect wetlands, both on the surface and under the surface (including marsh, fen, bog, rivers, streams and open water), e.g.

    a. change in the methods or frequency of routine drainage maintenance;

    b. modification of the structure of any watercourse;

    c. lowering of the water-table, permanently or temporarily;

    d. change in the management of bank-side vegetation.

18. Changes in game, waterfowl or fisheries management or fishing or hunting practices.

19. Use of vehicles or craft likely to damage or disturb the wildlife 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.

CAREY VALLEY

Views About Management
The Environment (Northern Ireland) Order 2002 Article 28(2)

A statement of the Department's views about the management of Carey Valley Area of Special Scientific Interest ("the ASSI")

This statement represents the views of the Department about the management of the ASSI for nature conservation. This statement sets out, in principle, our views on how the area's special conservation interest can be conserved and enhanced. The Department has a duty to notify the owners and occupiers of the ASSI of its views about the management of the land.

Not all of the management principles will be equally appropriate to all parts of the ASSI and there may be other management activities, additional to our current views, which can be beneficial to the conservation and enhancement of the features of interest. It is also very important to recognise that management may need to change with time.

The management views set out below do not constitute consent for any operation or activity. The written consent of the Department is still required before carrying out any operation or activity likely to damage the features of special interest (see the Schedule on pages 3-5 for a list of these operations and activities). The Department welcomes consultation with owners, occupiers and users of the ASSI to ensure that the management of this area maintains and enhances the features of interest, and to ensure that all necessary prior consents are obtained.

MANAGEMENT PRINCIPLES

The geological series

The earth science interest at Carey Valley is expressed in the rocks found at Altdorragha and the landforms found between Loughareema and Ballyvoy. The Department would encourage the maintenance of the ASSI and its earth science interest.

Provided no damaging activities, as set out in the Schedule (pages 3-5) are undertaken without consent, the needs of owners, occupiers and the Department can be met. Earth science features such as those at Carey Valley may require occasional management intervention in order to maintain access to, and exposure of, the earth science interest. This could include, for example, selectively removing vegetation or any major build up of loose rock.

Specific objectives include:

Maintain the geological series in an undamaged state.

Maintain access to the geological series.

Fens

Fens are an important habitat for wildlife. The Department would encourage the maintenance and enhancement of the fen around Loughaveema through the conservation of its associated native plants and animals.

Fen vegetation requires water levels to be at, or just below, the surface all year round. In addition, increases in the nutrient status of the water and underlying soils can lead to the dominance of species, such as Bulrush, at the expense of other valuable plant communities.

Fen communities are susceptible to successional change and generally need some management to retain their interest. Although occasional small patches of scrub can be valuable in providing additional habitat niches for birds and invertebrates, in the absence of management, coarse grasses such as Common Reed can quickly take over and ultimately woody species may become dominant. Over a period of time, these species may shade out valuable plant communities and cause the fen to dry out.

Low intensity summer grazing by cattle (sheep or ponies) that are more adaptable to wet conditions is the most effective way of controlling the growth of more vigorous species and helping to maintain species-rich fen vegetation and a diverse sward structure. In the absence of grazing, cutting and removal of the vegetation to create open areas and reduce the dominance of coarse grasses is desirable.

Specific objectives include:

Where appropriate, the Department would encourage the blocking of drains to prevent the fen from drying out.

The Department would encourage the maintenance of good water quality through the control of pollution and artificial enrichment.

Ensure that disturbance to the site and its wildlife is minimised.

Where feasible, the Department would encourage the grazing of fen, although overgrazing should be avoided as the wet soils are particularly susceptible to poaching. Where grazing is not possible, other management practices, such as cutting, may be used.

In general, the control of scrub within fen communities can be achieved through the appropriate grazing regime. In some cases, additional scrub management may be required.

Discourage non-native species, especially those that tend to spread at the expense of native wildlife.

Maintain the diversity and quality of habitats associated with the fen, such as open water, swamp, blanket bog, wet heath and scrub through sensitive management. These adjoining habitats are often very important for wildlife, especially invertebrates.

Rare vascular plants

Rare vascular plants are reliant on the maintenance of the habitat in which the particular rare species grows. Often this is a mosaic of habitats with the particular species often associated with habitat edge or transitional communities. The Department would encourage the maintenance and enhancement of these habitats and habitat transitions through the conservation of their associated native plants and animals.

Many rare plants are sensitive species and can quickly be lost through intensive management treatments, such as fertiliser and herbicide application. However, most rare plants have survived because of traditional land management and so these practices generally need to continue to retain the interest.

At Carey Valley the Schedule 8 and IRDB species Yellow Saxifrage *Saxifraga aizoides* occurs on a steep, semi-eroded face of loose, glacial deposits that continually seeps base-rich water.

Specific objectives include:

Grassland generally needs some management to retain its interest. Although occasional small patches of scrub can be valuable in providing additional habitat niches for birds and invertebrates, in the absence of management, coarse grasses can quickly take over and ultimately woody species may become dominant. Where Yellow Saxifrage *Saxifraga aizoides* occurs at Carey valley, low levels of grazing would be sufficient to keep scrub from encroaching. The natural erosion of the glacial deposits will maintain an open sward structure allowing recruitment of young Yellow Saxifrage plants to the population as older plants senesce or are lost through erosional activity.

Ensure that disturbance to the site and its wildlife is minimised.

Discourage non-native species, especially those that tend to spread at the expense of native wildlife.

Maintain the diversity and quality of habitats associated with the grassland, such as old hedgebanks, species-rich grasslands and river corridor habitats through sensitive management. These adjoining habitats can often be very important for wildlife.

Sealed with the Official Seal of the
Department of the Environment
hereunto affixed is authenticated
by

RJ Ramsay
Senior Officer of the
Department of the Environment

Dated the 31st of March 2009