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An Foras
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**The National
Institute
for Physical
Planning and
Construction
Research**



CONSERVATION AND AMENITY
ADVISORY SERVICE

REPORT ON AREAS OF SCIENTIFIC
INTEREST IN COUNTY LIMERICK

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October, 1971.

The following report is based on data in the files of the Conservation Unit, An Foras Forbartha, and on observations made during a field survey in October and November 1971.

The report consists of the following parts:-

- A. General Introduction.
- B. Table summarising details of areas of scientific interest in County Limerick.
- C. Explanation of the criteria used in rating areas and in deciding upon their priority.
- D. Detailed reports on areas marked with an asterisk in the summary table, B.

Each detailed report is written under the following sub-headings:-

Name of area and acreage

Grid reference

Scientific interest

Rating

Priority

Description of area (including details of the scientific interest)

Threats to the area

Recommendations

- E. Table summarising recommendations for protection of the areas of scientific interest.

Throughout the report botanical nomenclature follows that of "Flora of the British Isles" Clapham, Tutin and Warburg. Second Edition. 1962.

In all botanical species lists the abundance of each species recorded is indicated according to the following scale:-

- | | | |
|---|---|------------|
| a | = | abundant |
| c | = | common |
| f | = | frequent |
| o | = | occasional |
| r | = | rare |
| l | = | locally |

SECTION A

INTRODUCTION

As will be seen from the following data, there are very few areas of scientific interest in County Limerick.

It is important, from the points of view of amenity, education and scientific research, that an effort is made to preserve these areas in an unspoilt condition. The urgency of this task is indicated by the fact that four of the most important areas, Lough Gur and the areas on and near to Aughinish Island, are already destined to be affected by proposed development.

It can also be said that Limerick is a county almost devoid of deciduous woodlands and copses. Use of Tree Preservation Orders should be made to prevent further loss of deciduous trees and the consequent deterioration in the scenic beauty of the landscape.

SECTION B

AREAS OF SCIENTIFIC INTEREST IN COUNTY LIMERICK

Area	Grid Ref.	Rating	Priority	Interest
*Lough Gur	R. 64, 40	National	A	Ecological. Ornithological. Proposed as a National Wildfowl Refuge by the Irish Wildfowl Committee, it is important as a wintering area for ducks and swans and as a breeding area for a rare duck species.
*Aughinish Island N and E	R. 283, 545 -R. 283, 515	National	A	-Geological. Exposures of undeformed Waulsortian reef limestones.
*Foynes Island	R. 255, 527	National	A	Geological. An area of great stratigraphical and paleontological importance.
Ballylanders/ Kilfinnane Moraine	R. 587, 195 -R. 770, 250	National	C	Geomorphological The best example in Ireland of the end-moraine of the Weichsel Glaciation.
*Linfield Quarry	R. 752, 465	National	C	Geological Exposures of columnar basalt showing a feature that is believed to be unique in Ireland.

Area	Grid Ref.	Rating	Priority	Interest
*Aughinish Island West 2-1	R. 276, 531	Regional	A	Ornithological. A small wetland of importance to wintering and migratory wildfowl.
*Askeaton Estuary 2-4	R. 31, 53	Regional	A	Ornithological. Ecological. Botanical. A wintering area for Greylag and Greenland Whitefronted Geese. There are examples of marsh succession and on the limestone grassland and by Poulaweala Creek grow several plants that are extremely local in Ireland.
*Glen Bog 2-6	R. 657, 378	Regional	B	Ecological. A well developed carr dominated by alder, <u>Alnus glutinosa</u> and common willow, <u>Salix cinerea</u> . Within the carr are several small, wetter, open areas dominated by reed, <u>Phragmites australis</u> .

Area	Grid Ref.	Rating	Priority	Interest
*Glenastar Wood 24	R. 235, 383	Regional	B	Ecological. A mature oak woodland in a small wet, steep-sided valley.
*Loughmore 33	R. 543, 530	Regional	B	Ornithological. Botanical. An area where black-tailed Godwits and a large variety of water birds can be seen. Several plants occur that are local in Ireland.
•Curragh Chase not in list 11/1/61	R. 40, 49	Regional	B	Ornithological. Botanical. An isolated western breeding area of the Blackcap and the Garden Warbler. Several rare Irish plants have been recorded here.
Askeaton Quarry not in list 11/1/61	R. 340, 500	Regional	B	Geological. A large quarry in the Carboniferous Limestone showing a lower section in the Waulsortian series than the exposures on Aughinish Island.
*Carrigogunnel 35	R. 498, 552	Regional	C	Geological. The rocky knoll, topped by the ruined castle, is of considerable geological interest.

Area	Grid Ref.	Rating	Priority	Interest
* Caherconlish Quarry 30	R. 682, 501	Regional	C	Geological. Exposures of columnar trachyte.
Knockderc Hill	R. 657, 7385	Regional	C	Geological. An area of red syenite, an uncommon rock in Ireland.
Knockseeffin Hill	R. 7545	Regional	C	Geological. The volcanic rocks of the hill are of general geological interest.
Derk Hill	R. 7642	Regional	C	Geological. The volcanic rocks of the hill are of general geological interest.
Kilteely Hill	R. 730, 410	Regional	C	Geological. The volcanic rocks of the hill are of general geological interest.
Cromwell Hill	R. 7339	Regional	C	Geological. The volcanic rocks of the hill are of general geological interest.
Curraghturk Overflow Channel	R. 275, 237	Regional	C	Geomorphological. This small overflow channel is the highest of those formed by the glacial lake that once filled the Glen of Aherlow.

Area	Grid Ref.	Rating	Priority	Interest
*Heathfield Wood 40	R. 402, 246	Local	B	Ecological. An almost pure stand of young beech trees.
*Ballinvirick Marsh 42	R. 391, 479	Local	C	Botanical. A well developed marsh vegetation, in which marsh helleborine, <u>Epipactis palustris</u> , is well established.
*Cappagh Fen 44	R. 377, 460	Local	C	Ecological. An area of marsh and fen with an interesting variety of plant communities.
*Ballyvogue Fen 46	R. 385, 515	Local	C	Ecological. A small area of marsh and fen with an interesting variety of plant communities.
*Ballymorrisheen Fen 47	R. 365, 465	Local	C	Ecological. An area of fen and small loughs with an interesting variety of plant communities.
*Gorteenamrock Fen 48	R. 380, 480	Local	C	Ecological. An area of marsh and fen with an interesting variety of plant communities.
*Barfgone 50	R. 300, 506	Local	C	Ecological. Botanical. An area of grassland and bare limestone with isolated shrubs. Several plants occur that are local in Ireland.

SECTION C

RATING OF AREAS OF SCIENTIFIC IMPORTANCE

This is a measure of the relative importance of areas of scientific importance.

The importance of each area is indicated in terms of the following categories:

International Importance

1. Only area of its type in Europe.
2. One of a few such localities in Europe.
3. One of a natural series in Europe.
4. Recognised international importance.
5. Specialised educational importance.

National Importance

1. Only area of its type in Ireland.
2. One of a few such localities in Ireland.
3. One of a natural series in Ireland.
4. Recognised national importance.
5. General or specialised educational importance.

Regional Importance

1. Only area of its type in province.
2. One of a few localities in Ireland.
3. One of a natural series in region.
4. Fine example of its kind.
5. General or specialised educational importance.

Local Importance

1. Only area of its type in county.
2. One of a few localities in province.
3. Fine example of its kind.
4. General educational importance.

PRIORITY OF AREAS OF SCIENTIFIC INTEREST

This is a measure of the relative urgency necessary for protection of the areas of scientific importance.

Each site is given a priority rating of A, B or C.

The rating of any area is based on a combination of the following criteria:-

- a) the importance of the area
- b) the vulnerability of the area
- c) the nature and imminence of any threats to the area.

SECTION D

<u>Name of Area</u>	LOUGH GUR (280 acres)
<u>Grid reference</u>	R. 640 405
<u>Scientific interest</u>	Ornithology. Ecology.
<u>Rating</u>	National importance
<u>Priority</u>	A

Description of the Area

The area of scientific interest is shown on Map I.

The area was visited on 7 October, 1971 and the main habitats described.

Lough Gur

The lough was viewed from the top of Knockadoon and from the S shore of the NE arm of the lough.

The lough appears to be highly eutrophic and at the time of the visit was affected by an algal bloom. The wind had concentrated surface algae into a thick, dull green scum in the W-facing bay.

In places a short grassland vegetation extends right to the water's edge with only a narrow marginal band of:-

Juncus articulatus	(jointed rush)	c
Eleocharis palustris	(common spike-rush)	c
Rorippa microphylla	(water cress)	f
Mentha aquatica	(water mint)	f
Myosotis scorpioides	(water forget-me-not)	f
Menyanthes trifoliata	(bog bean)	f

At these points it can be seen that there is little rooted vegetation in the shallow water, although there are isolated clumps of Myriophyllum spicatum (spiked water-milfoil). The substrate is stony and 'stone-turning' revealed a rich invertebrate fauna:-

Turbellaria	(flatworms)	c
Hirudinea	(leeches)	c
Gastropoda	(spire snails)	c
Amphipoda	(freshwater shrimps)	c
Trichoptera (case-building type)	(caddis larvae)	c

Much of the lough, however, is fringed with emergent vegetation and access to the open water hence prevented:-

Typha latifolia	(great reedmace or 'bulrush')	1 a
Schoenoplectus lacustris	(bulrush)	1 a
Carex rostrata	(bottle sedge)	1 a

These species do not usually occur mixed together, each, where it occurs, forming an almost pure stand.

Behind the marginal reedbeds SE of Bolin Island a wet, extremely spongy patch of ground was noted:-

Agrostis stolonifera	(fiorin)	a
Galium palustre	(marsh bedstraw)	c
Apium nodiflorum	(fool's watercress)	f
Bidens cernua	(nodding bur-marigold)	f
Carex ? rostrata	(bottle sedge)	f
Equisetum fluviatile	(water horsetail)	f
Hippuris vulgaris	(mare's tail)	f
Mentha aquatica	(water mint)	f
Menyanthes trifoliata	(bog bean)	f
Carex panicea	(carnation sedge)	o
Senecio aquaticus	(marsh ragwort)	o
Typha latifolia	(great reedmace or 'bulrush')	o
Lycopus europaeus	(gypsy-wort)	r

This area, and other similar areas, would have to be avoided by any lakeside footpath.

Many coot and other birds were seen and the lough, besides being of great ecological interest, is of considerable ornithological importance. The Irish Wildfowl Committee has listed Lough Gur as a proposed National Wildfowl Refuge. It is primarily of importance for ducks and swans in winter, but is also used occasionally by geese. At the end of this report is a summary of recent winter wildfowl counts by Mrs. R. Ridgway, Mallow, County Cork. In recent years the Pochard has been observed to breed on the lough. This breeding record is of national importance as this species rarely breeds in Ireland.

Lake Bog

From the top of Knockadoon it can be seen that Lake Bog has several fairly large areas of open water within its boundaries and that the margins of these 'ponds' and many other parts of the bog are dominated by Phragmites communis (reed).

The first part of the bog examined was in its extreme NE corner:-

Phragmites communis	(reed)	a
Carex spp.	(sedges)	c
Mentha aquatica	(water mint)	c
Menyanthes trifoliata	(bog bean)	c
Typha latifolia	(reedmace or 'bulrush')	f
Filipendula ulmaria	(meadow sweet)	o

A large patch of the Phragmites had been cut.

An area in the SE corner was then examined, (access from the road running W from Lough Gur Cross). Features of this part of the bog were the beginnings of invasion by Salix cinerea (common willow) and Fraxinus excelsior (ash) and the

large hummocks of Carex paniculata (panicled sedge) separated by very wet channels containing Equisetum fluviatile (water horsetail):-

<i>Agrostis stolonifera</i>	(fiorin)	c
<i>Carex paniculata</i>	(panicled sedge)	c
<i>Galium palustre</i>	(marsh bedstraw)	c
<i>Juncus acutiflorus</i>	(sharp-flowered rush)	c
<i>Mentha aquatica</i>	(water mint)	c
<i>Salix cinerea</i>	(common willow)	c
<i>Equisetum fluviatile</i>	(water horsetail)	f
<i>Filipendula ulmaria</i>	(meadow-sweet)	f
<i>Fraxinus excelsior</i>	(ash)	f
<i>Lychnis flos-cuculi</i>	(ragged-robin)	f
<i>Angelica sylvestris</i>	(wild angelica)	o
<i>Arrhenatherum elatius</i>	(oat-grass)	o (lc on dry areas)
<i>Dryopteris dilatata</i>	(broad buckler-fern)	o (on sides of <i>Carex paniculata</i> tussocks)
<i>Holcus lanatus</i>	(yorkshire fog)	o (lc in dry areas)
<i>Iris pseudacorus</i>	(yellow flag)	o
<i>Juncus articulatus</i>	(jointed rush)	o
<i>Juncus inflexus</i>	(hard rush)	o
<i>Valeriana officinalis</i>	(valerian)	o
<i>Vicia sepium</i>	(bush vetch)	o
<i>Centaurea nigra</i>	(knapweed)	r

Red Bog

This bog was approached from the road running past its S end and the southern end of the bog was examined.

Carex nigra	(common sedge)	l a
Filipendula ulmaria	(meadow-sweet)	l a
Iris pseudacorus	(yellow flag)	l a
Agrostis stolonifera	(fiorin)	c
Carex ? diandra	(a sedge)	c (l a)
Carex rostrata	(bottle sedge)	c
Epilobium palustre	(marsh willowherb)	c
Galium palustre	(marsh bedstraw)	c
Juncus acutiflorus	(sharp-flowered rush)	c
Menyanthes trifoliata	(bog bean)	c
Potentilla palustris	(marsh cinquefoil)	c
Equisetum fluviatile	(water horsetail)	f
Valeriana officinalis	(valerian)	f
Juncus articulatus	(jointed rush)	o
Mentha aquatica	(water mint)	o

The bog is obviously shot; a man was seen walking along the edge with a shotgun and dog.

Threats to the Area

In the Report and Plan of the Lough Gur Amenity and Tourism Survey the objectives of the County Council are stated as follows:-

- a) to provide a local recreation centre for the residents of the city and county of Limerick.
- b) to protect the objects of antiquarian interest in the vicinity.
- c) to attract tourists from outside the county, and
- d) to provide an additional source of income for the local economy.

It is unfortunate that no mention is made of the scientific interest of the area and the desirability of preserving this.

Threats to the scientific interest that might occur as a result of development for amenity and tourism are:-

- a) the disturbance of migrant and breeding birds and physical damage to the marginal reedswamps in which they shelter and breed.
- b) the possible influx into the lough of nutrients resulting from the breakdown of sewage.

That the lough already has fairly high nutrient levels is indicated by the algal bloom observed in October 1971. Influx of nutrients from sewage may result in rapid eutrophication of the waters of the lough and massive algal growth, resulting in dense 'blooms' of planktonic algae every summer. Such 'blooms' would discolour the water and result in the formation of algal 'scum' in the areas in which the wind concentrates the floating algae, usually in the eastern parts of the lough. Thick blankets of filamentous algae may also develop over the bed of the lough.

Influx of sewage nutrients into the lough is therefore undesirable, not only in that it would alter the ecological balance of the lough, but also from the amenity point of view.

The Report and Plan of the Lough Gur Amenity and Tourism Survey rejects the possibility of discharging treated sewage directly into the lough but suggests discharge into either, or both, Lake Bog and/or Red Bog. As both bogs drain into the lough, such a practice might eventually result in the influx of nutrients into the lough and is therefore not acceptable from an ecological viewpoint.

Rapid eutrophication of the lough could also occur as a result of intensive farming development within the catchment. Such sources of nutrients are fertilisers and animal sewage from, for example, intensive pig or poultry farming.

Recommendations

Chapter III of the Report and Plan of the Lough Gur Amenity and Tourism Survey lists the attractions of Lough Gur as follows:-

- a) "isolated gem of scenery and the site of a precious historical record".
- b) "a water area in an area where lakes are few".
- c) "the quiet and emptiness which is found there".

Development for amenity should aim at utilising and preserving these natural assets without destroying the scientific interest of the area.

In view of the importance of Lough Gur, it is recommended that a Special Amenity Area Order be prepared for the area, under Section 42, Local Government (Planning and Development) Act, 1963. This could be prepared in draft form by An Foras Forbartha.

Regarding amenity and tourism development the following recommendations are also made:-

- a) All building and other development within the Lough Gur catchment should be strictly controlled to prevent or minimise:-
 - 1) spoiling of the scenic beauty of the area. (use of tree planting for screening purposes should be considered).
 - 2) discharge of sewage effluent into the catchment.
- b) Bearing in mind the above, the County Council should provide, on the shore of the lough and in areas immediately adjacent, for:-
 - 1) a museum and/or information centre for the area.
 - 2) access to sites of historical interest.
 - 3) picnic sites.
 - 4) paddling and swimming facilities.
 - 5) changing rooms.
 - 6) public toilets.
 - 7) a restaurant.
 - 8) a lakeshore footpath and easy access to the surrounding hills.

- 9) boating facilities. Boating on the lough should be limited to a small number of rowing boats for fishing and general pleasure use. This would minimise disturbance of bird populations and preserve the peace and quiet of the area. Landing from the boats onto the islands or the shores of the lough, except possibly for within designated landing areas, should be prohibited so as to reduce disturbance of nesting birds and prevent damage to reedbeds in which they nest.
 - 10) car parks necessary for visitors.
- c) The County Council should provide for these developments:-
- 1) Easy access.
 - 2) An adequate water supply.
 - 3) An adequate sewage disposal and refuse collection system. As indicated above it is not desirable that sewage effluent should be discharged into the catchment.
- d) Bouchier's Castle and the surrounding area should be the development site for the provision of the museum/information centre, with associated car park and toilets and access to sites of historical interest. Development has already begun in this area - there is a new restaurant/bar amongst the trees N of Lake Bog.
- e) The eastern arms of the lough are the parts most likely to be adversely affected by algal 'blooms' and are therefore not suitable as a site for all the proposed amenity development. Swimming is not attractive if the water is covered with a thick green algal 'scum'.
- Therefore, the remainder of the proposed development should be situated at the 'Stone Circle' site recommended in the Report and Plan of the Lough Gur Amenity and Tourism survey.
- f) Developments other than those mentioned in b) above, e.g. dance halls, etc. should only be allowed in areas outside the Lough Gur catchment.
 - g) Shooting within the Lough Gur catchment should be prevented.
 - h) Intensive farming development within the Lough Gur catchment should also be prevented.

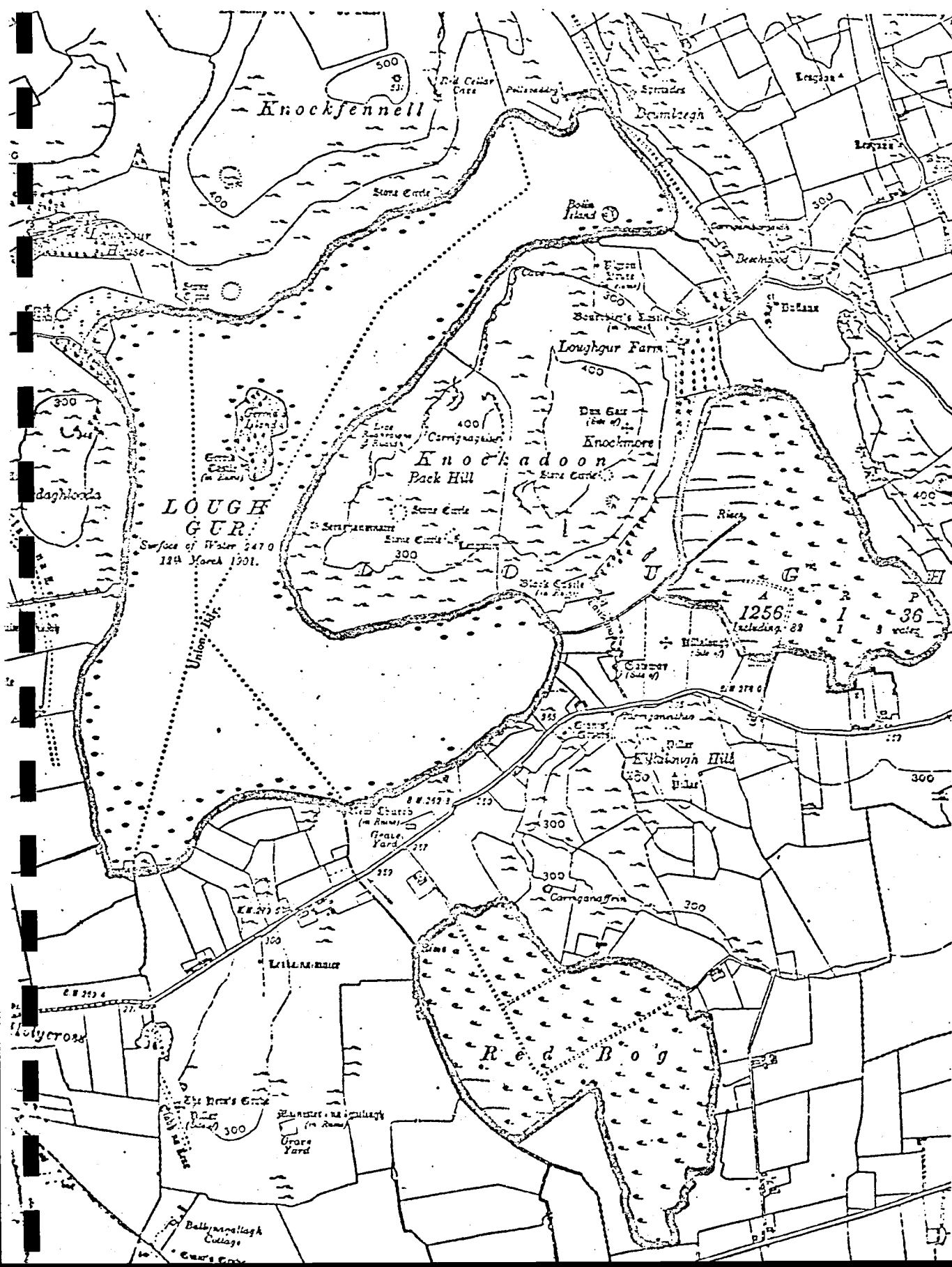
SUMMARY OF RECENT WINTER WILDFOWL COUNTS FOR LOUGH GUR

By. Mrs. R. Ridgway, Rossmore, Mallow, County Cork

Date:	7.12.66	14.1.67	2.2.67	3.3.67	12.1.68	16.3.68	21.12.68	8.2.69	13.12.69	28.1.70
Mallard	6+	100+	14	5	6	22	52	72	8	5
Teal	-	65	38+	4	42	22	110+	417	17	87
Gadwall	-	-	-	-	-	-	-	-	-	4
Wigeon	300	204	334	90	10	22	4	286	148+	165
Pintail	-	1	2	-	-	2	-	-	-	-
Shoveler	30	24	46+	20	19	17	40+	56	55	62
Pochard	19	27	23	13	28	17	11	42	11	18
Tufted Duck	300	241	228	125	71	80	47	90	30	195
Shelduck	-	-	-	-	3	-	-	1	-	-
Goldeneye	-	-	-	-	2	-	-	-	-	-
Mute Swan	135	150	174	141	47	71	52	71	118+	93+
Whooper Swan	-	49	-	-	-	26	-	15	-	-
Bewick Swan	-	-	-	-	-	-	-	10	-	-
Coot	-	-	NOT COUNTED	-	-	335	456	3000+	330+	661
Cormorant	-	-	NOT COUNTED	-	-	25	15	7	-	1
Great crested Grebe	-	-	NOT COUNTED	-	-	24	-	1	-	1

MAP SHOWING AREA OF SCIENTIFIC INTEREST-1

Scale: 6 inches to 1 mile



<u>Name of Area</u>	AUGHINISH ISLAND, NORTH AND EAST (190 acres)
<u>Grid Reference</u>	R 283 545 - R 283 515
<u>Scientific interest</u>	Geological
<u>Rating</u>	National importance
<u>Priority</u>	A

Description of Area

The area of scientific interest is shown on Map 2.

Waulsortian reef limestones occur throughout the area indicated. They lie at a low dip and are not deformed. Knoll forms can be studied in approximately their original position with well preserved transitions from knoll to off-bank facies.

There has been no special survey to date though the area is referred to in:-
Lees, A., 1959. The Waulsortian Reef Complex of Eire and the rocks of its associated facies. Ph.D. Thesis, Reading University.

Lees, A., 1961. The Waulsortian 'reefs' of Eire, a carbonate mudbank complex of Lower Carboniferous age. Journal of Geology. 69. p.101-109.

The area is visited by geological parties.

Threats to the Area

The area is threatened by the proposed ALCAN development.

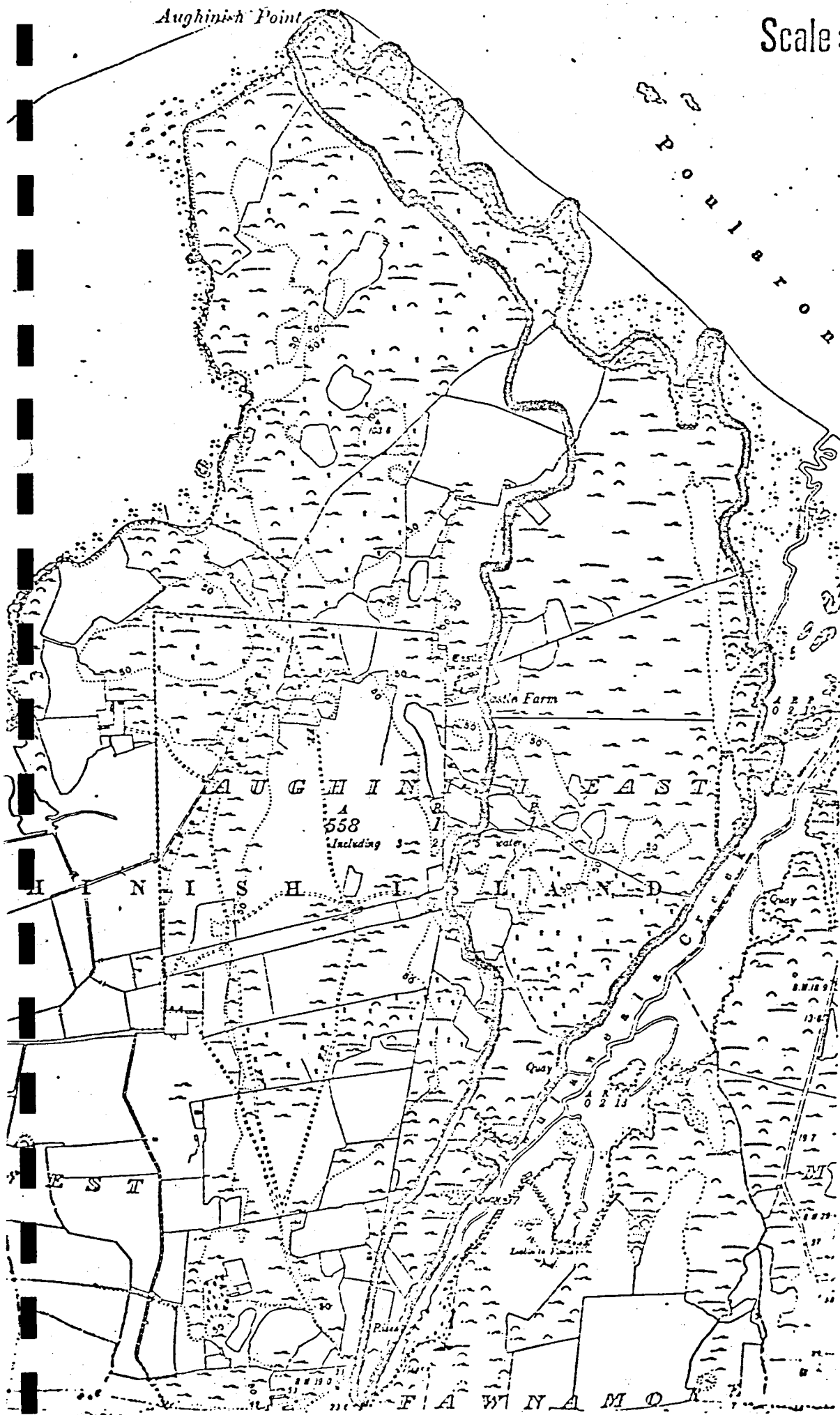
Recommendations

- a) If possible, development within this area should be prevented.
- b) As far as possible, access to the area should not be restricted by development elsewhere on the island. On the contrary, access to the area should be made easier than it is at present.

MAP SHOWING AREA OF SCIENTIFIC INTEREST - 2

Aughinish Point

Scale: 6 inches to 1 mile



<u>Name of Area</u>	FOYNES ISLAND (40 acres)
<u>Grid reference</u>	R 255 527
<u>Scientific interest</u>	Geological
<u>Rating</u>	National importance
<u>Priority</u>	B

Description of Area

The area of interest is shown on Map 3 (Fossil localities indicated +).

Within the area can be seen the lower strata of the Clare Shales, which succeed the Carboniferous limestone. These strata, the E₂, H and R₁ zones are much thicker here than at other localities in the region.

Also here are the type localities for two goniatite species, Reticuloceras subreticulatum and Homoceratoides divaricatus.

Further details can be found in:-

Hodson. 1954. The Carboniferous rocks of Foynes Island, County Limerick. Geological Magazine. Vol., 91, p.153 -160.

Hodson and Lewarne. 1961. A mid-Carboniferous (Namurian) basin in parts of the counties of Limerick and Clare. Quarterly Journal of the Geological Society. Vol., 117, p. 307 -333.

Threats to the area

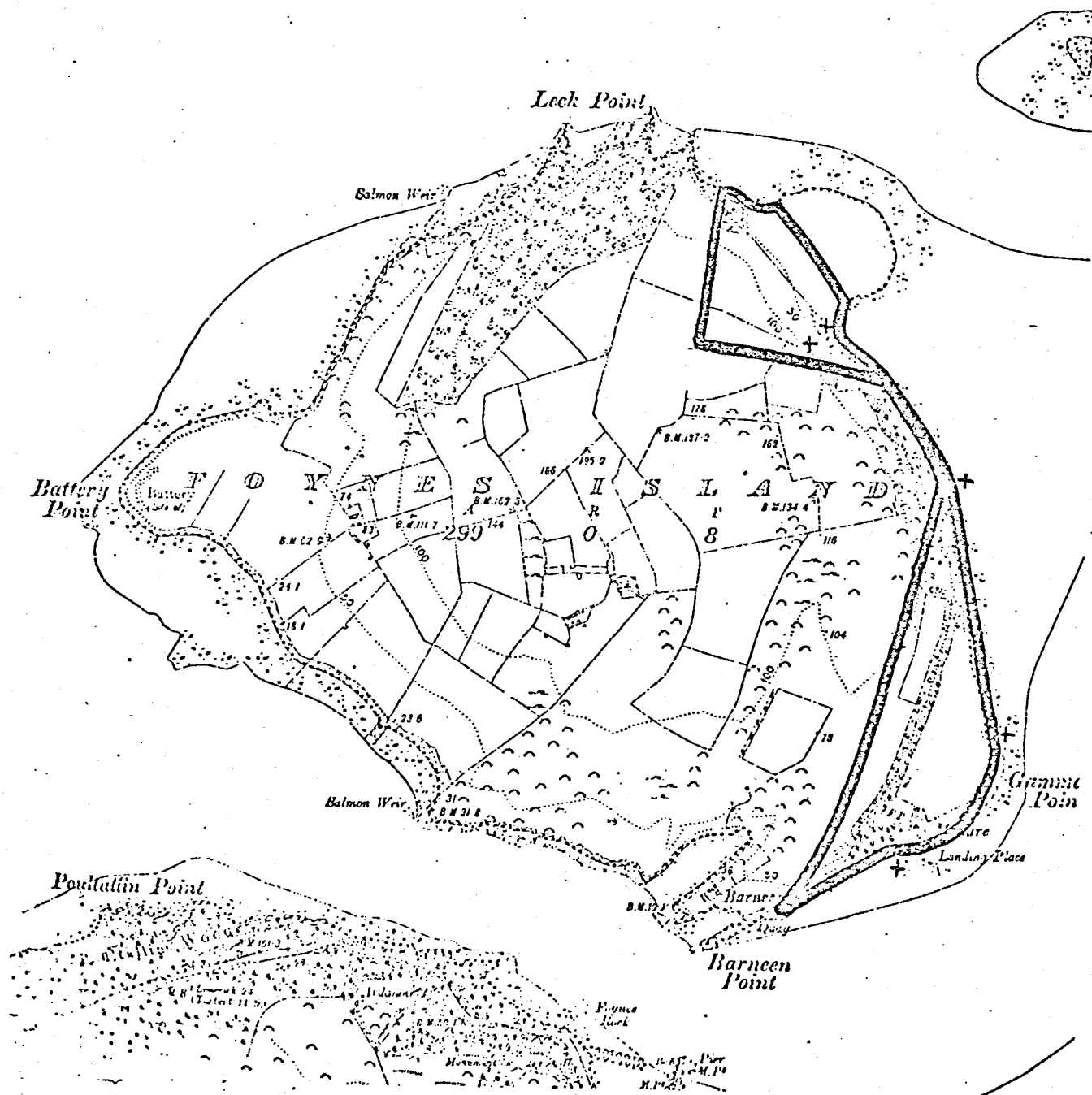
Building or other development within the area would destroy its scientific value.

Recommendation

Development within the area should be prevented.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-3

Scale: 6 inches to 1 mil



<u>Name of Area</u>	LINFIELD QUARRY (c 1 acre)
<u>Grid reference</u>	R 752 465
<u>Scientific interest</u>	Geological
<u>Rating</u>	National importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 4.

The area was visited on November 9th, 1971.

The quarry is of note for its columnar basalt, exposed in a vertical rock-face c. 70' high. At the western end of the quarry the basalt columns are 2 or 3' in diameter and run vertically up the whole height of the rock-face. At the eastern end of the rock-face, however, the basalt columns are much thinner and radiate out from a central point, forming a circular structure, c. 40' in diameter. This 'sunburst' structure may well be unique in Ireland.

Threats to the Area

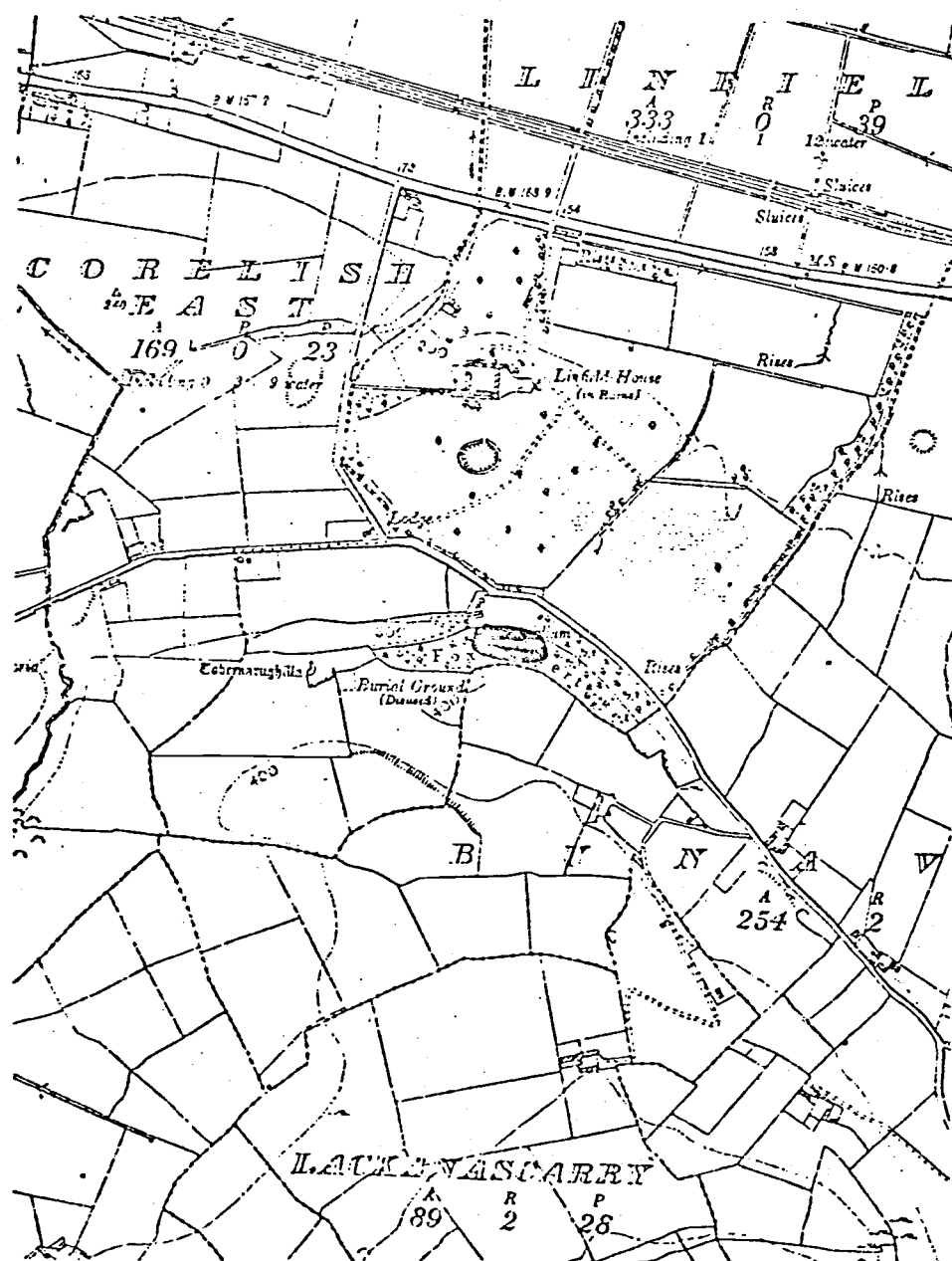
Further quarrying would destroy the 'sunburst' structure and the area would then be of little scientific interest.

Recommendation

Further quarrying should be prevented.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-4

Scale: 6 inches to 1 mile



<u>Name of Area</u>	AUGHINISH ISLAND, WEST (3 acres)
<u>Grid reference</u>	R 276 531
<u>Scientific interest</u>	Ornithological
<u>Rating</u>	Regional importance
<u>Priority</u>	A

Description of Area

(Taken from 'Report on Aughinish Island' by Dr. D. Cabot, An Foras Forbartha. March 1971. Commissioned by the Industrial Development Authority.)

The soil of Aughinish West has been classified by An Foras Taluntais (Soils of County Limerick, 1966) as a Shannon gley, which has been derived from estuarine alluvium (fine texture, base rich). Shannon gleys comprise 2.10% of the Limerick soils. The soil is very poorly drained, has a slow permeability and a very high water table. From an agricultural point of view of the soil of Aughinish West has a limited use range. The current land utilization is wet pasture grazing.

The vegetation of the area is characteristic of a wet grassland with Agrostis stolonifera, Glyceria fluitans, Juncus effusus and Juncus inflexus being the dominant species.

The sea embankment was extensively repaired by the Office of Public Works in 1965/6 and a series of drains, streams and small canals drain into the N.E. corner where there is a sluice outfall.

In the north east corner there is an important open water wetland, fed by base-rich fresh water arising from the limestone outcrop to the east. This wetland is an important feeding and watering area for waders and wildfowl from the Shannon estuary area. On 11 March (high tide) the following

species were recorded:-

Mallard	10
Teal	80 - 100
Wigeon	120
Pintail	20
Redshank	5
Dunlin	20
Curlew	15
Greenshank	1

The importance of this area to wildfowl was clearly shown by the extremely large number of spent shotgun cartridges. A total of 400 cartridges was counted with a further 100 estimated. The freshness of the cartridges indicated that they had been used in the 1970/71 shooting season.

Although substantial numbers of waders and wildfowl were not counted in this area on 11 March, it is clear that this freshwater/brackish habitat is important to the wintering and migratory waterfowl populations of the Shannon estuary based on the evidence of (a) the abundance of bird droppings; (b) frequency of footprints of birds; (c) extremely high density of shotgun cartridges. The occurrence of this type of habitat in the Shannon estuary area is difficult to determine because of insufficient survey data. However, it is known from casual observation that this kind of freshwater/brackish habitat in close proximity of the tidal mud flats is not numerous.

Threats to the Area

The area is within the 26' high wall proposed by ALCAN to impound the 'red mud' lake necessary for the aluminium plant.

Recommendations

(Taken from 'Report on Aughinish Island'. Dr. D. Cabot. March 1971).

- a) Ideally the proposed 26' impounding wall for the 'red mud' lake should be located in such a way as to isolate the zone indicated by the black line on Map 5 from the impounding area. However, it is appreciated that this may eliminate too much of the potential 'red mud' area and be technically too costly and difficult.

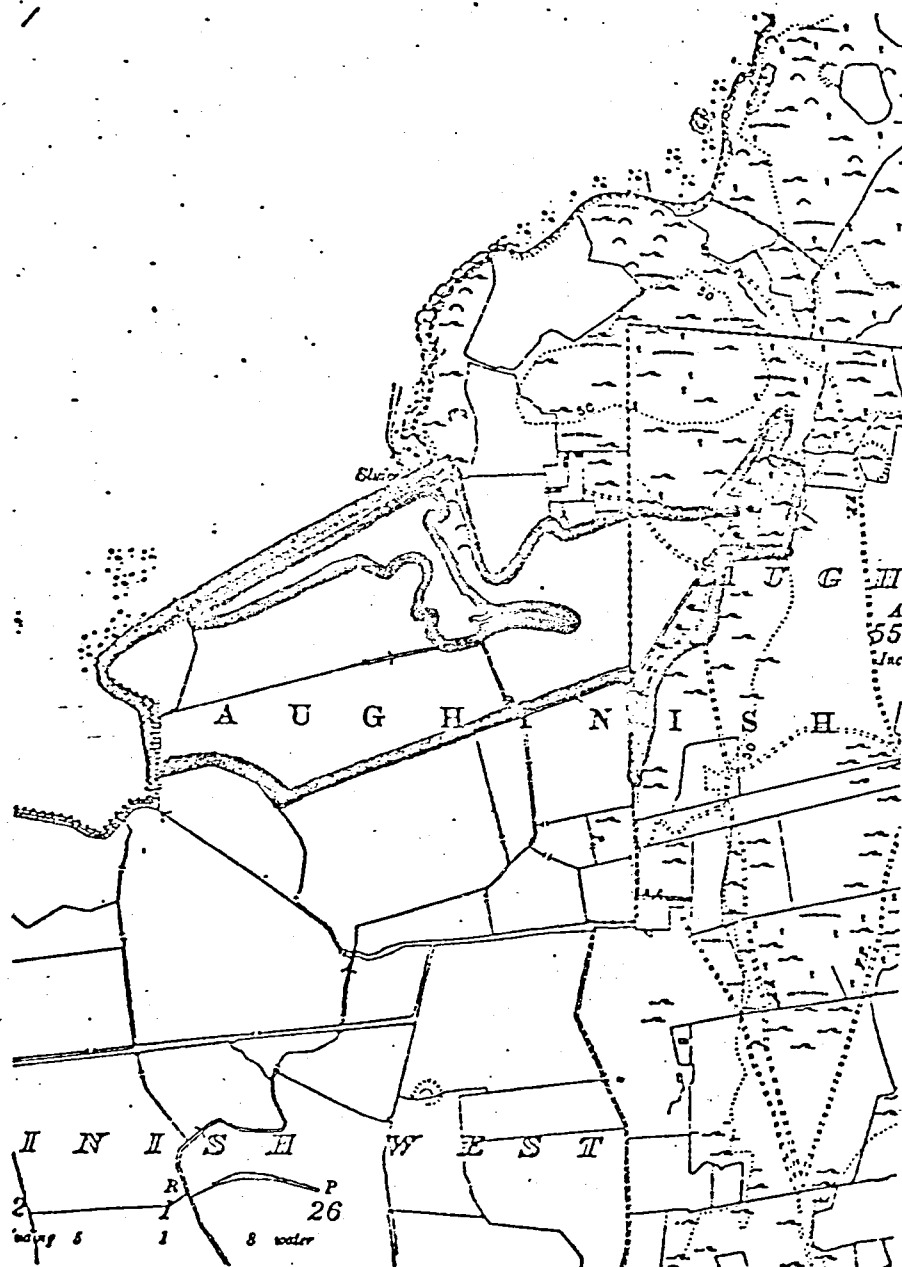
If it was only possible on financial and economic grounds to isolate the heartland of the wetland (within the red line on Map 5 - about 10 acres) from the impounding area, this would still allow a considerable amount of research information to be gathered about the impact of industry on this kind of ecosystem. The information could be of use in making large industry more compatible with the preservation of our natural heritage.

If the area ceased to be important to wildfowl populations it could always be incorporated into the lagoon area.

- b) There
- b) There is insufficient research information on the distribution and abundance of waterfowl populations in relation to their food supply, roosting areas and freshwater habitats in the Shannon estuary area. In view of the development potential of the whole area basic surveys are urgently required. If it is not possible to isolate this small important wetland area from the 'red mud' deposit area further surveys of the waterfowl populations of the Shannon estuary should be undertaken during the winter of 1971/'72. ALCAN might like to consider the possibility of sponsoring such a survey.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -5

Scale: 6 inches to 1 mil.



<u>Name of Area</u>	ASKEATON ESTUARY (c. 1,600 acres)
<u>Grid Reference</u>	R 31 53
<u>Scientific interest</u>	Ornithological, Ecological, Botanical
<u>Rating</u>	Regional importance
<u>Priority</u>	A

Description of Area

The area of scientific interest is shown on Map 6.

The area is of great importance to the resident wildfowl populations of the Shannon estuary and as a wintering area for Greylag and Greenland White-fronted Geese.

Large areas of inter-tidal mud flats provide feeding areas for birds and the islands and headlands are used for roosting at high tide.

The area around the mouth of Poulaweala Creek was briefly examined on 5 October, 1971. A full species list was not made but the following species were all noted:-

Artemisia maritima	(sea wormwood)	1 c
Rosa spinosissima	(burnet rose)	f
Gentianella campestris	(field gentian)	o
Viola hirta	(hairy violet)	o

I was told that the following species have also been recorded in the area:-

Antennaria dioica	(cat's foot)
Blackstonia perfoliata	(yellow-wort)
Juniperus communis	(juniper)

All these species are local or rare in Ireland.

Threats to the area

The proposed ALCAN development on Aughinish Island could have effects in several ways. It may cause:-

- a) disturbance of bird populations
- b) development, e.g. housing, within the area
- c) pollution by
 - i) domestic type sewage
 - ii) atmospheric emission of alumina dust
 - iii) spreading of bauxite dust during unloading, etc.
 - iv) emission of SO₂

Whilst the general impact of these factors is difficult to assess it is almost certain that there will be adverse effects on the bird populations.

Land reclamation work could destroy the area.

Recommendations

- a) Development or reclamation works within the area should be prevented.
- b) In the event of the proposed ALCAN development on Aughinish Island becoming reality, ecological studies should be started, aimed at assessing the impact of the developments on the ornithology and general ecology of this area. Such research would be of great scientific and practical importance.

<u>Name of Area</u>	GLEN BOG (28 acres)
<u>Grid reference</u>	R 657 378
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Regional
<u>Priority</u>	B

Description of Area

The area of interest is shown on Map 7.

Probably once the site of a shallow lake, the area is now covered with dense alder/willow scrub or carr. Within the boundaries of the carr are still small, open patches with standing water and dominated by Phragmites communis (reed). The carr was briefly examined on Oct. 7th 1971.

The following species were recorded:-

Phragmites communis	(reed)	l a
Agrostis stolonifera	(fiorin)	c
Salix cinerea	(common willow)	c
Angelica sylvestris	(wild angelica)	f
Carex paniculata	(panicked sedge)	f
Filipendula ulmaria	(meadow-sweet)	f
Galium palustre	(marsh bedstraw)	f
Juncus acutiflorus	(sharp-flowered rush)	f
Typha latifolia	(great reedmace, 'bulrush')	f
Valeriana officinalis	(valerian)	f
Dryopteris felix-mas	(male fern)	o
Epilobium palustre	(marsh bedstraw)	o
Equisetum palustre	(marsh horsetail)	o
Iris pseudacorus	(yellow flag)	o
Juncus effusus	(soft rush)	o
Mentha aquatica	(water mint)	o
Rubus fruticosus agg.	(bramble)	o
Succisa pratensis	(devils-bit scabious)	o
Lysimachia vulgaris	(yellow loosestrife)	r
Potentilla palustris	(marsh cinquefoil)	r

Threats to the area

Drainage would destroy the ecological value of the area.

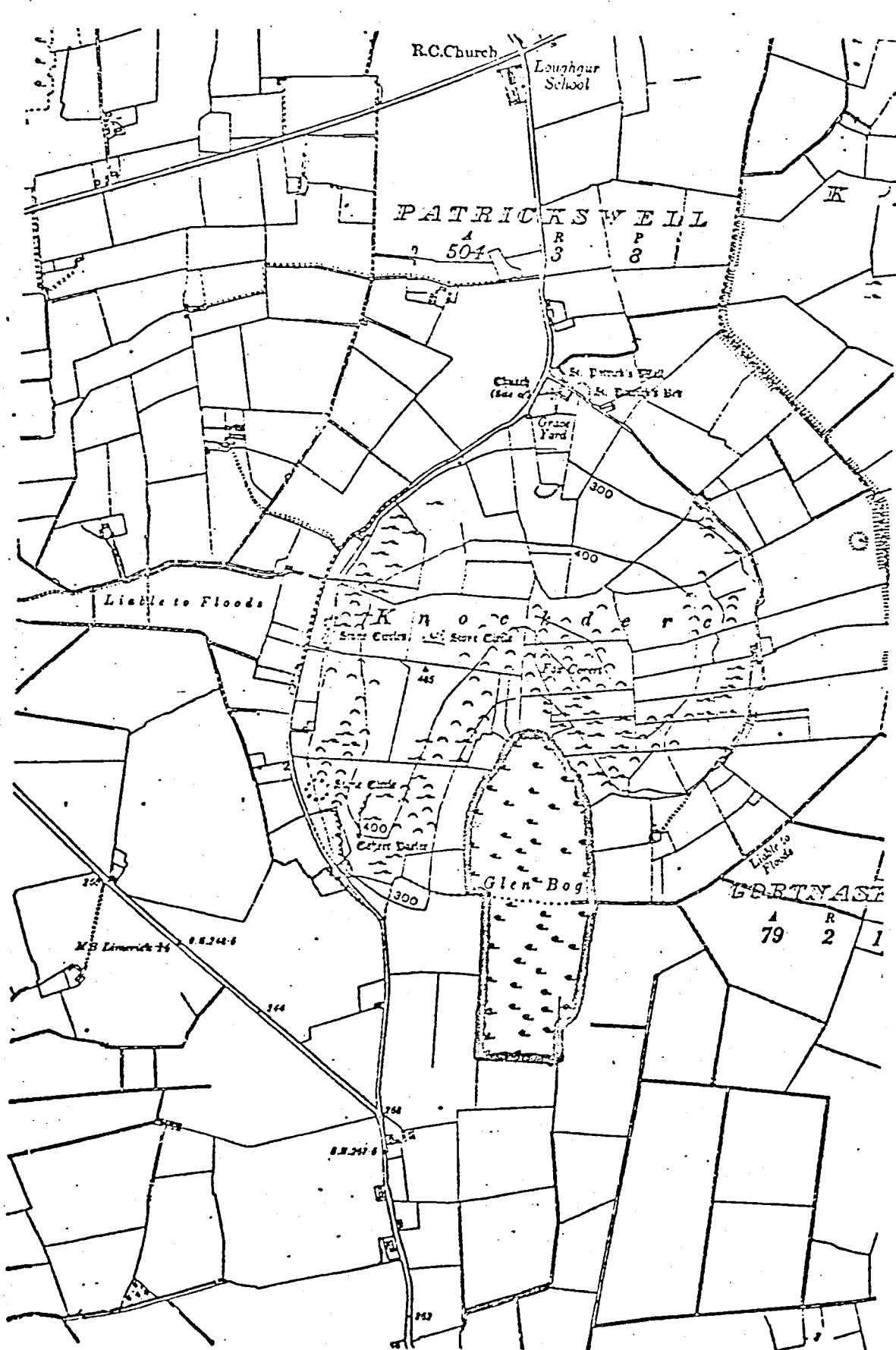
No information is available as to whether such drainage is proposed.

Recommendation

This area of great ecological interest should be protected by a Conservation Order under Section 46, Local Government (Planning and Development) Act, 1963.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-7

Scale: 6 inches to 1 mile



<u>Name of Area</u>	GLENASTAR WOOD (38 acres)
<u>Grid reference</u>	R 235 383
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Regional importance
<u>Priority</u>	B

Description of Area

The area of interest is shown on Map 8.

This is an area of dense, deciduous woodland in a deep, wet, v-shaped valley.

The N-facing slope was examined on Oct. 6th, 1971. It is extremely damp with small streams running down the slope in several places to join the R. Daar in the valley bottom. The following species were recorded:-

Trees and Shrubs

Betula pubescens	(birch)	c
Corylus avellana	(hazel)	c
Fraxinus excelsior	(ash)	c
Quercus petraea	(sessile oak)	c
Salix cinerea	(common willow)	o
Sorbus aucuparia	(rowan)	f
Acer pseudoplatanus	(sycamore)	r
Prunus spinosa	(blackthorn)	r
Viburnum opulus	(guelder rose)	r

Herbs

Luzula sylvatica	(great woodrush)	a
Dryopteris dilatata	(broad buckler-fern)	c
Rubus fruticosus agg.	(bramble)	c
Agrostis tenuis	(common bent-grass)	f
Angelica sylvestris	(wild angelica)	f
Athyrium filix-femina	(lady fern)	f
Blechnum spicant	(hard fern)	f
Chrysosplenium oppositifolium	(golden saxifrage)	f

<i>Dryopteris borreii</i>	(male fern)	f
<i>Filipendula ulmaria</i>	(meadow-sweet)	f
<i>Geum rivale</i>	(water avens)	f
<i>Hedera helix</i>	(ivy)	f
<i>Holcus lanatus</i>	(yorkshire fog)	f
<i>Phyllitis scolopendrium</i>	(hart's-tongue fern)	f
<i>Succisa pratensis</i>	(devil's-bit scabious)	f
<i>Calluna vulgaris</i>	(heather, ling)	o
<i>Digitalis purpurea</i>	(foxglove)	o
<i>Dryopteris felix-mas</i>	(male fern)	o
<i>Dryopteris aemula</i>	(hay-scented buckler-fern)	o
<i>Geranium robertianum</i>	(herb robert)	o
<i>Geum urbanum</i>	(wood avens)	o
<i>Lonicera periclymenum</i>	(honeysuckle)	o
<i>Polypodium vulgare</i> agg.	(common polypody)	o
<i>Potentilla erecta</i>	(common termentil)	o
<i>Prunella vulgaris</i>	(self-heal)	o
<i>Pteridium aquilinum</i>	(bracken)	o
<i>Ranunculus repens</i>	(creeping buttercup)	o
<i>Sanicula europaea</i>	(wood sanicle)	o
<i>Stellaria holostea</i>	(great stitchwort)	o
<i>Vaccinium myrtillus</i>	(bilberry)	o
<i>Viola riviniana</i>	(common violet)	o
<i>Arrhenatherum elatius</i>	(oat-grass)	r
<i>Cardamine flexuosa</i>	(wood bitter-cress)	r
<i>Carex sylvatica</i>	(wood sedge)	r
<i>Circaea lutetiana</i>	(enchanter's night shade)	r
<i>Epilobium montanum</i>	(broad-leaved willow herb)	r
<i>Fragaria vesca</i>	(wild strawberry)	r
<i>Hypericum androsaemum</i>	(tutsan)	r
<i>Rumex sanguineum</i>	(red-veined dock)	r
<i>Trifolium repens</i>	(white clover)	r
<i>Veronica montana</i>	(wood speedwell)	r

Praeger in 'Botanist in Ireland' reports Chamaenerion angustifolium (rosebay willow herb) by the waterfall.

The general view obtained of the S-facing slope of the valley indicated that the woodland at the western end has a high canopy almost exclusively formed by oak, whilst birch becomes more important at the eastern end, where the valley is wider. This increase in abundance of birch towards the wider eastern end of the valley was also noted on the N-facing slope.

Threats to the area

Clearance of the woods for replanting or other development would appear to be the only danger.

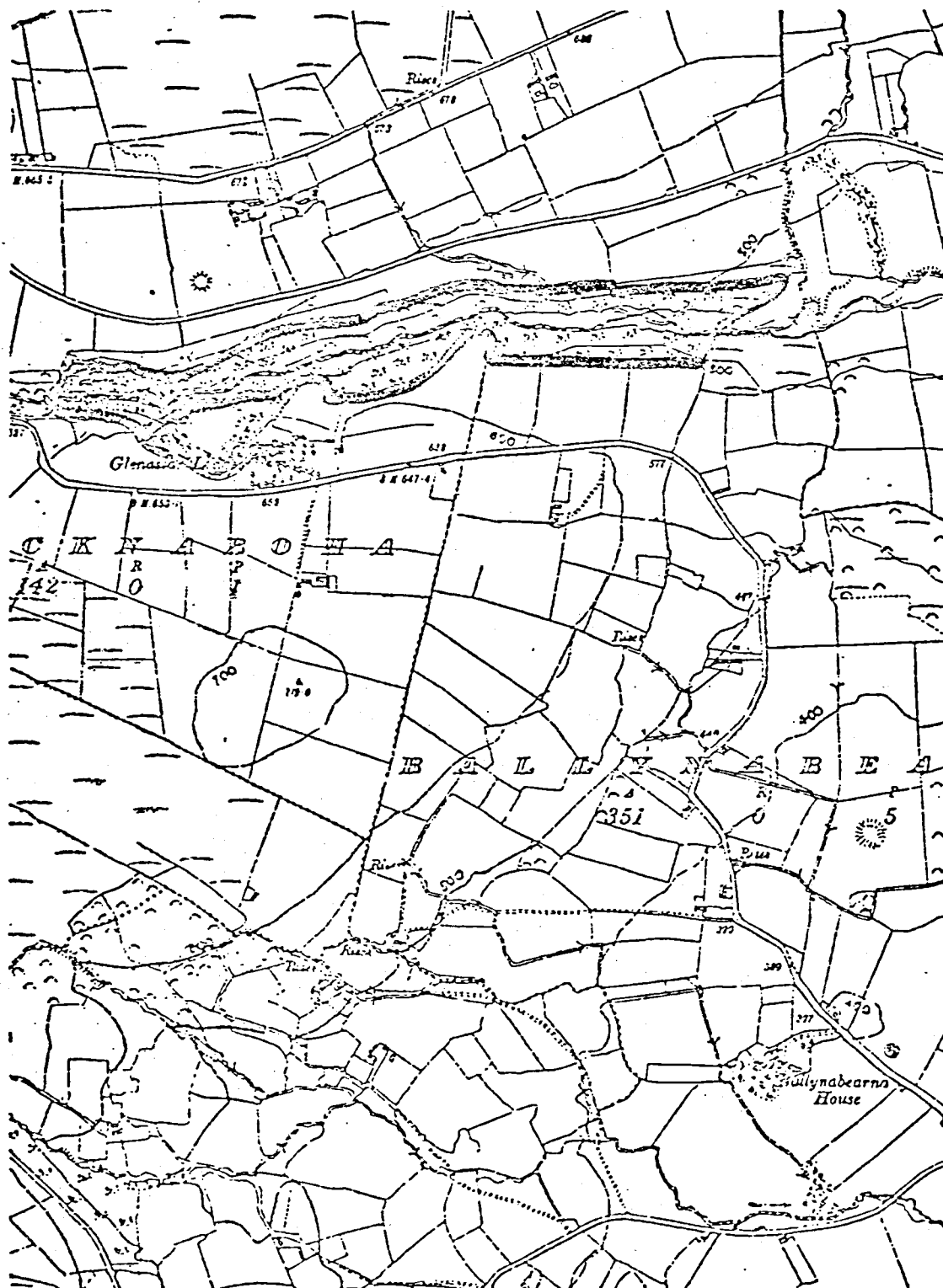
No information is available as to whether this is proposed.

Recommendation

This area of woodland should be protected by a Tree Preservation Order, under Section 45, Local Government (Planning and Development) Act, 1963.

MAP SHOWING AREA OF SCIENTIFIC INTEREST - 8

Scale: 6 inches to 1 mile



<u>Name of area</u>	LOUGHMORE (32 acres)
<u>Grid reference</u>	R 543 530
<u>Scientific interest</u>	Ornithological. Botanical
<u>Rating</u>	Regional importance
<u>Priority</u>	B

Description of Area

The area of interest is shown on Map 9.

When visited, on Oct. 7th, 1971, this area was dry except for several pools, c 20 cms deep, in the eastern part of the area. Extensive flooding is reported to occur in the winter months.

There are two distinct plant communities:-

a) growing in an around the shallow pools

<i>Agrostis stolonifera</i>	(fiorin)	c
<i>Chara</i> sp.	(stonewort)	c
<i>Eleocharis palustris</i>	(common spiketrush)	c
<i>Galium palustre</i>	(marsh bedstraw)	c
<i>Mentha aquatica</i>	(water mint)	c
<i>Oenanthe fistulosa</i>	(water dropwort)	c
<i>Potamogeton natans</i>	(broad-leaved pondweed)	c
<i>Polygonum ? lapathifolium</i>	(pale persicaria)	c
<i>Alisma plantago-aquatica</i>	(water plantain)	f
<i>Equisetum fluviatile</i>	(water horsetail)	f
<i>Sparganium erectum</i>	(bur-reed)	f
<i>Baldellia ranunculoides</i>	(lesser water-plantain)	o
<i>Myosotis scorpioides</i>	(water forget-me-not)	o
<i>Ranunculus flammula</i>	(lesser spearwort)	o
<i>Rorippa ? microphylla</i>	(water cress)	o
<i>Veronica catenata</i>	('speedwell')	o
<i>Succisa pratensis</i>	(devils-bit scabious)	r

b) in the area of temporary flooding

<i>Agrostis stolonifera</i>	(fiorin)	a
<i>Carex nigra</i>	(common sedge)	a
<i>Filipendula ulmaria</i>	(meadow-sweet)	c
<i>Galium palustre</i>	(marsh bedstraw)	c
<i>Mentha aquatica</i>	(water mint)	c
<i>Potentilla anserina</i>	(silverweed)	c
<i>Ranunculus repens</i>	(creeping buttercup)	c
<i>Hydrocotyle vulgaris</i>	(marsh pennywort)	f
<i>Leontodon autumnalis</i>	(autumnal hawkbit)	f
<i>Carex panicea</i>	(carnation-grass)	o
<i>Polygonum ? lapathifolium</i>	(pale persicaria)	o
<i>Potentilla reptans</i>	(creeping cinquefoil)	o
<i>Eleocharis palustris</i>	(common spiketrush)	r
<i>Equisetum palustre</i>	(marsh horsetail)	r
<i>Rorippa ? microphylla</i>	(watercress)	r

The area is important ornithologically because of its proximity to Limerick city, its variety of species, and the comparative ease with which the birds can be seen and identified. The following data is based on records from the area by L. Stapleton, between 1966 and 1969.

Mallard: Seen annually in small numbers. Attempted to breed in 1969.
Max. number seen at one time: 30

Teal: " " " " " " " " " " : 50

Widgeon: " " " " " " " " " " : 63

Pintail: " " " " " " " " " " : 27

Shoveller: " " " " " " " " " " : 20

Tufted duck: Present in some years, from December to May. The average flock is about 40; the maximum number seen at any one time: 60

Pochard: Small numbers seen in most years. Maximum number seen at one time: 30. Their behaviour suggested breeding in 1966.

Shelduck: One seen on January 1st, 1969 after heavy fog.

Mute Swan: Present whenever there is a sufficient depth of water, but makes no serious attempt to breed.

Whooper Swan: Flocks of up to 30 birds appear irregularly.

Bewick's Swan: Occurs irregularly.

Lapwing: Seen regularly. Up to 1500 present in the winter of 1967.

Golden Plover: Occur irregularly in January in fields around the area.

Snipe: Often seen 'drumming' over the area in Spring and early Summer.

Black-tailed Godwit: Seen annually in small numbers; 24 seen in 1966, 9 seen in 1967, 13 seen in 1969.

Dunlin: Seen occasionally.

Dabchick: Seen occasionally.

Great crested Grebe: Seen occasionally.

N.P. The Spoonbill, Little Gull and Garganey are also reported to have been seen here.

Threats to the Area

Drainage of the area, or building development in or around it, would destroy its interest.

The area is used as grazing land for most of the year, i.e. when it is not flooded. Drainage would not appear to be wise from the farmer's point of view because, although it would extend the grazing period by several months, it would result in the disappearance of the small ponds that are used as watering-places by stock during the summer and autumn.

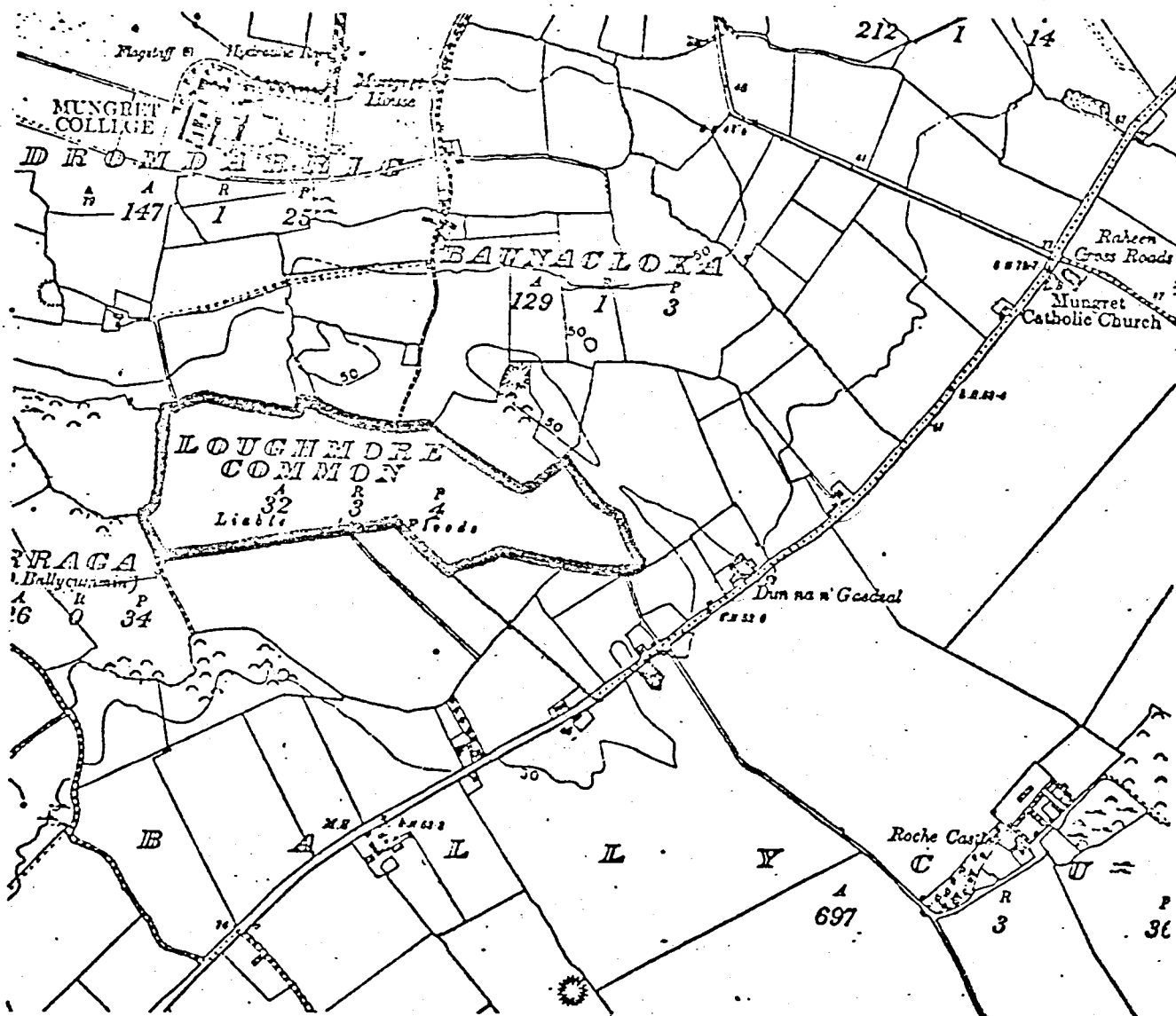
No information is available as to whether such developments are proposed.

Recommendations

- a) Building in the area, or in adjacent areas, should be prevented.
- b) If the farmer does propose to drain the area, it is recommended that he be advised against it on the above grounds, and because any advantages to be gained are small in comparison with the loss from the ornithological and educational viewpoints.

MAP SHOWING AREA OF SCIENTIFIC INTEREST - 9

Scale: 6 inches to 1 mile



<u>Name of Area</u>	CARRIGOGUNNEL (3 acres)
<u>Grid reference</u>	R 498 552
<u>Scientific interest</u>	Geological
<u>Rating</u>	Regional importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 10.

The area was visited on November 9th, 1971.

The rocky knoll, on which the old castle was built, is composed of several different rock types. A basalt lava flow sits on top of the Carboniferous limestone and is itself overlaid by pyroclastic ashes.

Threats to the Area

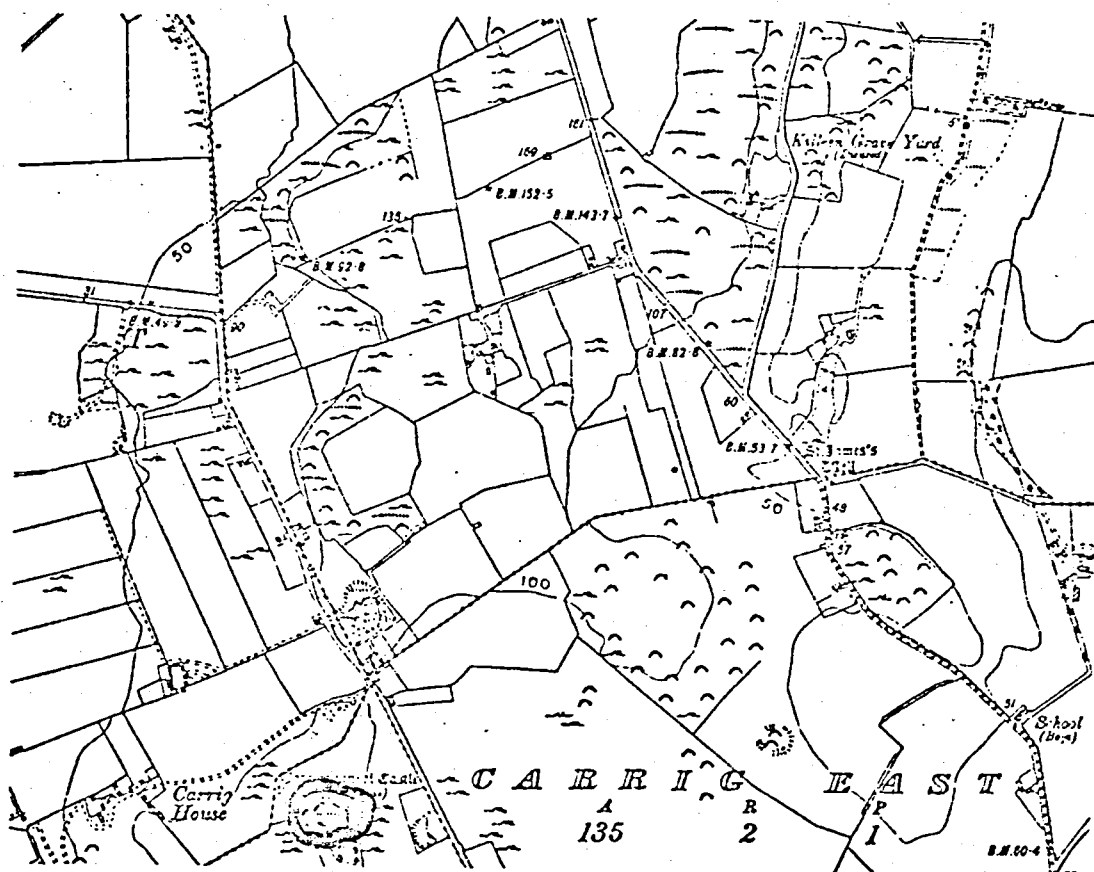
In view of the limited size and historical value of the site any development appears unlikely.

Recommendation

Any development around the castle should be compatible with the geological value of the site as well as with its historical interest.

MAP SHOWING AREA OF SCIENTIFIC INTEREST 10

Scale: 6 inches to 1 m



<u>Name of Area</u>	CAHERCONLISH QUARRY (c 3 acres)
<u>Grid reference</u>	R 682 501
<u>Scientific interest</u>	Geological
<u>Rating</u>	Regional importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 11.

The area was visited on November 9th, 1971.

Here can be seen fine exposures of columnar trachyte. The columns are best seen at the southern end of the quarry where they are 3 or 4' in diameter and c 30' high.

Threats to the site

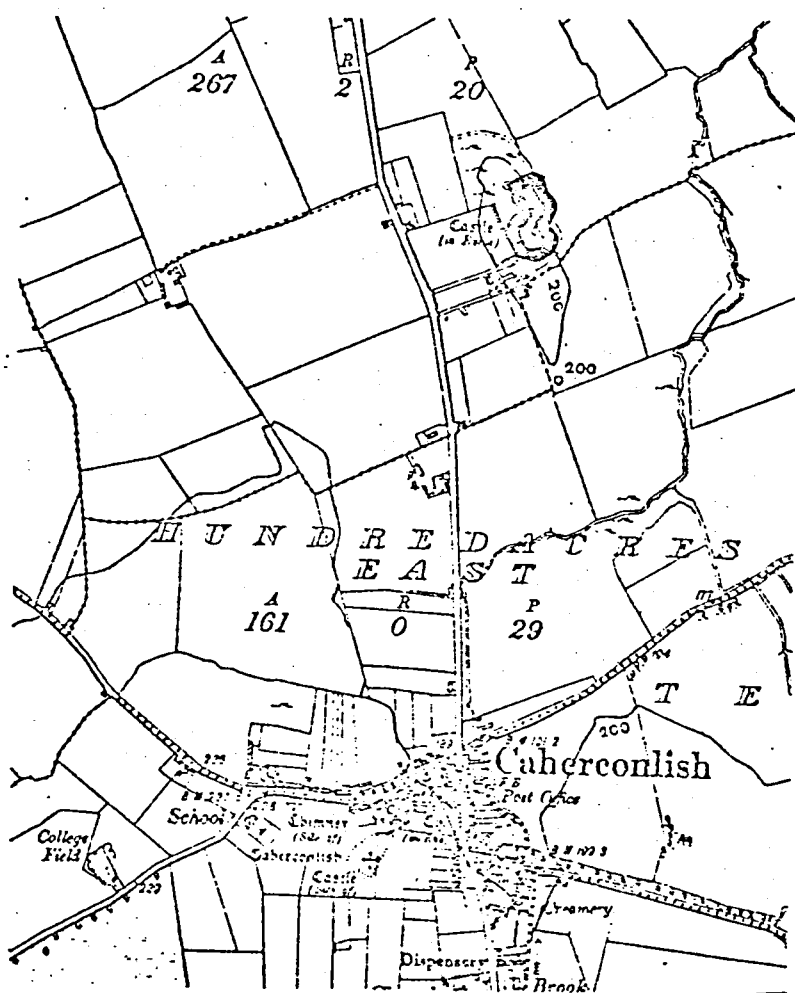
As the quarry is on the side of an extremely small rocky knoll, further quarrying would quickly destroy the site.

Recommendation

Further quarrying should be prevented.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-11

Scale: 6 inches to 1 m



<u>Name of area</u>	CLARE GLEN (c. 3 acres)
<u>Grid reference</u>	R 735 598
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of area

The area of interest is shown on Map 12. Only the N-facing slope of the valley is in County Limerick, the Clare River forming the County boundary at this point.

The area was visited on October 8, 1971.

Most of the valley has been cleared of its original deciduous woodland and replanted with conifers. There is still, however, a narrow strip of deciduous woodland bordering the river, which flows over a series of flat, low rocky steps - weathered out bedding-planes of the Old Red Sandstone bedrock.

This small remnant of the former woodlands is of scientific and educational importance. It does, in fact, form an essential part of the Nature Trail on the Tipperary side of the Clare River.

The following species were recorded in the woodland:-

Trees

<i>Alnus glutinosa</i>	(alder)	f
<i>Fraxinus excelsior</i>	(ash)	f
<i>Quercus</i> spp.	(oak)	f
<i>Sorbus aucuparia</i>	(rowan)	f
<i>Acer pseudoplatanus</i>	(sycamore)	o

Shrubs

<i>Corylus avellana</i>	(hazel)	f
<i>Rhododendron ponticum</i>	(rhododendron)	f
<i>Ilex aquifolium</i>	(holly)	o
<i>Prunus spinosa</i>	(blackthorn)	o

Herbs

<i>Luzula sylvatica</i>	(great woodrush)	a
<i>Lonicera periclymenum</i>	(honeysuckle)	c
<i>Pteridium aquilinum</i>	(bracken)	c, l a
<i>Rubus fruticosus</i> agg.	(bramble)	c
<i>Angelica sylvestris</i>	(wild angelica)	f
<i>Deschampsia cespitosa</i>	(tufted hair-grass)	f
<i>Dryopteris borreari</i>	(male fern)	f
<i>Oxalis acetosella</i>	(wood sorrel)	f
<i>Polystichum setiferum</i>	(soft shield-fern)	f
<i>Vaccinium myrtillus</i>	(bilberry)	f
<i>Anthriscus sylvestris</i>	(wild angelica)	o
<i>Centaurea nigra</i>	(knapweed)	o
<i>Dryopteris dilatata</i>	(broad buckler-fern)	o
<i>Filipendula ulmaria</i>	(meadow-sweet)	o
<i>Geranium robertianum</i>	(herb robert)	o
<i>Hedera helix</i>	(ivy)	o
<i>Sanicula europaea</i>	(wood sanicle)	o
<i>Succisa pratensis</i>	(devil's bit scabious)	o
<i>Vicia sepium</i>	(bush vetch)	o
<i>Viola riviniana</i>	(common violet)	o
<i>Carex pendula</i>	(pendulous sedge)	r
<i>Veronica montana</i>	(wood speedwell)	r

On the riverside rocks, which were often covered with a dense growth of the moss Thamnion alopecurum the following additional herbs were noted:-

<i>Bellis perennis</i>	(daisy)	c
<i>Cardamine flexuosa</i>	(wood bitter-cress)	c
<i>Galium saxatile</i>	(heath bedstraw)	f
<i>Prunella vulgaris</i>	(self-heal)	f
<i>Taraxacum</i> sp.	(dandelion)	o
<i>Agrostis stolonifera</i>	(fiorin)	o
<i>Blechnum spicant</i>	(hard fern)	o
<i>Crepis paludosa</i>	(marsh hawk's-beard)	o
<i>Festuca gigantea</i>	(tall brome)	o
<i>Hypericum androsaemum</i>	(tutsan)	o
<i>Juncus articulatus</i>	(jointed rush)	o
<i>Juncus bulbosus</i>	(bulbous rush)	o
<i>Lotus pedunculatus</i>	(large birdsfoot-trefoil)	o
<i>Senecio jacobea</i>	(ragwort)	o
<i>Stellaria holostea</i>	(great stitchwort)	o
<i>Epilobium montanum</i>	(broad-leaved willow herb)	r
<i>Polygonum hydropiper</i>	(water-pepper)	r

Threats to the Area

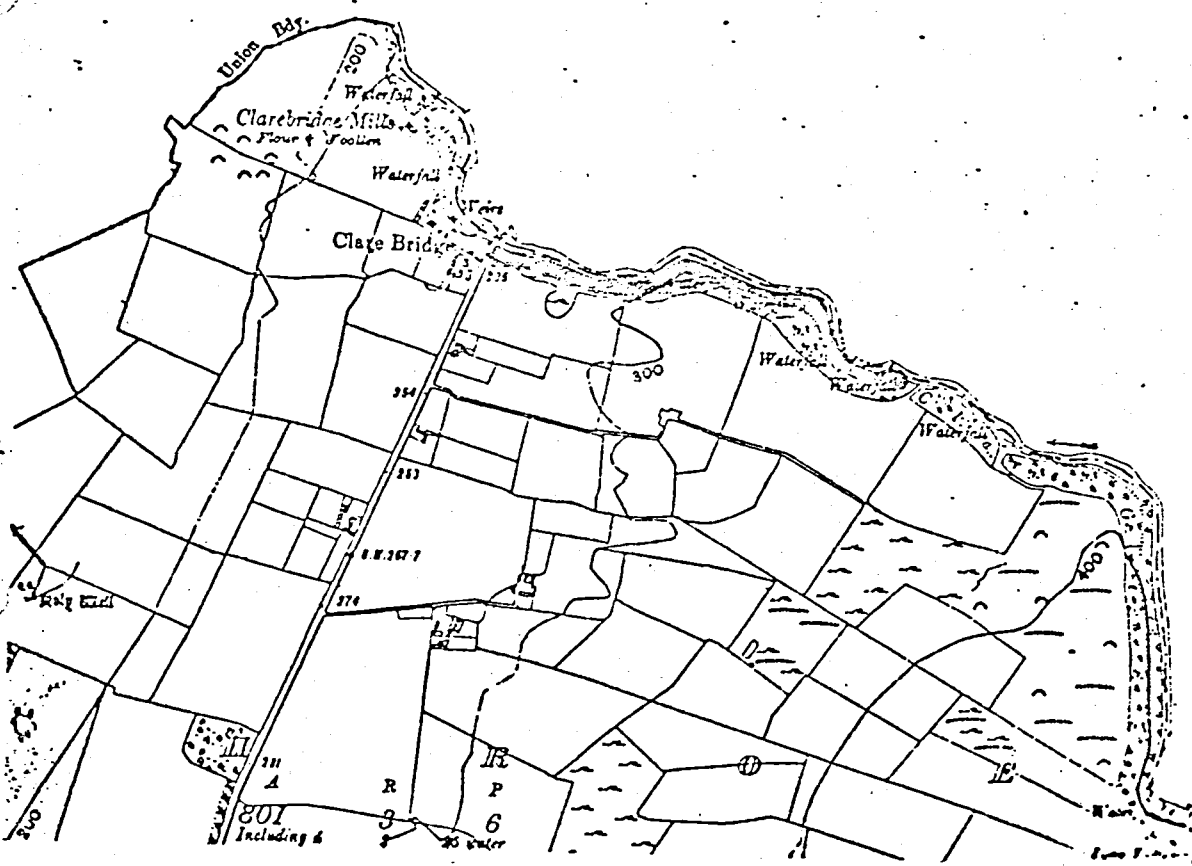
Clearance might be carried out in connection with the forestry work.

Recommendation

Removal of trees should be prevented by a Tree Preservation Order, under Section 45, Local Government (Planning and Development) Act, 1963.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -12

Scale: 6 inches to 1 mile



<u>Name of area</u>	HEATHFIELD WOOD (6 acres)
<u>Grid reference</u>	incorrect R 402 246 R 402 302
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	B

Description of area

The area of interest is shown on Map 13. It is a small deciduous woodland formed almost exclusively of fine, young beech trees.

The area was visited on Oct. 9th, 1971, and the following species noted:-

Trees

Fagus sylvatica	(beech)	c
Quercus petraea	(sessile oak)	o

Shrubs and seedlings

Fagus sylvatica	(beech)	f
Fraxinus excelsior	(ash)	f
Ilex aquifolium	(holly)	o
Picea sp	(spruce)	r

Herbs

Hedera helix	(ivy)	c
Lonicera periclymenum	(honeysuckle)	f
Luzula sylvatica	(great woodrush)	f
Oxalis acetosella	(wood sorrel)	f
Rubus fruticosus agg.	(bramble)	f
Viola riviniana	(common violet)	f
Blechnum spicant	(hard fern)	o
Dryopteris borreari	(male fern)	o
Dryopteris dilatata	(broad buckler-fern)	o
Dryopteris felix-mas	(male fern)	o

Geranium robertianum	(herb robert)	o
Pteridium aquilinum	(bracken)	o
Sanicula europaea	(wood sanicle)	o
Vaccinium myrtillus	(bilberry)	o
Carex sylvatica	(wood sedge)	r
Hypericum androsaemum	(tutsan)	r
Succisa pratensis	(devil's-bit scabious)	r

Generally, the cover of field layer and ground zone vascular plants is low and there are large areas of bare ground and other areas covered only by the moss Rhytidiadelphus triquetrus.

Threats to the Area

The wood is protected at the moment by Mrs. Allott, Odelville, Ballingarry, who is Trustee under a Marriage Settlement.

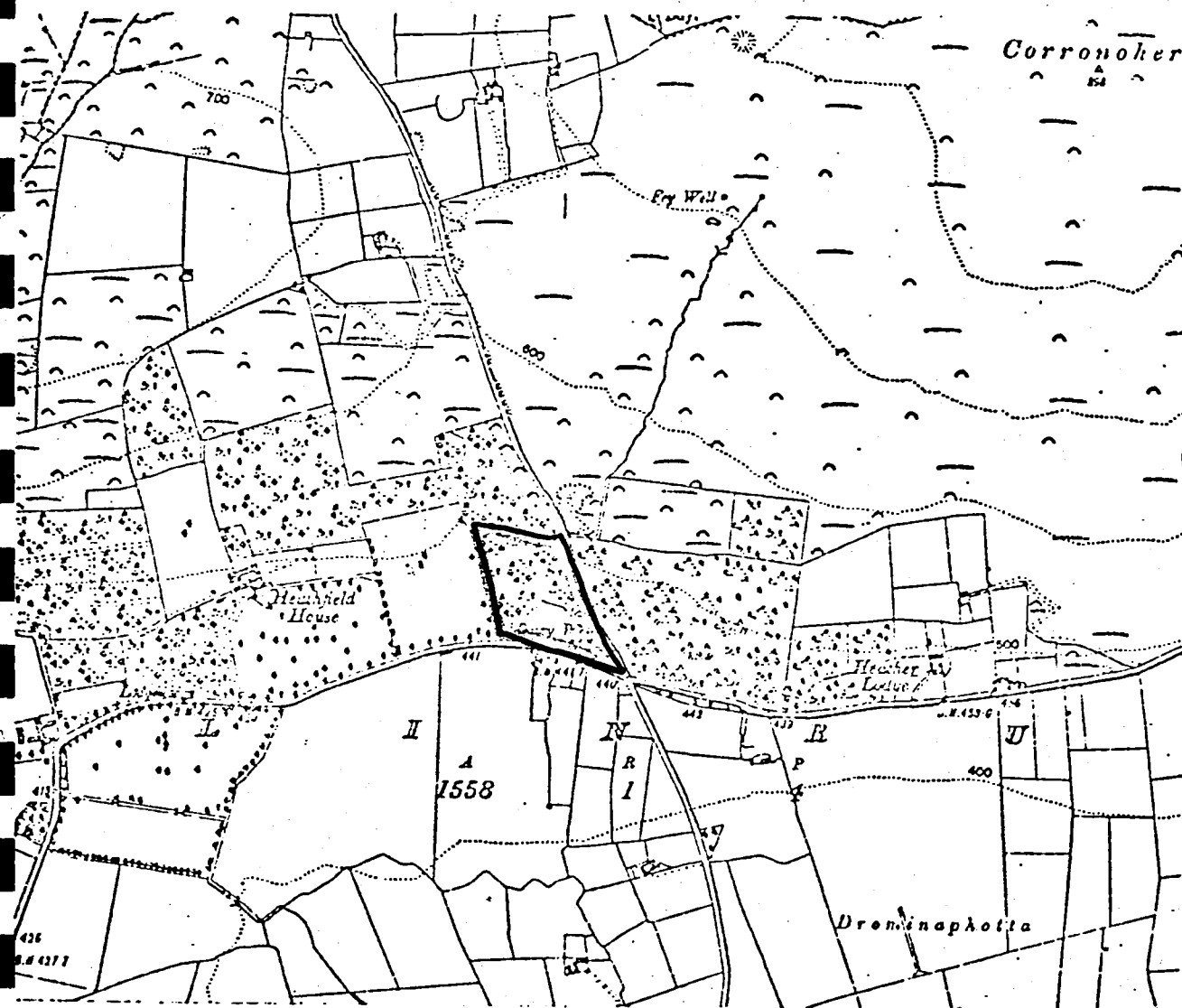
Control of the estate passes to Mrs. Allott's nephews in two years, however, and it is possible that the threat of clearance may arise after this time.

Recommendation

The area should be protected by a Tree Preservation Order, under Section 45, Local Government (Planning and Development) Act, 1963.

MAP SHOWING AREA OF SCIENTIFIC INTEREST - 13

Scale: 6 inches to 1 mile



<u>Name of area</u>	BALLINVIRICK MARSH (2.5 acres)
<u>Grid reference</u>	R 391 479
<u>Scientific interest</u>	Botanical
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of area

The area of interest is shown on Map 14.

The area was visited on Oct. 5th, 1971, and the following species noted, in a tall herb community:-

<i>Cirsium dissectum</i>	(marsh thistle)	c
<i>Mentha aquatica</i>	(water mint)	c
<i>Molinia caerulea</i>	(purple moor-grass)	c
<i>Succisa pratensis</i>	(devil's-bit scabious)	c
<i>Dactylorhiza fuchsii</i>	(common spotted orchid)	f
<i>Epipactis palustris</i>	(marsh helleborine)	f
<i>Filipendula ulmaria</i>	(meadow-sweet)	f
<i>Hydrocotyle vulgaris</i>	(marsh pennywort)	f
<i>Lotus pedunculatus</i>	(large birdsfoot-trefoil)	f
<i>Phragmites communis</i>	(reed)	f
<i>Trifolium pratense</i>	(red clover)	f
<i>Angelica sylvestris</i>	(wild angelica)	o
<i>Briza media</i>	(quaking grass)	o
<i>Carex panicea</i>	(carnation-grass)	o
<i>Eriophorum angustifolium</i>	(cotton-sedge)	o
<i>Menyanthes trifoliata</i>	(bog bean)	o
<i>Parnassia palustris</i>	(grass of parnassus)	o
<i>Potentilla anserina</i>	(silverweed)	o
<i>Potentilla erecta</i>	(common tormentil)	o
<i>Ranunculus repens</i>	(creeping buttercup)	o

Schoenus nigricans	(bog-rush)	o
Vicia cracca	(tufted vetch)	o
Anthoxanthum odoratum	(sweet vernal-grass)	r
Epilobium parviflorum	(hairy willow herb)	r
Hypericum tetrapterum	(square-stemmed St. John's wort)	r
Linum catharticum	(purging flax)	r
Pinguicula vulgaris	(butterwort)	r
Rhinanthus minor	(hayrattle)	r

The interest of the area lies in the presence of Epipactis palustris (marsh helleborine), a species of extremely local occurrence in Ireland. There are a large number of plants of this orchid in this area and in a small part of the adjoining field, which is mown for hay.

Threats to the Area

The only likely threat is drainage, which would probably cause the Epipactis palustris to die out.

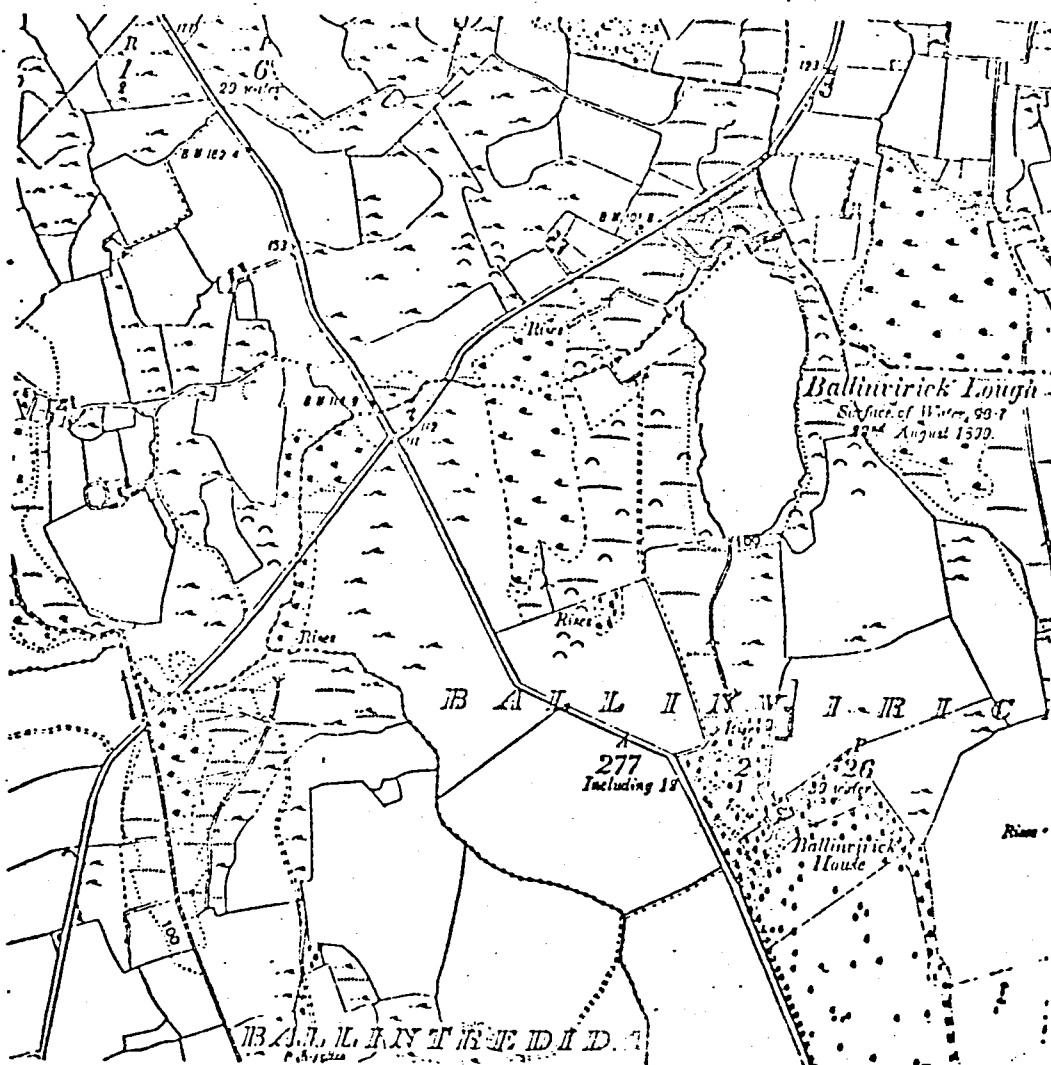
No information is available as to whether such drainage is proposed.

Recommendations

- a) Building in the area (an unlikely possibility) should be prevented.
- b) In view of the limited importance of this site, opposition to any drainage scheme aimed at improving the agricultural quality of the land is not recommended.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-14

Scale: 6 inches to 1 mile



<u>Name of Area</u>	CAPPAGH FEN (26 acres)
<u>Grid reference</u>	R 377 460
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 15.

The area was visited on 5th October, 1971 and the SE part, nearest to the road, was the first to be examined. Here are several small, shallow base-rich pools, in which a Chara sp (stonewort) was abundant, surrounded by a tall herb vegetation, in which there are interesting variations in community structure from place to place.

The following species were noted:-

In the pools

Chara sp.	(stonewort)	c
Menyanthes trifoliata	(bog bean)	f

Fen and marsh areas

Cladium marsicus	(sedge)	l a
Juncus acutiflorus	(sharp-flowered rush)	l a
Phragmites communis	(reed)	l a
Schoenus nigricans	(bog rush)	l a
Carex lepidocarpa	(yellow sedge)	
Carex panicea	(camation-grass)	c
Filipendula ulmaria	(meadow-sweet)	c
Hydrocotyle vulgaris	(marsh pennywort)	c
Irish pseudacorus	(yellow flag)	l c
Equisetum palustre	(marsh horsetail)	f
Mentha aquatica	(water mint)	f

<i>Parnassia palustris</i>	(grass of parnassus)	f
<i>Potentilla anserina</i>	(marsh cinquefoil)	f
<i>Anagallis tenella</i>	(bog pimpernel)	o
<i>Carex rostrata</i>	(bottle sedge)	o
<i>Equisetum fluviatile</i>	(water horsetail)	o
<i>Eriophorum angustifolium</i>	(cotton sedge)	o
<i>Moninia caerulea</i>	(purple moor-grass)	o
<i>Succisa pratensis</i>	(devil's-bit scabious)	o
<i>Eupatroidium cannabinum</i>	(hemp agrimony)	r

The remainder of the fen is dominated by either Cladium mariscus (sedge) or Phragmites communis (reed).

Threats to the Area

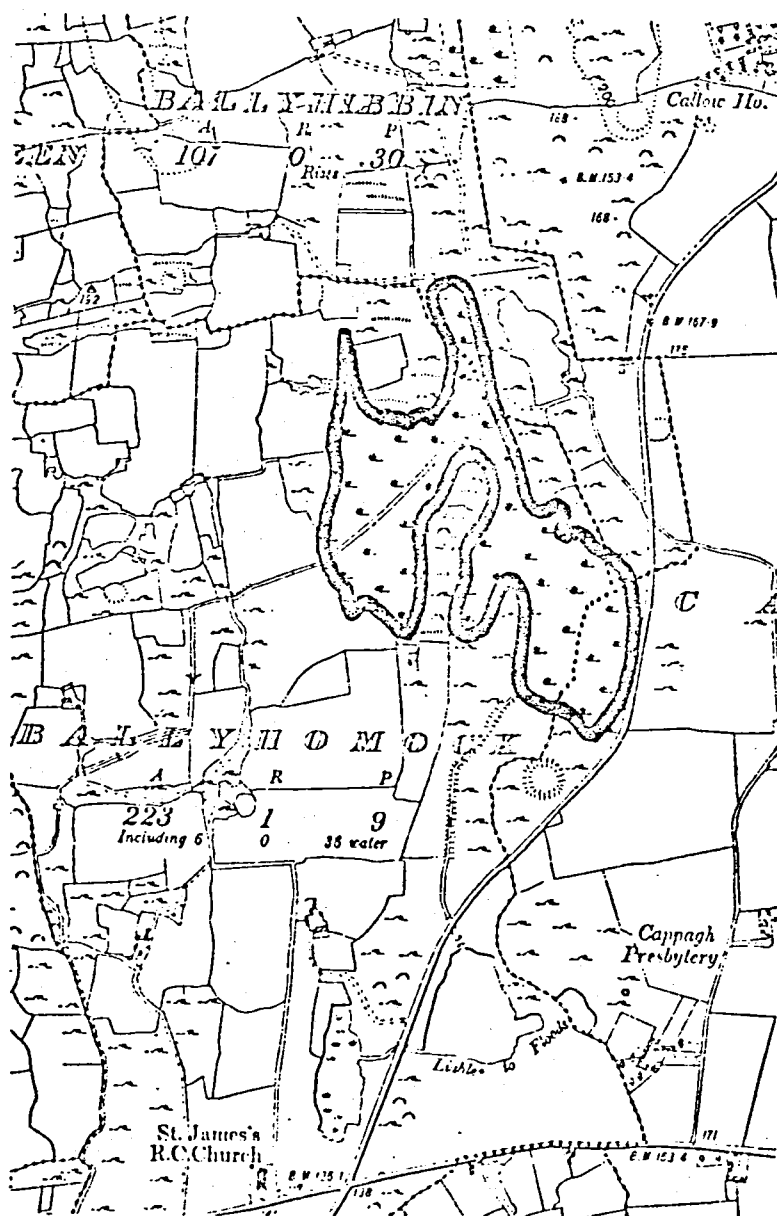
Drainage appears to be the only likely threat.

Recommendation

The scientific importance of this area is affected by the availability of similar habitats within the region e.g. Gorteennamrock Fen. It is, therefore, recommended that, should drainage be proposed at any time in the future, a reassessment of the scientific importance of this area should be carried out. The advisability of drainage should then be considered in the light of this reassessment.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -15

Scale: 6 inches to 1 mile



<u>Name of Area</u>	BALLYVOGUE FEN (14 acres)
<u>Grid reference</u>	R 385 515
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 16.

The area was visited on October 8th, 1971, and seen to be very similar to Cappagh Fen, previously described. Here, however, Cladium mariscus was not as abundant, and waterlilies (only a few small leaves seen) were noted in a shallow pool.

Threats to the Area

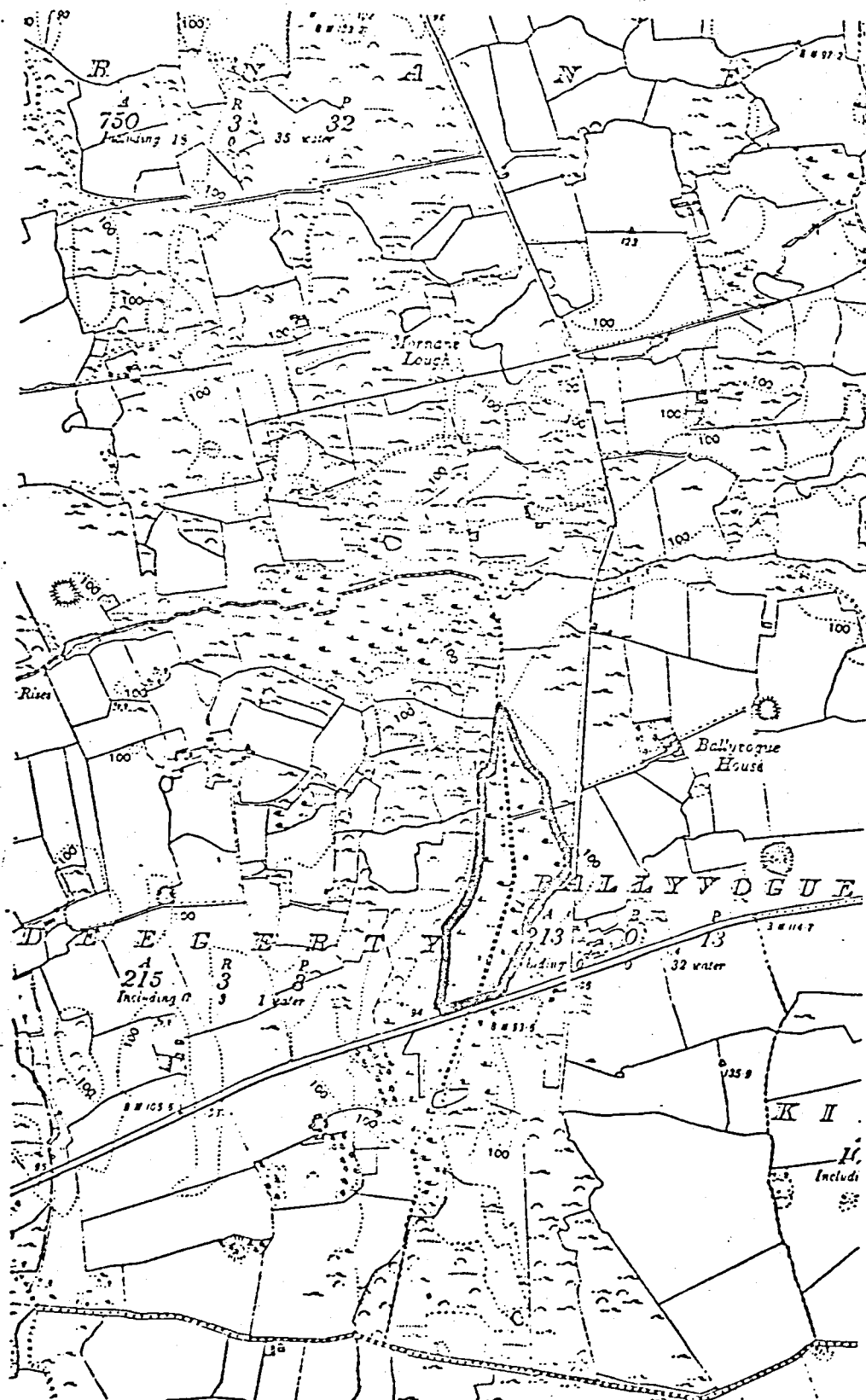
Drainage appears to be the only likely threat.

Recommendation

The scientific importance of this area is affected by the availability of similar habitats in the region, e.g. Cappagh Fen. It is, therefore, recommended that, should drainage be proposed at any time in the future, a reassessment of the scientific importance of this area should be carried out. The advisability of drainage should then be considered in the light of this reassessment.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -16

Scale: 6 inches to 1 mile



<u>Name of Area</u>	BALLYMORRISHEEN FEN (58 acres)
<u>Grid reference</u>	R 365 465
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 17.

Within the area, visited on November 8th, 1971, are two loughs and many other patches of open water, surrounded by a fen vegetation dominated by Cladium mariscus (sedge) and Phragmites communis (reed).

Because of its loughs and smaller pools, which vary considerably in size and depth, this area contains a wider range of habitats than the other fens nearby, e.g. Cappagh Fen, and thus is of greater scientific interest.

Threats to the Area

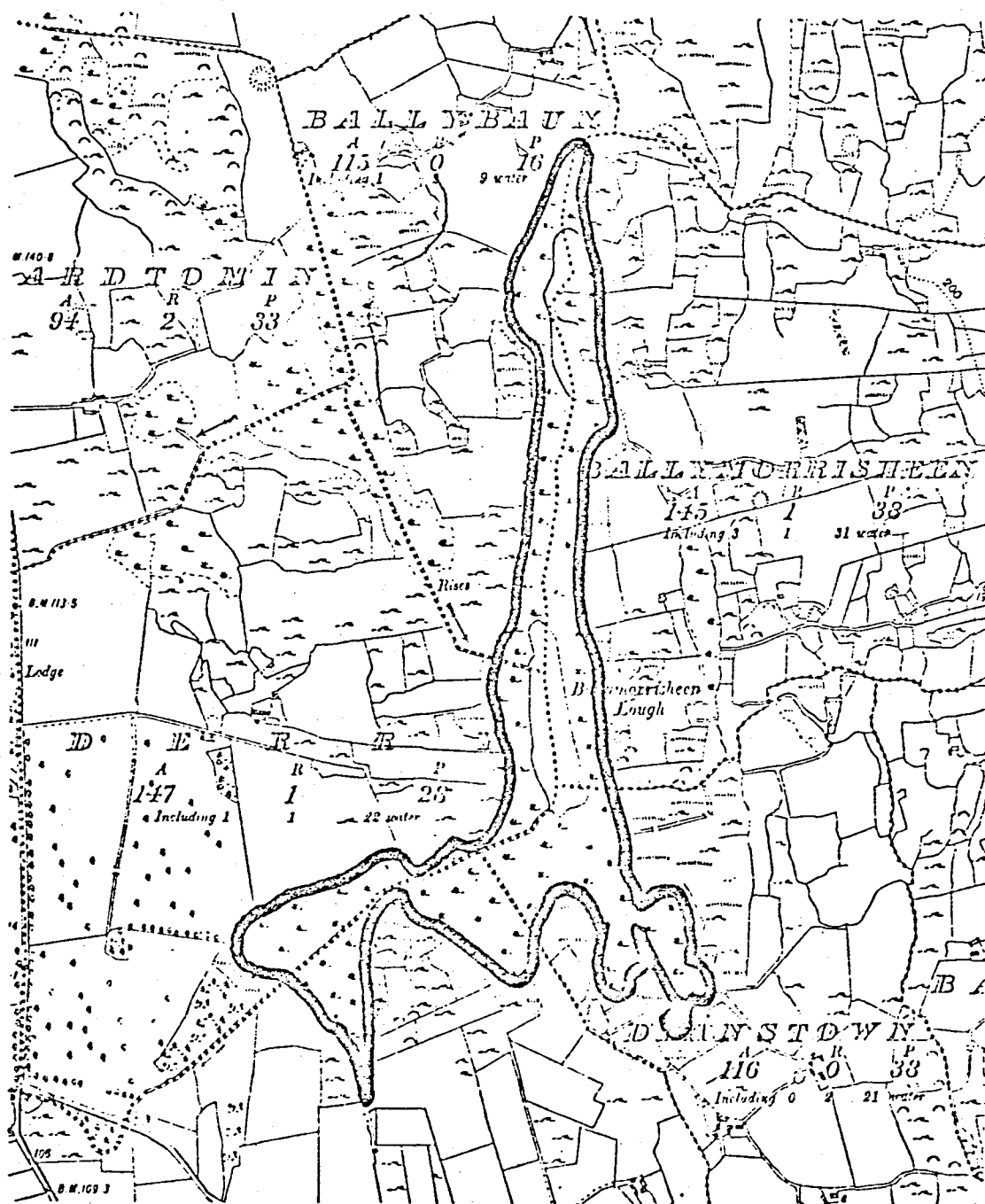
Drainage appears to be the only likely threat.

Recommendation

The scientific importance of this area is affected by the availability of similar habitats nearby, e.g. Cappagh Fen. It is, therefore, recommended that, should drainage of this area be proposed, a reassessment of the scientific importance of the area should be carried out. The advisability of drainage should then be considered in the light of this reassessment.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -17

Scale: 6 inches to 1 mile



<u>Name of Area</u>	GORTEENNAMROCK FEN (24 acres)
<u>Grid reference</u>	R 380 480
<u>Scientific interest</u>	Ecological
<u>Rating</u>	Local importance
<u>Priority</u>	C

Description of Area

The area of interest is shown on Map 18.

This is an area of marsh and fen enclosing a small, scrub-covered rocky outcrop.

When visited on November 8th, 1971, the N end of the fen was seen to be an almost pure sward of Cladium mariscus (sedge). Further south, however, the Cladium is gradually replaced as the dominant species by Phragmites communis (reed). Other species seen in the fen area were:-

Irish pseudacorus	(yellow flag)	l a
Schoenus nigricans	(bog-rush)	l a
Juncus acutiflorus	(sharp-flowered rush)	f
Angelica sylvestris	(wild angelica)	o
Carex panicea	(carination grass)	o
Dactylorhiza ? fuchsii	(common spotted orchid)	o
Filipendula ulmaria	(meadow-sweet)	o
Succisa pratensis	(devil's-bit scabious)	o
Carex rostrata	(bottle sedge)	r
Potentilla erecta	(common tormentil)	r

In the stream running through the fen were:-

Potamogeton sp	(pondweed)	l a
Carex rostrata	(bottle sedge)	c
Chara sp.	(stonewort)	c
Menyanthes trifoliata	(bogbean)	f

Threats to the Area

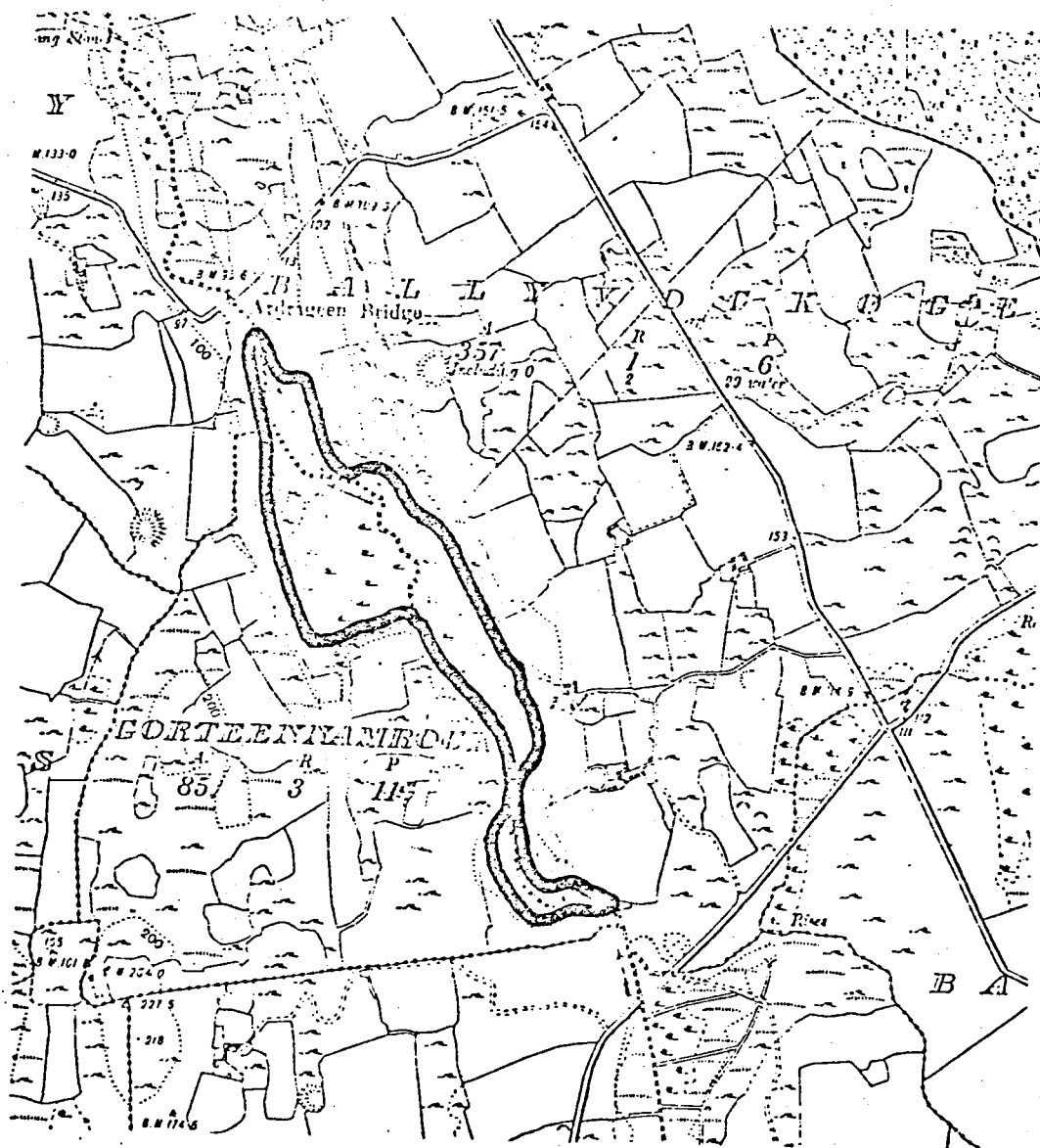
Drainage appears to be the only likely threat.

Recommendation

The scientific importance of this area is affected by the availability of similar habitats nearby, e.g. Cappagh Fen. It is, therefore, recommended that, should drainage be proposed, a reassessment of the scientific importance of the area should be carried out. The advisability of drainage should then be considered in the light of this reassessment.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-18

Scale: 6 inches to 1 mile



<u>Name of area</u>	BARIGONE (10 acres)
<u>Grid reference</u>	R 300 506
<u>Scientific interest</u>	Ecological, Botanical
<u>Rating</u>	Local
<u>Priority</u>	C

Description of area

The area of interest is shown on Map 19.

It is an area of grassland and exposed limestone with a few isolated shrubs. There is no 'pavement' development.

There is a rich and interesting flora and the following species were noted during a visit on October 6, 1971.

Briza media	(quaking grass)	c
Chrysanthemum leucanthemum	(dog daisy)	c
Cynosurus cristatus	(crested dog's-tail)	c
Daucus carota	(wild carrot)	c
Festuca spp.	(fescues)	c
Lotus corniculatus	(birdsfoot-trefoil)	c
Rosa spinosissima	(burnet rose)	c
Solidago virgaurea	(golden rod)	c
Teucrium scorodonia	(wood sage)	c
Thymus drucei	(wild thyme)	c
Trifolium pratense	(red clover)	c
Trifolium repens	(white clover)	c
Aquilegia vulgaris	(columbine)	1 c
Bellis perennis	(daisy)	1 c
Prunella vulgaris	(self-heal)	1 c
Pteridium aquilinum	(bracken)	1 c
Ulex europaeus	(gorse)	1 c
Agrostis tenuis	(bent-grass)	1 c
Antennaria dioica	(cat's-foot)	f
Carlina vulgaris	(carline thistle)	f

<i>Galium verum</i>	(lady's bedstraw)	f
<i>Hypericum pulchrum</i>	(beatiful St. John's wort)	f
<i>Juniperus communis</i>	(juniper)	j
<i>Pimpinella saxifraga</i>	(burnet saxifrage)	j
<i>Potentilla erecta</i>	(common tormentil)	f
<i>Plantago maritima</i>	(sea plantain)	f
<i>Senecio jacobea</i>	(ragwort)	f
<i>Succisa pratensis</i>	(devil's-bit scabious)	f
<i>Achillea millefolium</i>	(yarrow)	o
<i>Anthyllis vulneraria</i>	(kidney vetch)	o
<i>Asplenium ruta-muraria</i>	(wall rue)	o
<i>Calluna vulgaris</i>	(heather, ling)	o
<i>Carex flacca</i>	(carnation grass)	o
<i>Carex panicea</i>	(carnation-grass)	o
<i>Centaurea nigra</i>	(knapweed)	o
<i>Crataegus monogyna</i>	(hawthorn)	o -
<i>Hedera helix</i>	(ivy)	o
<i>Hypochoeris radicata</i>	(cat's-ear)	o
<i>Linum catharticum</i>	(purging flax)	o
<i>Plantago lanceolata</i>	(ribwort plantain)	o
<i>Poterium sanguisorba</i>	(salad burnet)	o
<i>Rhinanthus minor</i>	(hayrattle)	o
<i>Rubus fruticosus</i> agg.	(bramble)	o
<i>Rubus saxatilis</i>	(stone bramble)	o
<i>Sonchus asper</i>	(sowthistle)	o
<i>Taraxacum officinale</i>	(dandelion)	o
<i>Anthoxanthum odoratum</i>	(sweet vernal-grass)	r
<i>Blackstonia perfoliata</i>	(yellow-wort)	r
<i>Capsella bursa-pastoris</i>	(shepherd's purse)	r
<i>Centaurea erythraea</i>	(common centaury)	r
<i>Cirsium vulgare</i>	(spear thistle)	r
<i>Dactylis glomerata</i>	(cock's-foot)	r
<i>Euphrasia</i> sp	(eyebright)	r
<i>Fragaria vesca</i>	(wild strawberry)	r
<i>Gentianella amarella</i>	(felwort)	r

Geranium robertianum	(herb robert)	r
Lonicera periclymenum	(honeysuckle)	r
Plantago major	(greater plantain)	r
Rubia perigrina	(madder)	r
Viola hirta	(hairy violet)	r

Threats to the Area

Building or quarrying in the area would appear to be possible threats.

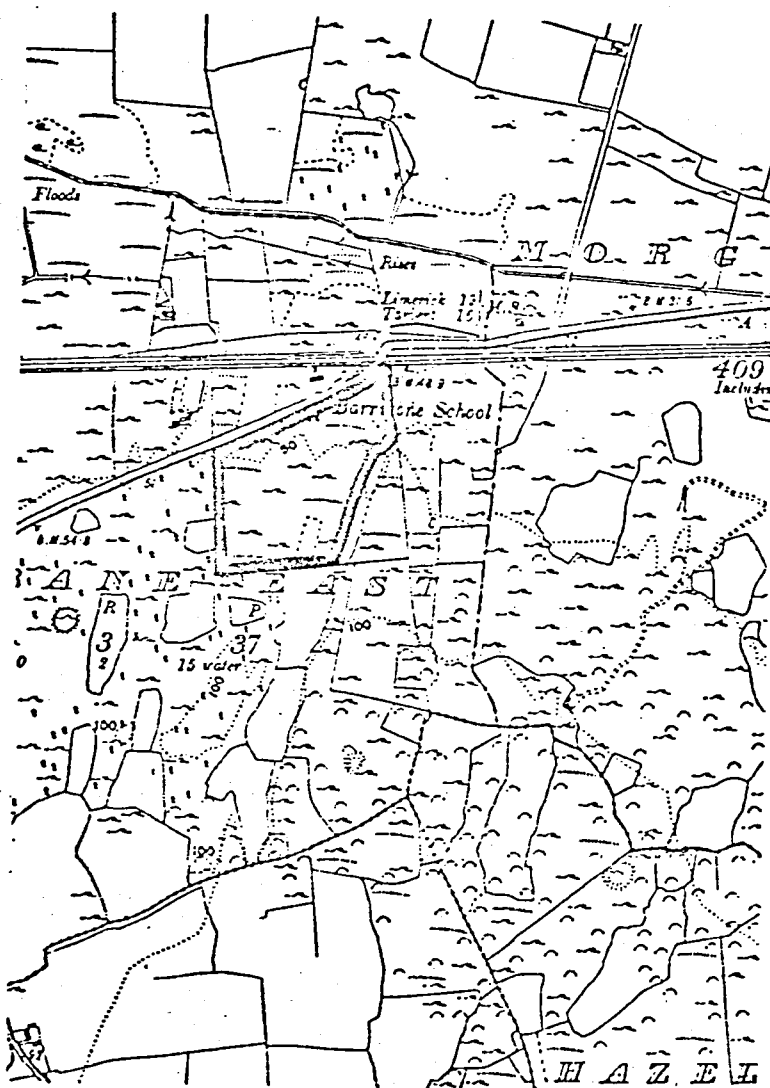
No information is available as to whether such development is proposed.

Recommendation

Building or quarrying in the area should be prevented.

MAP SHOWING AREA OF SCIENTIFIC INTEREST -19

Scale: 6 inches to 1 mile



Recommended action for each area of scientific interest

Section E

	No protection necessary	General planning control	Special Amenity Area Order	Conservation Order	Tree Preservation Order
Lough Gur *			X		
Aughinish Island N & E *		X			
Poynes Island *		X			
Ballylanders/Kilfinnane moraine *	X				
Linfield Quarry		X			
Aughinish Island W		X			
Askeaton Estuary *		X			
Glen Bog *				X	
Glenastar Wood *					X
Loughmore		X			
Curragh Chase		X			
Askeaton Quarry		X			
Carrigogunnel		X			
Caherconlish Quarry		X			
Knockderc Hill	X				
Knockseefin Hill	X				
Derk Hill	X				
Kilteely Hill	X				
Cromwell Hill	X				
Curraghturk Overflow Channel		X			

	No protection necessary	General planning control	Special Amenity Area Order	Conservation Order	Tree Preservation Order
Clare Glen					X
Heathfield Wood					X
Ballinvirick Marsh		X			
Cappagh Fen +		X			
Ballyvogue Fen +		X			
Ballymorrisheen Fen +		X			
Gorteenamrock Fen +		X			
Barigone		X			

* These areas should be considered the most important in conservation plans.

+ These are four very similar areas. One of them, at least, should certainly be preserved intact as an example of this type of habitat. It would be best if Ballymorrisheen Fen could be preserved, in view of its greater range of habitats than the other Fens.

MAP SHOWING AREA OF SCIENTIFIC INTEREST-6

Scale: 6 inches to 1 mile



