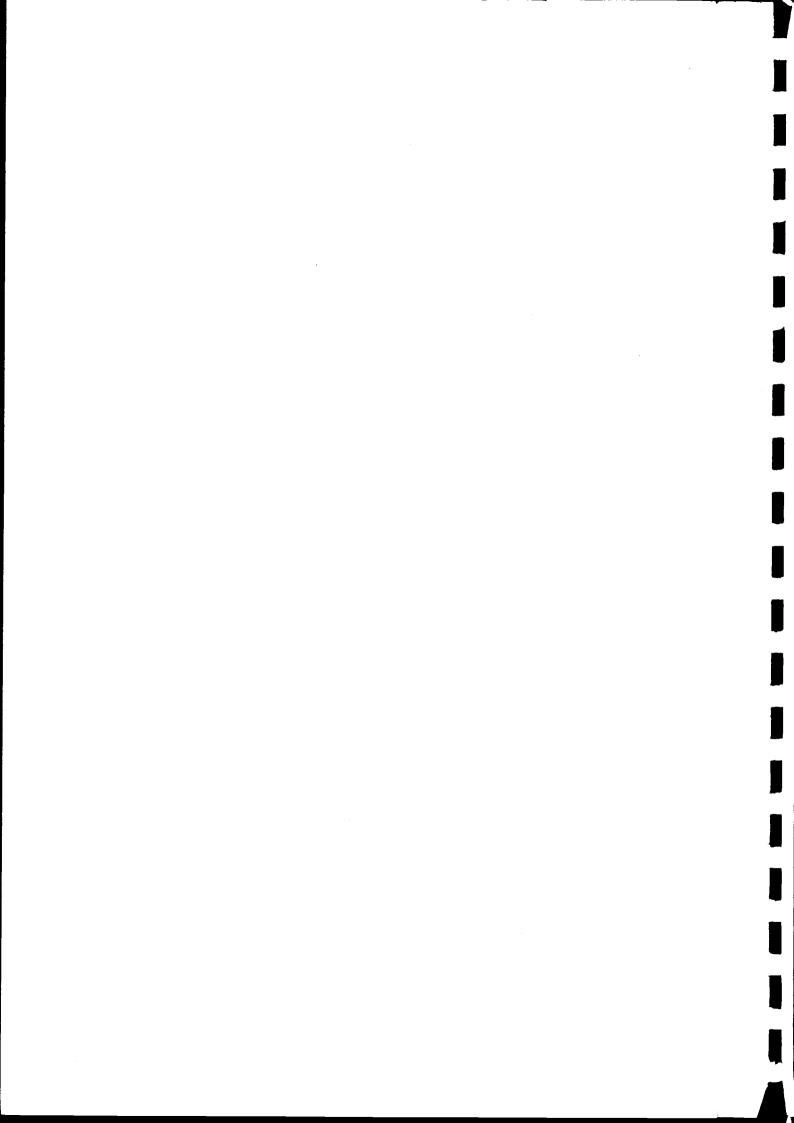
CONSERVATION AND AMENITY ADVISORY SERVICE

A PRELIMINARY REPORT ON AREAS OF SCIENTIFIC INTEREST IN COUNTY KILDARE

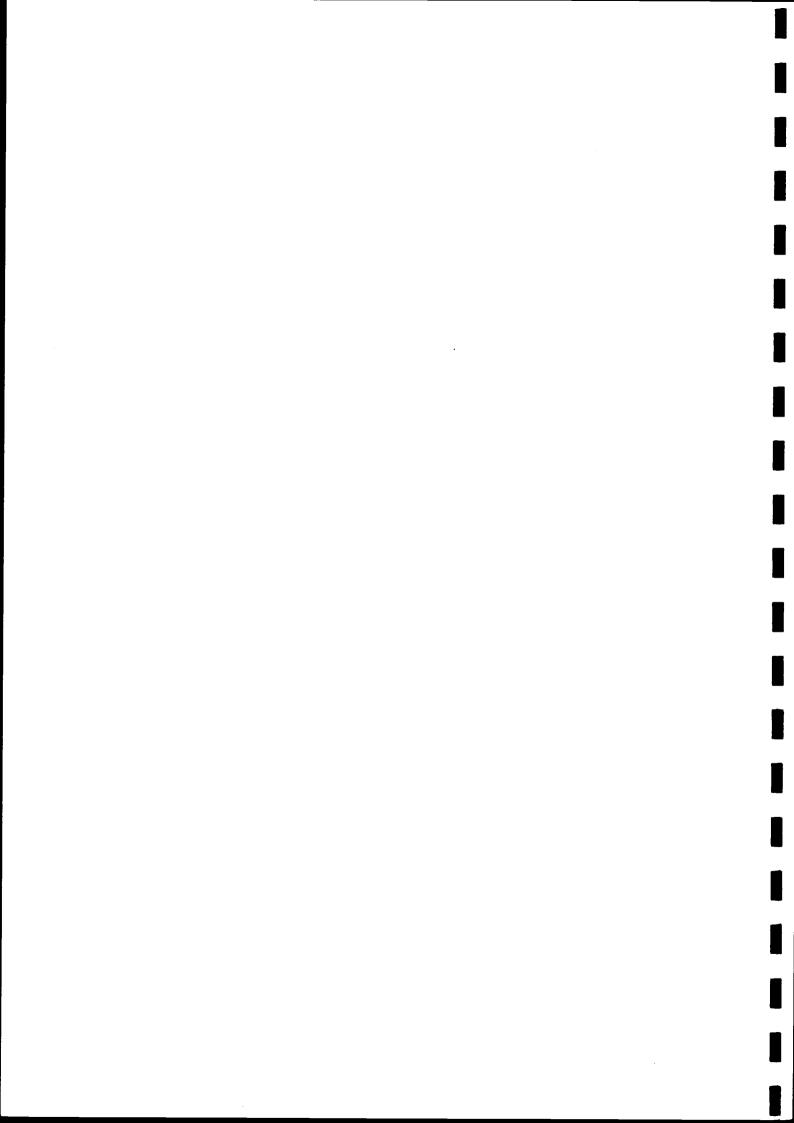
Roger Goodwillie Research Assistant An Foras Forbartha



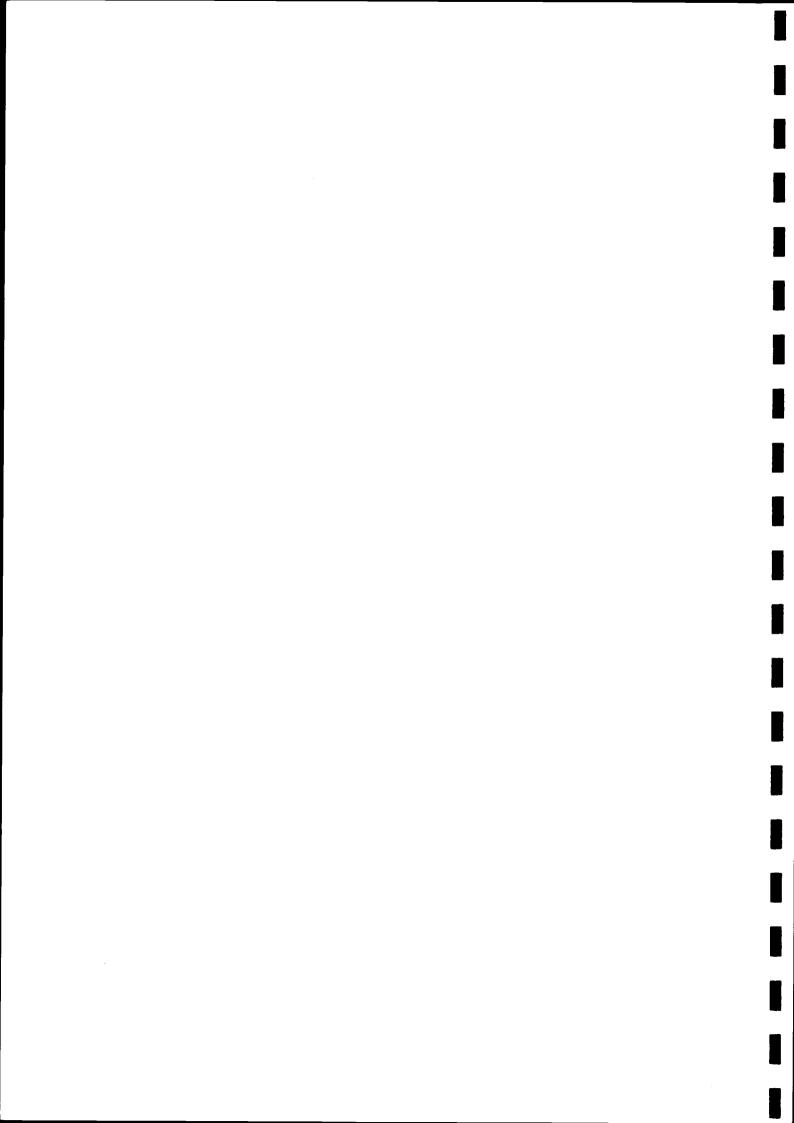
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This report is based on data abstracted from the files of the Conservation and Amenity Advisory Service, An Foras Forbartha, from the published literature and from several periods of field observations in April and May 1972. It is a provisional document subject to future research.

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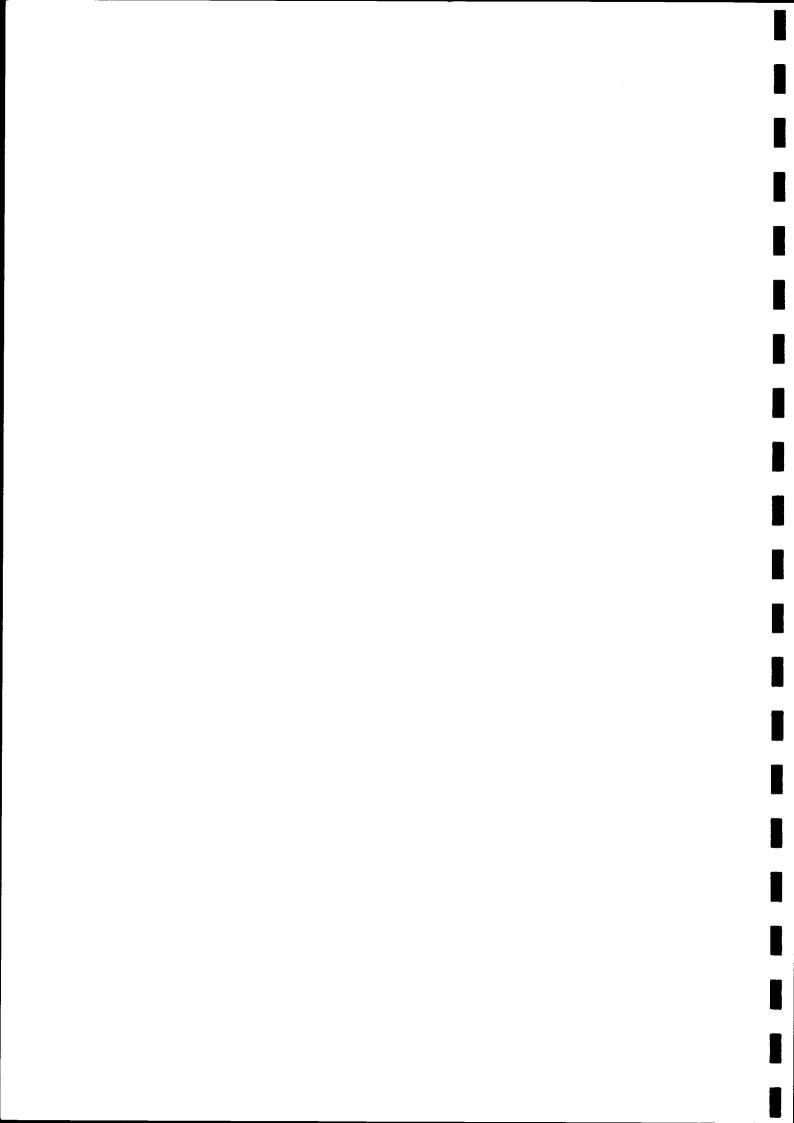
SECTION A

PREFACE

This report concerns country planning. It should enable the County Council to pick out those areas that are important on a national or local level and whose conservation can be based on strong grounds, either scientific, educational or amenity. The Conservation and Amenity Advisory Service is attempting to identify a representative range of natural and semi-natural habitats throughout Ireland and also to list sites of special significance, usually containing a rare species or a rare natural phenomenon. Around these areas development can proceed with relative impunity, once amenity and waste disposal problems have been surmounted. It may be stressed that the amount of land available is such that development will very seldom mean the impoverishment of the national heritage, if it is properly planned. On the contrary, in selected examples it will allow people to obtain more meaningful recreation from the countryside.

In a county as agriculturally developed as Kildare, it is probable that great pressure will soon be felt by the remaining wild regions which appeal because of the combination of hills, woodland and perhaps water. But these often contain communities of plants or animals, interesting because of their isolation from rural or urban development and compromise must be reached to their advantage because of their scarcity.

Conservation of natural communities may be important for amenity, scientific or recreational reasons or any combination of the three. Frequently, the natural vegetation of an area gives to it a characteristic atmosphere, an indefinable value but very real to those who walk or drive through it. Diversity is the key quality of the environment that attracts people to an area or that makes them find relaxation there: the contrast between cultivation and wilderness, between water and land or between trees and grass. Fortunately, diversity is also the sine qua non of rich biological communities.

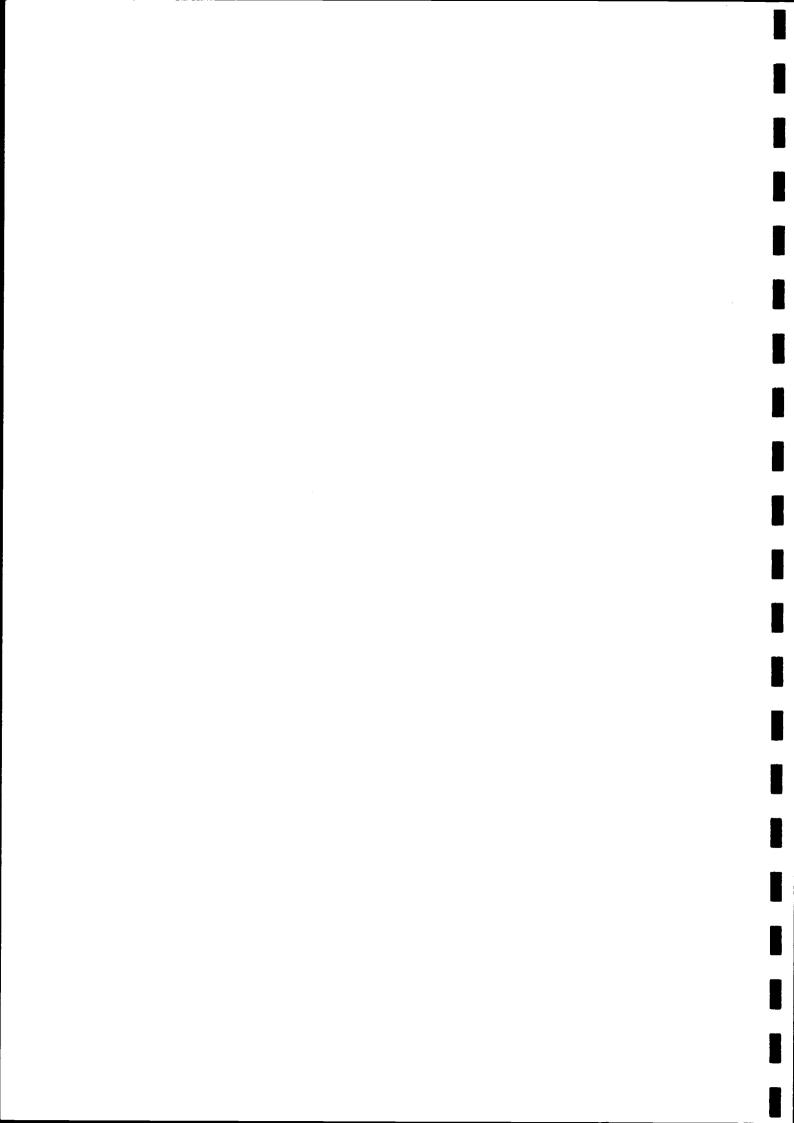


Examples of all habitats must be preserved for scientific research.

Uncultivated areas are essential as reservoirs for organisms that may be useful for soil conditioning or pest control in the future. Quite apart from their inherent interest and complexity they are needed also as control areas. Without them it would be impossible to judge the effectiveness of, or to improve man's attempts at land management. For example, how can pollution be controlled if no unpolluted watercourse or lake remains in which to decipher the natural breakdown processes? Or how can the great productivity of marshes and seasonally flooded land be harnessed, other than by rice growing, if no natural swamps are left? Finally, how can cutover bog be best used for tree growing if no natural self-sustaining bog community or no wooded peaty areas exist? These questions are of growing importance in a competitive world that demands efficiency and an optimum level of food production compatible with little damage to the ecosystem.

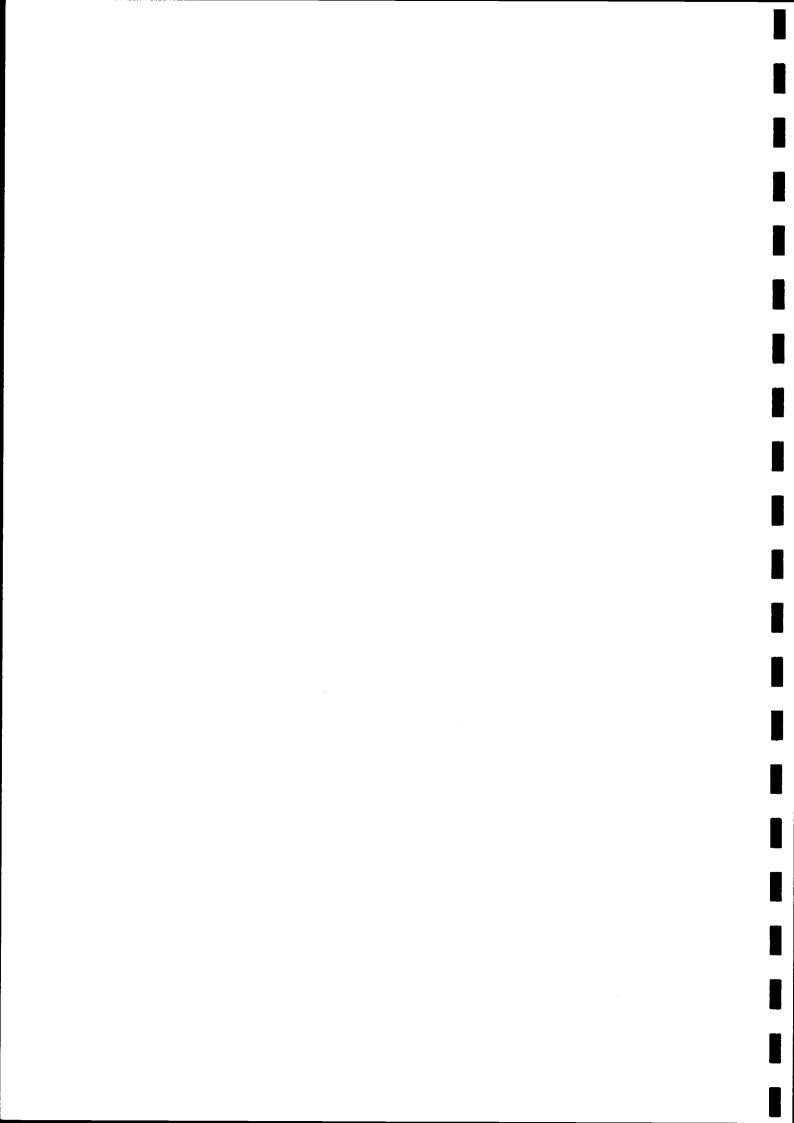
In education, field studies of all sorts are of immense value, and biological field studies are a stimulus that many other disciplines envy. Natural communities provide some of the clearest expositions of the ecological principles that operate through all growing and harvesting methods. In addition, there is the challenge of identifying and getting acquainted with numerous and very different species. Field work attracts practically all children at some stage and enables everyone to better appreciate being in rural surroundings. Already, since the introduction of biology teaching, there is greater awareness of the environment and interest in wildlife. Such constructive recreation should be encouraged by the maintenance of variety in the countryside.

It is the intention of this survey to encourage the use of the countryside by drawing attention to scientifically interesting places. All of those mentioned can support much greater numbers of people - less so in certain cases of marshes and bogs, or at certain times of the year. But the carrying-capacity of each site will eventually have to be analysed. How much recreational use can co-exist with a nesting wildfowl population? How many people can walk a woodland floor without damaging the plant cover? Or what



number of trees can be felled each year while preserving the attractive features of the wood? The idea of preserving any but the smallest areas intact and without change is unrealistic and multiple use should be encouraged. Many of the areas would respond to sound management and become much more productive.

The majority of the sites listed are now productive in the crude sense of producing fish, game birds or timber. All are productive if they encourage people to visit the area and make use of services nearby, and we believe that all contribute to the relaxation, mental health and happiness of the community, especially the generation of town-dwellers that now form most of our nation.



VULNERABILITY OF THE VARIOUS HABITATS

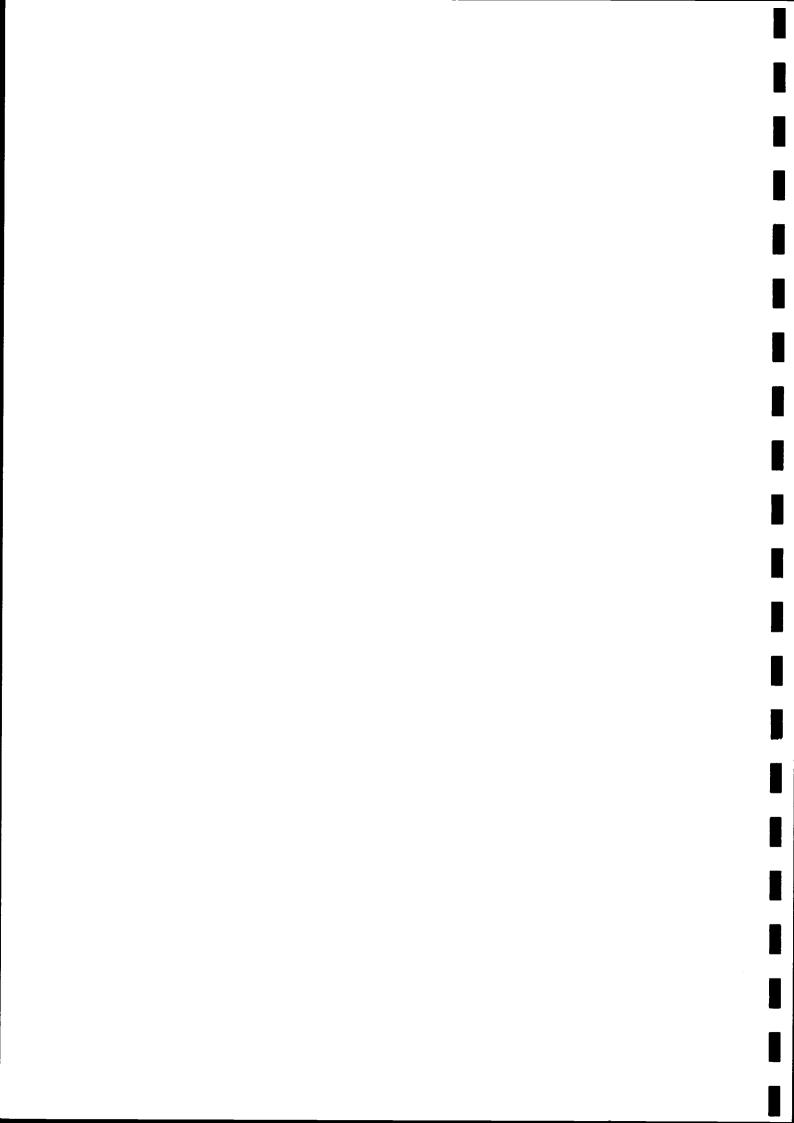
Areas of scientific interest can be damaged in many ways. They can be completely destroyed by scrub or tree clearance, by turf cutting or by arterial drainage, or they can suffer insidiously through pollution, fertilization, grazing or overuse for recreation.

Of these various instances the first poses the greatest threat because of the rapidity with which it can occur. In the absence of a fine large enough to be a sure deterrent, co-operation to maintain the county's deciduous woodlands at all levels of landowner, forester and the general public must be actively sought. It will seldom be sufficient to put a prevention order on an area which would lose its value immediately the trees are felled. The voluntary organisations have a role to play in this acting as observers throughout the county.

Turf-cutting on a small scale is occurring at both the peatland sites mentioned, but they are really threatened only by large scale operations. However the burning related to turf cutting causes modifications in the plant cover, restricting diversity for a number of years. Fire should be discouraged if possible as it usually spreads beyond its intended limits.

Drainage schemes of all sorts have serious consequences for the importance of aquatic sites but are unlikely to occur at any of the sites listed, except the Usk marshes. However they have reduced the value of the Barrow margins, of the marshy fields south of Kildare, and possibly of Newbridge Fen so must be considered rationally and not accepted automatically. Unintentional drainage may occur to the Royal Canal through neglect and this would take away much of its interest.

As is well-known pollution of lakes changes their character to begin with, and if it is continued has bad effects on water quality and fish life. Aquatic communities of all sorts are the most vulnerable since the incoming matter cannot be localized but is transported everywhere in the water: they also require less

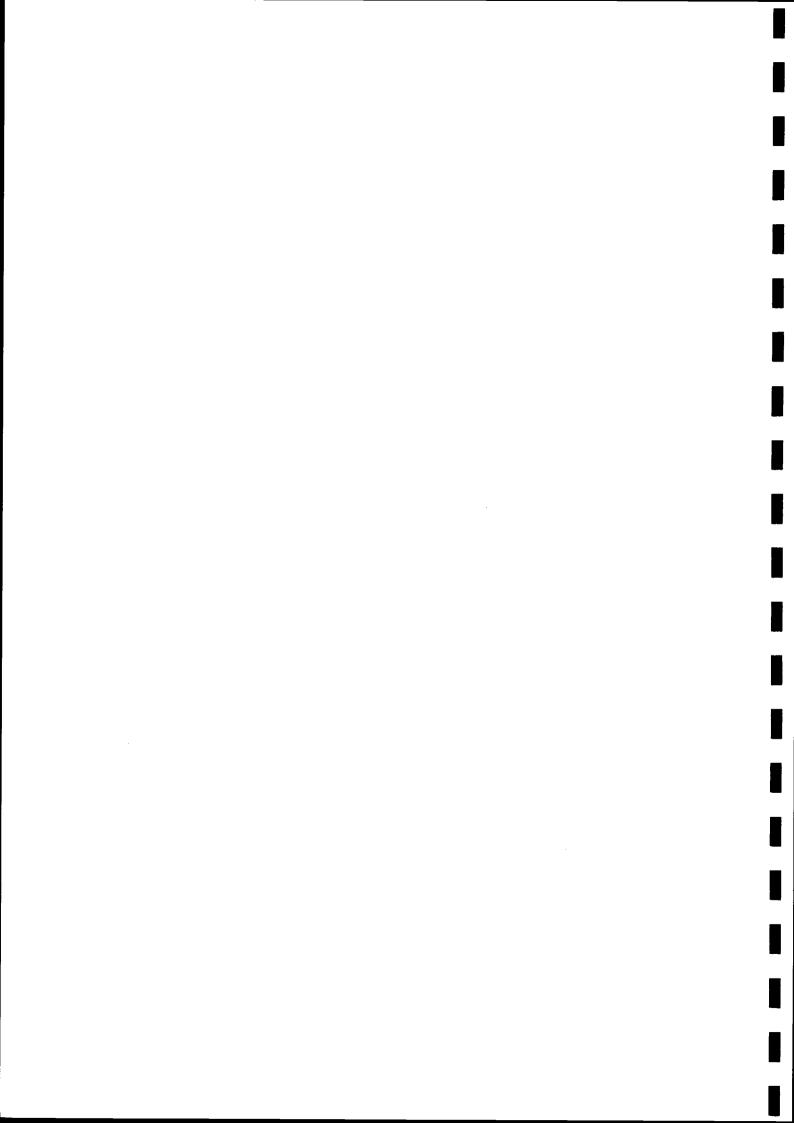


nutrients than the land. For these reasons, development upstream of important areas must be carefully controlled, and alternative sites for domestic or agricultural developments, or drainage routes from them, must always be considered if such an area is involved. Where a greater distance of river or stream bed is available, it can be used within reason to deal with larger quantities of effluent. The lack of turbulence, and, therefore, oxygenation, does add considerably to waste disposal problems throughout the county, however.

Several farming operations are potentially destructive, apart from straightforward pollution by silage effluent or intensive livestock units. Excessive fertilization produces run-off of nutrients, especially nitrates and these are particularly bad for nutrient-poor ecosystems such as acid lakes and bogs. Introducing such run-off into any natural community will change the species composition.

Grazing has a similar effect. It selects out of the vegetation those species that are most resistant to constant cutting and allows them to multiply at the expense of others. This reduces the diversity of the flora and also often its interest. Light grazing is seldom detrimental except that it prevents the natural colonisation of grassland by shrubs and trees, but as it is intensified such changes as those mentioned above occur and in extreme cases the vegetation may not be able to persist at all. Eskers are particularly vulnerable as their stony dry soils do not allow a fast recovery growth by grazed plants.

The last influence to be mentioned is that of recreation which probably deserves a place here at the moment only for its destructive aspect of flower or plant collecting. Opening up of areas with a rare noticeable plant may damage that species but in general enough individuals escape notice so that it persists from year to year. In future fragile ecosystems such as marshes, or unforested eskers may suffer excessive use such as sand dunes are at present receiving, but no problems of this exist in the county today.



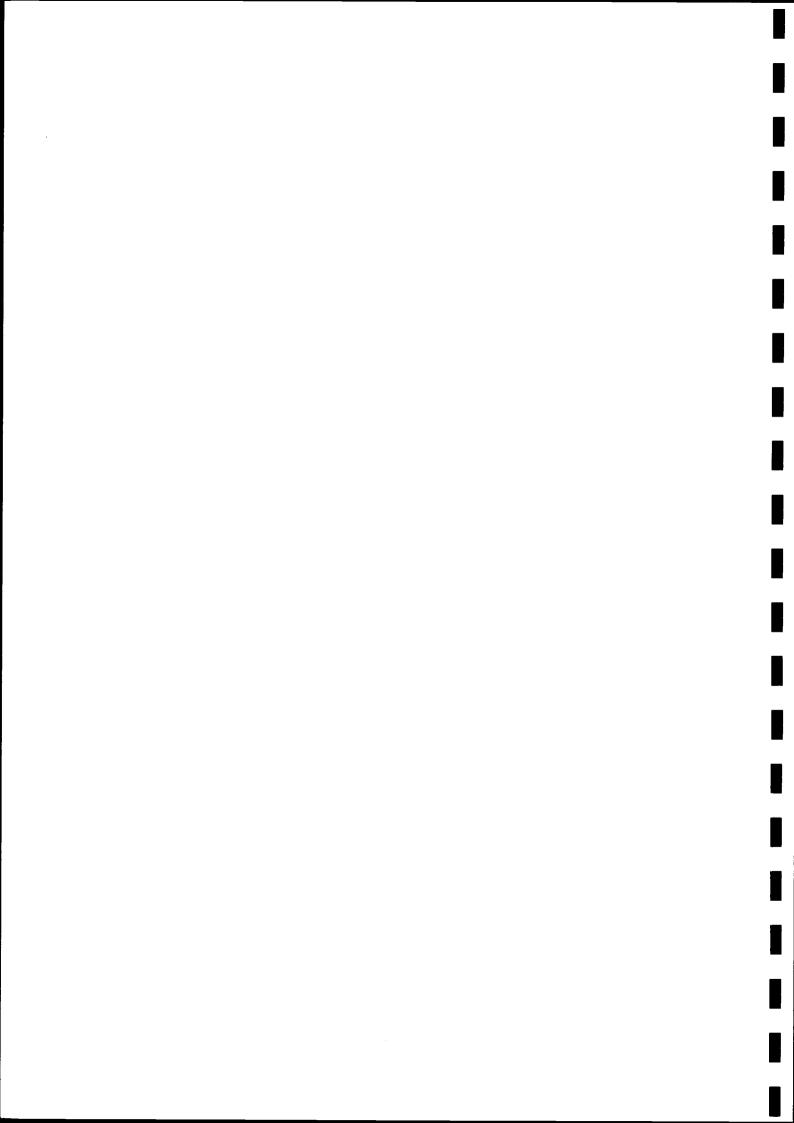
Section C INTRODUCTION TO THE AREAS OF SCIENTIFIC INTEREST IN
CO. KILDARE

Co. Kildare has a solid geology of about six rock types. Along its eastern boundary Ordovician sandstones form low hills, rising from a level plain of Carboniferous limestone, and this rock reappears through the limestone in the Kildare inlier, with extensive volcanic deposits and some old red sandstone. The ordovician limestone exposed in the Chair of Kildare is the most unusual rock type, while from glacial channels and quarries east of Naas two peculiar lithologies of greywacke have been described. The Pleistocene period gave the county much of its present features – a cover of glacial drift varying from the morainic deposits of Blessington and Dunlavin to the outwash gravels of the Curragh; and a series of glacial channels and deltas associated with glacial Lake Blessington. Raised bogs have developed in flooded drift depressions in the north of the county and these are some of the most easterly in the country. Mouds Bog is especially well preserved.

Because of the pervading drift cover, all the natural woodland was cleared for agriculture. It has only reestablished itself in two areas of thin soils, Corballis Hill and near Kilteel; elsewhere all woodlands are derived from estate plantings, often with alien species such as sycamore and conifers. These have a monotonous ground flora but a high amenity value giving Kildare its characteristic appearance of parkland. Only on river banks have patches of natural vegetation persisted though these also have often been influenced by plantings. By the Rye Water there has been enough woodland in Carton Demesne to maintain populations of two very rare species, while at Osberstown and Athgarvan individual stretches are of interest.

Wooded eskers were not found by this preliminary survey but isolated examples may exist.

Patches of open water are very rare away from the main rivers which are of only limited value to wildfowl. Consequently three have been mentioned:

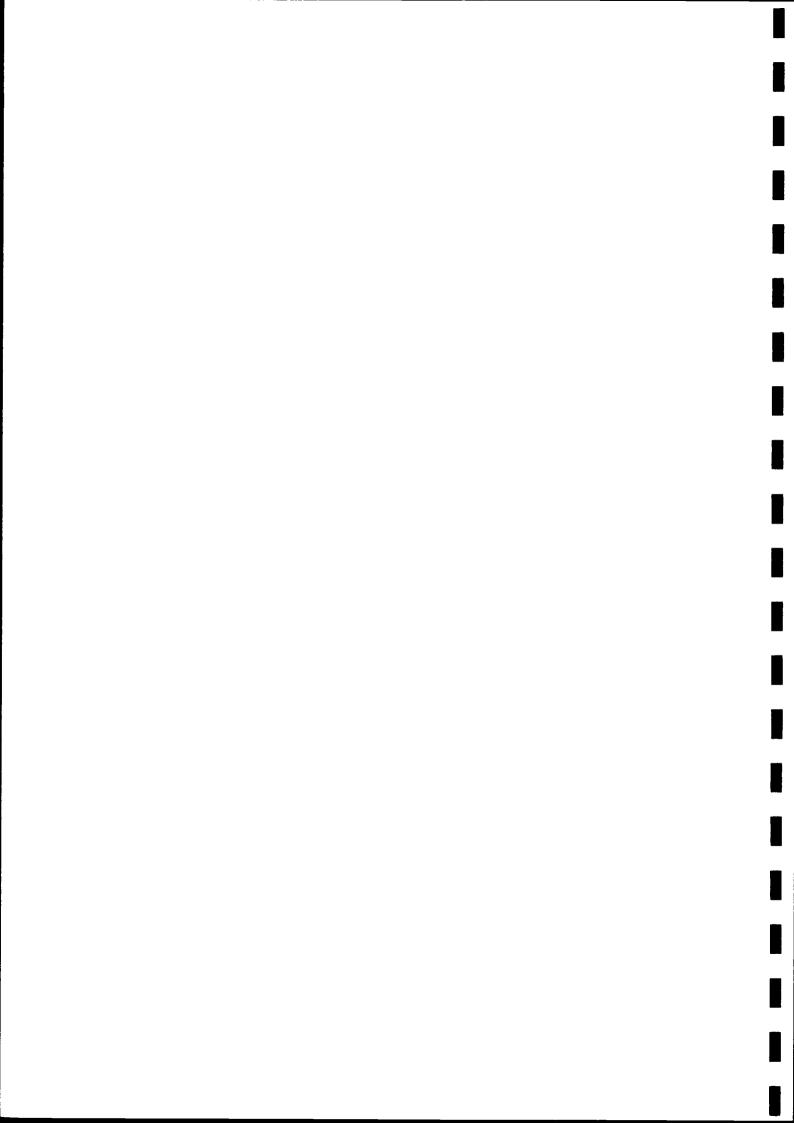


the artificial lake at Carton, Ballynafagh Lake near Prosperous and the Red Bog lake which is of unusual interest. Of the rivers themselves, the Barrow used to be of greater importance than the Liffey whose banks are modified for a substantial part of their length, but drainage operations have put this value in doubt.

The Royal Canal is probably the most interesting stretch of water in the county. Its flora is rich with elements from the Shannon as well as the normal aquatic plants (see page 81) and its invertebrates have also been studied. The Kildare parts of this canal are probably in the best repair and as much should be retained as possible. The Grand Canal is slightly less interesting and its present uses are clearly compatible with the existing flora and fauna.

Conservation plans within the county must centre around the maintenance of habitat diversity. The rarest element in this is presently deciduous woodland of native species and it is suggested that both of the areas described here be given protection. It is unlikely that any of the lakes listed will be drained - this would be especially damaging to Red Bog lake - instead disturbance may be the main adverse factor. Consideration should be given to passing a Conservation Order on Ballynafagh Lake to protect the relatively high numbers of breeding birds.

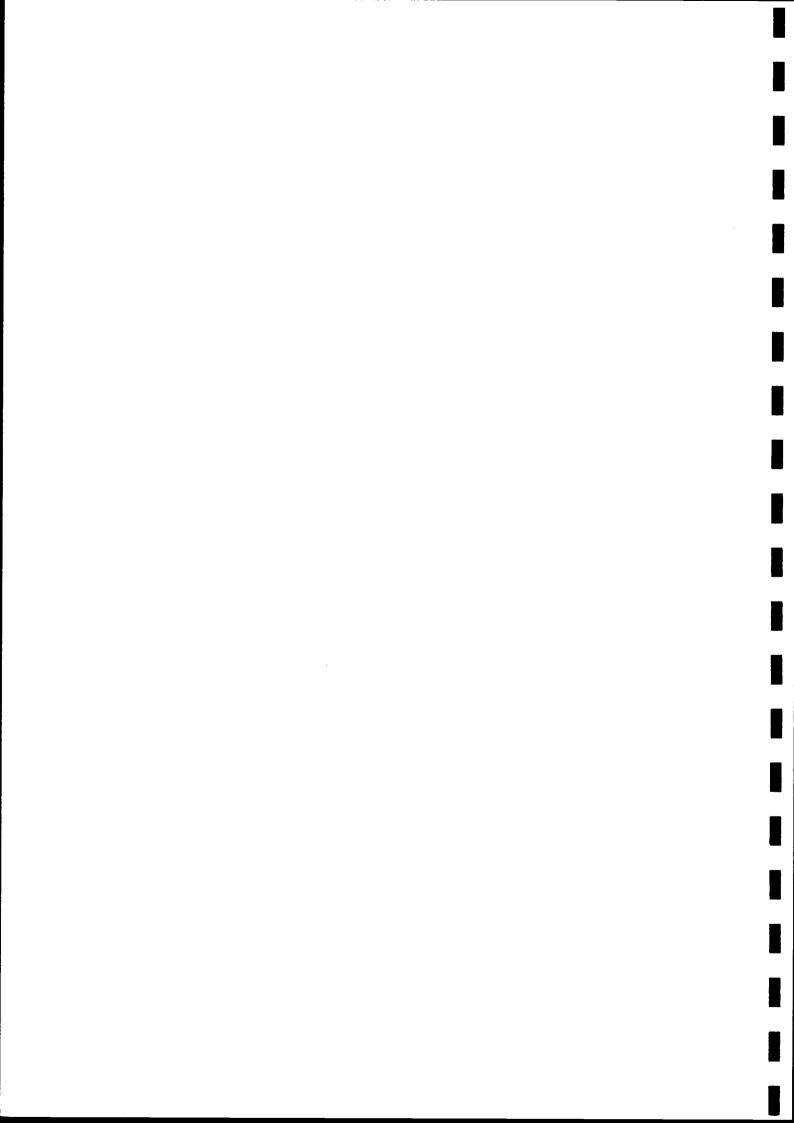
The two wetland sites of Pollardstown Fen and Mouds Bog S. are the most important in the county and must be conserved. The former may need attention after this measure, the latter would not as it is in very good condition. It most definitely should be covered by a Conservation Order (with a possible exemption for grouse), since it is not yet being exploited. This move would be acknowledged by the international peatland research community which has listed this area (Project Thelma) and which has been calling for such action for many years. Though Bord na Mona has decided not to cut a raised bog in Offaly, no county council has yet made an active move to conserve such a community.



A result of intensive agricultural usage is that hedges assume a much greater importance as resevoirs for the displaced natural communities than they would otherwise have. They contain a surprising variety of flowering plants including many noticeable kinds, and are, as well, a rich source of wildlife which feeds on the surrounding land but must have adequate cover to survive. This includes many of the natural predators of insect pests. It is essential to preserve enough hedges, especially in arable areas, to allow this regulatory role to operate, as it is in the interests of the ecosystem as a whole. spring hedges restrict wind erosion of the topsoil, which occurred in 1972, but this is only the most obvious form of protection and 'biological' protection continues throughout the year. Quite apart from this, all hedges have an amenity value, greater if they are allowed to grow fairly high and are not regularly cleaned out. Their bases and other road verges should not be sprayed with selective herbicides; if it is necessary to manage them, mowing is preferable, since this preserves some diversity. The Council may have more control over this than with the hedges themselves but occasions may arise where these can be maintained.

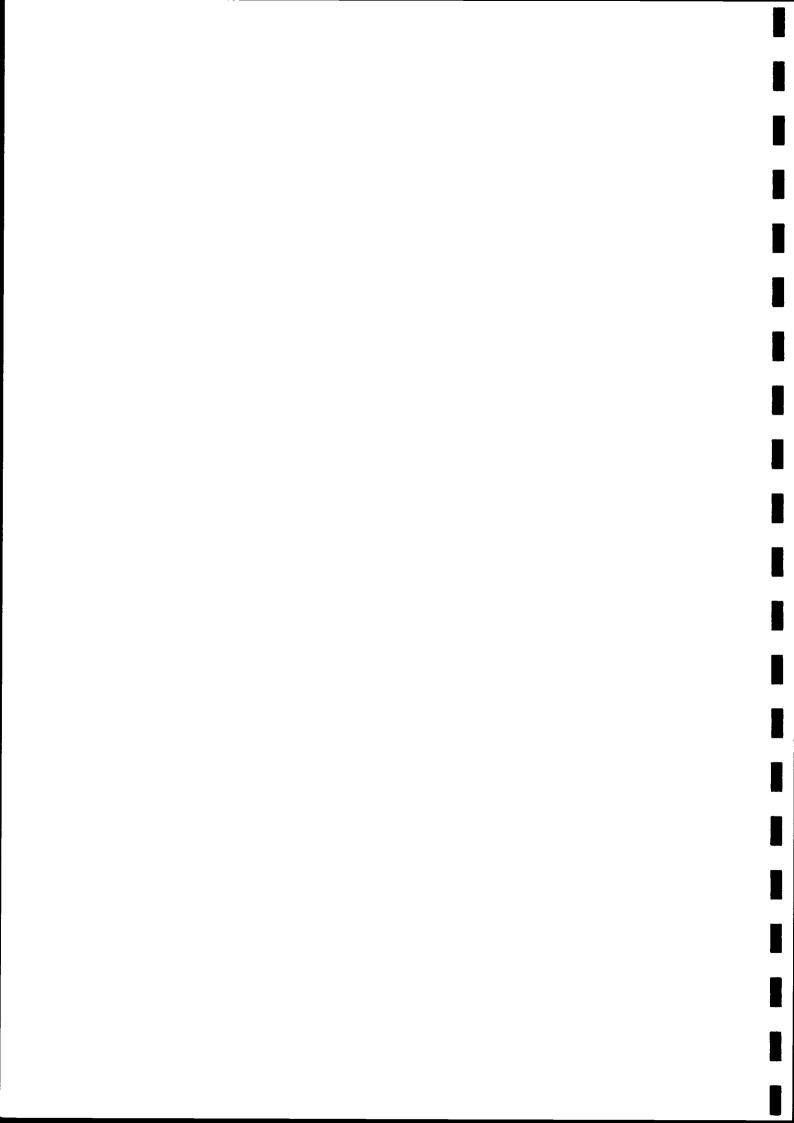
A definite statement of intent is required with regard to this and in fact to all areas of scientific interest. These should be listed as such in the Development Plan: areas within which the first priority is to maintain or improve the scientific values. Many of the disagreements that have arised in the past stemmed basically from a lack of knowledge. The developer did not know that his chosen site had any scientific interest and his imagination and self-assurance did not allow any graceful retreat from his stand. This could be largely avoided if the areas of scientific interest were widely publicised. Such firm action by the Council would elicit a response from the public in greater awareness of the environment. A developer would be inclined to work more closely with the planning authorities; rather than against them. Where permission has to be refused for a certain development, it should be qualified by suggestion of an alternative course of action.

As a first step the landowners should, in almost all instances, be told of the importance of their land. They should be advised that their present form of land use is that most suited to the maintenance of such interest if this is so; if not, recommendations of slightly varying stocking densities etc, should be passed on.



In general, the Council should be alert to threats to any of the areas listed. These have been outlined in the previous section. Where development has to be curtailed, the possibilities of a co-operative scheme on a different piece of land should be fully examined. In the instance of recreational building clustered development separated by natural areas should be favoured.

As developments occur and as scientific knowledge increases, the importance and priority of various areas will change. Continual reassessment is required to monitor such changes. If a particular site loses its value through pollution or physical disturbance, the others of its type will immediately become more important in the regional context. Likewise, if a new and particularly interesting organism is found in an unlisted site, one of the existing ones may be deleted after comparison. Priority for a site's protection may also vary as developments in its vicinity are proposed or begun.



SECTION D

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

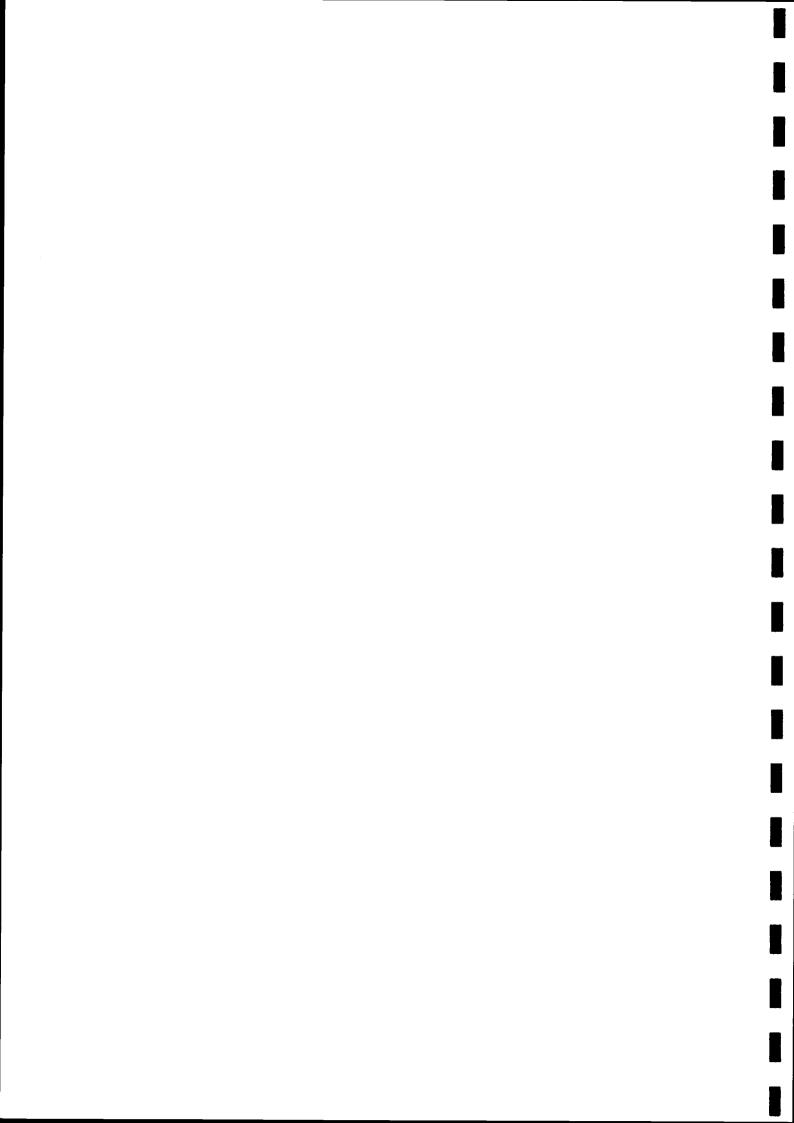
- 1. Only area of its type in Europe.
- 2. One of a few such localities in Europe.
- 3. One of a natural series in Europe.
- 4. Recognised international importance.
- 5. Specialised educational importance.

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

- Only area of its type in province.
- 2. One of a few localities in Ireland.
- 3. One of a natural series in region.
- Fine example of its kind.
- 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.

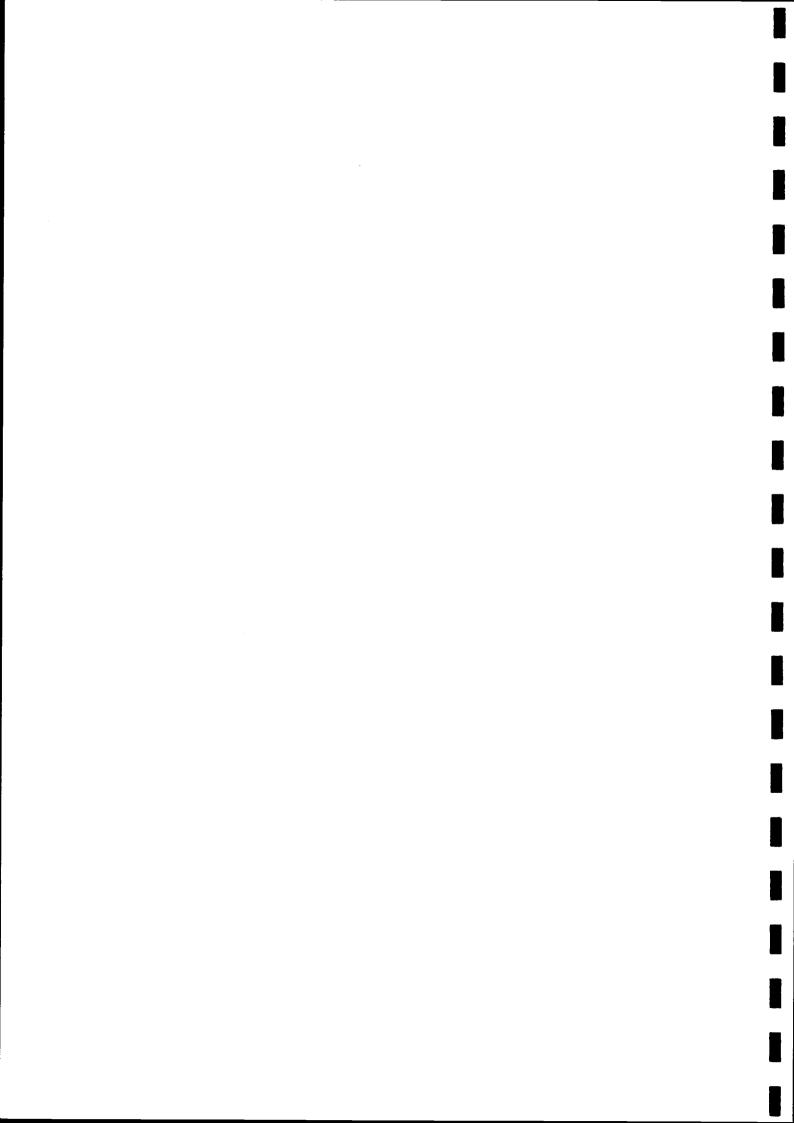
PRIORITY OF AREAS OF SCIENTIFIC INTEREST

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

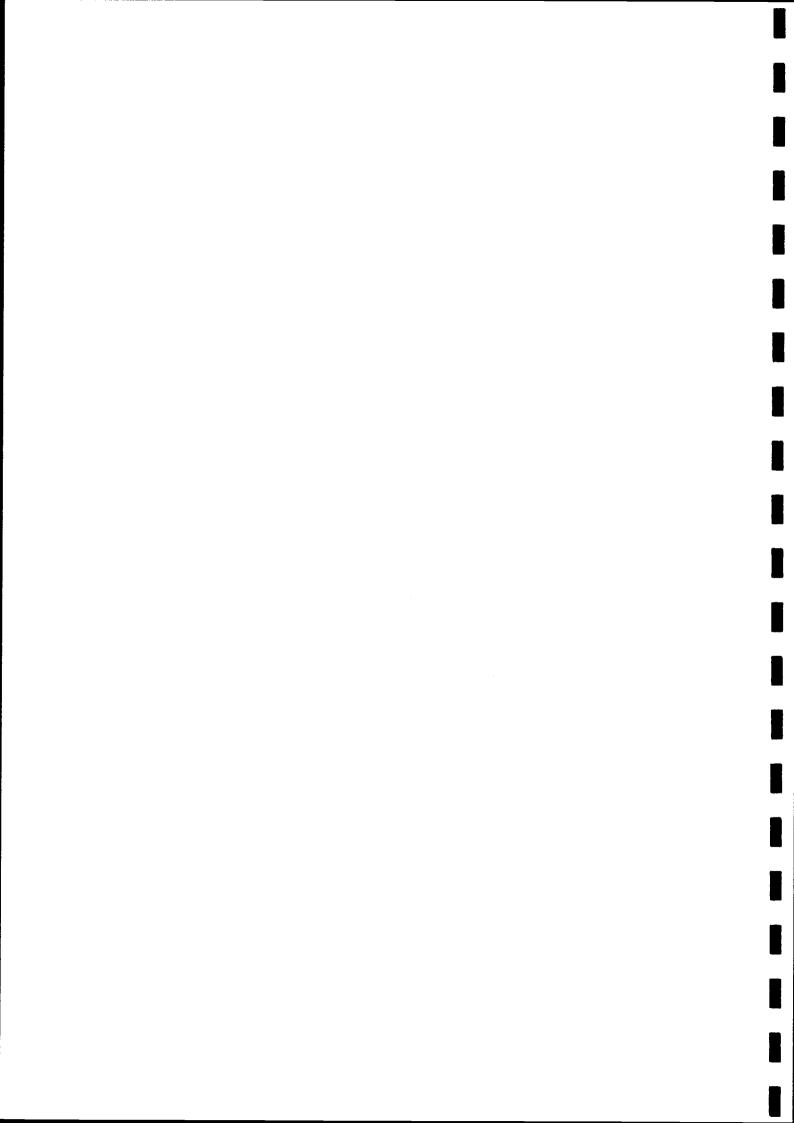
Each site is given a priority rating of A, B or C.

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

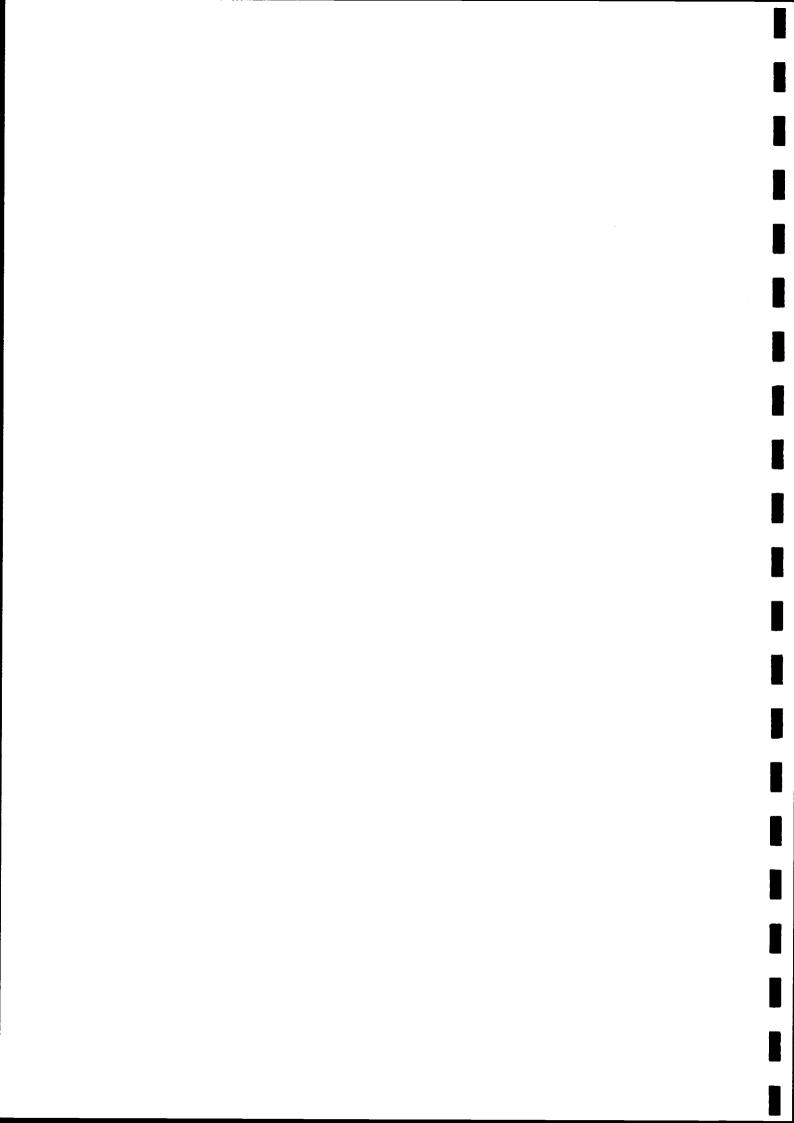
- a) the importance of the area
- b) the vulnerability of the area
- c) the nature and imminence of any threats to the area.



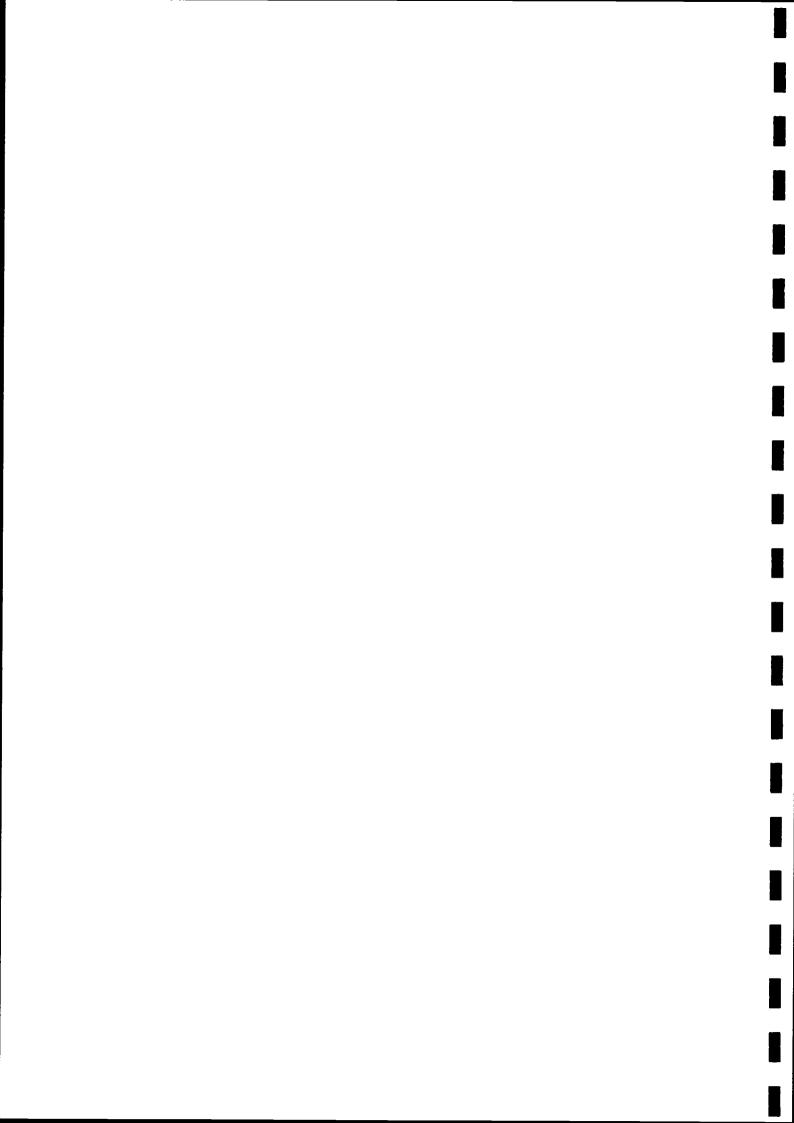
Name of Area	Grid	Grid Reference	Rating	Priority	Scientific Interest
Chair of Kildare and Grange Hill	Z	72, 18	National	Ö	Petrological, structural, palaeontological Inlier of Ordovician volcanic strata surrounded by reef limestone. The limestone reefs of Ashgill (Ordovician) age are very rare and this is the only one known in Ireland. Contain rich trilobite fauna.
Newbridge Fen	Z	77, 16	National	A	Botanical Probably most extensive fen in Irish midlands. Reputed to be largest area of saw sedge in Western Europe. The fen is relatively recent origin and its present botanical interest is maintained by alkaline drainage water percollated from the Curragh gravels.
Liffey meander belt		804,930 090,105	National	O	Geomorphological, Botanical Broad flood plain with classical meander formations. One of the finest meander belts in Ireland. Patches ash woodland surrounded by dense growth of sedges form an ecologically interesting carr community.
Carrighill Quarry	z Z	804,051	Regional	В	Stratigraphical, Sedimentological Type section of the rarely exposed Carrighill Formation (Lower Palaeozoic).
Corballis Hill	Ω	82, 87	Regional	В	Botanical, ornithological, sedimentological Corballis Hill is composed of sandstone though there are drift deposits on its lower slopes. Heath and oak wood communities cover the hill. Oakwood with a rich ground flora and abundant bird life, including the nightjar. One of the few woodlands in the county which was not planted.
Liffey Bank above Athgarvan	Z	82, 11	Regional	Ö	Botanical Unstable slope cut from sandy patch of boulder clay hy a meander of the river Liffey. The slope has been colonised by an interesting flora.
12		•			



Name of Area	Grid	Grid Reference	Rating	Priority	Scientific Interest
Moorhill Drygap	N.	88, 07	Regional	Ö	Sedimentological, Geomorphological Rare sedimentary features in inverted greywacke beds exposed in a glacial spill way.
Mouds Bog	N.	78, 16	Regional	A .	Botanical, Ornithological An extensive and well-preserved eastern raised bog near climatic limit, one of the best examples of its type. Well- developed surface vegetation, including some rare species in abundance. Supports a relatively high population of grouse.
Red Bog	N.	976,170	Regional	B	Botanical, Zoological, Ornithological Eutrophic lake lying between morainic ridges. Dense growth of bog bean rich in plant and invertebrate food for a variety.
Royal Canal	o .	01, 37	Regional	В	Botanical Contact area between different rivers. Rare plant species present
Slate Quarries	N	991,187	Regional	B	Stratigraphical, Sedimentological Type section for the Slate Quardes Formation – an Ordovician greywacke formation. Activarchs which are rarely recorded elsewhere have been found here.
Bank of Liffey at Oberstown	N	N. 870,208	Local	æ	Botanical Steep river bank with a wet boulder clay surface covered by mosses, willows and woodland herbs. Several interesting species, including black willow.
Bog North of Prosperous	z	83, 29	Local	Ö	Botanical Raised bog with a representative flora, but modified by fire.
Derryvullagh Island	Z	900'889	Local	æ	Botanical, Ornithological Low drift island surrounded by raised bog with young seminatural woodland composed of hawthorn, blackthorn, elder, hazel and a few traces of privet. Some rare plant species occur. Bird life of the area is rich.



Name of Area	Grid	Grid Reference	Rating	Priority	Scientific Interest
Donadea Wood	ż	83, 32	Local	U	Botanical, Ornithological, Zoological The woodland provides an exceptionally good contrast between different types of woodland, from spruce and larch through beech to the native species. Planted ash, sycamore, oak and beech with some natural hawthorn, hazel and elder as well as spruce and larch. Has a moderately rich bird life and a wide range of mammals.
Glen Ding	Z	963,155	Local	Ö	Geomorphological A dry glacial spillway with extensive deltaic deposits in surrounding areas (mainly in Co. Wicklow).
Grand Canal	ż	97, 29	Local	C	Botanical, Zoological Of botanical and ecological Importance
Kilteel Wood	ż	980,216	Local	В	Botanical, Sedimentological Small area of remnant oak scrub simulating a natural wood on ordovician rock. The wood is open and much cut. Poor regeneration and poor flora.
Loui sa Bridge	ż	995,368	Local	æ	Botanical A terraced area of marsh extending from Royal Canal to banks of Rye Water. Unusual seepage habitat with interesting plant community. Rich thermal spring gives rise to specialised habitat conditions.
Poulaphuca Gorge	z	93, 08	Local	O	Botanical, Petrological Steep slopes cut in ordovician schists by river Liffey. The slopes of the gorge have been colonised by trees either planted or derived from seedlings. Several unusual plant species.
Prosperous Reservoir (Ballynafagh Lake)	z	81, 28	Local	В	Botanical Ornithological Shallow lake with patches of emergent vegetation in middle as well as around shore. Rich wildfowl feeding area and breeding site for many water birds
Rye Water Valley (Carton)	N.	95, 37	Local	O	Botanical, Ornithological River and lake flood plains with unusual plant species, St. John's wort and water figwort. Rich in passerines and water birds, including wintering wildfowl.
Usk Marshes	Z	84, 02	Local	В	Ornithological Geomorphological Small marshes with calcarcous seepage. Support a relatively large number of snipe. The high eske nearby has a fully representative flora.



SECTION F

DETAILED REPORTS ON AREAS SURVEYED IN SUFFICIENT DETAIL

These are written under the following sub-headings:-

Name of Area

Acreage :

Grid Reference

Scientific Interest

Rating

Priority

Description of Area

Evaluation

Vulnerability or Threats to the Area

Recommendations

In the descriptions the abundance of the species may be indicated by the following symbols:-

a = abundant

c = common

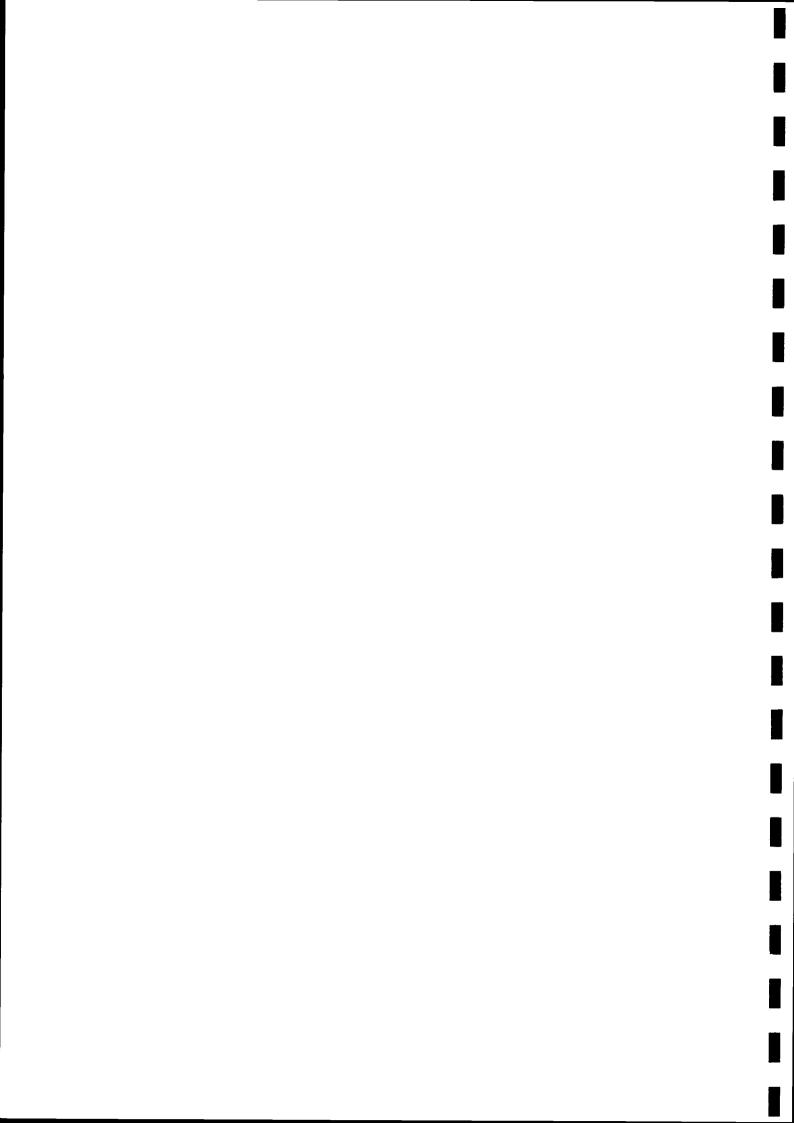
f = frequent

o = occasional

r = rare

l = locally (as a prefix)

Botanical nomenclature follows that of 'Flora Europaea', the standard work of which the first two volumes have so far been published. (1964 & 1968).



Name of Area CHAIR OF KILDARE AND GRANGE HILL

Acreage 1 km²

Grid Reference N. 72, 18

Scientific Interest Geological Structural

Rating National Pelaeontological

<u>Priority</u> C

Description and Evaluation

Two geological features occur within this area; the Chair of Kildare is a reef of Ordovician limestone while on Grange Hill there is a group of volcanic rocks of a slightly earlier period.

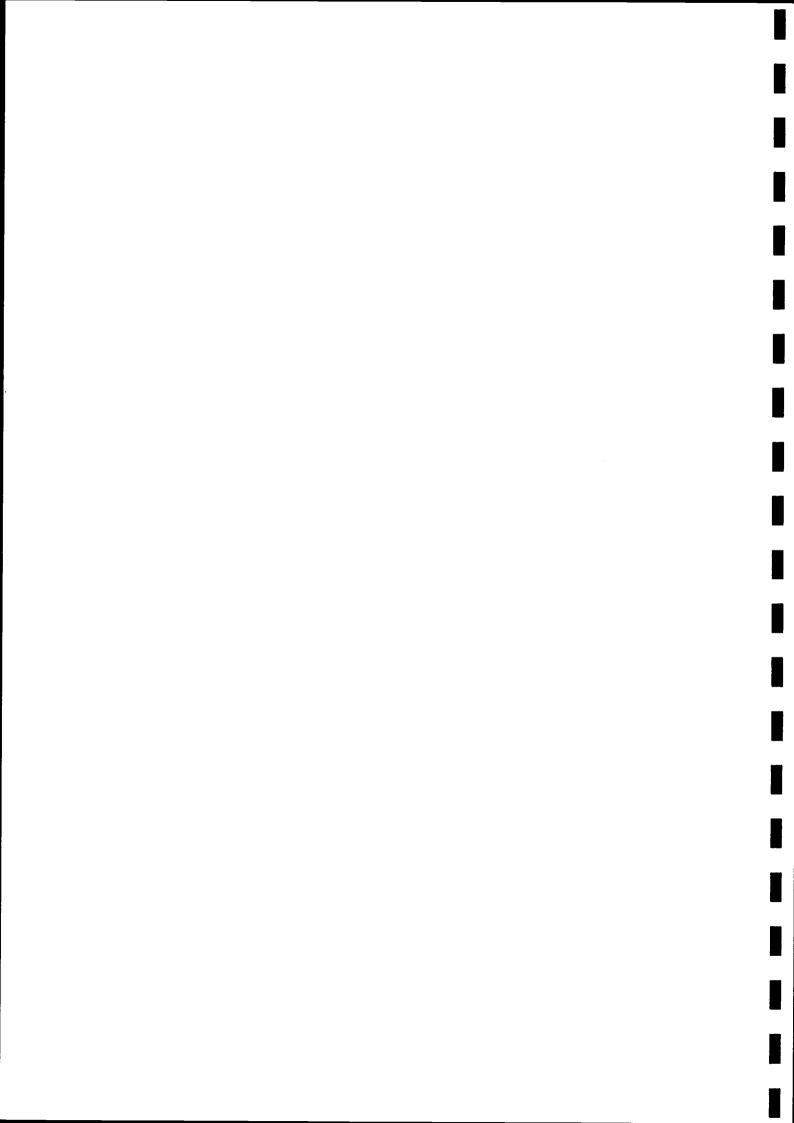
Limestone reefs of Ashgill(Ordovician) age are very rare and this is the only one known in Ireland; it may be related to similar formations in Westmorland (England) and Scandinavia. It developed on part of the volcanic moss of Grange Hill and a rich invertebrate fauna has been fossilized. This includes twenty-six trilobite species, for five of which the Chair of Kildare is the type locality (the place they were first described). The limestone overlies shales, volcanic ash and the volcanic rocks, and it is stained red and green in part.

The Kildare inlier is made up of volcanic rocks and limestone and the former are excellently exposed on Grange Hill and Grange Common. They are of the same period as the Portrane and Lambay I. igneous rocks and include andesites, basalts, and keratophyres. In addition, the lavas show a varied series of flow structures. This is a regionally important site which needs further investigation and description by geologists.

Vulnerability

The outcrops of limestone which are limited in extent could be built over.

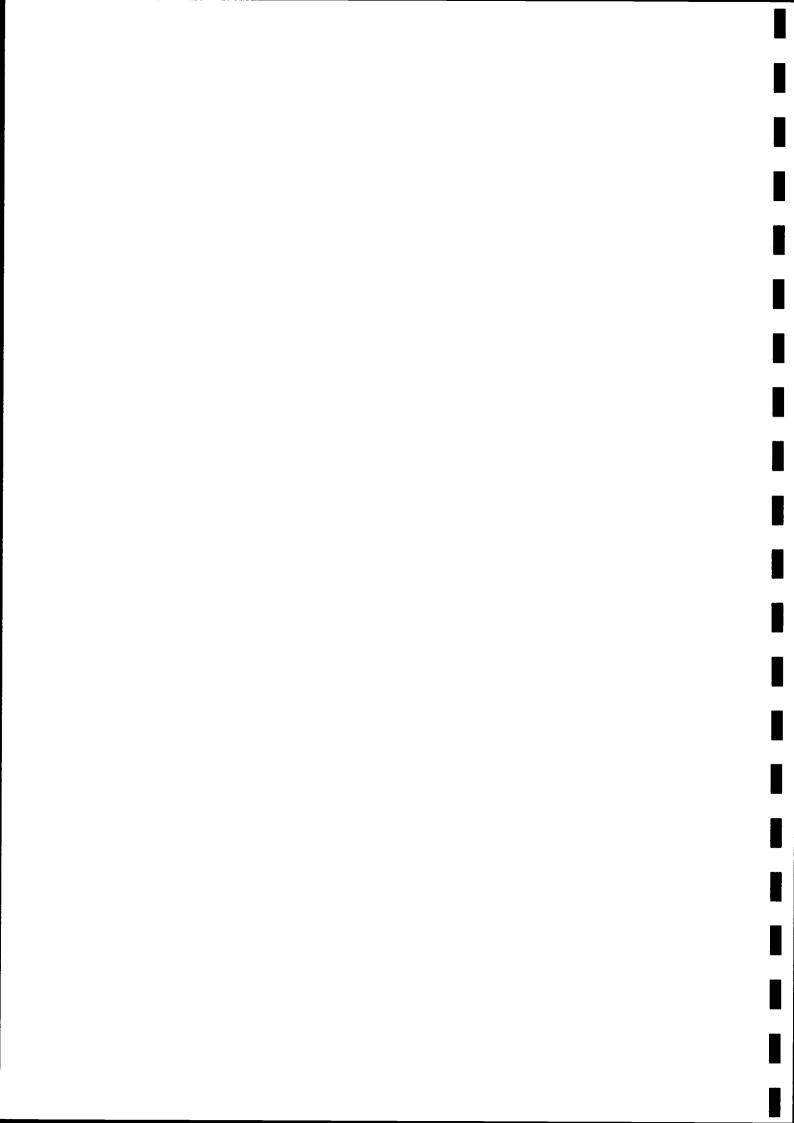
The more widespread volcanic rocks resemble those of the Hill of Allen which have been found suitable for road material.



Recommendations

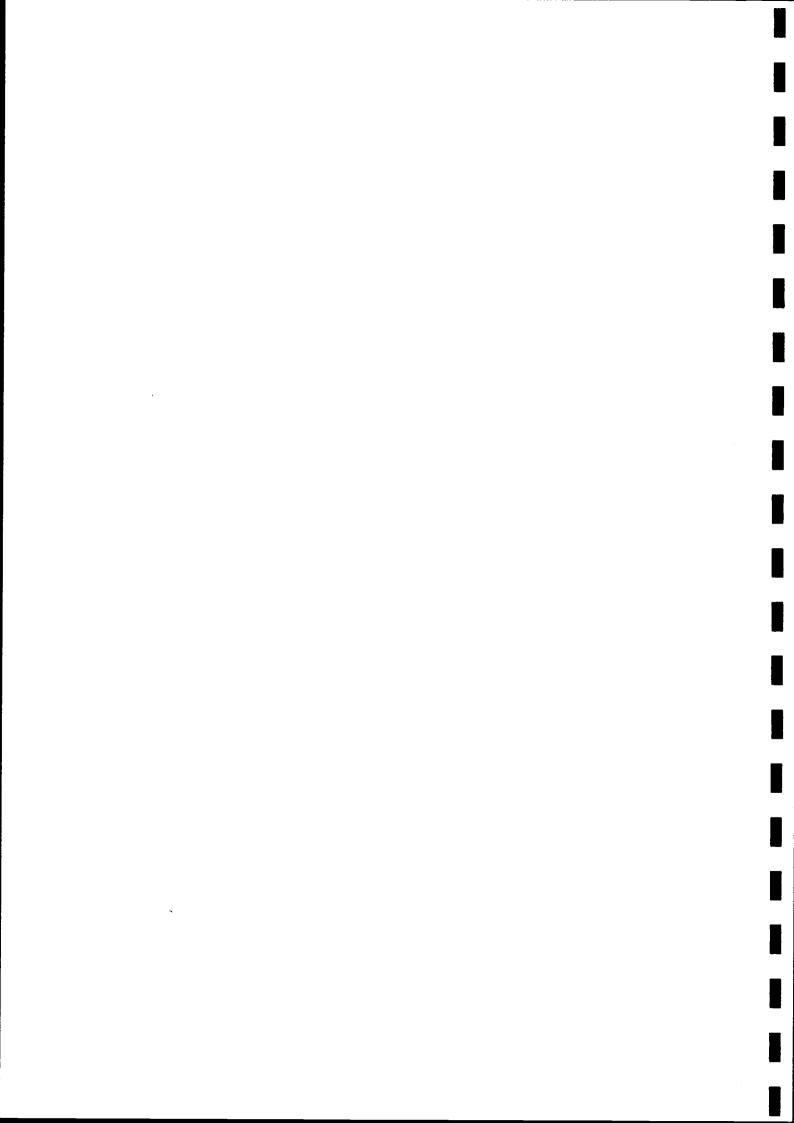
General planning control should be exercised in this area to prevent the outcrops of interesting rocks from being obliterated.

Quarrying should be restricted to the Hill of Allen.



MAP SHOWING AREA OF SCIENTIFIC INTEREST-

Scale: 6 Inches to 1 Mile M 0 ARRICE



Name of Area NEWBRIDGE FEN (Pollardstown)

Acreage 152 ha

Grid Reference N. 785 117

<u>Scientific Interest</u> Botanical,

Rating National

<u>Priority</u> A

Description of Area

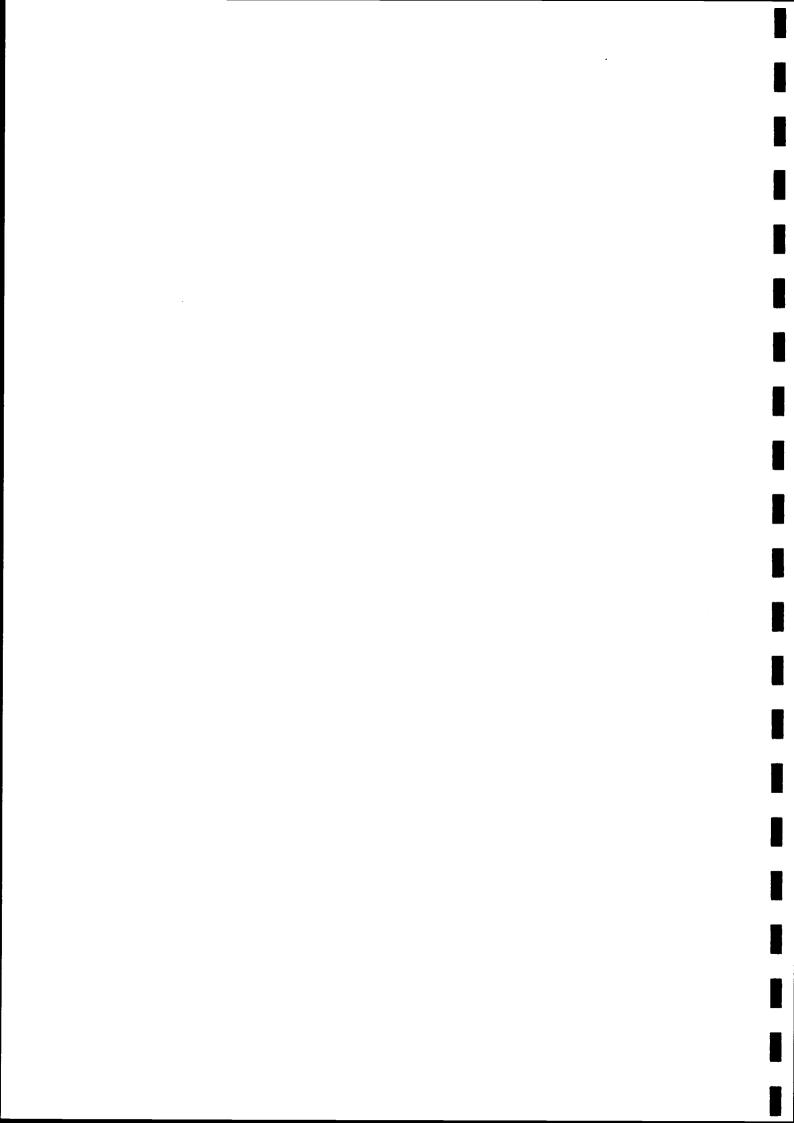
Newbridge Fen is possibly the most extensive fen in the Irish midlands: it certainly has the largest area of <u>Cladium mariscus</u> (saw sedge) in Ireland. This covers the central area with sparse <u>Schoenus nigricans</u> (black bog rush) <u>Phragmites australis</u> (reed) and <u>Molinia caerulea</u> (purple moor grass).

Marginally, the <u>Cladium</u> dies out being replaced by <u>Schoenus</u>, with <u>Festuca arundinacea</u> (reed fescue), <u>Juncus subnodulosus</u> (rush) and occasionally <u>Carex paniculata</u> (a sedge). It is in this community that the more unusual members of the flora occur, e.g.:-

Angelica sylvestris	angelica	C
Caltha palustris	marsh marigold	f
Centaurea nigra	knapweed	f
Succisa pratensis	devil's bit	f
Cisium dissectum	meadow thistle	0
Dactylorhiza fuchsii	spotted orchid	0
Eriophorum latifolium	bog cotton	0
Platanthera bifolia	butterfly orchid	0
Galium uliginosum	fen bedstraw	0
Calluna vulgaris	heather	r
Ophrys insectifera	fly orchid	r
Dactylorhiza traunsteineri	marsh orchid	r

Mosses include <u>Drepanocladus</u> revolvens and <u>Acrocladium</u> spp. commonly with <u>Camptothecium</u> <u>nitens</u>.

At the moment, the marginal areas are wetter than the centre which is cut by drains 6-8 ft deep.



There is a substantial population of snipe in summer and winter.

Evaluation

This is probably the most significant site in Kildare. Though fens were widespread in all areas now covered by raised bog the origins of Pollardstown fen, which were relatively recent, have allowed it to persist to the present day without being colonised by acid vegetation. This situation has been aided by alkaline drainage water percolating from the Curragh gravels and the community so derived is most interesting. It has been said to contain the largest stand of <u>Cladium</u> in western Europe. It is also the only station for three species in Kildare and the second for three others. (See Appendix 1)

It would be an outstanding area for research into the ecology of <u>Cladium</u>. At the moment it is visited by field groups and students each year.

Vulnerability

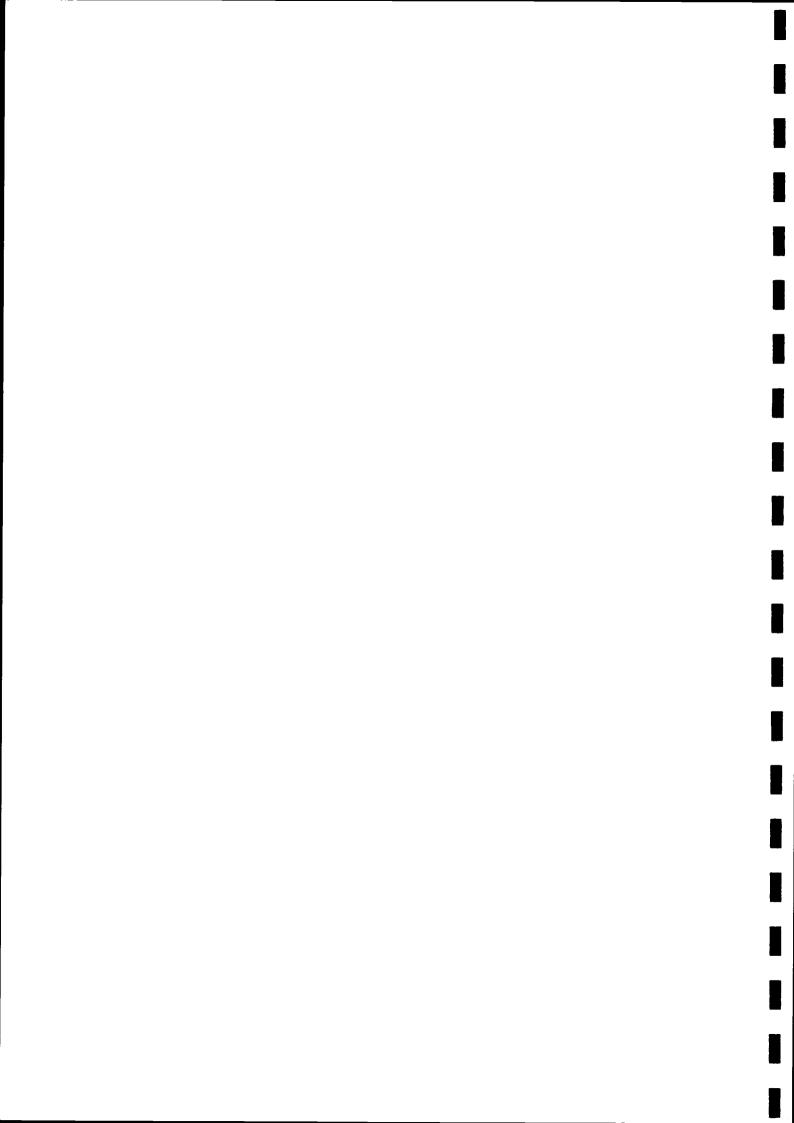
Drainage presents the most serious threat to the future of the fen. If the water table falls below a certain depth the plant communities will not be able to persist. Thoughthe marl substrate is very retentive of water the depth to which the drains have been sunk gives rise to serious concern.

Burning of the vegetation is only temporarily damaging to the flora though it may exterminate the invertebrate fauna for a longer time. If, however, it is combined with very dry conditions the rhizomes of <u>Cladium</u> might be adversely affected.

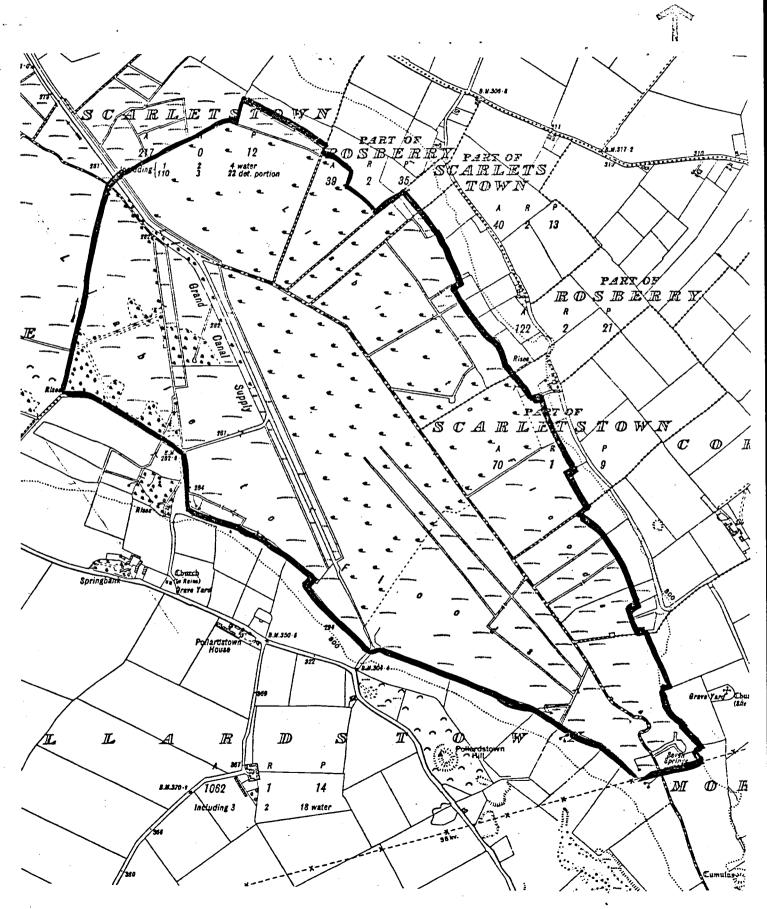
Recommendations

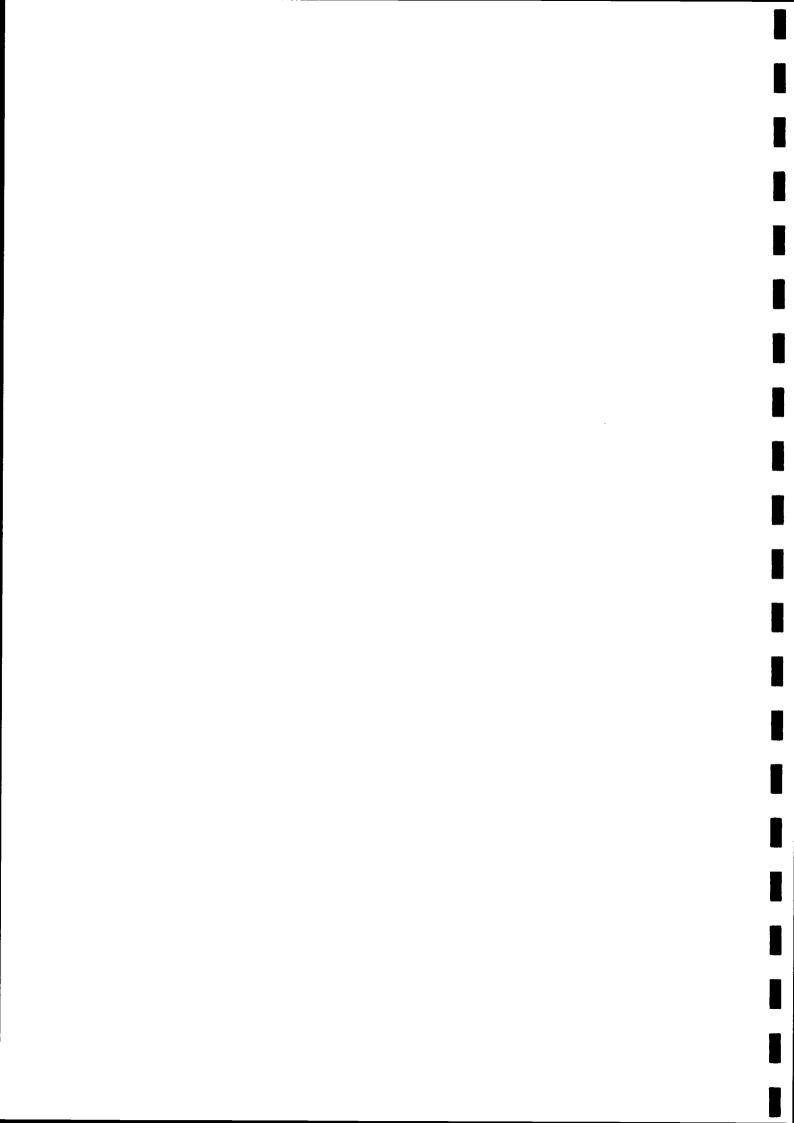
It is an excellent first step that this area should be covered by: a Conservation Order. However, the vegetation may not persist indefinitely with the drainage operations that have been done.

Consideration should be given to the possibility of blocking some of the ditches to raise water levels. This would be especially important at times of drought or of high fire risk and could be simply done with sluices. The aim should be



MAP SHOWING AREA OF SCIENTIFIC INTEREST -





Name of Area

LIFFEY MEAN DER BELT

Acreage

c. 2 km River Section

Grid Reference

N. 880, 930 to N. 090, 105

Scientific Interest

Geomorphological, botanical

Rating

National

Priority

С

Description of Area

From Ballymore Eustace to Kilcullen, the River Liffey occupies a broad flood plain bordered in places by steep slopes. The river meanders in a classical way showing all the features of this formation.

The flood plain is grazed or tilled entirely but the steep slopes which mark its edge are often wooded, sometimes naturally. There is one particular area which, though modified by grazing and felling, is of interest. It is an ashwood which runs down from the road, including a calcicolous seepage line along the base of the slope. Here the <u>Fraxinus</u> (ash) is surrounded by a dense growth of <u>Carex acutiformis</u> (sedge) with the following species in addition:-

Caltha palustris

marsh marigold

Iris pseudacorus

flag iris

Filipendula vulgaris

meadowsweet

Epilobium hirsutum

great willowherb

Juncus effusus

soft rush

J. inflexus

hard rush

Chrysosplenium oppositifolium

golden saxifrage

The woodland otherwise is closely grazed but includes the following herbs:-

Brachypodium sylvaticum

false brome grass 🧬

Sanicula europaea

wood sanicle

Conopodium majus

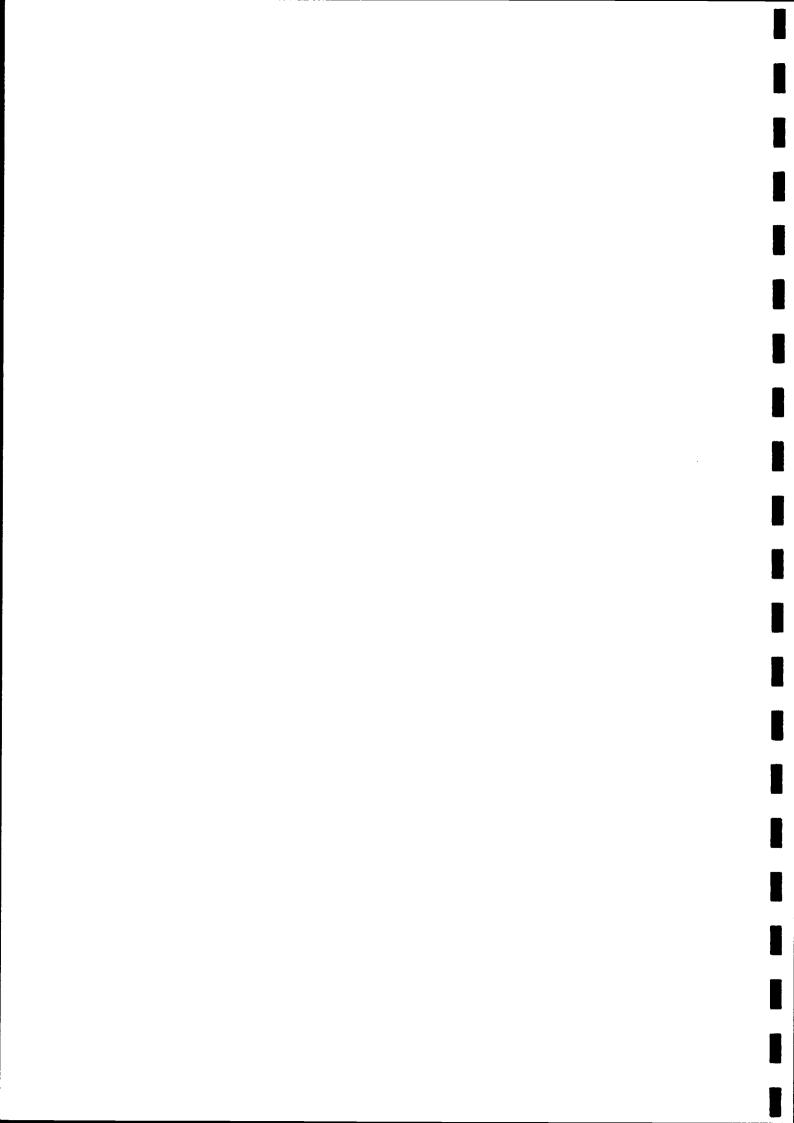
pignut

Ajuga reptans

bugle

Silene dioica

red campion



Veronica montana

wood speedwell

Carex remota

a sedge

Potentilla sterilis

barren strawberry

Polytrichum formosum

a moss

Apart from <u>Fraxinus</u> (ash) the tree species include <u>Fagus sylvatica</u> (beech)

<u>Acer pseudoplatanus</u> (sycamore), <u>Crataegus monogyna</u> (hawthorn), <u>Sambucus</u>

nigra (elder) and Alnus glutinosa (alder).

Evaluation

The meander belt of the Liffey is recognised as one of the finest in Ireland, and is therefore of national importance.

The patches of woodland are of more local interest but since ash woodland is relatively rare in the region and a woodland with natural origins unusual in Kildare, it has some value. It contains a characteristic plant of the Liffey and Barrow catchments, <u>Silene dioica</u> (red campion) and also an uncommon <u>Veronica</u>. The <u>Fraxinus -Carex acutiformis</u> community is ecologically termed a carr and is relatively rare.

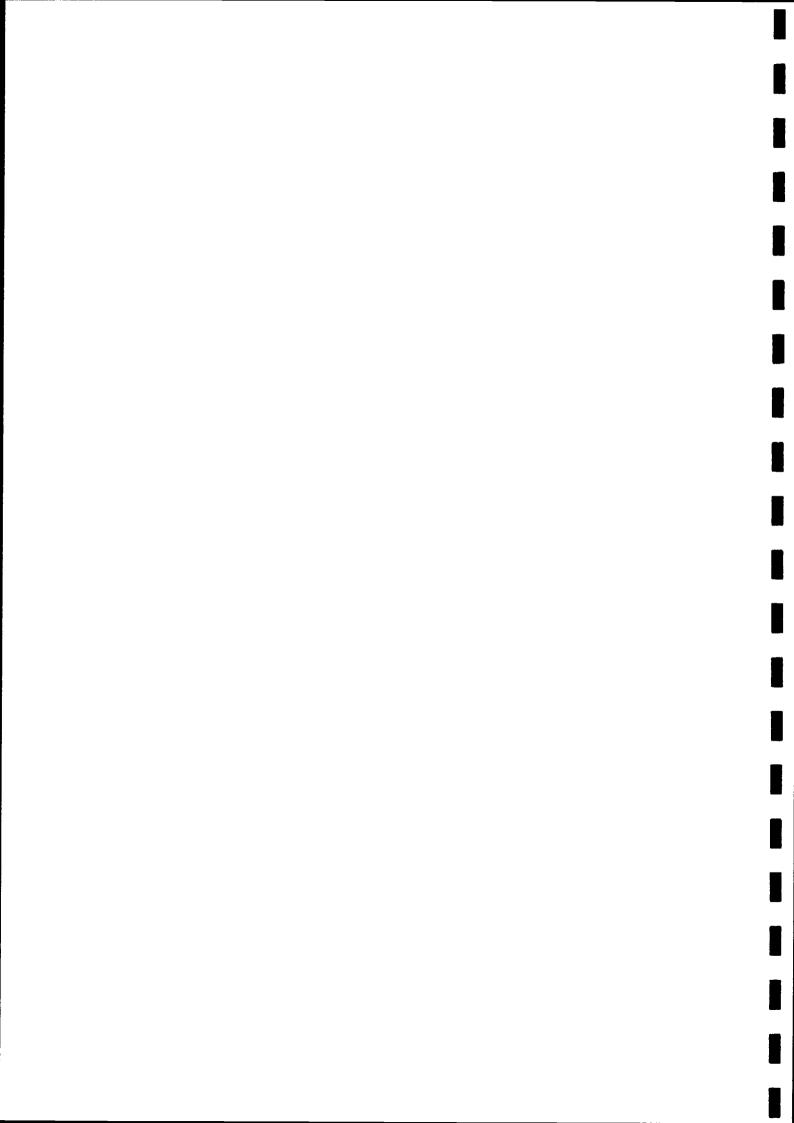
Vulnerability

Little damage can be done to the meander belt except by artifically channelling the river. Grazing tends to eliminate much of the ground flora in a wood and also to prevent regeneration. The present level is slightly too high. The amount of felling is substantial but it keeps the wood at a very young and productive stage.

Recommendations

The river banks should not be strengthened and the channel should be allowed to change its:course.

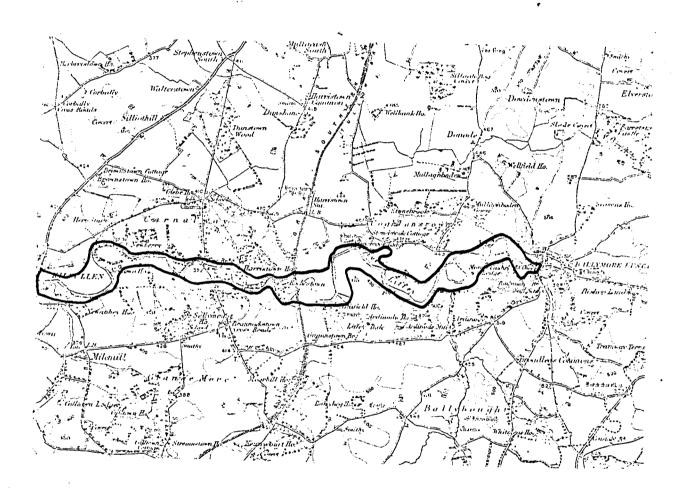
If possible the grazing intensity should be reduced in the ash wood described.

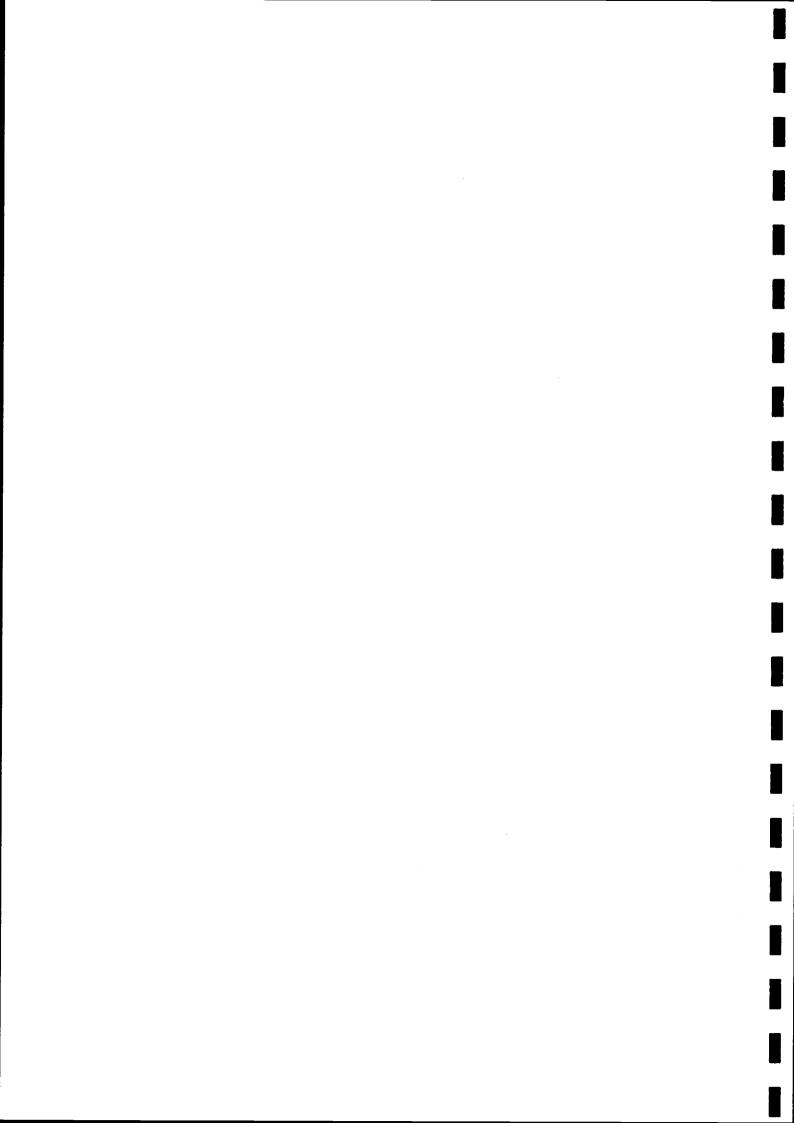


MAP SHOWING AREA OF SCIENTIFIC INTEREST —

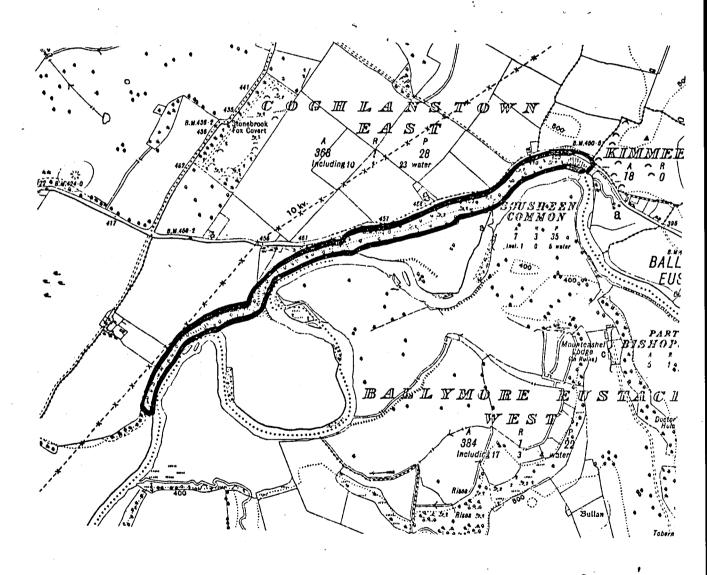
Scale: 1 Inch to 1 Mila

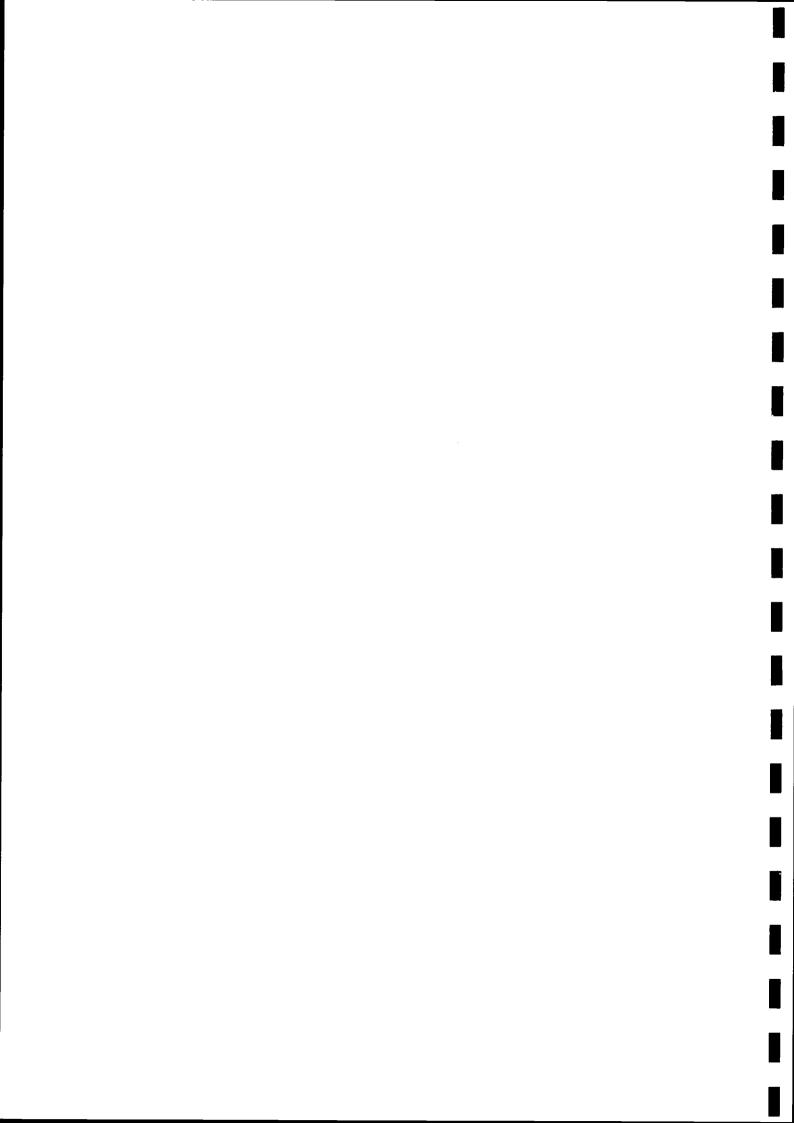






MAP SHOWING AREA OF SCIENTIFIC INTEREST —





Name of Area CARRIGHILL QUARRY

Acreage c0.5 ha

Grid Reference N. 804, 051

Scientific Interest Geological Statigraphical Sedimentological

Rating Regional Importance

<u>Priority</u> B

Description and Evaluation

This area is also important in the lower Palaeozoic stratigraphy of County Kildare. It is the largest exposure of the * Carrighill Formation and is, in fact, the type locality for it. It is a rock type only rarely exposed.

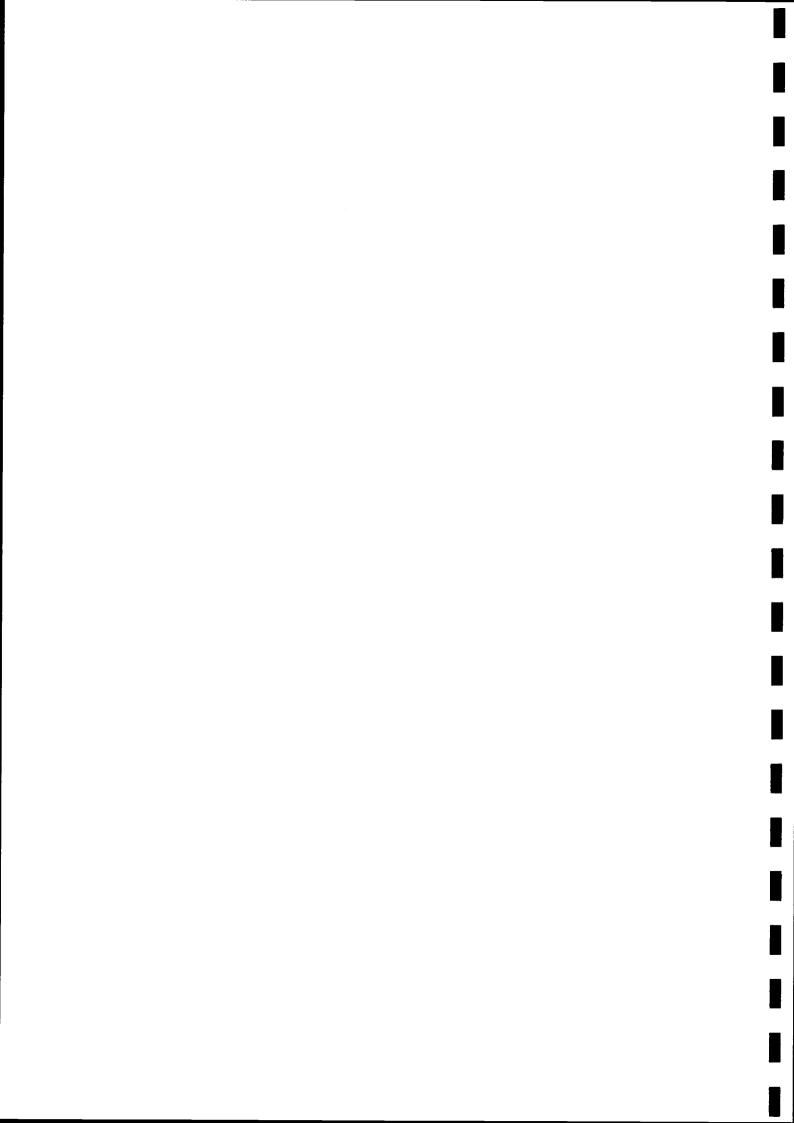
Vulnerability

(As for Slate Quarries). In this instance though quarrying would be valuable, it is important that rare sole-features which occur in some of the rock, be preserved.

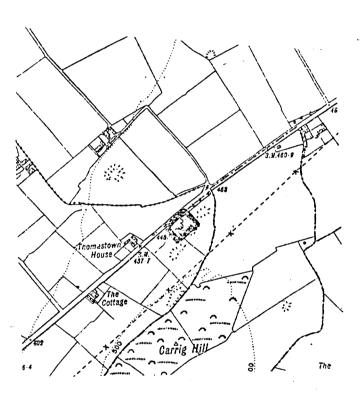
Recommendations

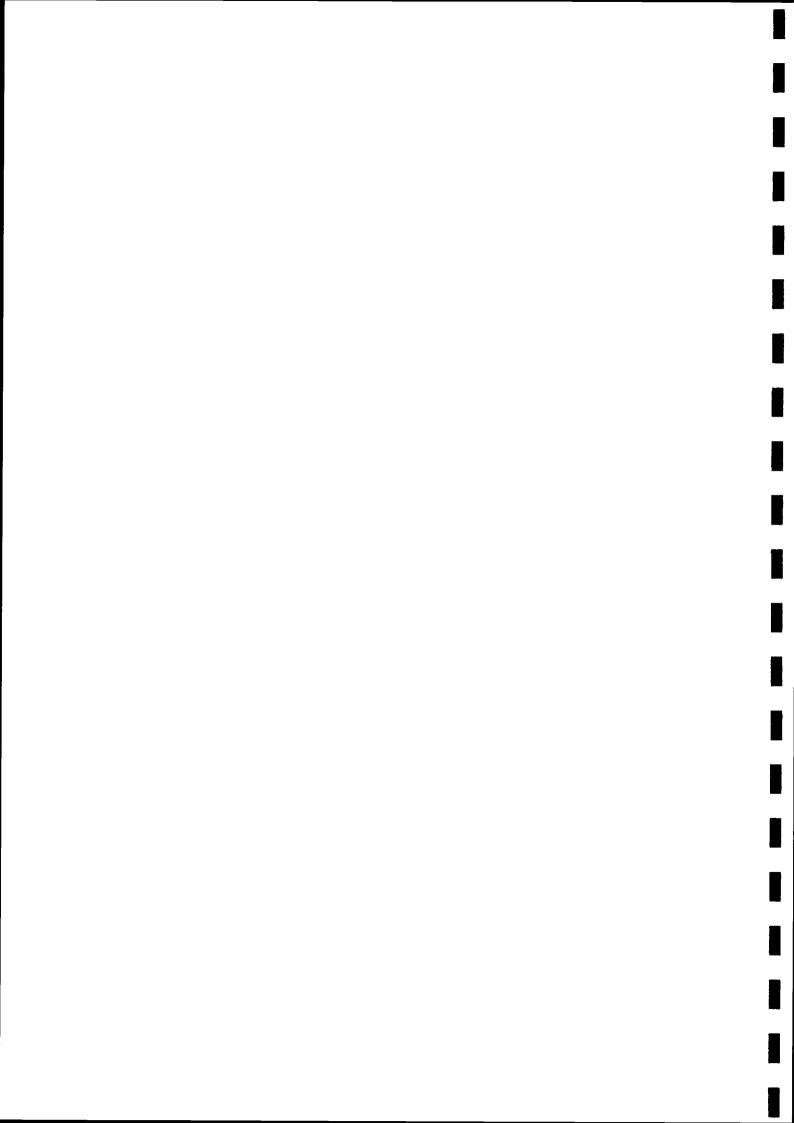
(As for Slate Quarries). The preservation of a good sample of the solefeatures should be made a condition on the granting of planning permission for further quarrying.

^{*} See page 44



MAP SHOWING AREA OF SCIENTIFIC INTEREST—





Name of Area CORBALLIS HILL

Acreage 23 ha

Grid Reference S. 82, 87

Scientific Interest Botanical, Ornithological Sedimentological

Rating Regional

<u>Priority</u> B

Description of Area

Corballis Hill is made of sandstone though there are drift deposits on its lower slopes. Blanket bog might be thought to be the probable vegetation but in fact its elevation (853 ft) does not attract sufficient rainfall and heath and oak forest are found over the entire hill. The fact that woodland was formerly more extensive is shown by the presence of many woodland herbs, e.g. Endymion non-scripta (bluebell) and Anemone nemorosa (wood anemone), in the present grassland cover of Agrostis tenuis, A. stolonifera (bent grass), Vaccinium myrtillus (frochan), Sieglingia decumbens (heath grass), Pteridium aquilinum (bracken), Ulex europaeus, U. gallii (gorse) and Calluna vulgaris (heather).

The oakwood itself is most dense on the east and north sides. In places it is an almost pure stand, while elsewhere Salix cinerea (willow) or Corylus avellana (hazel) plays an important part. Some of the Corylus are very old individuals with a diameter of 9 inches. There is partial development of an understory of this species in the oakwood but holly seems very rare, except as seedlings. On the lower slopes the trees are more varied and often planted, e.g. Acer pseudo-platanus (sycamore), Fraxinus excelsior (ash), Aesculus (horse chestnut), Larix (larch), etc.

The flora of the oakwood is rich and colourful, containing the foliowing species:-

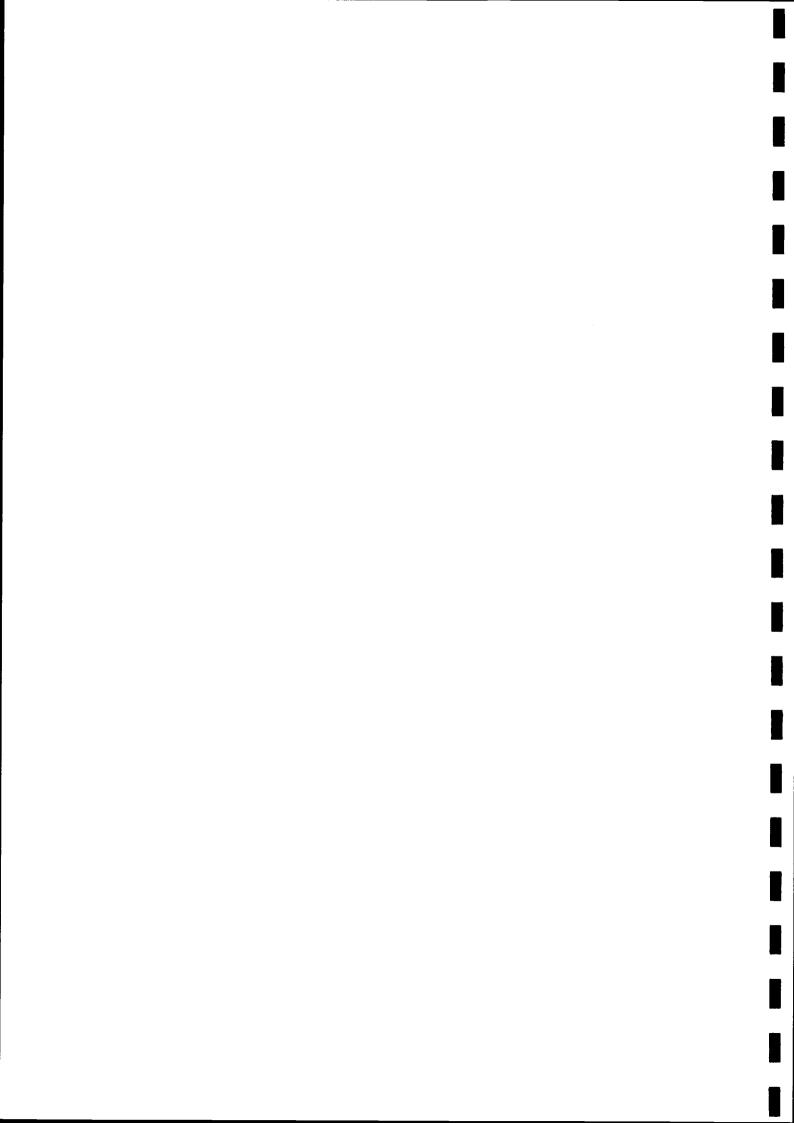
Endymion non-scripta bluebell

Geranium robertianum herb robert

Luzula sylvestris greater woodrush

Anemone nemorosum wood anemone

Vaccinium myrtillus frocham 29.



Dryopteris dilatata

D. carthusiana

Oxalis acetosella

Viola riviniana

Holcus mollis

Potentilla sterilis

Silene dioica

Fragaria vesca

Stellaria holostea

Ranunculus ficaria

Conopodium europaea

Rosa arvensis

Rubus idaeus

buckler fern

Wood sorrel

violet

wood soft grassy

barren strawberry

red campion

wild strawberry

greater stitchwort

celandine

pignut

rose

raspberry

<u>Polypodium vulgare</u> (polypody) occurs on the ground but not epiphytically and the mosses include <u>Polytrichum formosum</u>, <u>Dicranum majus</u>, <u>Plagiothecium undulatum</u>.

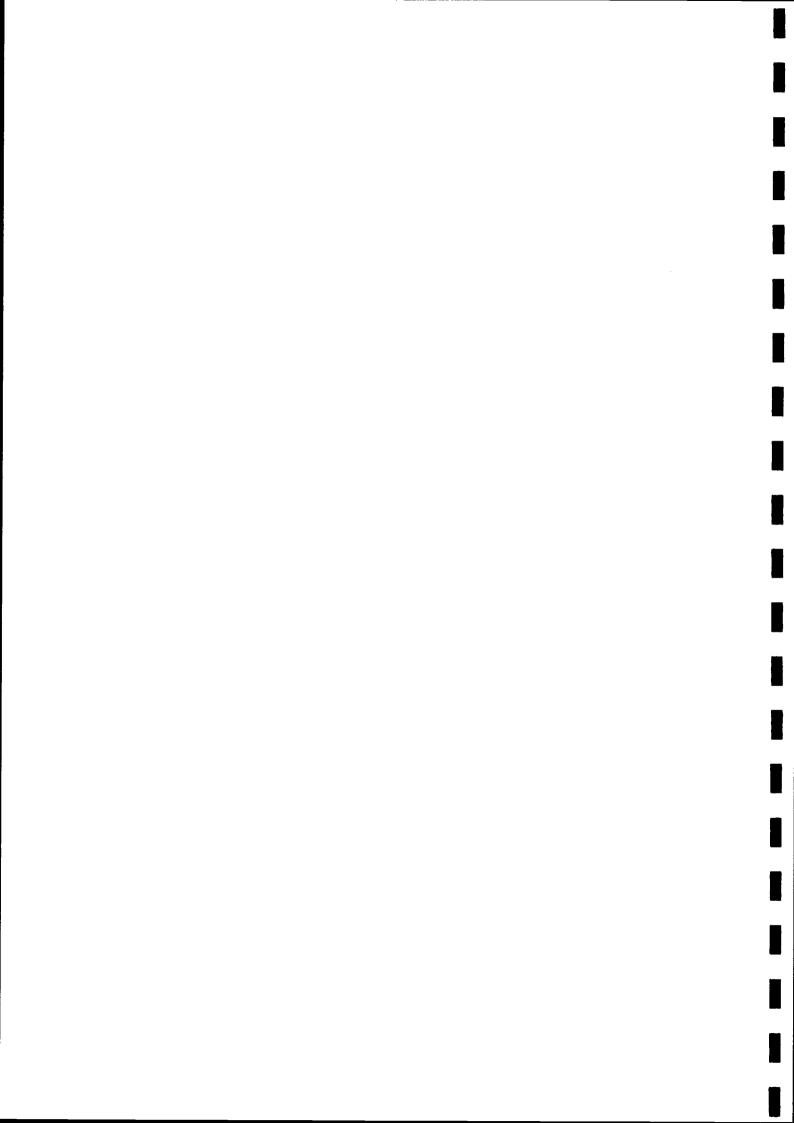
The oak trees vary from 10-30 feet at their upper limit but in more sheltered places they reach 40-50 ft. Little regeneration was seen and the wood is grazed by cattle.

Bird life was exceptionally rich and all the common passerines were seen. Pheasant and woodcock nest, as does the stock dove, sparrowhawk and kestrel.

Evaluation

This is an important woodland by any standards, situated in a relatively dry region and with a rich ground flora. For Kildare it is exceptional and one of the only woods that was not completely planted. Many of the characteristic plants of upland woods occur and the presence of <u>Silene</u> <u>dioica</u> (campion) is of interest.

The wildlife of the area is rich and may contain uncommon species, e.g. nightjar.



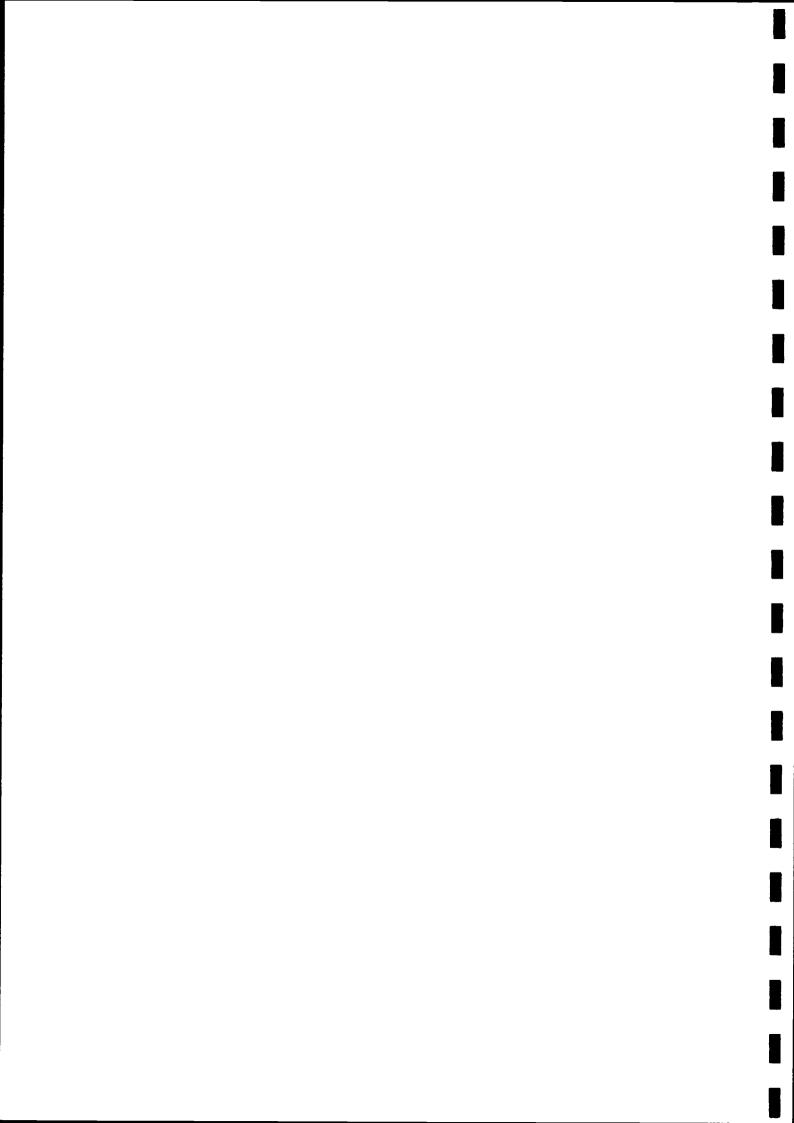
<u>Vulnerability</u>

The wood would be liable to be underplanted with conifers or felled prior to planting. There is an extensive coniferous area on the hill at the moment and this provides an interesting contrast and further diversity to the area.

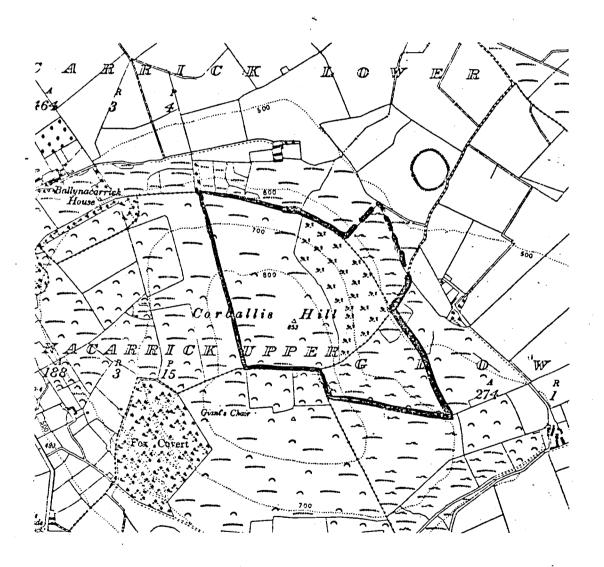
Recommendations

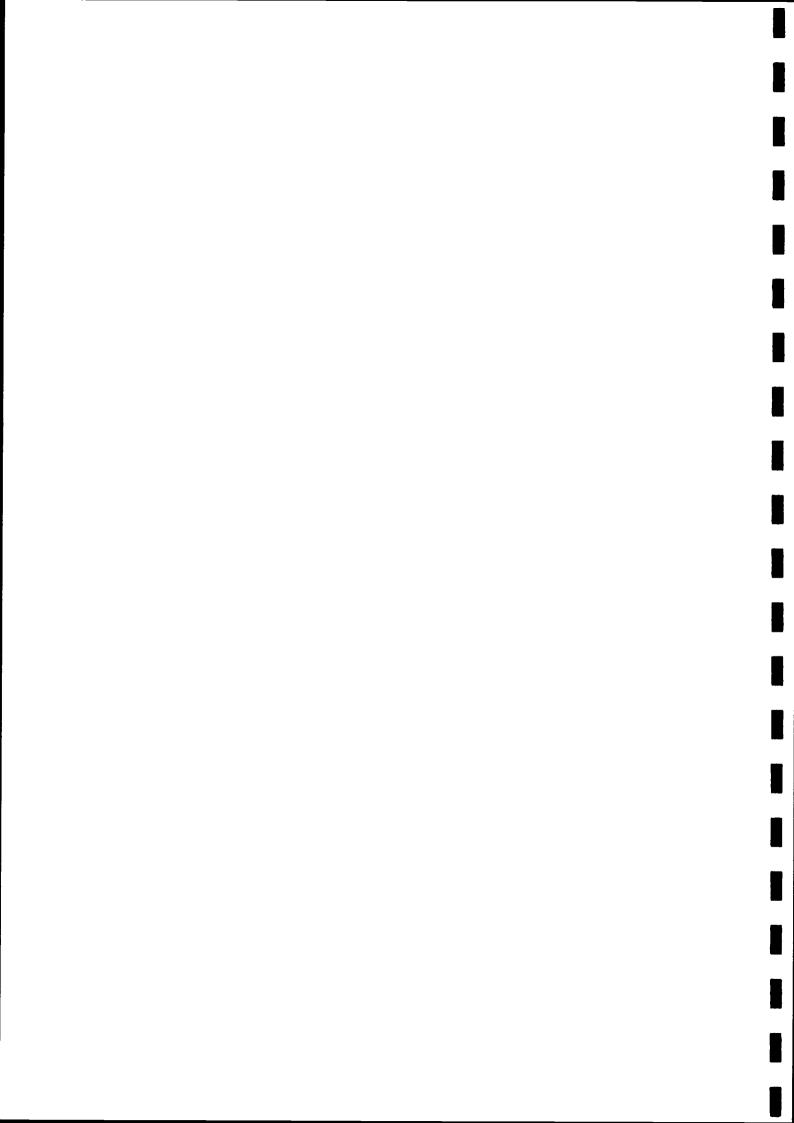
The timber and woodland community are of sufficient value to be preserved intact by a Tree Preservation Order. If underplanting cannot be voluntarily restrained, a Conservation Order, under Section 46, Local Government (Planning and Development) Act, 1963, should be used.

The coniferous forest should be maintained at its present area.



MAP SHOWING AREA OF SCIENTIFIC INTEREST —





Name of Area LIFFEY BANK ABOVE ATHGARVAN

<u>Acreage</u> l ha

Grid Reference N. 82, 11

<u>Scientific Interest</u> Botanical,

Rating Regional

Priority C

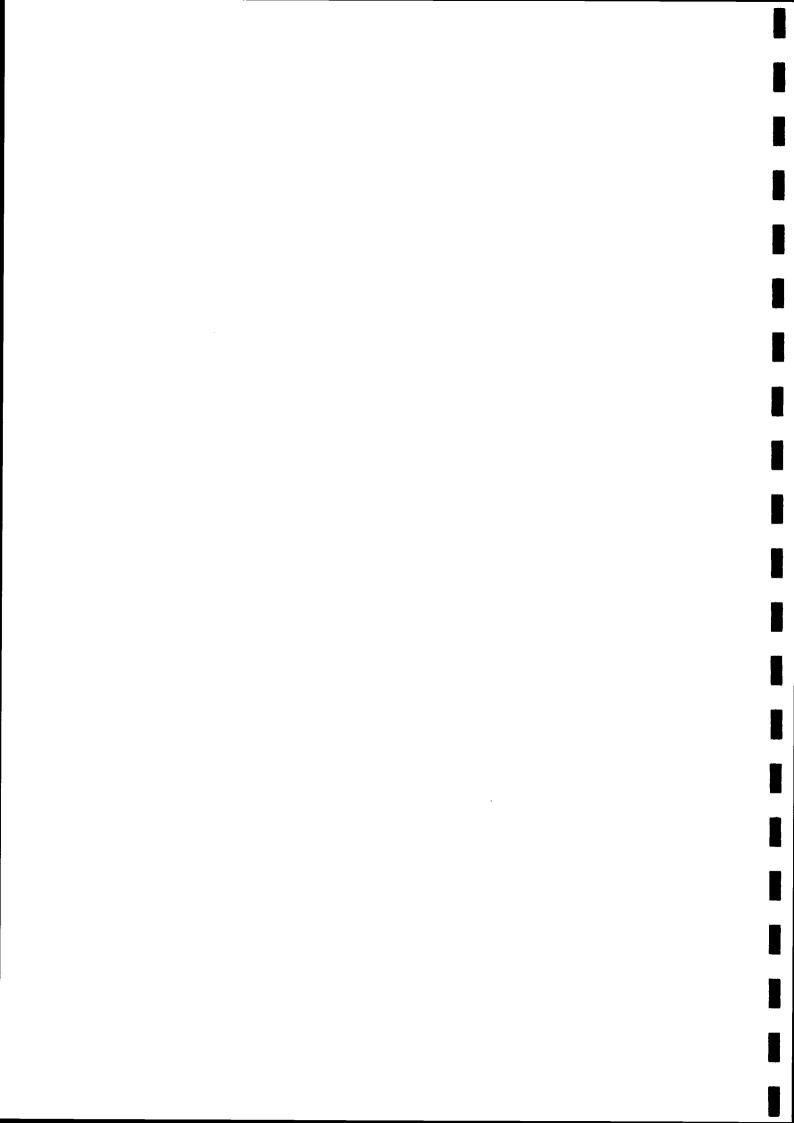
Description of Area

On one of the meanders above Athgarvan, the Liffey has cut into a very sandy patch of boulder clay, steepening its banks beyond the point where a continuous vegetation cover can exist. The resulting unstable sandy slope faces south and is colonised by an interesting flora, predominantly of those plants that occur also in artifically unstable soil, i.e. weeds. Beds of harder boulder clay make small cliffs in places and the grassland above these is of Festuca rubra (red fescue) with Thymus drucei (wild thyme), Carex caryophyllea (spring sedge), Pilosella officinarum (mouse-ear hawkweed), Leucanthemum vulgare (dog daisy) and Carlina vulgaris (carline thistle).

The more important open community below is of the following species:-

Myosotis arvensis	forget-me-not	С
Reseda luteola	dyer's rocket	f
Verbascum thapsus	mullein	f
Aphanes arvensis	parsely piert	f
Cynoglossum officinale	hound's tongue	f
Fumaria officinalis	fumitory	f
Veronica persica	speedwell	0
Sonchus aleraceus	sow thistle	0
Potentilla reptans	cinquefoil	0
Cardamine hirsuta	bitter cress	0
Origanum vulgare	marjoram	0
Scarophularia nodosa	figwort	r

Patches of scrub occur on the slope, made up of <u>Fraxinus excelsior</u> (ash), <u>Crataegus monogyna</u> (hawthorn) and <u>Prunus spinosa</u> (blackthorn).



Evaluation

The scientific interest in this area stems from the occurrence of plants, normally found only as weeds of cultivated land, in a completely natural habitat. Cynoglossum is found only rarely inland and this is probably the only place away from cultivation. In addition, Calamintha ascendens (calamint) was recorded here in the past and probably still occurs.

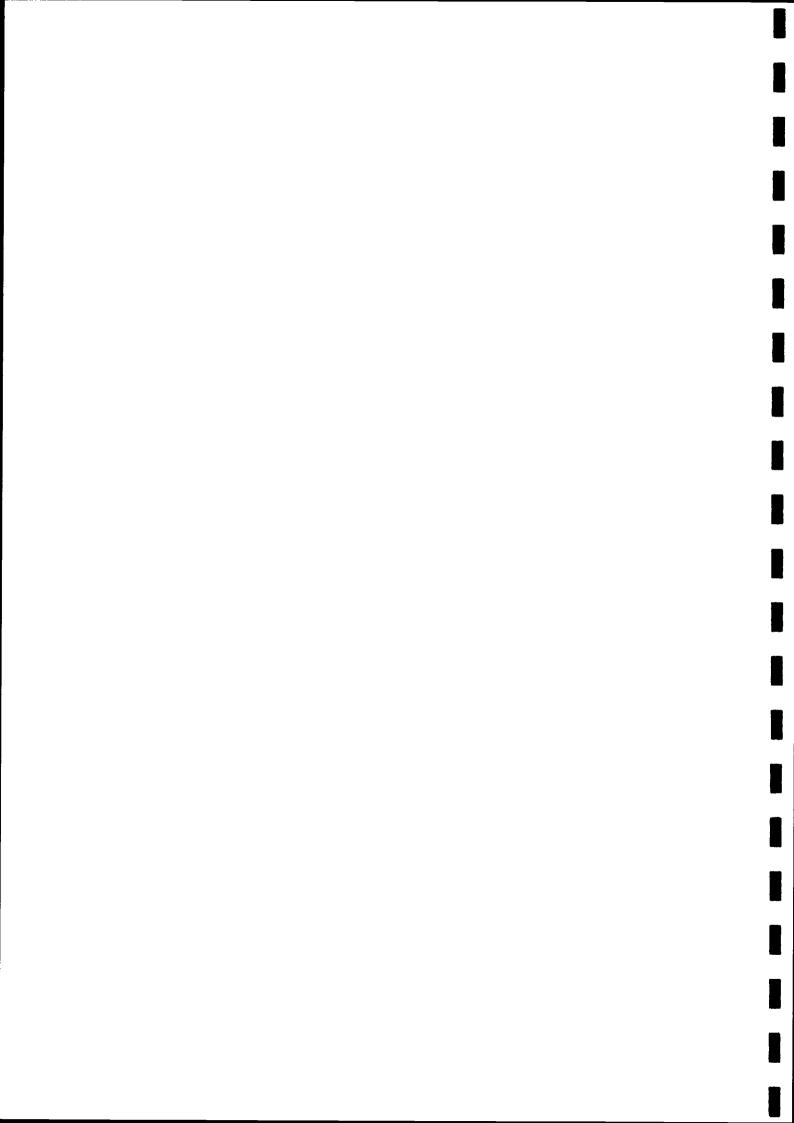
The habitat is unusual and the conditions somewhat resemble a sand dune.

<u>Vulnerability</u>

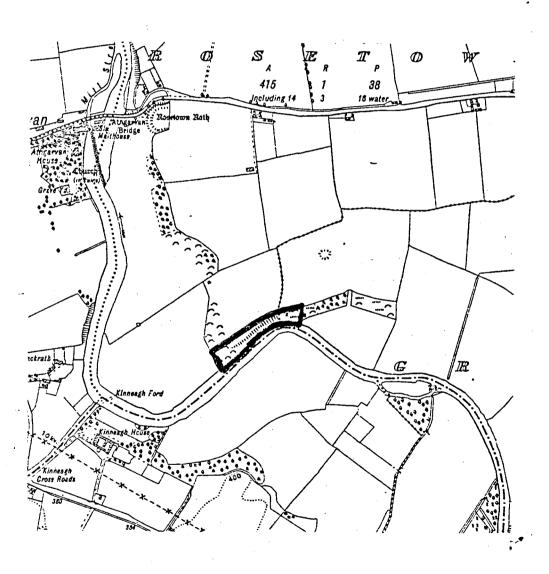
Sand removal would destroy the habitat which is otherwise relatively secure. Its unstable character will be maintained by natural forces.

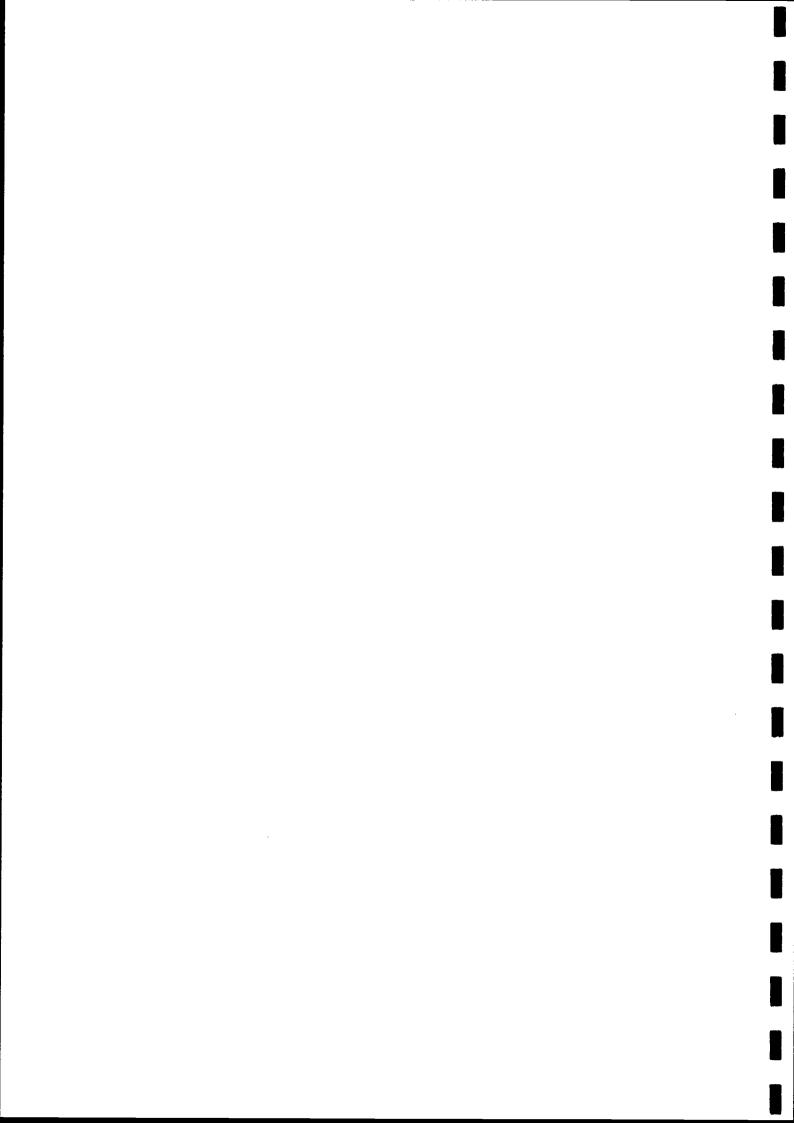
Recommendations

Extraction of these deposits should be prevented by planning control.



MAP SHOWING AREA OF SCIENTIFIC INTEREST —





Name of Area MOORHILL DRYGAP

Acreage 19 ha

<u>Grid Reference</u> N. 881, 073.- N. 883, 075

<u>Scientific Interest</u> Sedimentological, Geological, Geomorphological

<u>Rating</u> Regional

<u>Priority</u> C

Description and Evaluation

In the greywacke beds of *County Kildare such features as crescent moulds, flute moulds, load structures and sole features are extremely uncommon so their occurrence here on inverted strata is worthy of note. It is the most important site for these features on the west side of the Leinster Granite.

The best development is seen on the western side of the gap which is itself of interest to geomorphologists. It was one of the exits of glacial Lake Blessington whose water flowed westwards here and also north of Ballymore Eustace.

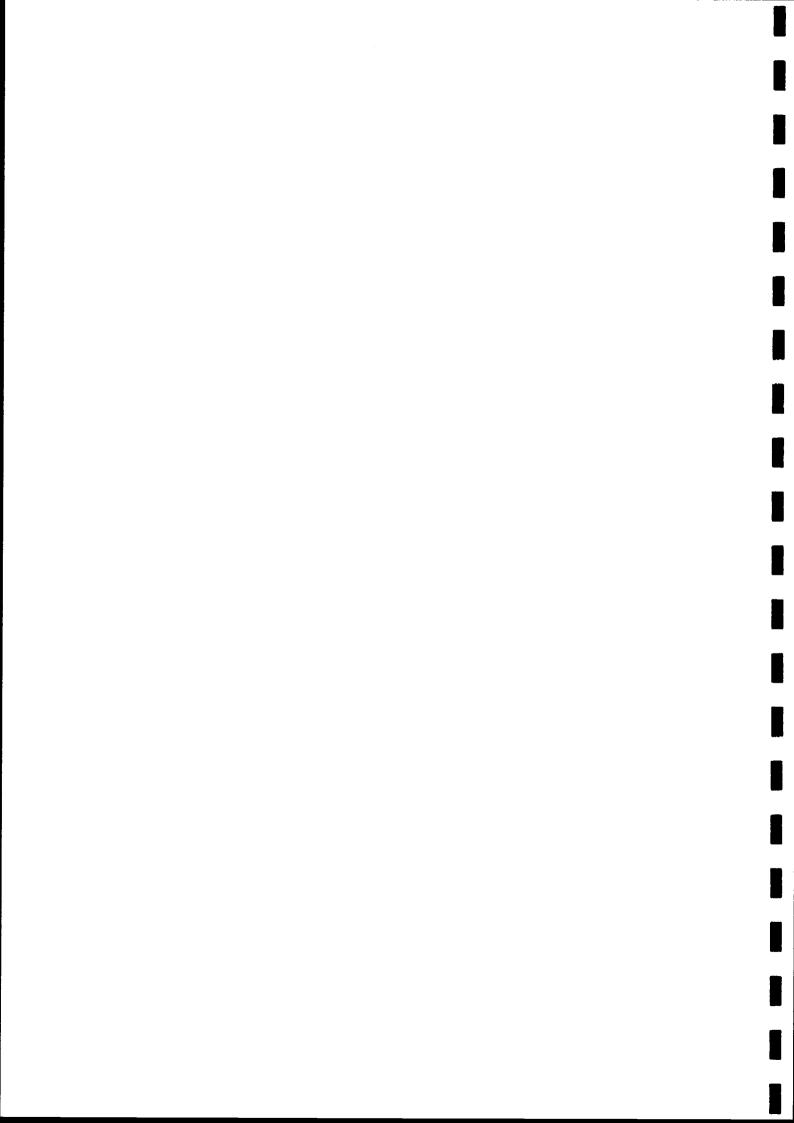
Vulnerability

No threats to this site are obvious.

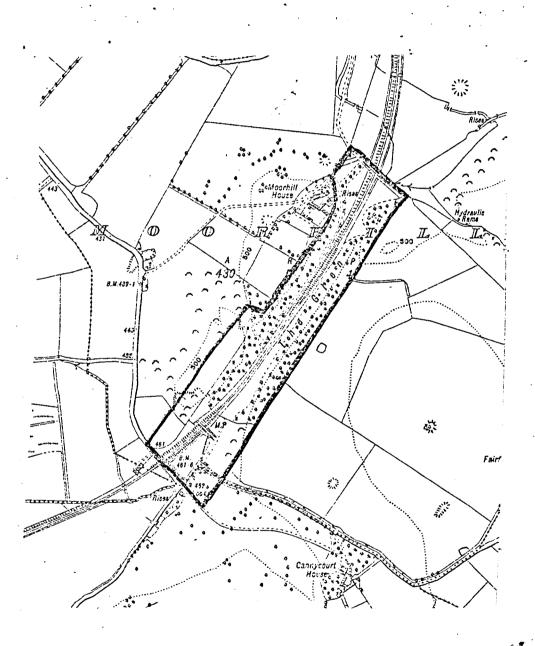
Recommendations

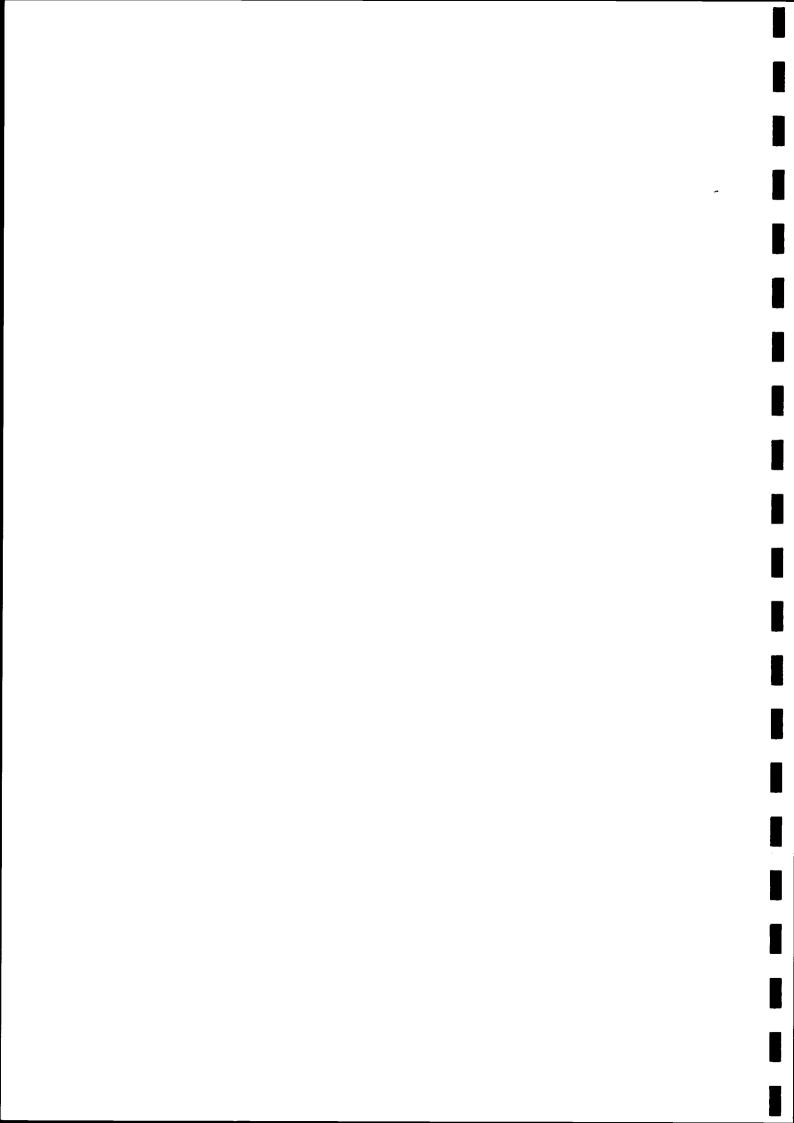
Protection of this site should be given through general planning control.

^{*} See page 44 No. 1.



MAP SHOWING AREA OF SCIENTIFIC INTEREST -





Name of Area MOUDS BOG

Acreage c. 5.5 km²

Grid Reference N. 78, 18

Scientific Interest Botanical, ornithological

<u>Rating</u> Regional

Priority A

Description of Area

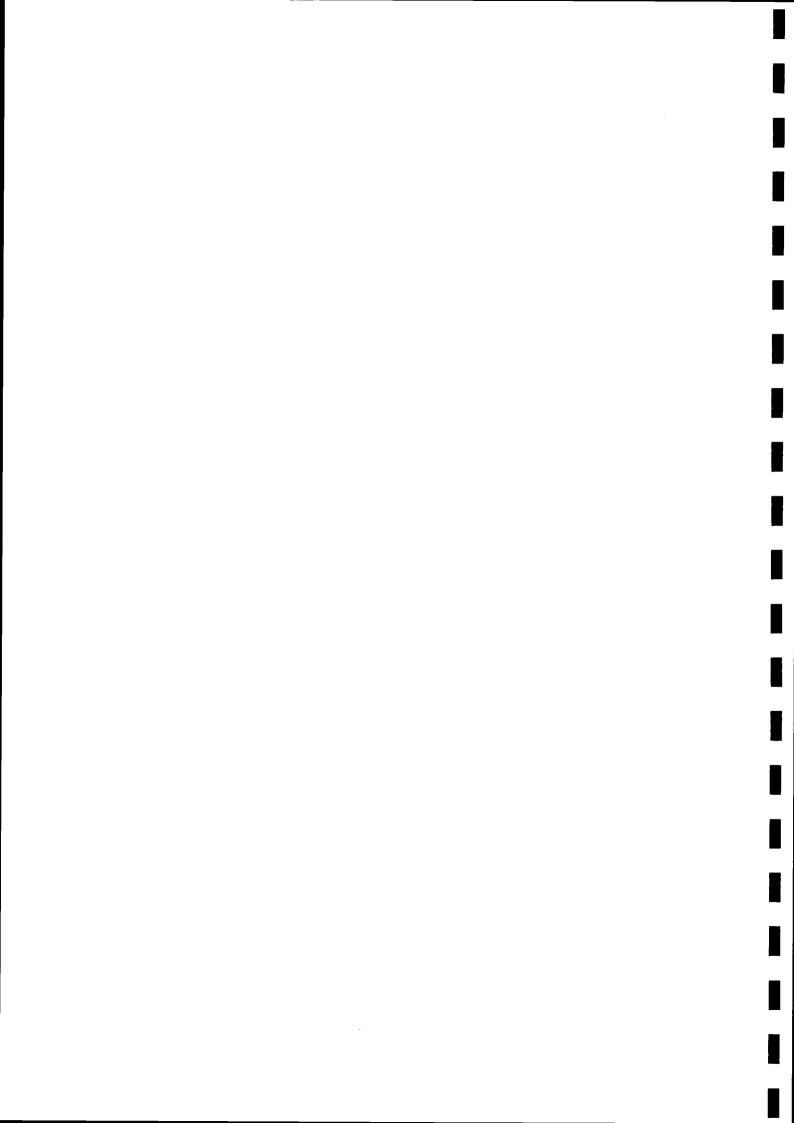
This is an extensive and well-preserved eastern raised bog. Though turf has been cut marginally the water table has remained high, especially in the region of the ponds marked on the map. Here the Sphagnum (moss) cover is exceptionally deep, occurring with an abundance of Eriophorum vaginatum (bog cotton), much Empetrum nigrum (crowberry) and Vaccinium oxycoccus (cranberry). It is a zone of water movement shown by the presence of trees (Betula pubescens - birch) and frequent plants of Juncus effusus, (soft rush). Some of the pools remain open, bordered by Carex rostrata, (sedge), Eriophorum angustifolium (bog cotton), while others have a complete cover of Sphagnum cuspidatum (moss).

The slightly drier parts of the bog support a typical vegetation that has not been burnt within the last 10-15 years. Extensive areas of tall <u>Calluna</u>, (heather) exist, sometimes with large tussocks of <u>Eriophorum vaginatum</u> (bog cotton). Elsewhere the <u>Calluna</u> is spaced out on <u>Sphagnum</u> cushions, mostly <u>S. papillosum</u>, <u>S. palustre</u> or <u>S. rubellum</u>.

There are some areas of 'regeneration complex' of alternating hollows and hummocks and possibly a few erosional pools of bare peat. These occur especially on burnt over patches.

The grouse population on this bog is relatively high for a raised bog.

Meadow pipit, skylark, curlew and kestrel were also seen while stonechats nest in the marginal gorse. The Irish hare occurs.



Evaluation

Mouds S. is an exceptional raised bog. Its surface vegetation is well developed including all plants that would be expected, some of the rarer ones in great abundance, and the topographic features are fully representative also.

Its geographical position makes this bog one of the most easterly in the country subject to the lowest rainfall, fewest raindays and highest sunshine duration. It is the best preserved raised bog closest to the extreme limits of this vegetation type in Ireland, and is therefore ecologically most valuable.

Its nearness to Dublin makes it very suitable for educational purposes and it is frequently used for this. The research done on various aspects of its ecology adds to its value.

Vulnerability

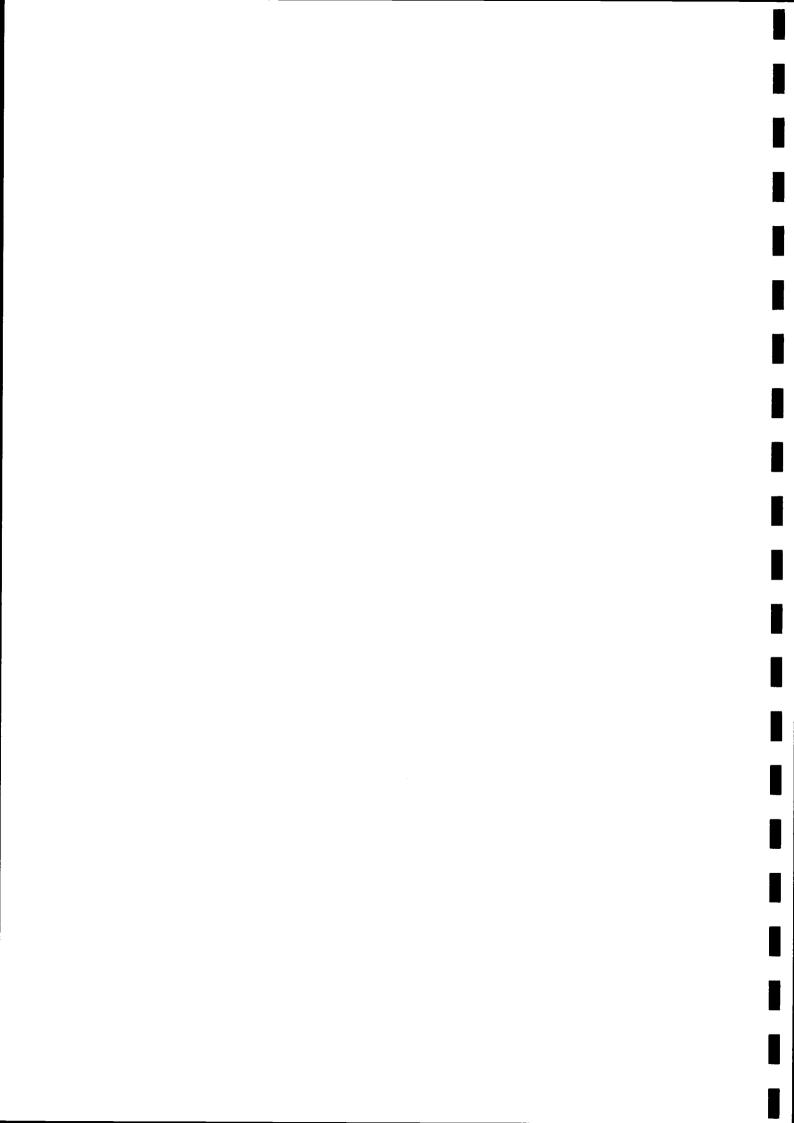
Large scale exploitation would remove all scientific interest from the area, but more localised turf cutting is of less danger in selected areas.

Fire is a major threat to the bog, especially as the heather becomes mature and the vegetation more diverse. A bog does recover from fire after a period of about 10 years, but the fact that this bog has been largely unburnt for guite a long time makes it more valuable and also more vulnerable.

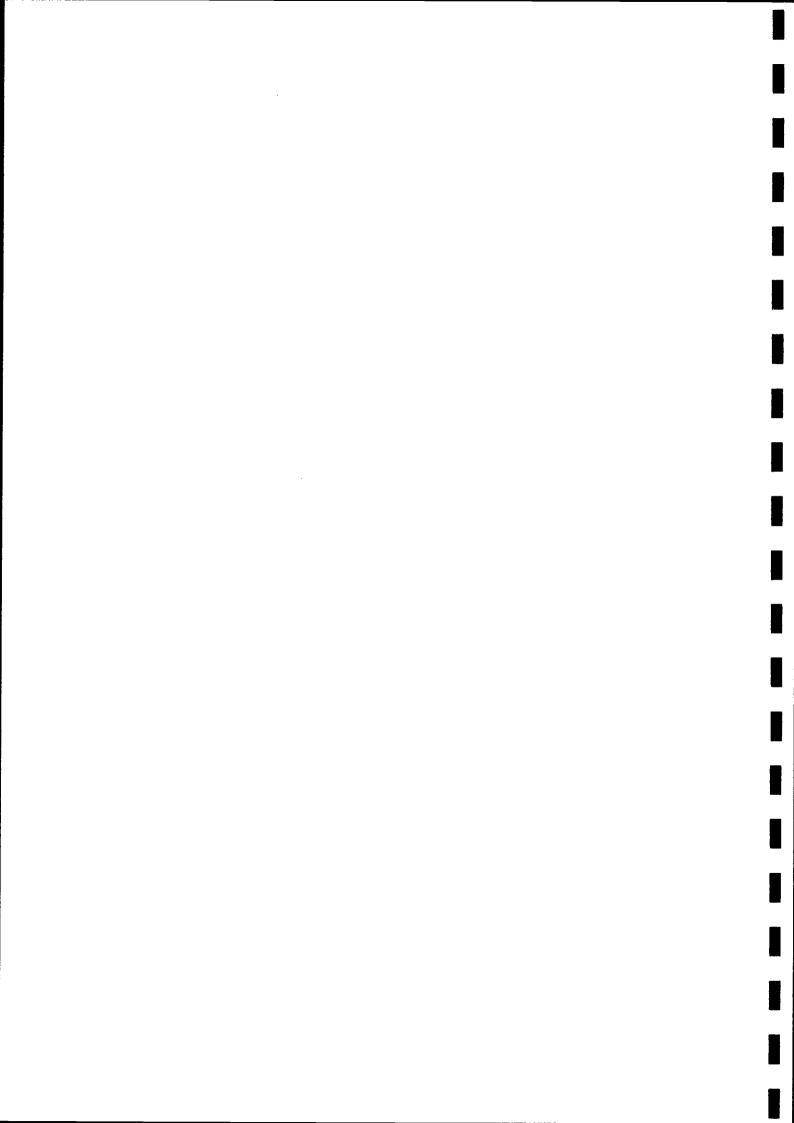
Recommendations

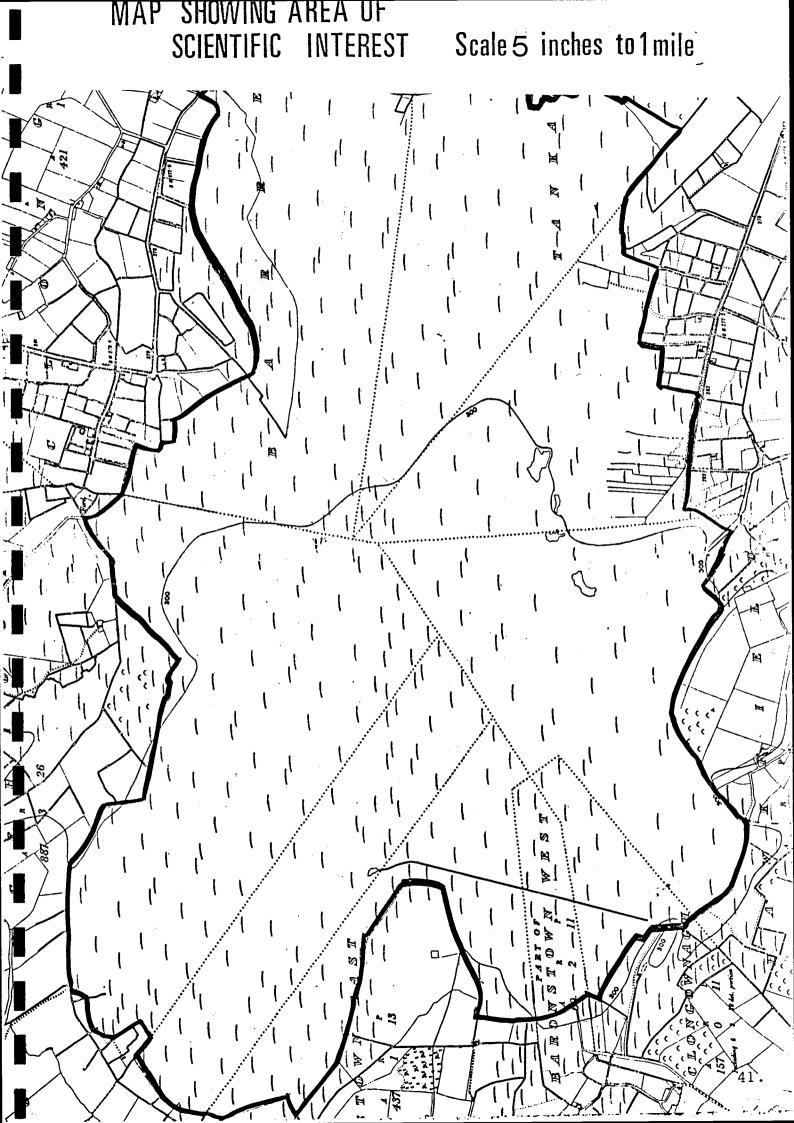
This bog and the one to the north are the most important in Kildare and since research work has been done on Mouds S. it has been chosen. Its value far exceeds that of the bog north of Prosperous which is only included for comparison.

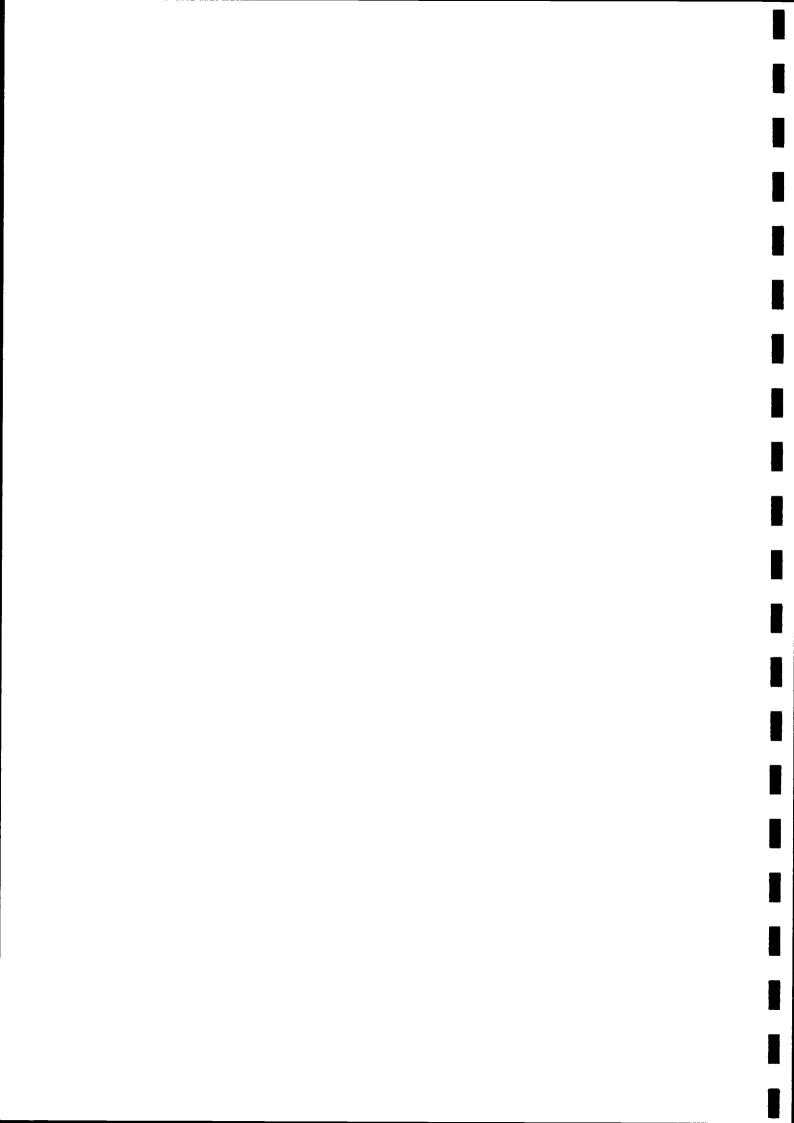
In view of its ecological and educational value it is worthy of a Conservation Order under Section 46, Local Government (Planning and Development) Act, 1963. This is, in fact, recommended.



Marginal turf-cutting should be prevented especially from the southern edge below the pools.







Name of site RED BOG

Acreage 4 ha

Grid reference N. 976, 170

Scientific interest Ecological, Botanical, Ornithological

<u>Rating</u> Regional

Priority B

Description of area

This lake lies between morainic ridges north of Blessington. It is characterized by a dense growth of <u>Menyanthes trifoliata</u> (bogbean) which gives rise to extensive areas of floating vegetation. The shores of the lake are muddy with such species as:-

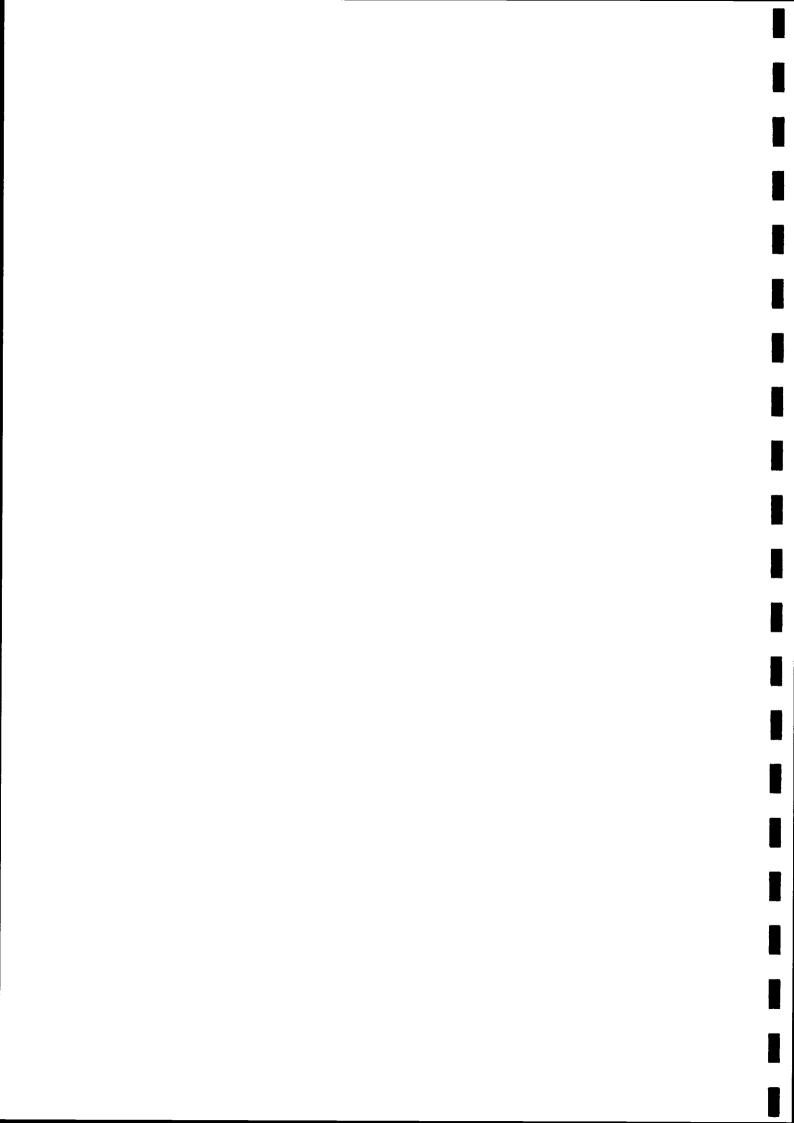
Stellaria alsine bog chickweed

Juncus effusus soft rush

Veronica becca bunga brooklime

There is then a narrow zone with sparse <u>Juncus effusus</u>, (soft rush), <u>Alisma plantago-aquatica</u> (water plantain), <u>Carex rostrata</u> (bottle sedge) and <u>Climacium dendroides</u> (moss) followed by a mat based on the <u>Menyanthes</u> and <u>Potentilla palustris</u> (marsh potentilla). Established on this is dense <u>Juncus acutiflorus</u> (rush) with the following species:-

Cardamine pratensis	lady's smock	C
Equisetum fluviatile	horsetail	C
Veronica scutellata	marsh speed well	C
Aulacomnium palustre	a moss	1.c.
Galium palustre	marsh bedstraw	f
Rhytidiadelphus squarrosus	a moss	 1.f.
Sphagnum squarrosum	u .	1.f.
Dactylorhiza fuchsii	spotted orchid	r
Carex nigra	sedge	0
Salix aurita	willow	r



At the edge of this quaking vegetation, a line of <u>Typha latifolia</u> (bulrush) occurs in more abundant Carex rostrata (a sedge)

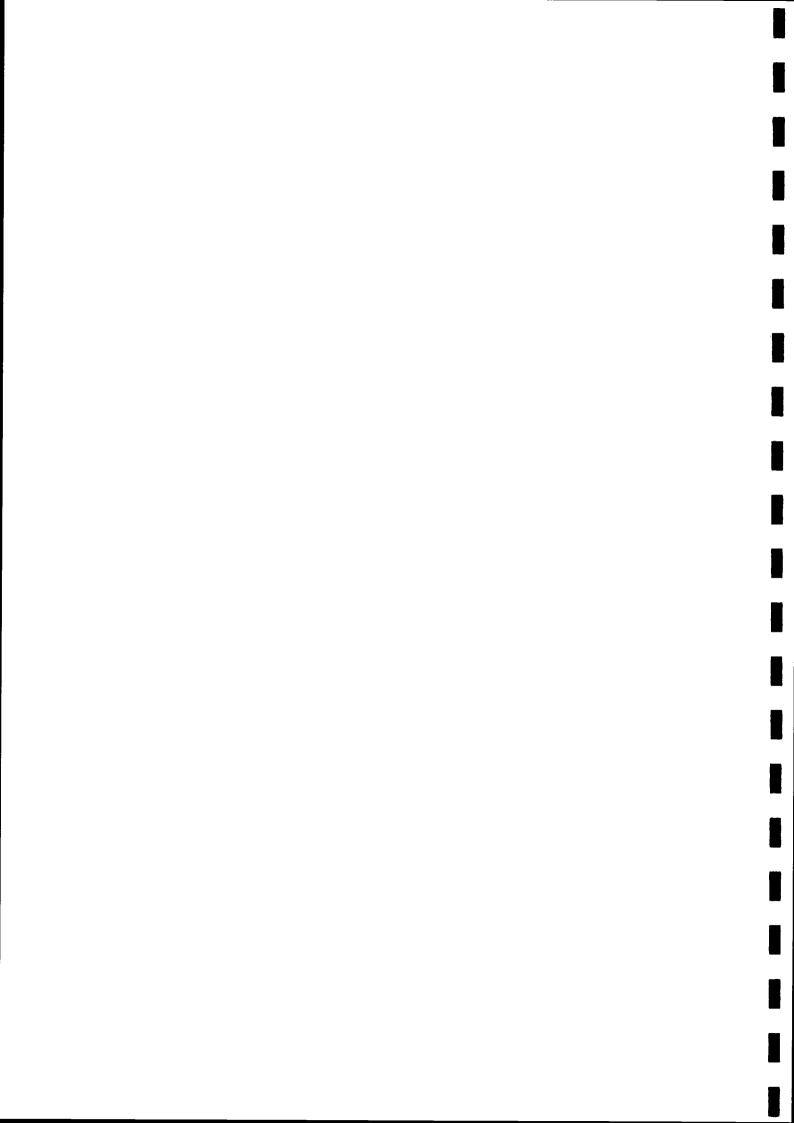
The above cover is best developed at each end of the lake and along the S.E. side. Elsewhere the deeper water supports <u>Callitriche</u> sp. (water starwort) including <u>S. platycarpa</u>, and <u>Ranunculus</u> sp. (water crowfoot). The water surface in sheltered places is thick with the floating liverwort, <u>Riccia fluitans</u> as well as <u>Lemna minor</u> (duckweed).

At the N.E. end bog vegetation has developed with <u>Calluna vulgaris</u> (heather) and <u>Eriophorum vaginatum</u> (bog cotton) its most abundant plants. Ground cover is complete, made up by species such as:-

Hypnum cupressiforme	mosses	1.a.
Sphagnum plumulosum		1.c.
S. rubellum	II	1.a.
S. palustre	п	f
Polytrichum commune	u .	1.f.
Luzula multiflora	woodrush	f
Narthecium ossifragum	bog asphodel	f
Dicranum scoparium	moss	0
Erica tetralix	corss-leaved heath	0
Potentilla erecta	tormentil	0
Cladonia impexa	lichen	1.f.

This community shows little tendancy to colonize into the lake but it is probably a succeeding stage of the succession. In this climatic region, bog development is seldom luxuriant, and the height and density of the <u>Calluna</u> here (18") indicates quite a dry substratum.

A high breeding population of mallard are found on this lake with some black-headed gulls. Coot, moorhen and snipe nest in addition. The lake is sometimes visited by wild swans, and other wintering wildfowl.



Evaluation

This is a most interesting eutrophic lake, rich in invertebrate and plant food. The vegetation cover is unusual and the peat development that has occurred makes the area of great ecological value. It might be described as a dry valley - bog but has more definite associations with raised bog, here at its extreme limits of climatic tolerance. The lake is important for breeding aquatic birds.

<u>Vulnerability</u>

Drainage would be most damaging to the present vegetation, but increased pollution might also upset the lake ecology. The breeding bird population would be susceptible to disturbance.

Recommendations

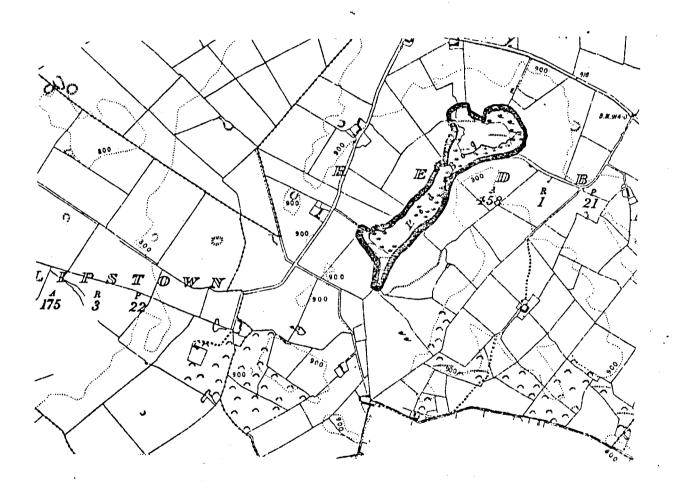
A lowering of the water table in this area should be prevented. In view of the surrounding land being well-drained it is unlikely that this will be suggested.

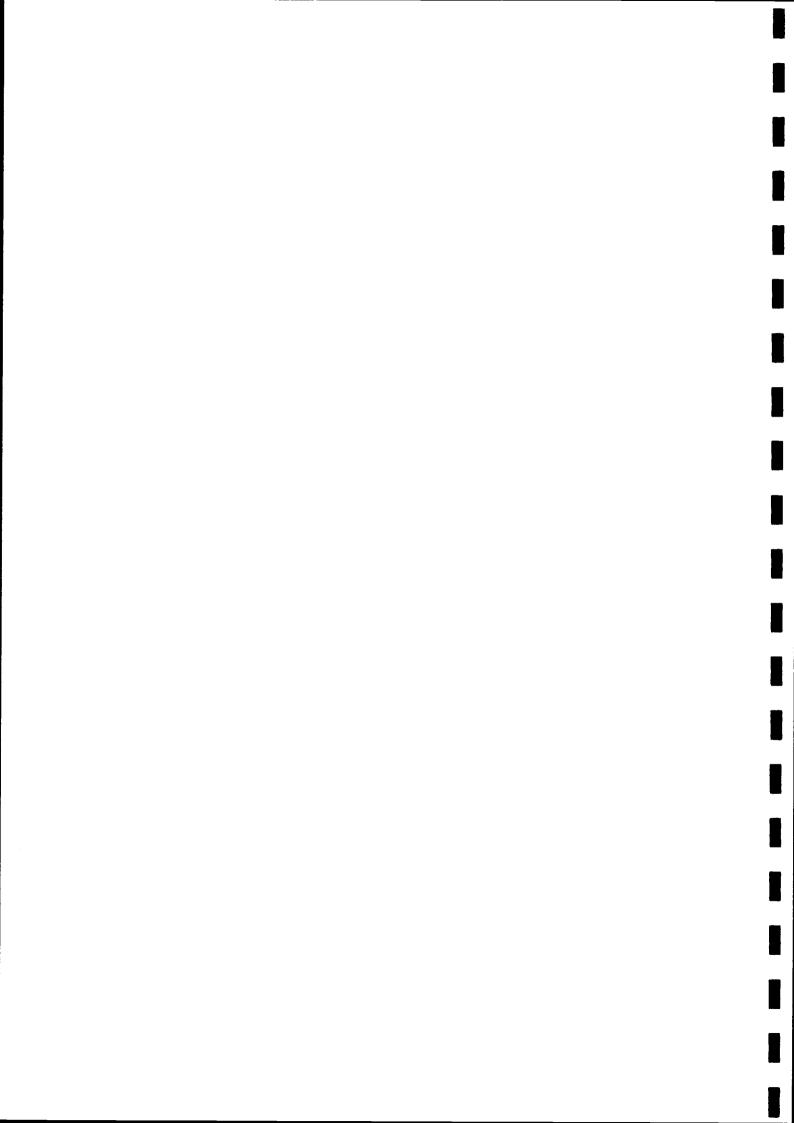
If disturbance is found to be an adverse influence, steps should be taken to lessen it.

This lake would be most suitably protected by a Conservation Order under Section 46, Local Government (Planning and Development) Act 1963. Ecologically, it is the most valuable lake in Co. Kildare.



MAP SHOWING AREA OF SCIENTIFIC INTEREST —





Name of Area SLATE QUARRIES

Acreage 14 ha

Grid Reference N. 991, 187

Scientific Interest Stratigraphical, Sedimentological

<u>Rating</u> Regional Importance

<u>Priority</u> B

Description and Evaluation

This is the type locality for the Slate Quarries *Formation - a lower palaeozoic greywacke rock type. It is exposed in several disused quarries in a long, narrow belt.

Acritarchs which are rarely recorded elsewhere, have been found in these quarries.

Vulnerability

Further quarrying would be of advantage to geologists in exposing additional strata. Roadstone Ltd. have done exploratory borehole tests to evaluate the potential for this.

Dumping would pose a threat to the scientific importance of this site.

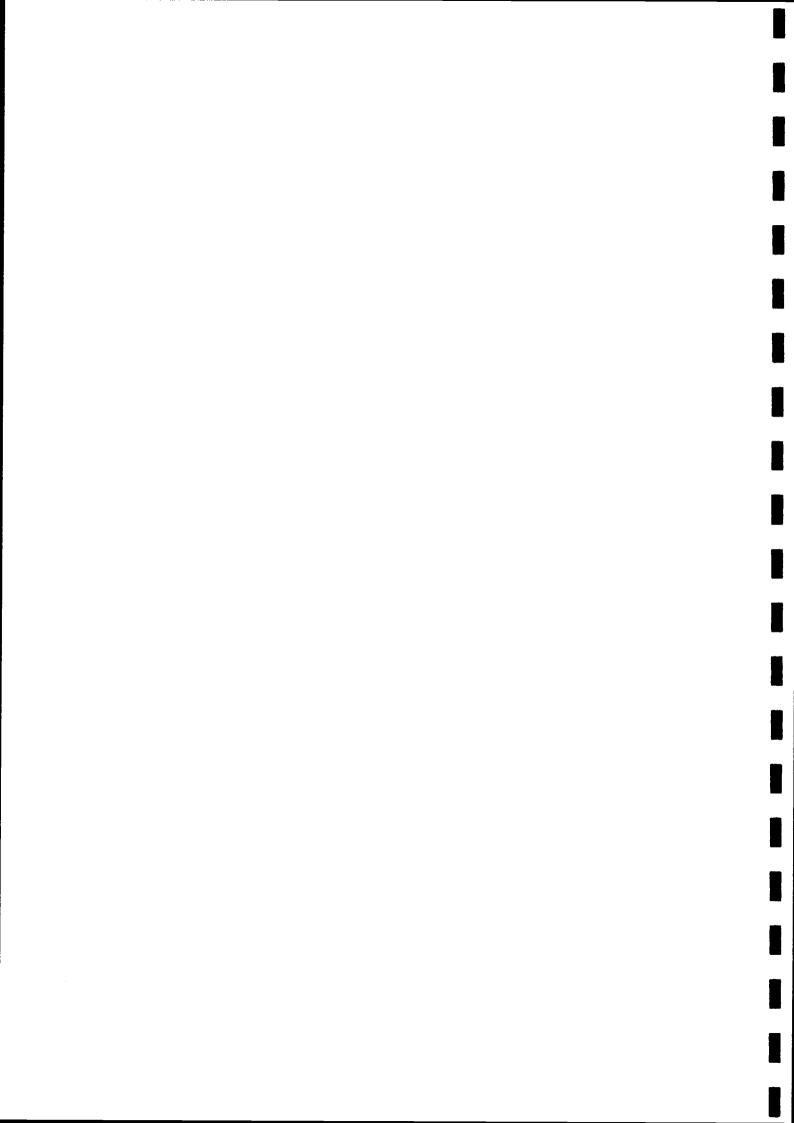
Recommendations

Dumping should not be allowed in any of the quarries enclosed by this area.

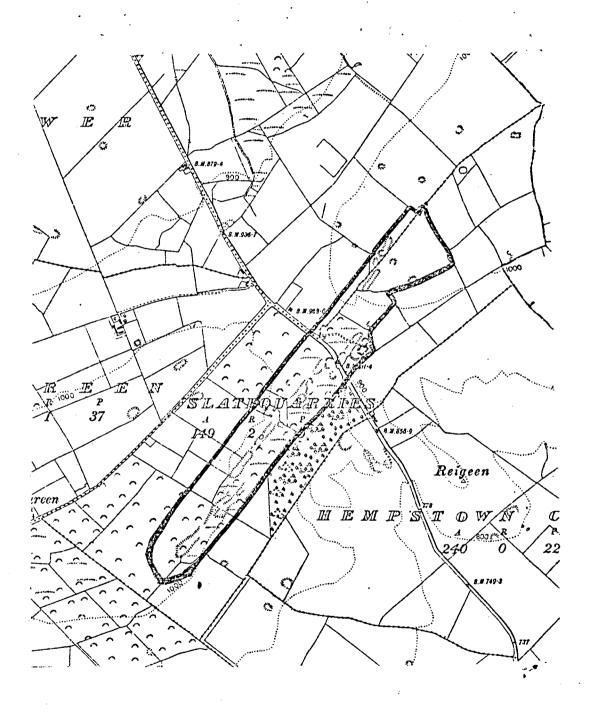
^{1 811} Brüch MP. (M7 (1970). Ph. Desthesisp(unpuba): NathivUniv Inoffareland.

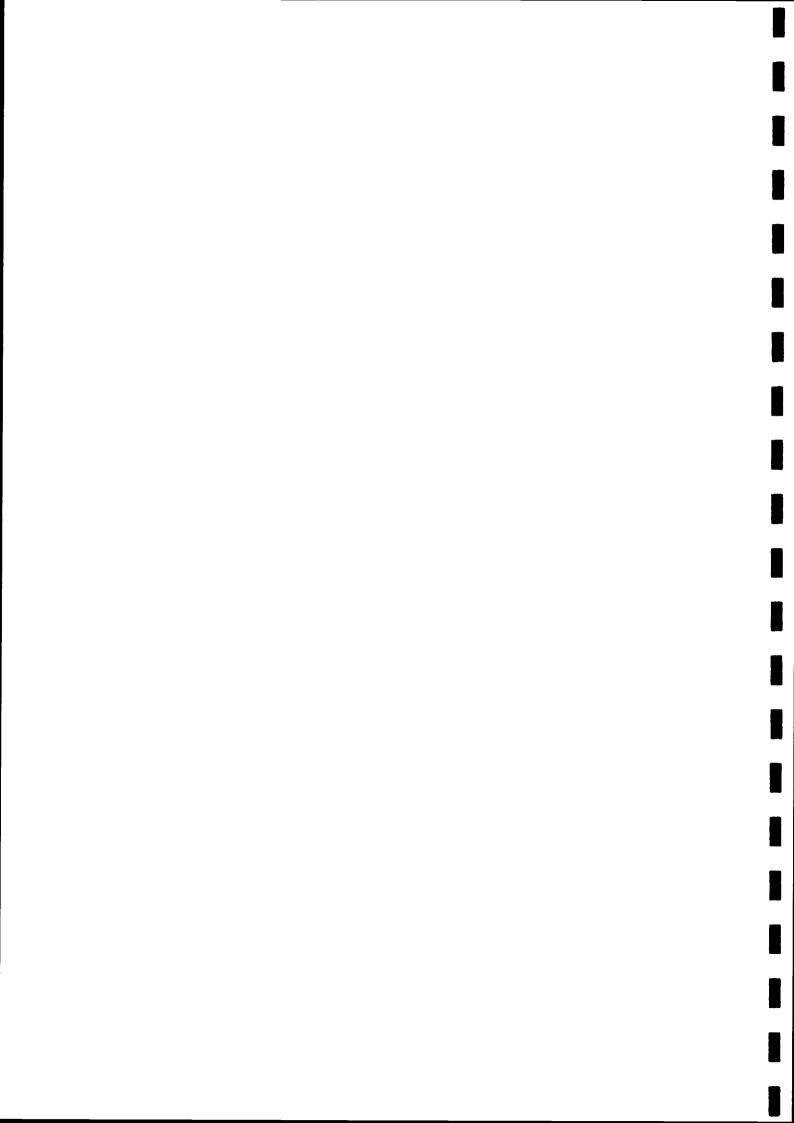
^{* 2.} Brüch, P. M. (1970) Bull Geol. Surv. Ireland, $\frac{1}{2}$, 31-45

^{3. &}quot; " (1971) Geol. Mag. <u>108</u>, 303-310.



MAP SHOWING AREA OF SCIENTIFIC INTEREST -





Name of Area BANK OF LIFFEY AT OSBERSTOWN

Acreage o.5 ha

Grid_Reference N. 870, 208

<u>Scientific Interest</u> Botanical

Rating Local

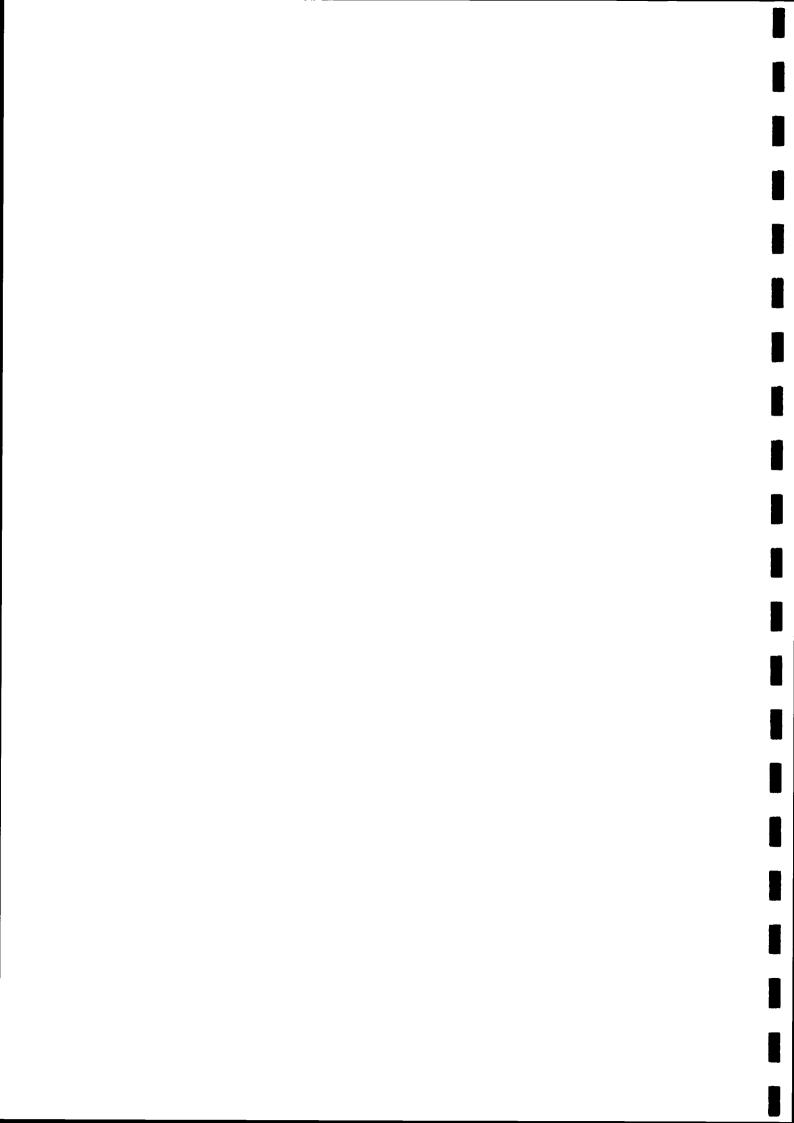
<u>Priority</u> B

Description of Area

The river bank is steep at this point, about 30ft high. It is formed of a wet boulder-clay surface now covered by mosses, willows and woodland herbs. The plant of interest is <u>Salix nigricans</u> (black willow) which occurs as several bushes and trees with <u>S. cinerea</u>, <u>S. aurita</u> and <u>S. caprea</u> (all willows). There are asfew ash trees (<u>Fraxinus excelsior</u>), some <u>Crataegus monogyna</u> (hawthorn) while the ground flora includes:-

Carex nigra	sedge	f
Ajuga reptans	bugle	f
Primula vulgaris	primrose	f
Equisetum variegatum	horsetail	f
Brachypodium sylvaticum	false brome grass	f
Zerna ramosa	hairy brome	f
Valeriana officinalis	marsh valerian	f
Crepis paludosa	marsh hawbit	0
Hypericum androsaemum	tutsan	0
Phyllitis scolopendrium	hart's tongue	0
Eurynchium praelongum	a moss	C
Brachythecium spp.	n	l.a.
Pellia fabbroniana	liverwort	f
Ctenidium molluscum	moss	0

Oenanthe crocata (water dropwort), Anthriscus sylvestris (cow parsely), and Mentha aquatica (water mint) grow on the river bank below.



Evaluation

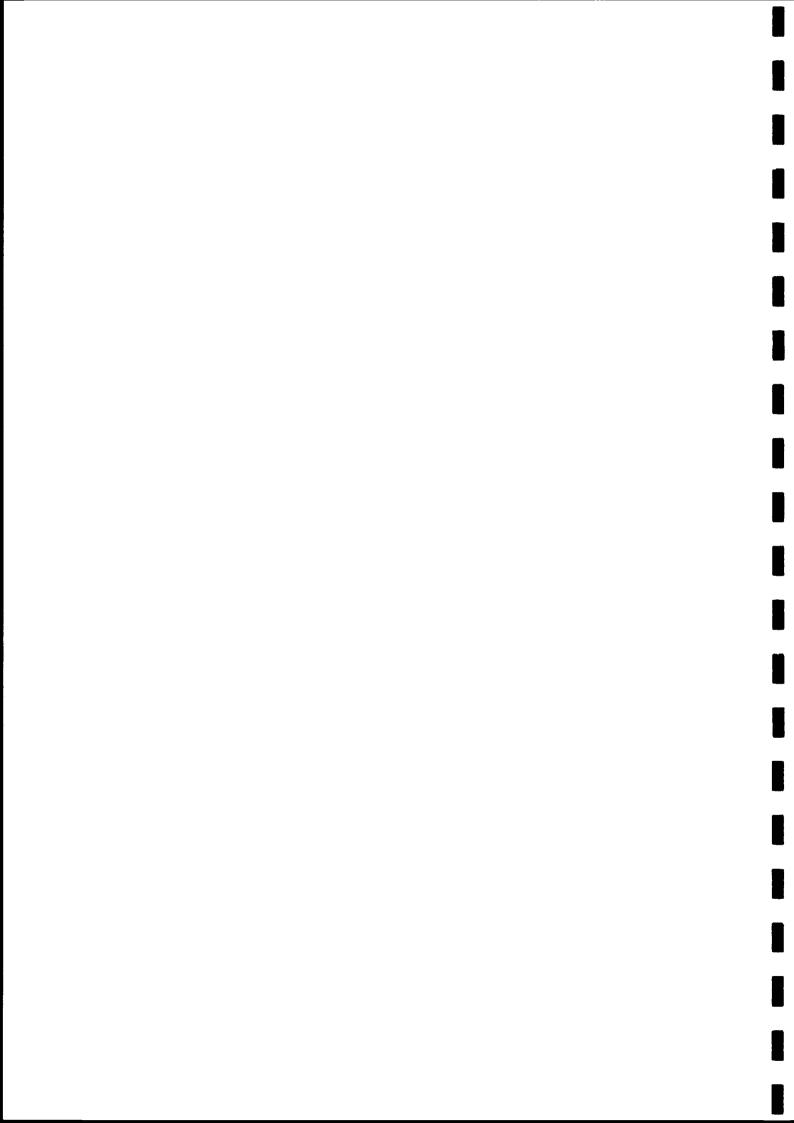
Salix nigricans (black willow) is a very rare plant with a northern distribution in Ireland. (See Appendix 1). Its true status here is not known, it may be planted, but it is not found elsewhere on the Liffey and this part of the bank appears to have a natural vegetation cover. The occurence of Equisetum variegatum (horsetail) indicates unusual conditions and is interesting in its own right. It is only recorded from the Royal Canal in Kildare, apart from this site.

<u>Vulnerability</u>

The banks here are too steep for development and the site appears relatively secure. Individual trees might be cut down however.

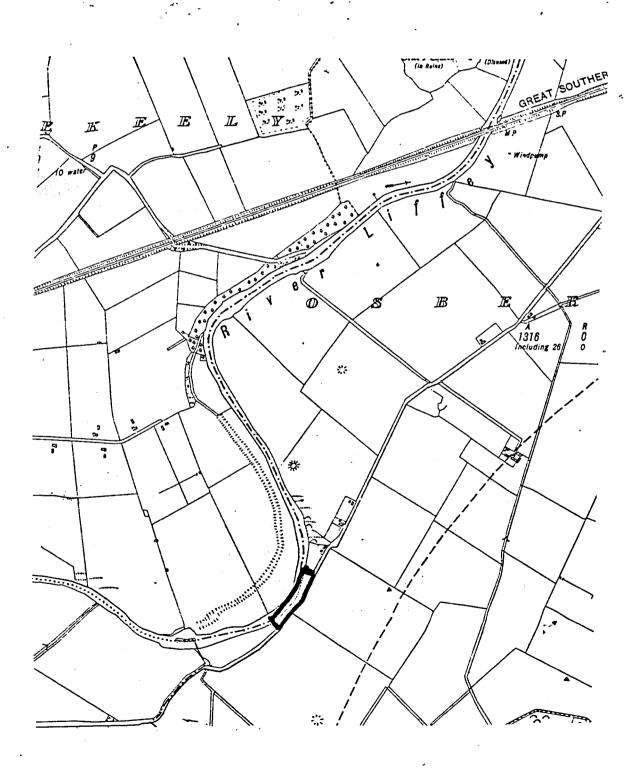
Recommendations

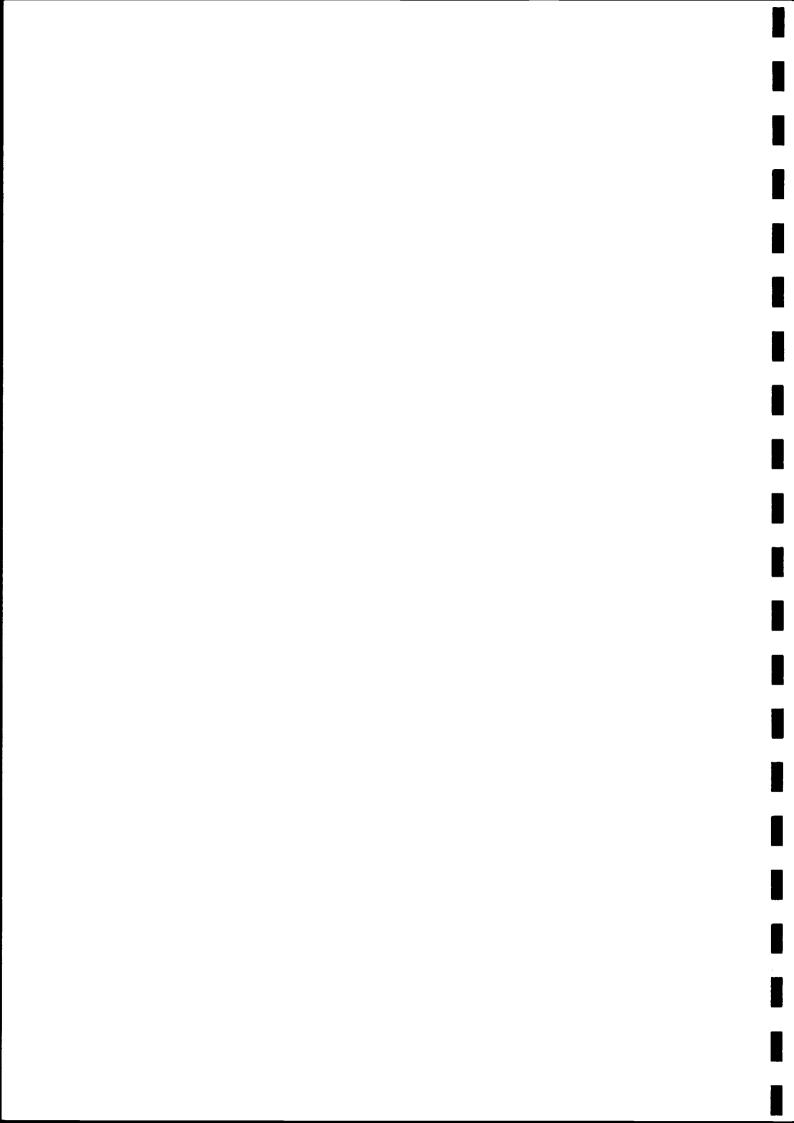
Modification of this part of the banks should be prevented by general planning control and tree-felling discouraged if it occurs too severaly.



MAP SHOWING AREA OF SCIENTIFIC INTEREST-







Name of Area BOG N. OF PROSPEROUS

Acreage

Grid Reference N. 83, 29

Scientific Interest Botanical

Rating Local

<u>Priority</u> C

Description of Area

This is a raised bog with a representative flora but rather monotonous topography. There are some hummock-hollow complexes and also manmade pools now filling in with a complete cover of Sphagnum cuspidatum. Old ditches appear at intervals but water flow has probably ceased in them; some mark the townland boundaries but there are drainage ditches also.

The vegetation which has been burnt at intervals includes <u>Vaccinium oxycoccus</u> (cranberry), <u>Sphagnum fuscum</u> (moss) and <u>Leucobryum glaucum</u> (moss) as three of its rarer species. The more frequent types include <u>Calluna vulgaris</u>, <u>Erica tetralix</u> (heathers), <u>Eriophorum spp.</u> (bog cotton), <u>Trichophorum caespitosum</u> (deer sedge), <u>Rhynchospora alba</u> (sedge), and <u>Andromeda polifolia</u> (bog rosemary) while the <u>Sphagnum species seen were \underline{S}^{z} palustre, \underline{S} . <u>magellanicum</u>, \underline{S} . <u>rubellum</u>, \underline{S} . <u>tenellum</u>, \underline{S} . <u>fuscum and S</u>. <u>cuspidatum</u>.</u>

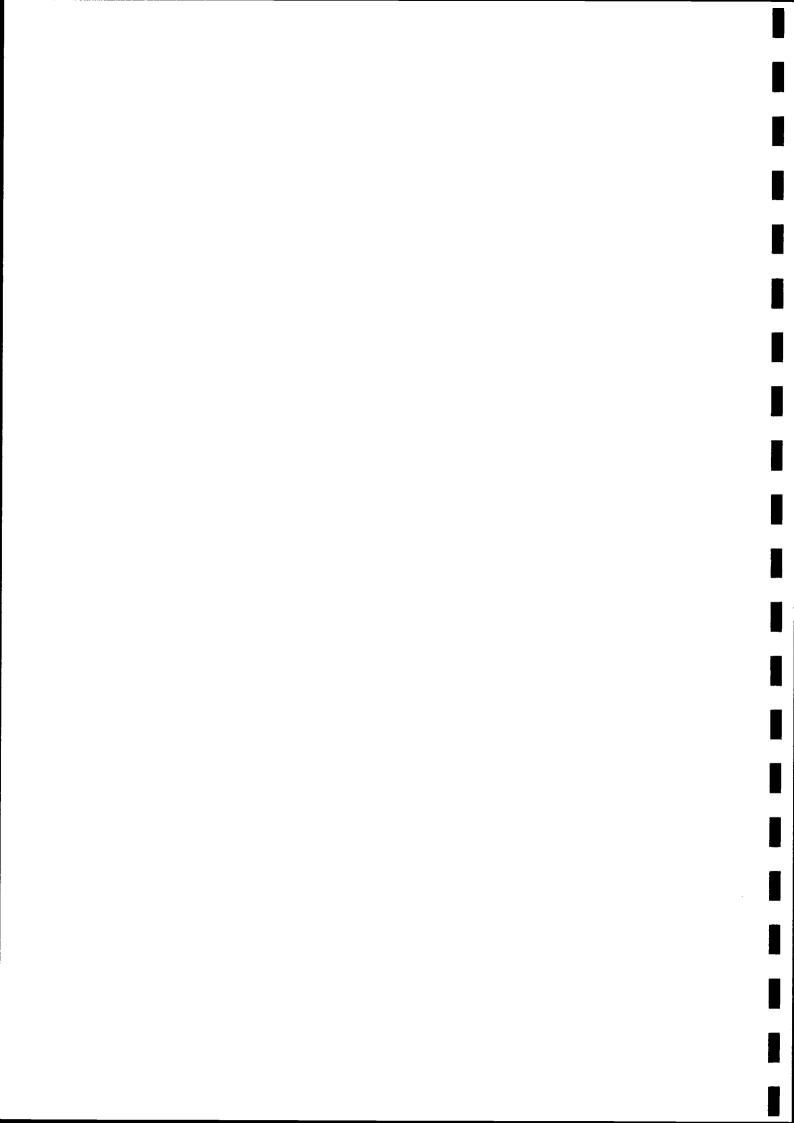
Evaluation

This bog comes second to the Mouds Bogs in Kildare. It shows many of the typical features of a raised bog though it has been somewhat modified.

The area outlined has been the least affected.

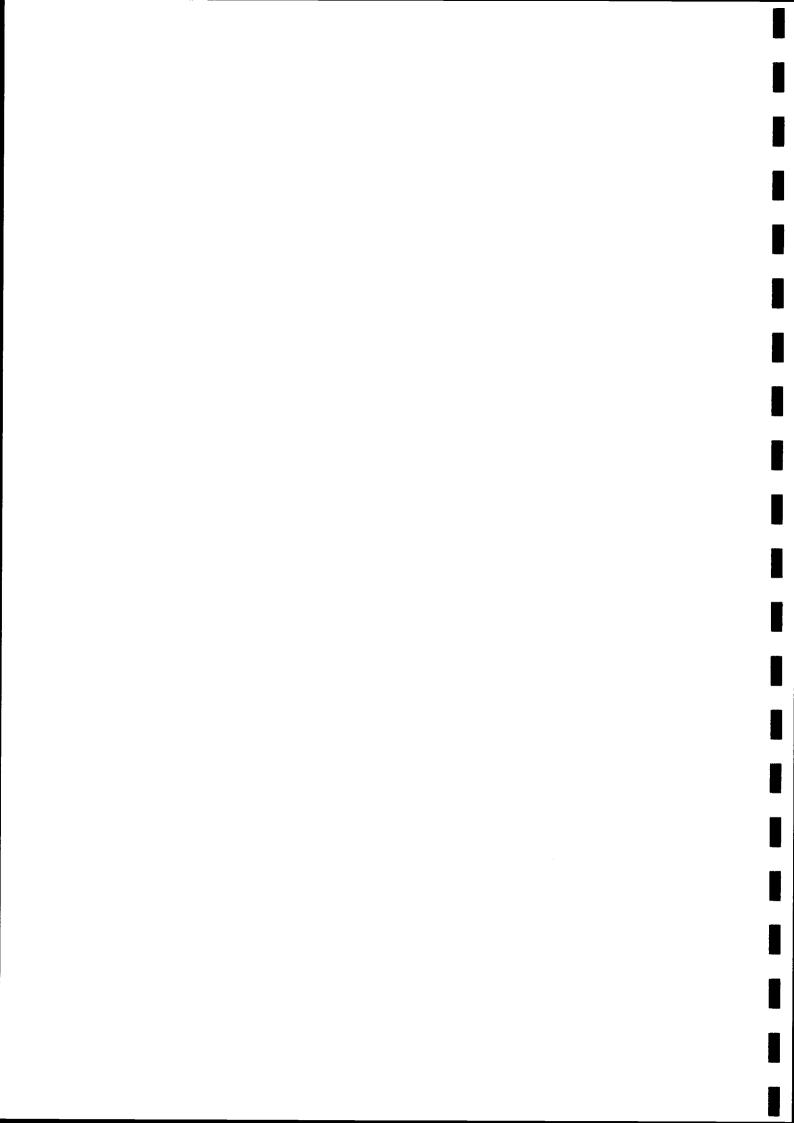
<u>Vulnerability</u>

(See p. 28)

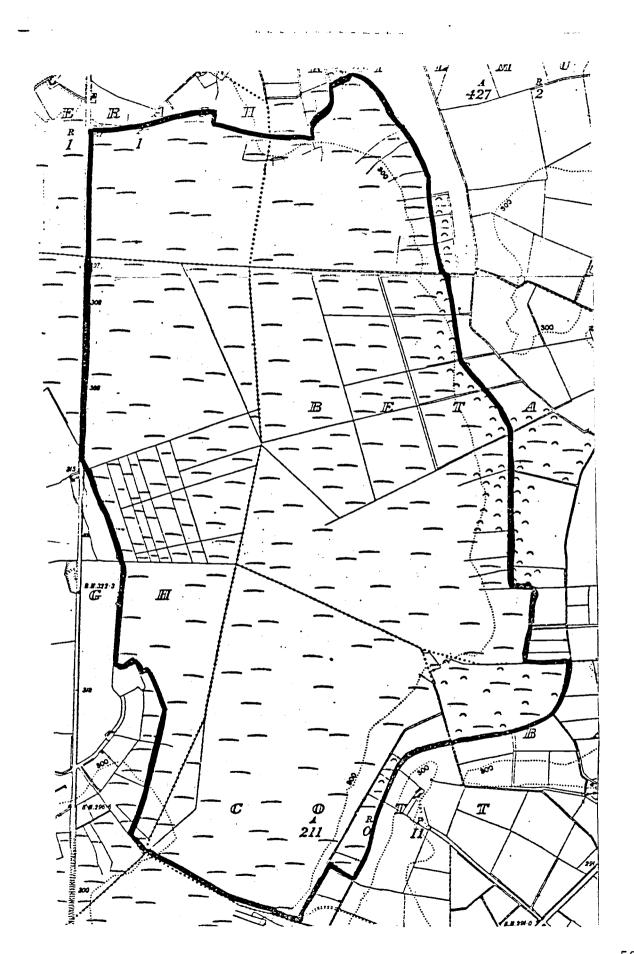


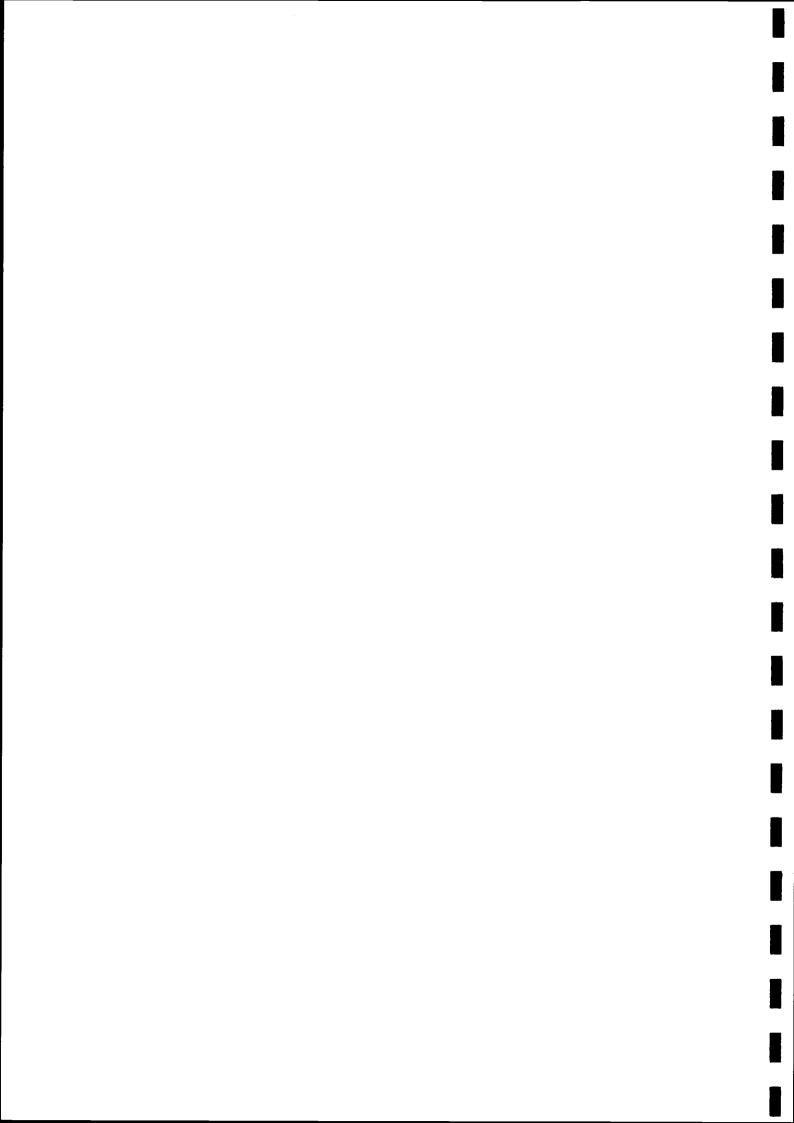
Recommendations

If large scale exploitation occurs on the Mouds Bogs all efforts should be made to conserve this area in its present condition. Its priority will rise as other bogs are utilized.



MAP SHOWING AREA OF SCIENTIFIC INTEREST Scale 5 inches to 1 mile





Name of Area DERRYVULLAGH ISLAND

Acreage 3 ha

Grid Reference N. 688, 006

Scientific Interest Botanical, Ornithological

Rating Local

<u>Priority</u> B

Description of Area

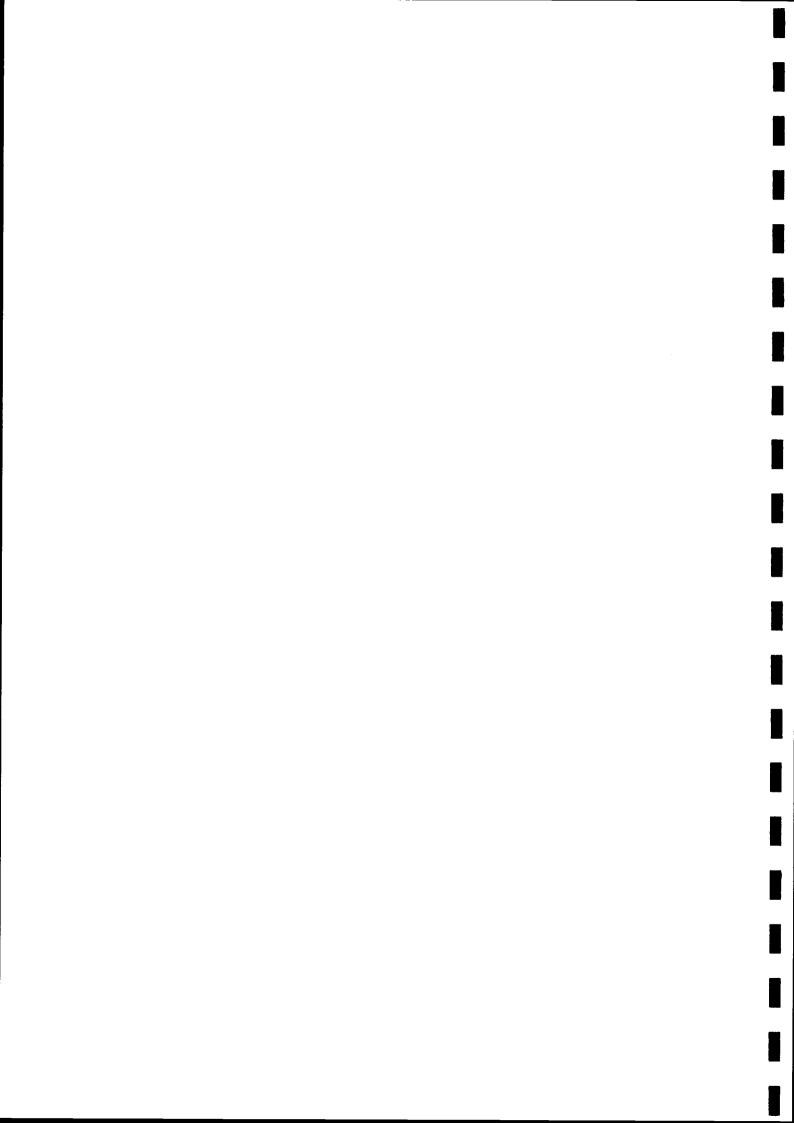
Derryvullagh Island is a low drift island surrounded by extensive raised bogs. The actual contact has been obscured by Bord na Mona traffic. The island scarcely rises above the level of the bog but being tree covered it appears much higher than it. It was formerly cultivated and thus the woodland is not completely natural. However, this makes for some ecological interest since when cultivation ceased, shrubs were quick to spread over the whole area. The result is a substantially even-aged stand of such species as hawthorn (Crataegus monogyna), blackthom (Prunus spinosa), Sambucus nigra (elder) and Corylus avellana (hazel) with a few tress of Ligustrum vulgare (privet). A few ash trees (Fraxinus excelsior) overtop this canopy while at its edges Euonymus europaeus (spindle tree) is prevalent with abundant bracken (Pteridium aquilinum), brambles (Rubus fruticosus), and Epilobium angustifolium (rose bay willow herb).

The <u>Crataegus-Prunus</u> area is distinct from the <u>Corylus</u> stand and the ground flora differs also. In the former place it is predominantly of <u>Hedera helix</u> (ivy), with some <u>Geum urbanum</u> (wood avens), <u>Arum maculatum</u> (cuckoo pint) and <u>Veronica chamaedrys</u> (germander speedwell).

In the lighter conditions below Corylus, however, the flora is richer:-

Allium ursinum	wild garlic	l.c.
Primula vulgaris	primrose	С
Ranunculus ficaria	celandine	f
Veronica montana	wood speedwell	f
Anemone nemorosa	wood anemone	f
Potentilla sterilis	barren strawberry	0 _

54.



Viola reichenbachiana	violet	0
Conopodium majus	pignut	0
Fragaria vesca	wild strawberry	0

In addition, Lathraea squamaria (toothwort) is widespread on old hazel.

The bird life of the area is very rich, there being so little other woodland nearby. It includes pheasant, long-eared owl, sparrowhawk, all three thrushes, willow warbler, chiffchaff, robin, dunnock and wren.

Evaluation

This is a woodland at an interesting stage of succession; a closed cover has arisen though not a widespread dominant. Its value is increased by the known timescale over which it has developed. The ground flora is important, having two species rare in Kildare: Allium ursinum (wild garlic) and Lathraea squamaria (toothwort). For each this is the second station in the county.

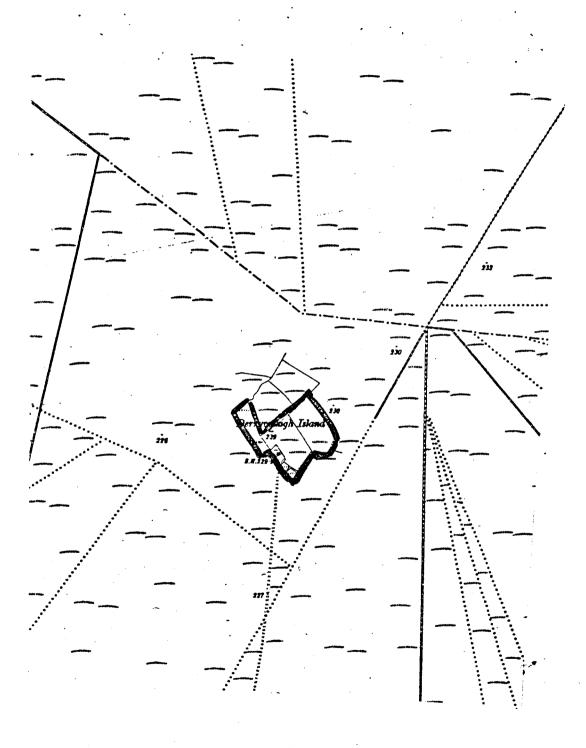
Vulnerability

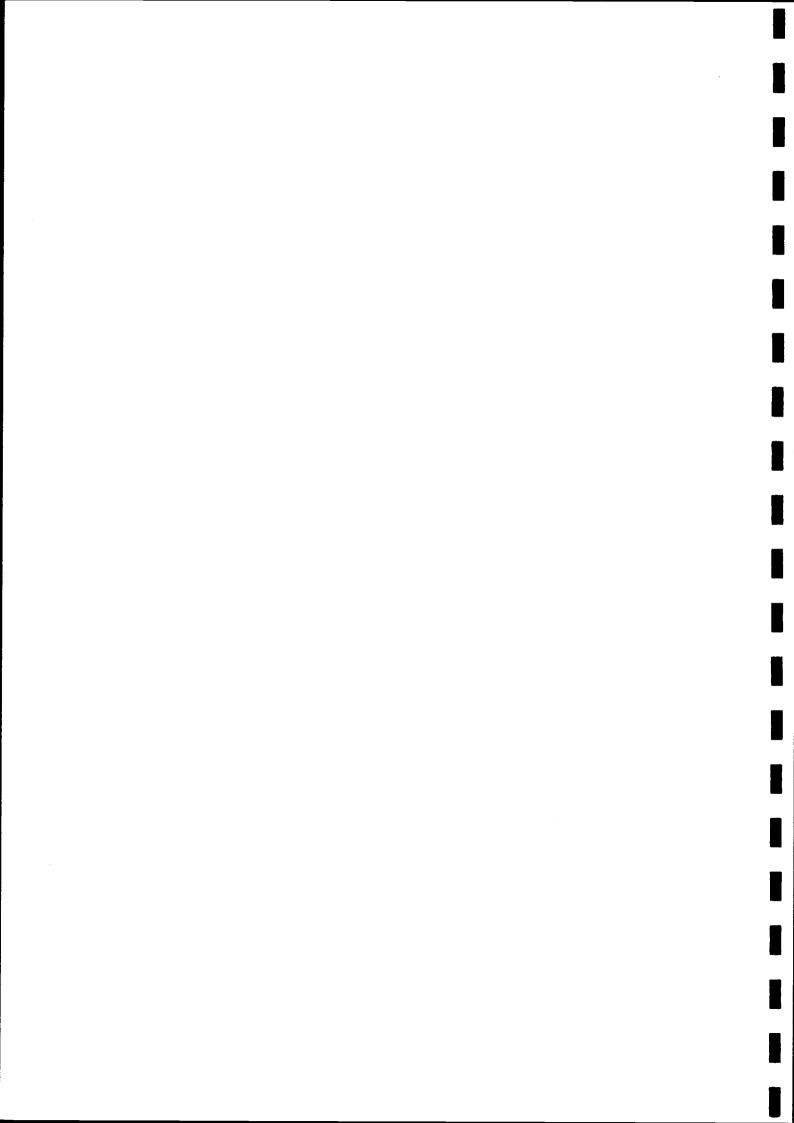
The woodland might be cleared for afforestation. This has approached Derryvullagh Island from the west and now occupies about half of it.

Recommendations

Agreement should be sought to maintain the present limits of deciduous woodland on Derryvullagh Island.

Scale: 6 Inches to 1 Mile:





Name of Area DONADEA WOOD

Acreage 2.5 km²

Grid Reference N. 83, 32

Scientific Interest Botanical, Ornithological, Zoological

Rating Local

<u>Priority</u> C

Description of Area

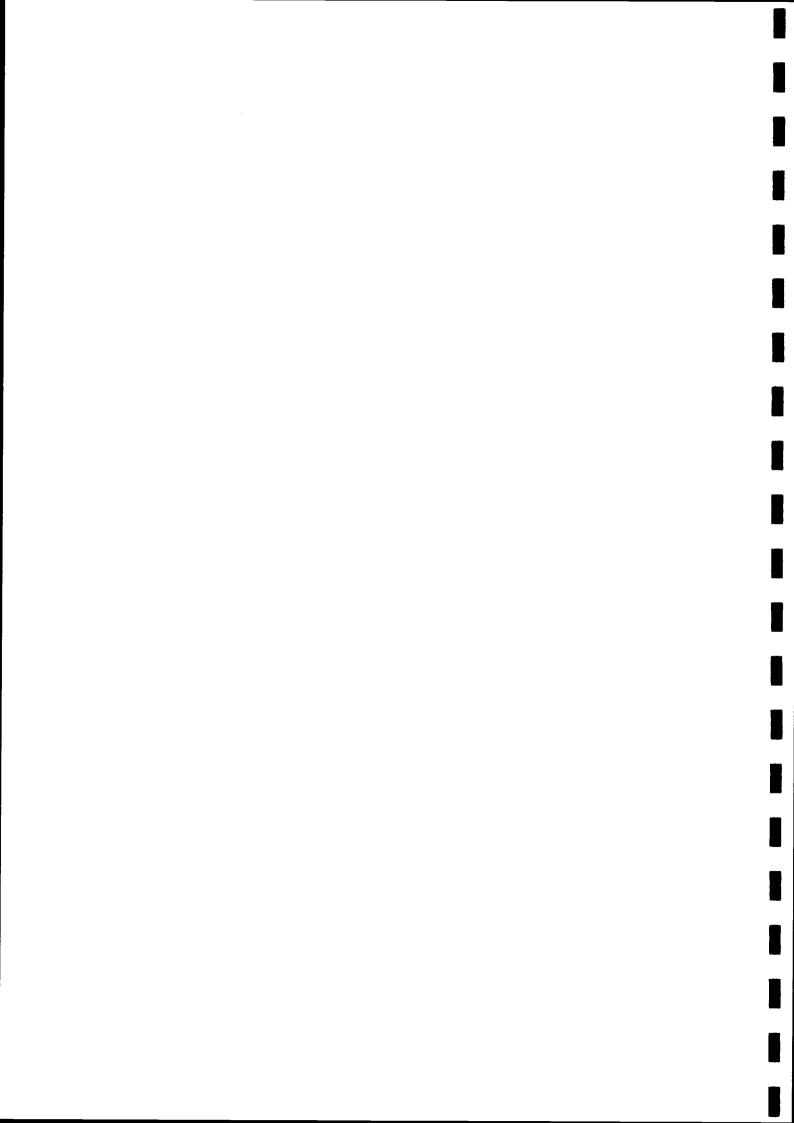
This wood is owned by the Forestry Division, but it differs from most of their forests in that substantial blocks were planted with deciduous trees. These are being thinned and managed for hardwood production rather than amenity. The soil is a glacial drift and the trees are growing well. There are tracts of ash, sycamore, oak and beech and though denser than a natural wood they simulate one to the extent of having a rich ground flora and in regenerating if allowed. Occasional patches of Crataegus monogyna (hawthorn), Corylus avellana (hazel) and elder (Sambucus nigra) are found as well as the following herbs:-

Lysimachia nemorum	yellow pimpernel	С
Viola riviniana	violet	С
Arum maculatum	arum lily	f
Fragaria vesca	wild strawberry	f
Potentilla sterilis	barren strawberry	С
Primuľa vulgaris	primrose	f
Poa trivialis	a grass	l.a
Holcus mollis	11	1.a
Glechoma hederacea	ground ivy	f
Carex sylvatica	wood sedge	f
Geum urbanum	wood avens	0

The woodland is moderately rich in bird life but has a wide range of mammals.

Evaluation

This area of forest provides an exceptionally good contrast between different types of woodland, from spruce and larch, through beech to the native species



of oak and ash. In this transition there is a gradual increase in the cover and diversity of the ground flora. Being situated on the same soil type it could be an interesting experimental site.

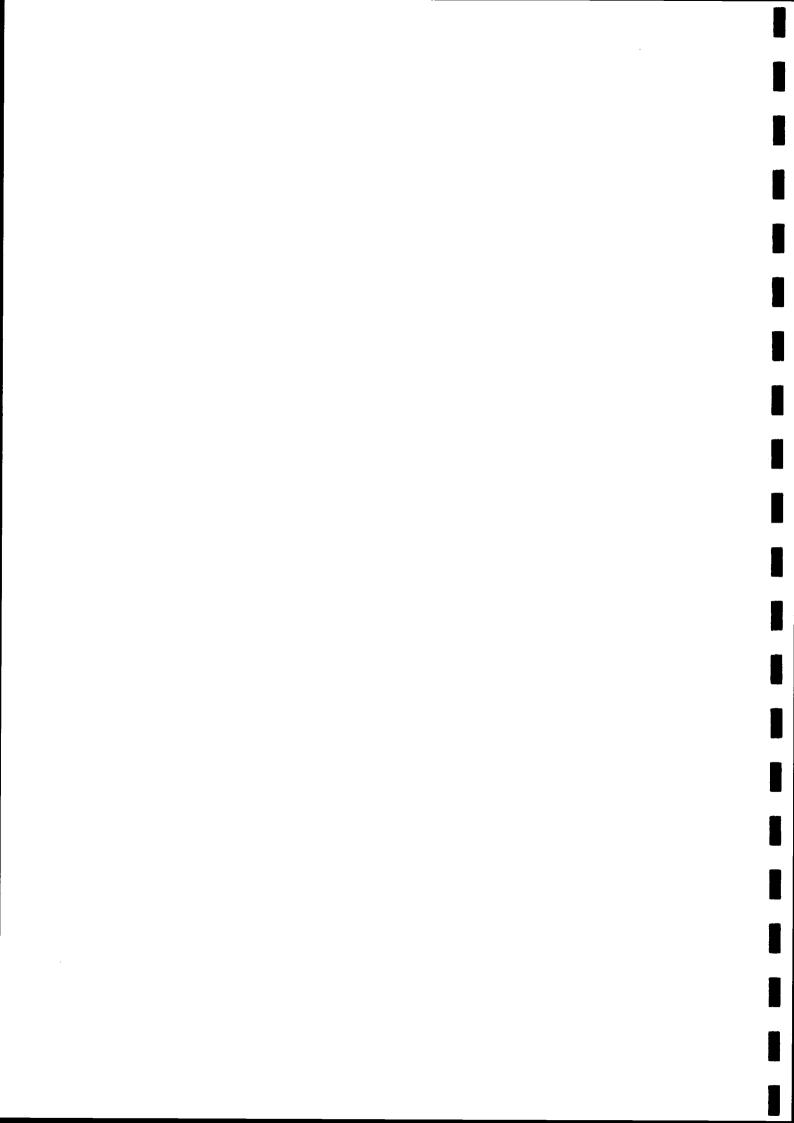
Vulnerability

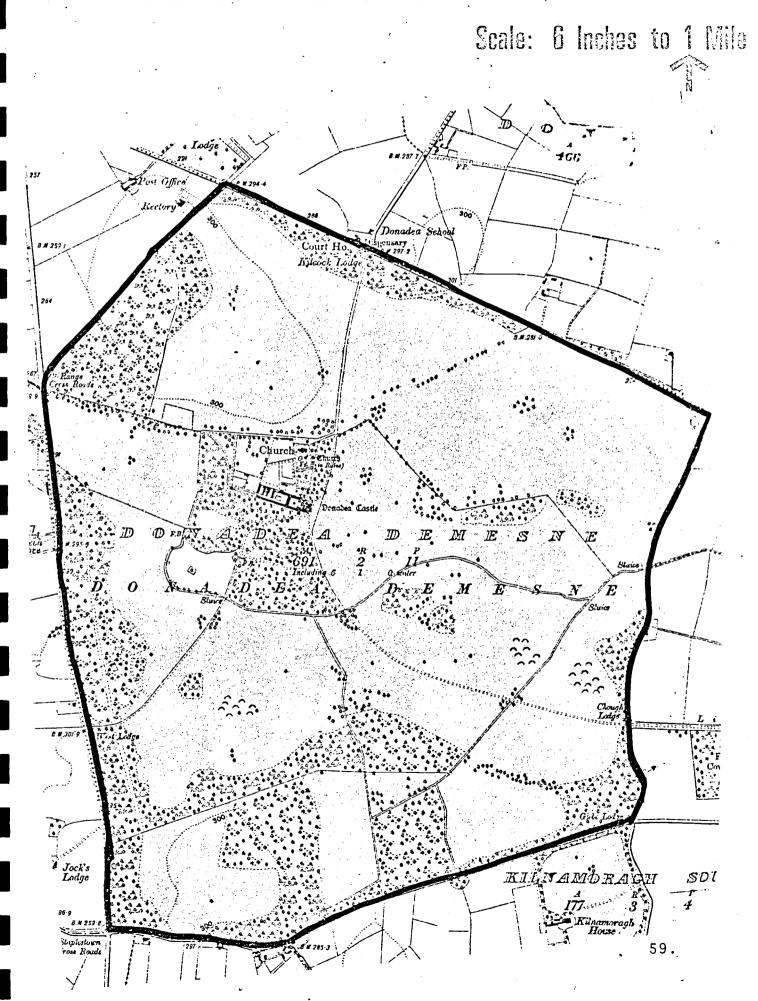
The interest stems from the variety of tree species present. Any restriction of this would detract from the site's importance.

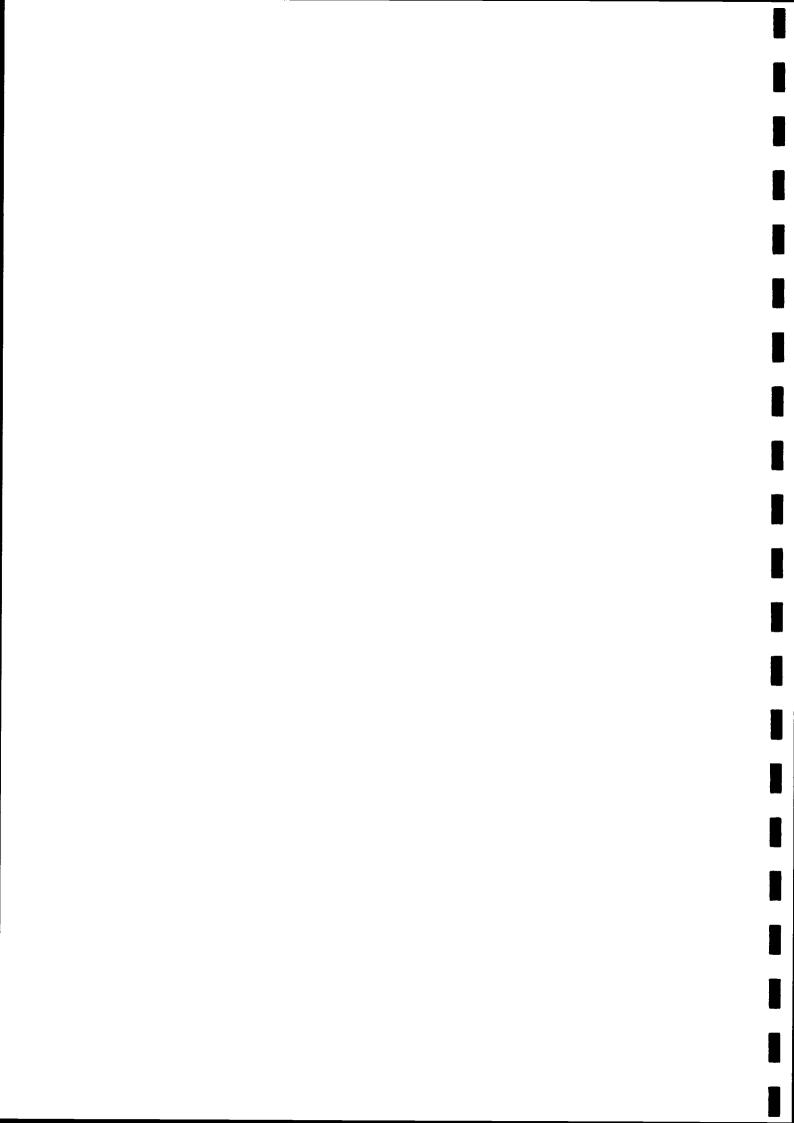
Recommendations

This is valuable as an educational area and its use should be encouraged by some interpretive service. It is already open to the public.

The present ratio of deciduous to coniferous species should be maintained.







Name of Area GLEN DING

Acreage 4 ha (in Co Kildare)

Grid Reference N. 963, 155

<u>Scientific Interest</u> Geomorphological

Rating Local

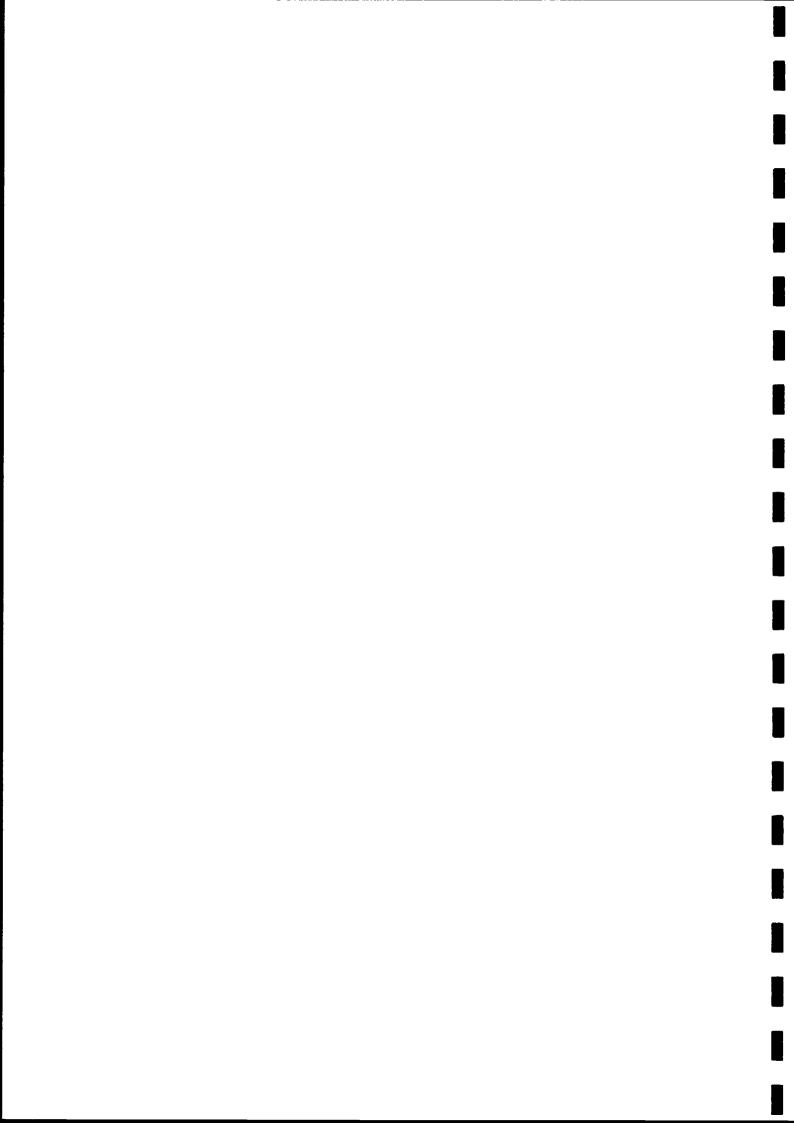
<u>Priority</u> C

Description and Evaluation

This is another glacial feature now a dry valley. It was formed in the same way as the slate quarries gap by water flowing into glacial Lake Blessington after its level had fallen. An extensive deltaic deposit now covers the old lake floor east of Glen Ding. The depth of the cut varies from 85 to 190 ft.

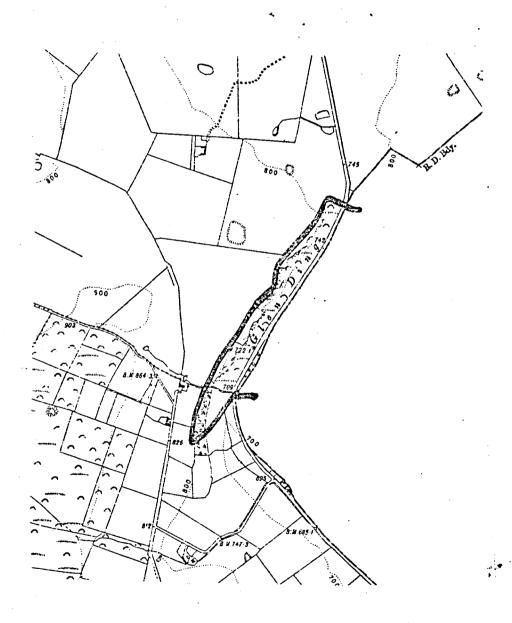
Vulnerability and Recommendations

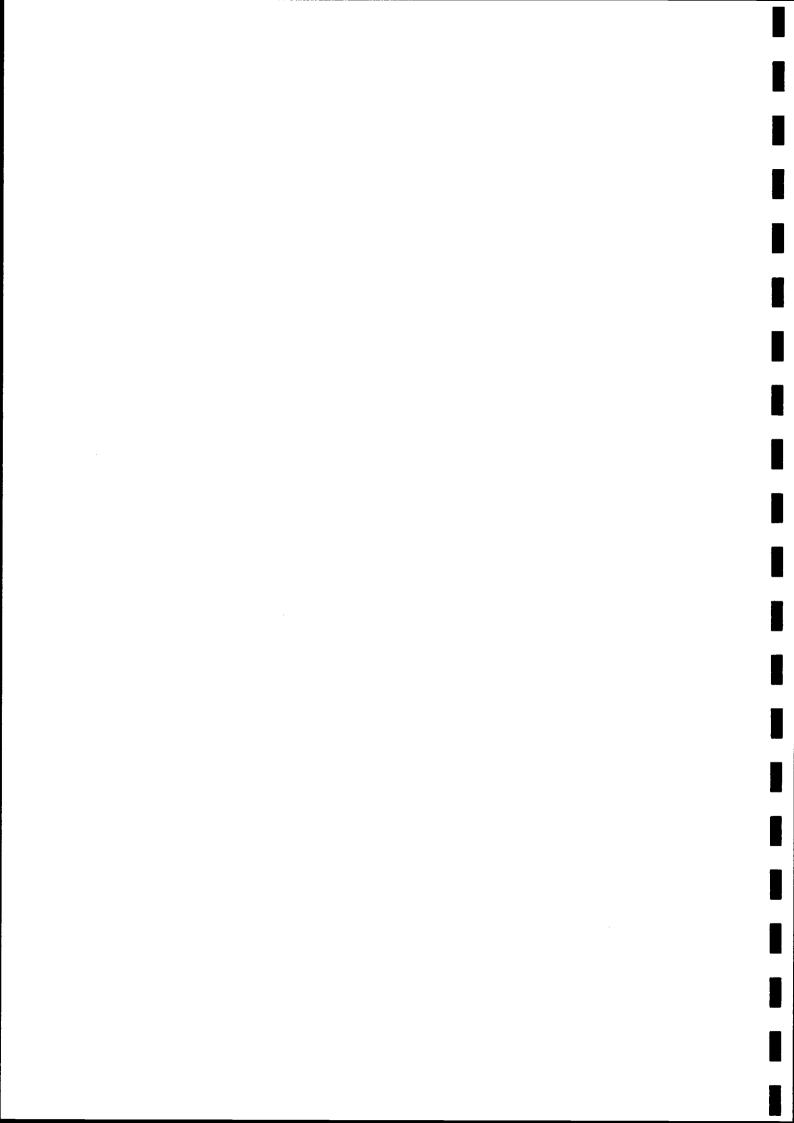
There is little danger to this site but afforestation would make the landform difficult to examine. This is the sort of area which might well be included on a tourist itinerary with a signpost or plaque explaining its origin.



Scale: 6 Inches to 1 Mile







Name of area

KILTEEL WOOD

Acreage

4 ha

Grid reference

N. 980, 216

Scientific interest

Botanical, Sedimentological

Rating

Local

Priority

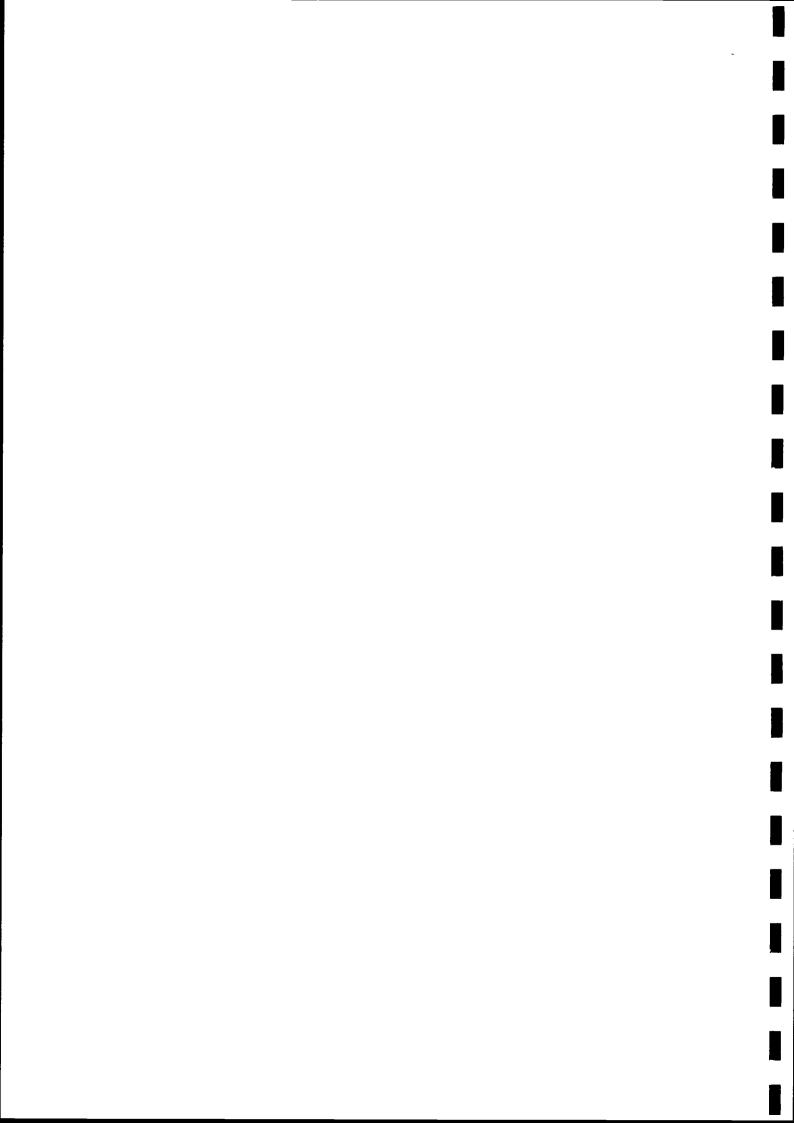
B

Description of area

This is a small area of heathy oakwood showing its managed origins by including several <u>Pinus sylvestris</u> (scot's pine), trees and a few bushes of <u>Buxus</u> (box) in one place. The oak trees (<u>Quercus</u> sp.) are fairly young and reach 20 - 30 ft. inside the wood. Birch (<u>Betula pubescens</u>) is present also while in a clearing gorse (<u>Ulex europaeus</u> and <u>U. gallii</u>) and heather (<u>Calluna vulgaris</u>) occur. The ground vegetation is restricted, with the following species:-

Holcus mollis	creeping soft grass	a
Deschampsia flexuosa	wavy hair grass	a
Festuca rubra	red fescue	f
Thuidium tamariscinum	a moss	1.f.
Galium saxatile	heath bedstraw	f
Rhytidiadelphus triquetrus	a moss	f
Pseudoscleropodium purum	п	f
Teucrium scorodonia	wood sage	0
Vaccinium myrtillus	frochan	0
Polytrichum formosun	a moss	0
Endymion non-scripta	bluebell	1.f.
Stellaria holostea	stitchwort	r

The wood itself is open and much cut. Regeneration does not seem to be occuring.



Evaluation

This small patch of oakwood is of local interest, simulating a natural wood on ordovician rock. The flora is characteristically poor.

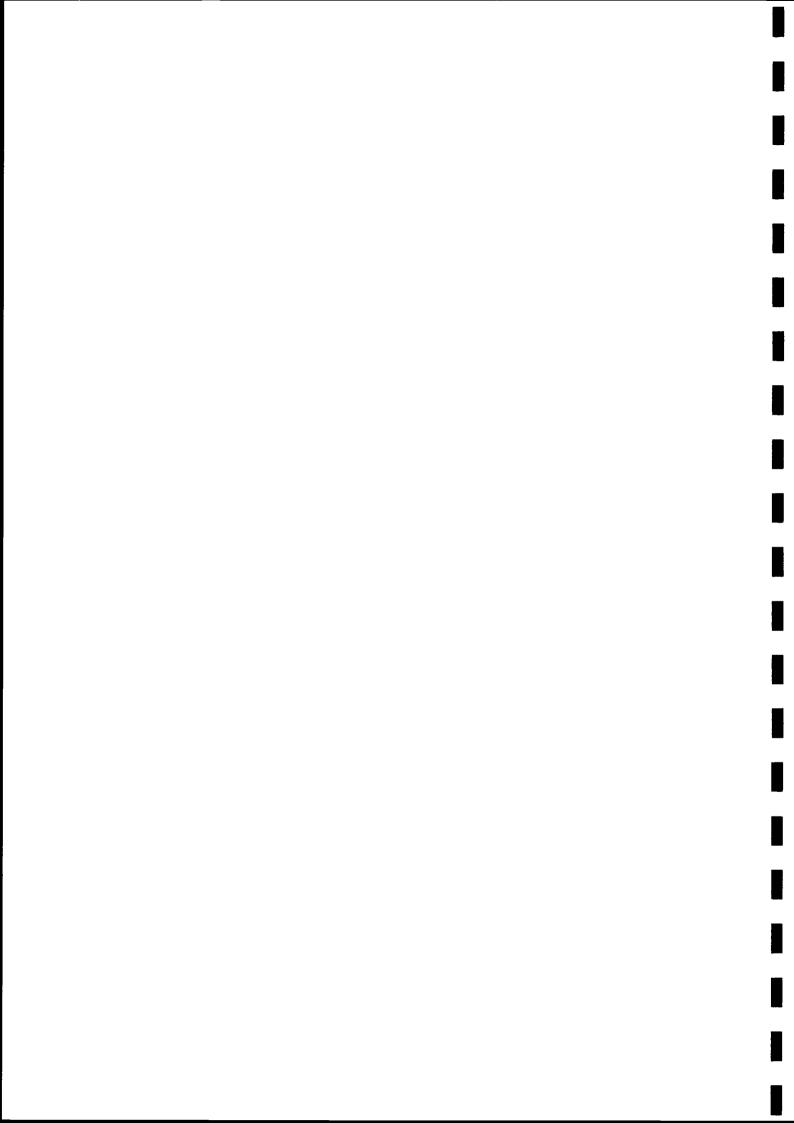
Vulnerability

The wood would be further improverished by continued cutting and would be completely destroyed by underplanting with conifers.

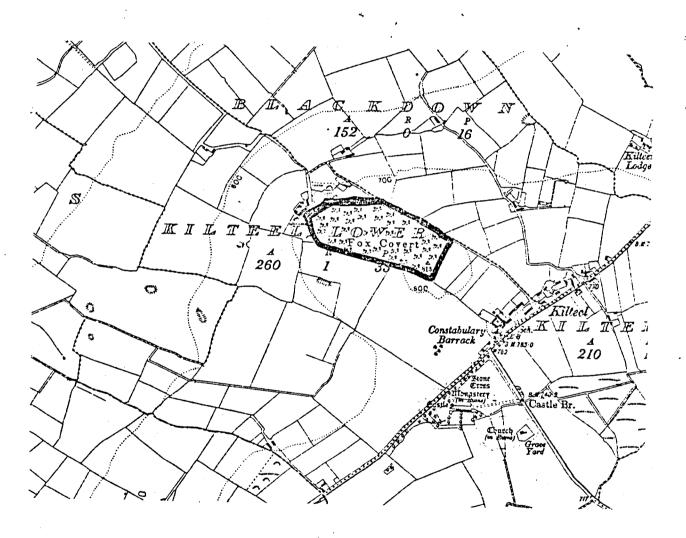
Recommendations

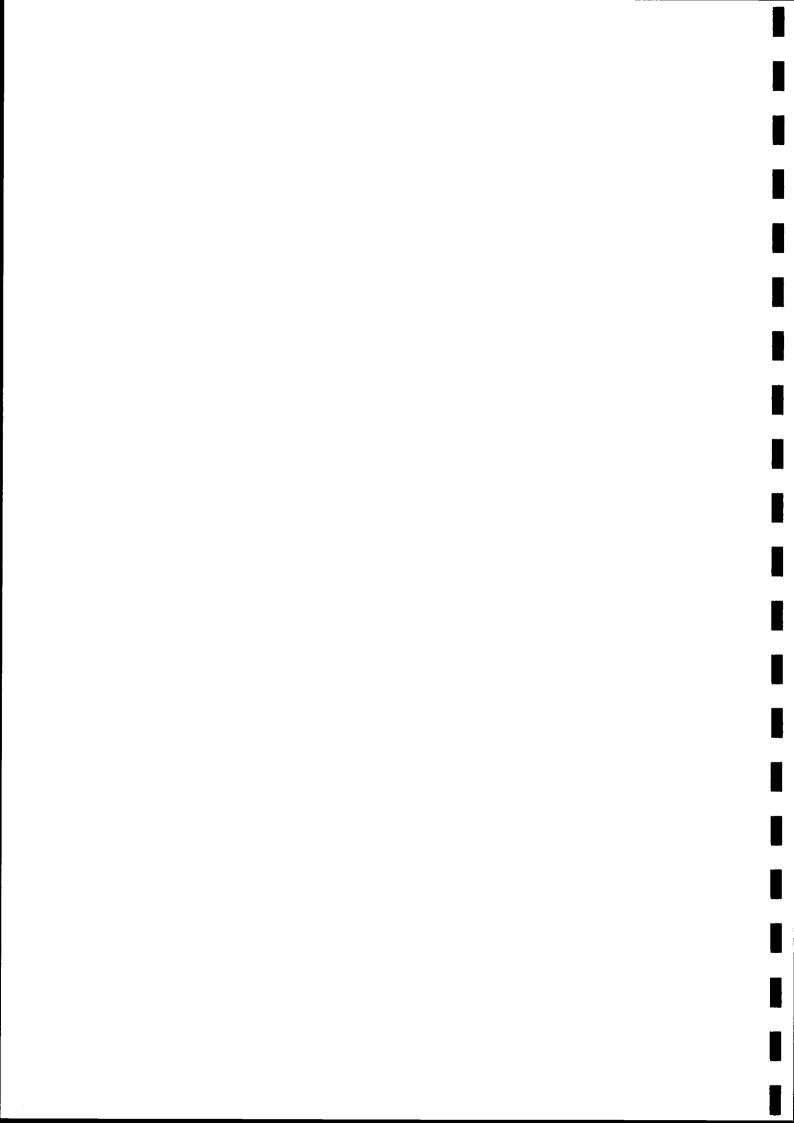
This is a good example of an ecosystem once managed by man needing his continued attention to maintain itself. In this case regeneration should be artifically promoted and cutting of mature branches and trees discouraged.

Being on high ground this wood is visible from a wide area and has some amenity value accordingly. It should be protected by a Tree Preservation Order. It is suitable for educational purposes being such a rare feature in the locality: it is also easily accessible.



Scale: 6 Inches to 1 Mile





Name of Area

LOUISA BRIDGE

<u>Acreage</u>

3 ha

Grid Reference

N. 995, 368

Scientific Interest

Botanical

<u>Rating</u>

Local

Priority

В

Description of Area

This is a terraced area of marsh extending from the Royal Canal and T.3 road down to the banks of the Rye Water. Water escapes by seepage from the canal and there is also a mineral spring that is rich in iron and calcium carbonate. In these conditions the plant community is interesting though not exceptional. Charophytes (Chara spp) occur in much of the flowing water with Apium nodiflorum (fool's watercress), Rorippa microphylla (watercress). In the marshyplaces, Schoenus nigricans (black bogrush) occurs with mosses such as Drepanocladus, Carex flacca and C. lepidocarpa (sedges), and the following species:-

Filipendula ulmaria	meadowsweet	C
Triglochin palustris	arrow grass	f
Anagallis tenella	bog pimpernel	f
Equisetum palustre	marsh horsetail	ľ.f.
Pinguicula vulgaris	butterwort	0
Menyanthes trifoliata	bog bean	0
Pedicularis palustris	red rattle	0
Cardamine pratensis	lady's smock	0

<u>Iris pseudacorus</u> (yellow flag) and <u>Sparganium ramosum</u> (burreed) occur close to the canal, while <u>Valeriana officinalis</u> (marsh valerian), <u>Pulicaria dysenterica</u> (flea bane) and <u>Glyceria maxima</u> (reed grass) appear towards the Rye Water. On its banks <u>Petasites hybridus</u> (butterbur) grows in profusion. The insect fauna may be rich; it includes several species of dragonfly*.

^{*} MacNeill, N. (1968) Ent. Gaz. <u>19</u>, 159-163.

The spring is thermal and is the most easterly of the line of thermal springs in Kildare and Meath. It was formerly used as a spa.

Evaluation

A thermal spring is an interesting and relatively rare natural phenomenon, giving rise to specialised habitat conditions. Here it is associated also with man-induced seepage onto limestone grassland.

The resulting complex is at least of local importance from an ecological and educational point of view.

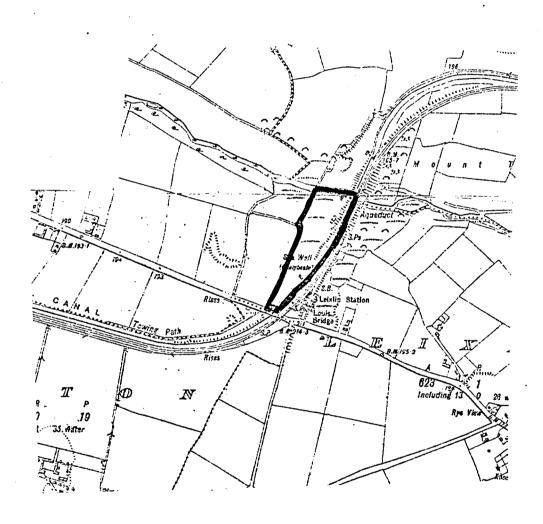
Vulnerability

The site could be obliterated by development or dumping.

Recommendations

Existing patterns of land use should be retained in the area.

Scale: 6 Inches to 1 Mile:



Name of Area POULAPHUCA GORGE

Acreage 5 ha

Grid Reference N. 93, 08

Scientific Interest Botanical

Rating Local

<u>Priority</u> C

Description of Area

The Poulaphuca gorge was cut in Ordovician schists by the Liffey until most of this was diverted through the E.S.B. station. The result of lowering the water to such an extent was to expose parts of the river bed. These show water erosion to advantage. The steep slopes of the gorge are colonised by trees either planted or derived from plantings. Fagus sylvatica (beech), and Prunus laurocerasus (laurel) are dominant just below the dam, and are joined by Acer pseudo-platanus (sycamore), some oak (Quercus sp.) and ash (Fraxinus excelsior) and alder (Alnus glutinosa) closer to the river.

The ground flora in the woods is not of great interest, being of <u>Luzula</u> sylvatica (woodrush), <u>Sanicula europaea</u> (wood sanicle), <u>Oxalis acetosella</u> (wood sorrel), <u>Carex remota</u> (sedge), etc. but below this on exposed rock or nearby soil several uncommon species occur. These would include:-

Silene dioica red campion

Geum rivale water avens

Equisetum hyemale horsetail

Polystichum aculeatum hard shieldfern

Geranium lucidum shining cranesbill

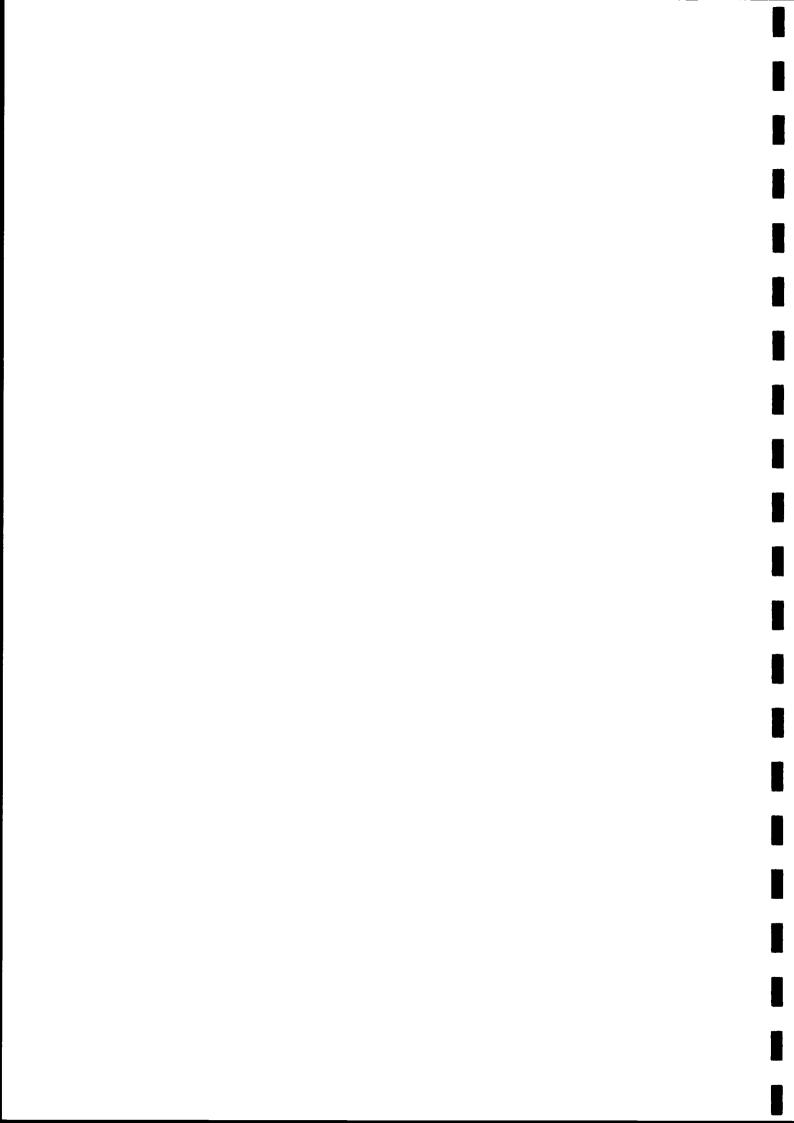
Arabis hirsuta hoary rock cress

Polypodium australe polypody

Hieracium caledonicum hawkweed

Festuca altissima fescue

<u>Umbillicus rupestris</u> (pennywort), <u>Alliaria petiolata</u> (garlic mustard) also occur together with commoner species.



Evaluation

This is an interesting area with several rare species. The <u>Hieracium</u>, (hawkweed), and <u>Festuca</u> (fescue) do not occur elsewhere in Kildare. The gorge is of some scenic attraction but difficult to view.

Vulnerability

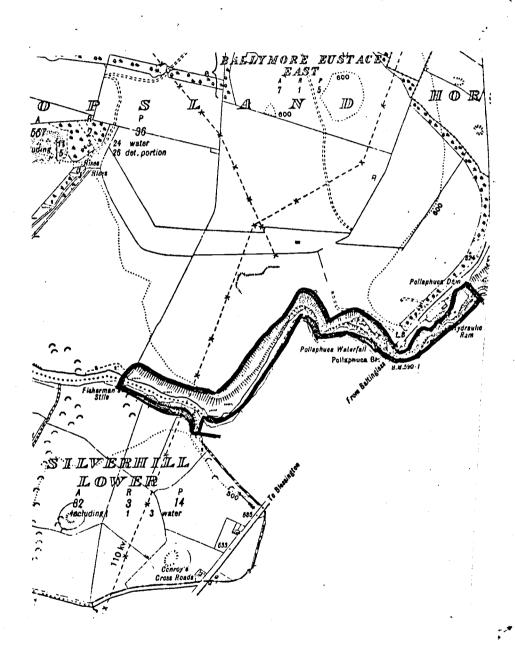
Tree felling would take away from the amenity value of the area though it would not remove such rare species as occur.

Refuse dumping at present destroys part of the attraction of the upper end of the gorge.

Recommendations

Land use should be preserved in its present form, though access paths could be made in the wood.

Scale: 6 Inches to 1 Mile:



Name of Area PROSPEROUS RESERVOIR (BALLYNAFAGH LAKE)

Acreage 31 ha

Grid Reference N. 81, 28

Scientific Interest Ornithological, Botanical

<u>Rating</u> Local

<u>Priority</u> B

Description of Area

This is a shallow lake with patches of energent vegetation in the middle as well as around the shore. It is a basic lake surrounded by acid grassland and bog and is therefore very productive. The marginal vegetation is of such species as <u>Agrostis tenuis</u> (bent grass), <u>Molinia caerulea</u> (purple moor grass), <u>Myrica gale</u> (bog myrtle) and <u>Ulex europaeus</u> (gorse).

Fen vegetation occurs at the lake edge, especially a <u>Juncus subnodolosus</u> (rush) - <u>Schoenus nigricans</u> (black bog rush) community with frequent <u>Carex</u> lepidocarpa (a sedge). In this the following occur:-

Carex rostrata bottle sedge

Caltha palustris marsh marigold

Pedicularis palustris red rattle

Triglochin palustre arrow grass

Mentha aquatica water mint

Typha latifolia bulrush

On the south-east side extensive reedbeds of <u>Phragmites australis</u> (reed) occur and also of <u>Carex rostrata</u> (sedge).

The aquatic plants are added to by submerged species such as <u>Callitriche</u> spp, <u>Utricularia minor</u> while <u>Lemna minor</u> (duckweed) and the liverwort <u>Riccocarpus</u> natans are found on the surface.

The lake is of some importance as a breeding area for birds; there is a black-headed gull colony, while mallard, moorhen and little grebe also nest.

Snipe and redshank nest in the marginal vegetation.

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Evaluation

This is a locally important lake for wildfowl and the flora needs examination at the right time of year. Mallards nest in much of Kildare but not in such density as here.

Vulnerability

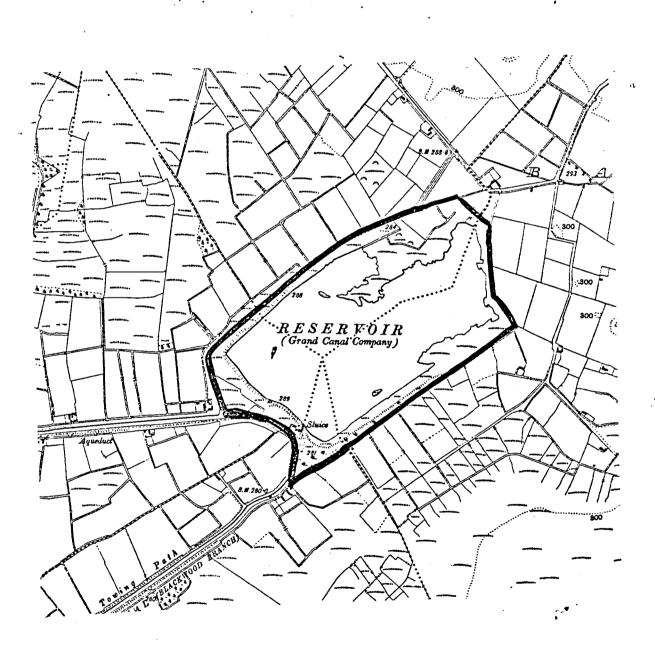
The use of this lake as a reservoir is compatible with its scientific interest if large fluctuations in level do not occur. The bird life could be suceptible to disturbance.

Recommendations

Land use should continue in its present form in the area. An increase in disturbance should be prevented by notice, especially if the wildfowl breeding programme is carried out. If necessary a Conservation Order could be used to overcome disturbance throughout the year.

The current phase of cleaning out the canal feeders may provide water access close to this area. It is essential to prevent disturbance, however, and consultations with the development body should begin immediately The best compromise would be to close this feeder to traffic in the months of April, May and June to allow time for the birds to produce young, before increased numbers of people appear at the south end of the lake.

Scale: 6 Inches to 1 Mile



Name of Area RYE WATER VALLEY (CARTON)

Acreage 42 ha

Grid Reference N. 95, 37

<u>Scientific Interest</u> Botanical, Ornithological

Rating Local

<u>Priority</u> C

Description of Area

The Rye water is dammed at intervals creating a series of lakes; the lowest of which is scarcely bigger than the river was originally. Consequently here there is a floodplain border to the river and on this the vegetation is fairly natural except for widely planted <u>Swida</u> (dogwood). The tree species include <u>Alnus glutinosa</u> (alder), <u>Salix cinerea</u> and <u>S. capraea</u> (willows), <u>Fraxinus excelsior</u> (ash) and <u>Sambucus nigra</u> (elder) with some <u>Acer pseudo-platanus</u> (sycamore).

Herbaceous plants are well represented. On the wetter ground, the following were seen:-

Chrysosplenium oppositifolium	golden saxifrage	С
Filipendula ulmaria	meadowsweet	С
Epilobium hirsutum	great willowherb	С
Valeriana officinalis	marsh valerian	f
Cardamine flexuosa	wood cress	0
Solanum dulcamara	bittersweet	0
Scrophularia umbrosa	water figwort	0 ,

The lake is bounded by aquatic vegetation in which Glyceria maxima (reed grass) is widespread. <u>Iris pseudacorus</u> (flag iris), <u>Myosotis scorpioides</u> (forget-me-not), <u>Callitriche sp.</u>, <u>Lemna minor and Caltha palustris</u> (marsh marigold) are also common.

The edges of the flood plain are steep, sometimes of drift and then commonly planted with regenerated beech (Fagus sylvatica), sometimes of limestone

rock. Here more natural communities occur with birch, (Betula pubsecens), Corylus avellana (hazel) and a variety of calcicole plants including Viola hirta (violet), and Saxifraga tridactylites, (rue-leaved saxifrage). Conifers are widespread but only the latest plantings are close enough to exclude the ground flora. Elsewhere this consists of such species as:-

Hedera helix	ivy	С
Lonicera periclymenum	honeysuckle	С
Glechoma hederacea	ground ivy	С
Ajuga reptans	bugle	С
Carex sylvatica	wood sedge	С
C. remota	n 11	f
Geum urbanum	wood avens	f
Viola riviniana	violet	f
V. reichenbachiana	u	0
Veronica montana	wood speedwell	0
Potentilla sterilis	barren strawberry	0
Hypericum hirsutum	St. John's wort	r

Carton Lake is of local importance for wildfowl supporting a large breeding population of mallard for its size and additionally, wintering mallard, tufted duck and teal. Coot and moorhen, little grebe and kingfisher make up the aquatic birds, while the woodland birds include blackcap, woodcock and long-eared owl.

Evaluation

The Liffey and its tributaries have two unusual species of woodland plants, Schropularia umbrosa and Hypericum hirsutum, both of which grow at Carton. These are very rare over the rest of the country (see Appendix 1) and there has been little enough disturbance in parts of Carton for them to flourish. The occurrence of Viola hirta is also of interest.

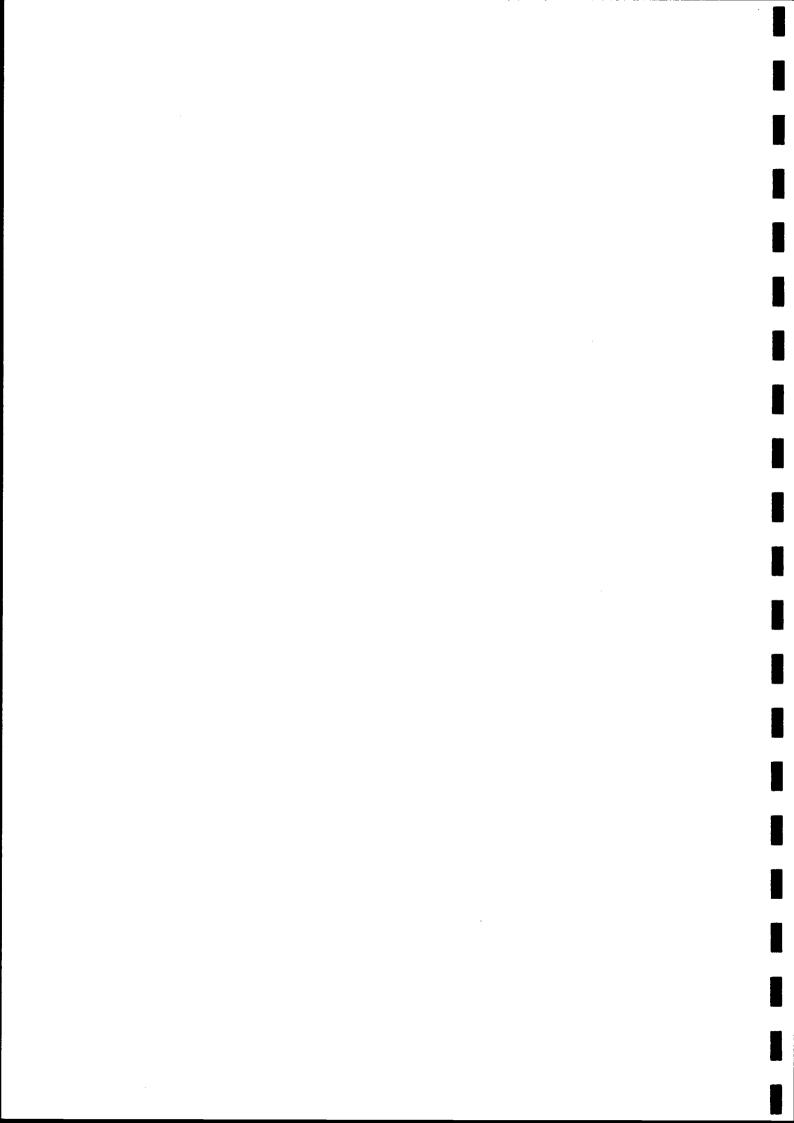
There are few areas of fresh water in Kildare large enough to be visited by numbers of duck so Carton L. is valuable for this aspect also.

Vulnerability

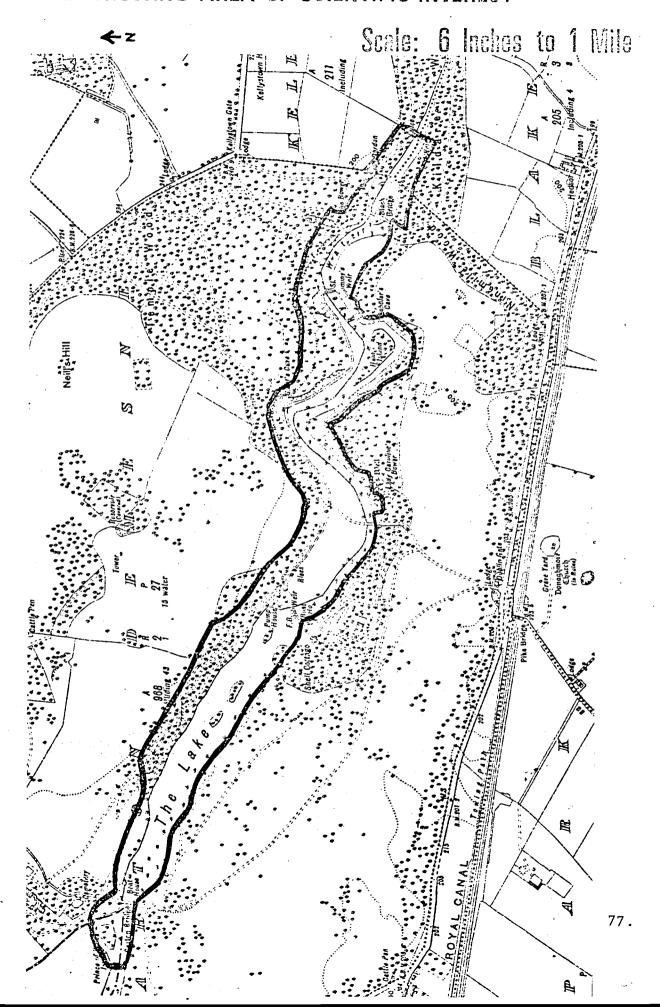
The woodland communities could be upset by underplanting with conifers, or of course, by widespread felling.

Recommendations

The area of deciduous woodland should be retained at its present size. Selected thinning could be allowed but only of individual trees. The riverbanks should not be further modified.



MAP SHOWING AREA OF SCIENTIFIC INTEREST -



Name of Area USK MARSHES

Acreage 30 ha

Grid Reference N. 84, 02

<u>Scientific Interest</u> Ornithological, Geomorphological

Rating Local

<u>Priority</u> B

Description of Area

This area includes a high moranic ridge alont its south border, and a zone of temporarily flooded fields and more permanent marshes at its base. The marshes which would normally be acidic are influenced by drainage water from the surrounding drift. This allows such plants as <u>Schoenus nigricans</u> (black bog-rush), and <u>Cladium mariscus</u> (saw sedge) to grow. In fairly permanent water <u>Utricularia intermedia</u> (bladderwort) occurs while <u>Carex diandra</u> (sedge) <u>C. acutiformis</u>, <u>Veronica scutellata</u> (marsh speedwell) etc. occur marginally.

The flooded fields contain such species as <u>Ranunculus repens</u> (buttercup), <u>Filipendula ulmaria</u> (meadowsweet), <u>Caltha palustris</u> (marsh marigold), <u>Cardamine pratensis</u> (lady's smock) and <u>Agrostis stolonifera</u> (bent grass); with abundant <u>Acrocladium</u> spp. (mosses).

The main importance of the marshes is the wintering and breeding population of snipe, with a few teal, mallard and mute swan. Water rails, moorhen, and reed bunting nest.

The high esker nearby has a fully representative flora; the north side covered by heathy vegetation (<u>Ulex gallii</u>, <u>U</u>. <u>europaeus</u>- gorses) with <u>Carex flacca</u> (sedge), <u>Agrostis tenuis</u> (velvet bent), the south with <u>Pilosella officinarum</u> (mouse ear hawkweed), <u>Carex caryophylla</u> (spring sedge), <u>Carlina vulgaris</u> (carline thistle), <u>Anthoxanthum odoratum</u> (sweet vernal grass), <u>Leucanthemum vulgare</u> (dog daisy).

Evaluation

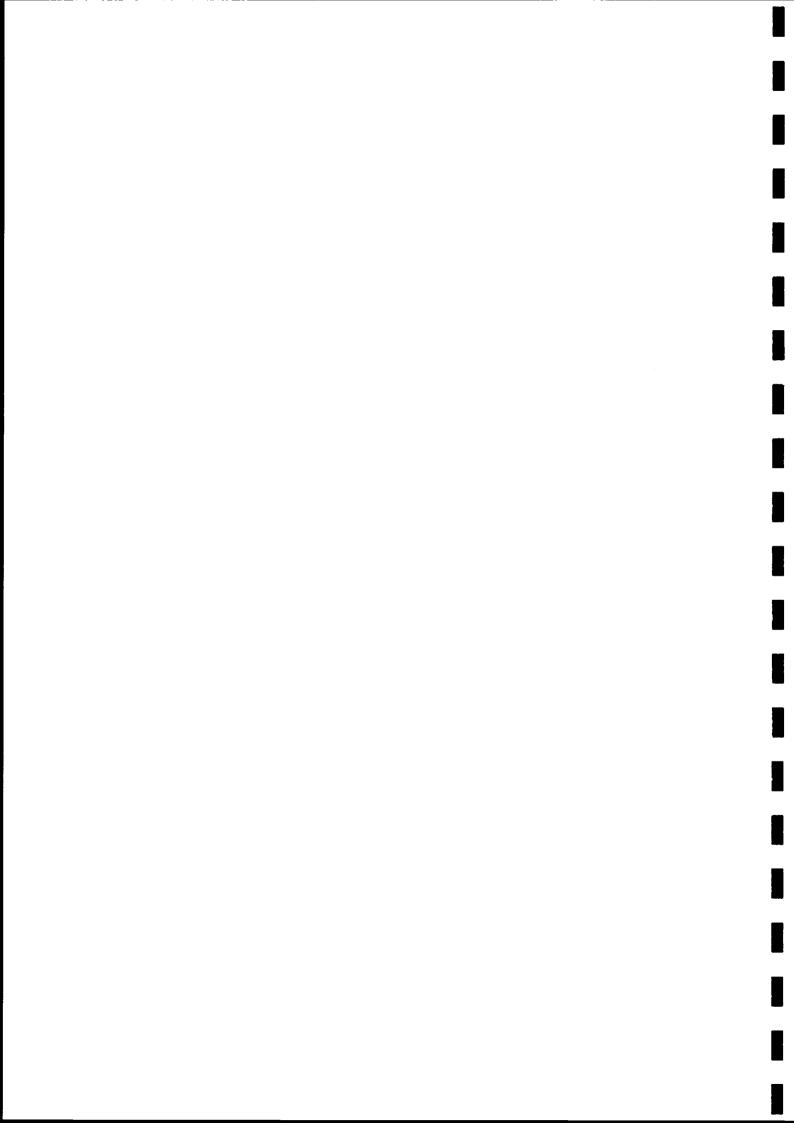
An interesting and diverse area of educational value, this also supports a relatively high density of snipe for Kildare.

Vulnerability

Drainage and sand removal pose significant threats to the area.

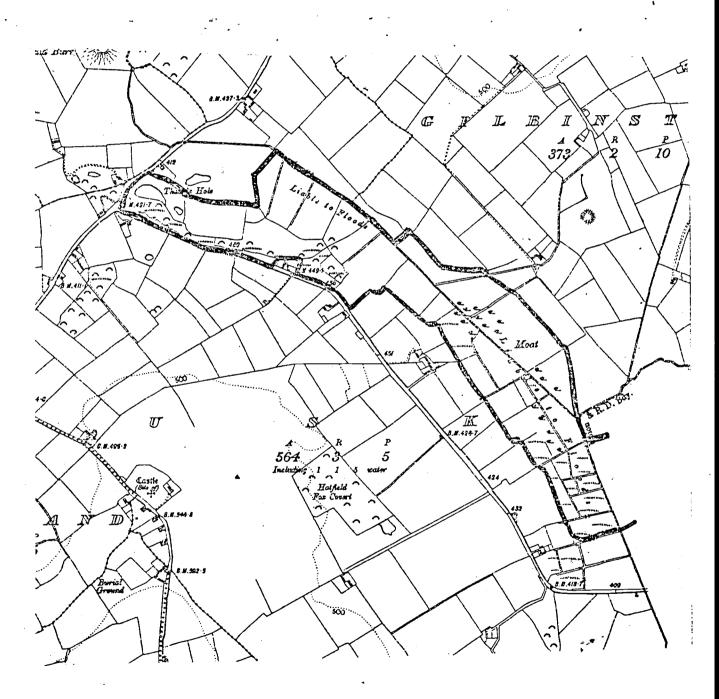
Recommendations

Land use should continue in its present pattern without further drainage. It is suggested that sand pit operations should not recommence for the moment though a fuller survey is required to ascertain the best areas for the esker flora.



WAP SHOWING AREA OF SCIENTIFIC INTEREST-

Scale: 6 Inches to 1 Mile



Review 10. Royal Canal = O 0137 - Botanical Nos. 17. Grand Canal = N 9279 & N 6531 - Botanical, Zoological

<u>Unmapped Sites</u>

1. Royal and Grand Camal

The canals have allowed aquatic communities to migrate between river basins in a systematic way. Formerly such movement was usually limited by the watershed, but now a water connection exists between the Shannon, Barrow, Boyne and Liffey catchments.

The Shannon flora especially is characteristic of the canals; plants such as

Glyceria maxima (reed grass), Sagittaria sagittifolia (arrowhead) and Chara

aculeolata (stonewort) occurring throughout its length. They are added to by:-

<u>Hydrocharis morsus-ranae</u> frogbit

Butomus umbellatus flowering rush

Equisetum variegatum horsetail

Oenanthe aquatica water dropwort

O. fistulosa

Ranunculus circinatus water crowfoot

Eleocharis acicularis spike rush

Potamogeton sp. pondweeds

Characeae stoneworts

Most of the commoner aquatic plants occur and the invertebrate fauna is similarly rich. *Molluscs, dragonflies and water beetles have been studied.

The canals supply nesting sites for numerous moorhen, dabchick, mute swan, and mallard; the kingfisher is notably common on parts of the Royal Canal.

It would be invidious to single out a stretch of the canals where these communities are best developed without walking their entire length. However it may be said that the Royal Canal is the richer of the two.

Vulnerability.

The main threat to the Royal Canal is its drying out, as has happened in certain areas above locks.

Mechanical weed clearance is not permanently damaging to the flora, only reducing its variety and extent for a few years. Chemical methods, however, if they are developed, would probably be most damaging.

^{*} See I.N.J. <u>16</u>, 85

Locally, disturbance may affect the bird populations but at present levels it is not serious.

Recommendations

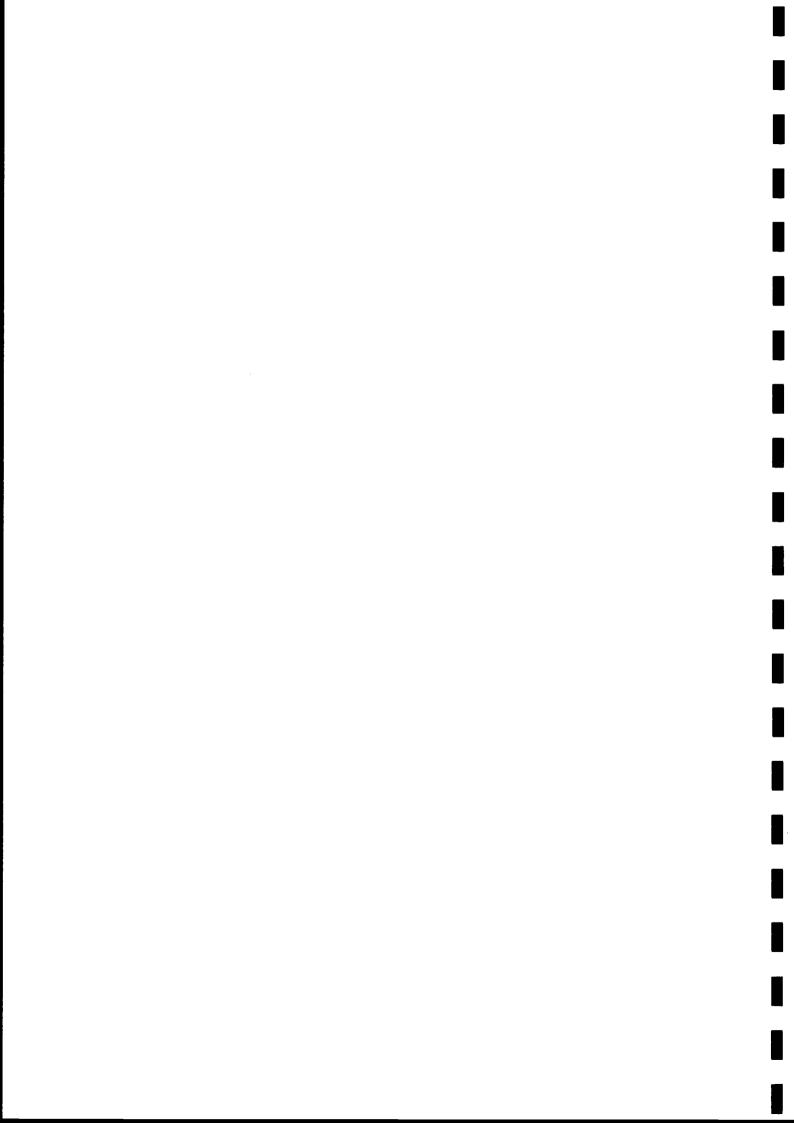
As much of the Royal Canal as is practicable should be maintained; it could be developed for recreation or as a linear park around the centres of population but natural sections should also be preserved.

The future of the Grand Canal is probably assured in Kildare and its current development is consistent with its scientific interest.

In both cases weed control should be mechanical and preferably limited to one side in any year.

The canals are of high amenity value and in view of their current development it is essential to preserve this. It would seem appropriate to cover the entire Grand Canal and its feeders with a Special Amenity Area Order (Section 42, Local Government (Planning & Development) Act, 1963).

The Royal Canal could be similarly protected but Conservation Orders for particular stretches would be better because of its greater inherent interest.



2. There are two additional thermal springs in Kildare, one north of St. Patrick's Hill at N944 316, and the other at Dysart N792 382.

These should be preserved intact and their surroundings cleaned if necessary. Signposts could be put up if there are none at present. The fauna is likely to be interesting.

G Recommended Action for each Area of Scientific Interest

SECTION

Name of Area	General Planning Control	Special Amenity Area Order	Conservation Order	Tree Preservation Order
Grange Hill and Chair of Kildare	×			
Newbridge Fen			×	
Liffey Meander Belt	X			
Carrighill Quarry	X			
Corballis Hill			1	×
Liffey Bank above Athgarvan	×			
Moorhill Drygap	×			
Mouds Bog			, x	
Red Bog			X	
Royal Canal			X	
Slate Quarries		×		
Liffey Bank at Oberstown	×			
Bog North of Prosperous	×			
Derryvullagh Island	(x)			
Donadea Wood	(x)			

⁽x) Indicates that consideration might be given to management agreement, under section 38 of the Local Government (Planning & Development) Act 1963

Name of Area	General Planning Control	Special Amenity Area Order	Conservation Order	Tree Preservation Order
G l en Ding	: X			
Grand Canal		×		
Kilteel Wood				×
Loui sa Bridge	X			
Poulaphuca Gorge	X			
Prosperous Reservoir			×	
Rye Water Valley	(x)			
Usk Marshes	×		•	

Appendix 1. The Distribution of four species of plants mentioned in the text.

