R. Goodwill's
S.M. 1977

Areas of Scientific Interest in Co. Cavan

An Foras Forbartha

PREFACE

An Foras Forbartha has been engaged in preparing a comprehensive National Heritage Inventory for a number of years. The inventory includes both man-made structures and the natural environment. One purpose of the inventory is to make available to local authorities specialist information for incorporation in Development Plans. Under the provisions of the Local Government (Planning and Development) Acts, 1963 and 1976 each planning authority is required to make a Development Plan for the area of the authority and to review it at least once in every 5 year period. The plan must contain objectives, inter alia for preserving, improving and extending amenities. It may also contain objectives in relation to any of the purposes mentioned in the third schedule to the Act including the preservation of buildings of artistic, architectural and historical interest. The other purpose of the inventory is to provide an authoritative and systematic record of the heritage as it exists. In fulfilling this second objective, An Foras Forbartha has discharged one of the main recommendations contained in its report The Protection of the National Heritage, published in 1969.

Following the publication of this report, a National Heritage Inventory Working Party, consisting of representatives of government departments and agencies concerned with the National Heritage, was established in December 1969 to ensure co-operation and to prevent duplication of effort in the preparation of the inventory. The departments and agencies represented on the Working Party are :

> Bord Failte, Bord na Mona, Department of Agriculture and Fisheries (Fisheries Division), Department of Lands (Forest and Wildlife Service), Department of Local Government, An Foras Forbartha, An Foras Taluntais, Geological Survey, National Gallery, Office of Public Works and the Ordnance Survey.

The establishment of the Conservation and Amenity Service by An Foras Forbartha in 1971 made it possible for additional specialist staff to be engaged by the Institute allowing work on the National Heritage Inventory to be speeded up.

Preliminary reports have now been completed for the twenty-seven administrative counties. The preliminary reports have been finished within six years, a remarkable achievement for which credit must go to those directly involved in undertaking the county surveys and to the members of the National Heritage Working Party for their considerable help and assistance.

Separate heritage inventory reports on the buildings of architectural interest and areas of scientific interest are being published for each county. These reports are of a preliminary nature. Omission of an item or area should not be interpreted as meaning that it does not have a heritage value. It is anticipated that these reports will be continuously expanded and improved and in this context comments and observations from individuals and organisations are invited.

This report : Areas of Scientific Interest in County Cavan has been prepared by Roger Goodwillie based on a preliminary survey by Ms. Lynne Farrell. The help and assistance of the following is acknowledged :- Department of Agriculture and Fisheries (Fisheries Division - Miss O'Shaughnessy and Dr. Moriarty), Department of Lands (Forest and Wildlife Service - Mr. Mooney), The Geological Survey - (Dr. Aubrey Flegg), Bord na Mona (Mr. Lee and Mr. Tom Barry), The Irish Wildbird Conservancy and Mr. R.C. Farris.

David Cabot,
Head of Conservation and Amenity Research,
Planning Division.

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1. INTRODUCTION

BASIS OF THE SURVEY

The survey was carried out in order to list a representative range of natural and semi-natural habitats as well as the sites of special significance in the county. These latter may, for example, be important in having unusual environmental conditions, or for showing exposures of rock that are valuable in elucidating geological history. In approach, the survey is basically a botanical one with inputs from geology and earth sciences, ornithology and other branches of zoology. There is good reason for this apparent bias. A biological site is of interest because of its diversity (number of species) or the density of one or a group of organisms. Both these things are a reflection of habitat conditions and where they are very high or low they show that unusual site factors are present. The problem is how to find these extremes and identify the real from the apparent ones.

Work on invertebrate animals (insects, snails, spiders etc.) is difficult and more time consuming than that on the larger plants. Consequently the state of knowledge about this part of the Irish fauna is incomplete, and in many parts of the country practically non-existent. Repeated visits are required to measure either diversity or density and therefore many interesting communities must remain unknown at the present time. If they have been sampled they may be impossible to put into perspective - nobody knows whether they are unusual or not. The groups of animals which one can evaluate more conveniently are the larger, better-known organisms such as birds and to a more limited extent fish and butterflies. Data from these groups and from others, where it is meaningful, have been incorporated into the site analysis.

Since all animal life depends on plants for food, whether directly or indirectly through intermediate plant eating forms, diversity and density in the plant cover indicates diversity and density in all other forms of life. It therefore seems reasonable to give greatest weight to the botanical features of the environment.

An indication that unusual factors are present at any site is often given by the presence of a rare species of plant or animal : one which is intolerant of most environments and therefore restricted in its distribution. Such a species may be important in its own right as part of the Irish flora or fauna. As such it can be removed from the countryside and grown in a garden or a cage. However, the intricate community from which it comes is impossible to recreate, once it has been destroyed. For this reason, the community is a more valuable entity. It may conceal other unusual things, some of greater value to mankind.

The survey has concentrated on natural and semi-natural communities since these cannot be developed artificially, at least within a reasonable period. It does not of course exclude man-made ecosystems and where natural processes have led to the colonisation of these by secondary organisms, there is often considerable interest; for example, in man-made lakes and sloblands and sometimes in planted woods.

Although the attempt has been made to cover all the relevant literature

and to obtain advice from those with specialised knowledge of the county, this report is still incomplete in many ways. Knowledge of our flora and fauna is not at a sufficiently advanced stage to allow definitive statements about importance or rarity to be made, outside certain very limited groups. It is hoped that the appearance of such a report will stimulate those with local information to make it known. Contributions, which will be treated confidentially, if desired, are invited. They will assist both central and local government in the better planning and management of the environment.

CONSERVATION

The conservation of the full variety of natural communities in the country is desirable on many grounds. For example, their continued existence or their development on a rational basis may add to visual amenity or improve the quality and level of recreation that an area can satisfy. They may be useful and stimulating places for education and many may provide valuable insights in scientific research.

There can be no question that such areas add to the quality of the landscape. They introduce contrast into the countryside and increase the variety of shape and form. Grossly unkempt to the eye of a parks superintendent they nevertheless sustain a wild atmosphere even in the midst of intensive agriculture or urban development. They are often enjoyable places to be in and while many people find an untouched landscape relaxing, it can also be stimulating. Nature is seen to reassert itself in forms that do not penetrate our everyday environment.

Natural areas often provide facilities for education. They are an open-air laboratory for field studies in many of the life sciences, not simply biology. For instance, they show clear examples of the ecological principles on which farming, waste disposal and even civilisation depend. They may indicate the effect of different forms of land use (historical or current) on the natural resource. Fieldwork attracts all children at some stage of their lives. There is the challenge of naming the many forms of life and of discovering about the creatures' lives and interactions. Such a stimulus to learning has been little exploited as yet in this country but there is no doubt as to its effectiveness. Fieldwork of any sort leads to a better appreciation of the countryside and may also lay the foundations of constructive recreation in later life.

Scientific research often overlaps with the educational use of the natural environment. Here one may study the basis of ecology - productivity, breakdown and recycling - without artificial influences to obscure them. One can examine the productive base (plants), the factors that control its growth, the many alternative pathways of consumption and energy flow, and the various levels on which a plant or animal crop can be harvested. Organisms that at present are little appreciated or even unknown may be found suitable for pest control, for soil improvement, for pollution treatment or for growing as a new crop. It is important to protect these resources to be able to take full advantage of the options they offer for future development.

In addition to this role as an insurance policy, the natural environment is needed for a control area. As a self-sustaining and non-polluting system it clearly has a lot to offer as a model for improving man's attempts at land management. Its comparative function with the field and greenhouse is considerable.

VULNERABILITY OF NATURAL AREAS

In the course of normal development many natural areas are being and will continue to be subjected to different conditions than those to which they have become adjusted. All will be reflected by changes in the ecological balance and in some cases these will be to the detriment of the area. Slow modifications may be caused by the addition, or removal, of nutrients and by other selective pressures such as grazing, trampling and fire. They are not so noticeable as rapid changes due to drainage or physical destruction, but they may be just as damaging.

Woodland is one of the most vulnerable communities for it can be swiftly destroyed if a concerted effort is made. Clearance may be carried out to increase the agricultural area of a farm, to replant with other more productive tree species or, more locally, for road widening and housing development. When a deciduous wood is replaced by a coniferous one, either by felling and replanting or by underplanting, the associated community of animals and plants is totally altered. Although the actual numbers of birds and insects may build up again to their former levels, the species content is much more restricted and usually is of little interest. The belts and lines of mature trees that may be left, in no way maintain an intact community and contribute only to amenity. On the other hand quite small blocks of trees can preserve a good deal of their former interest.

In woodland, a low density of grazing animals may have only a slight effect on the community, preventing some species from flowering or spreading naturally. As it builds up, however, it gradually removes the undergrowth, changing the internal climate and affecting the insect (and bird) life. Tree seedlings are gradually killed or suppressed and no saplings are recruited. These are necessary for the survival of the wood itself. The trees become old and susceptible to rot and windthrow and the canopy is opened out. The evergreen shrub, Rhododendron ponticum, has a similar effect by shading, and constitutes a worse threat, or at least a more intractable one, to the future of many woods.

By contrast, grazing unmanaged grassland seldom does signficant damage since this community is adapted to it. In places, grassland depends on a certain level of grazing to prevent scrub invasion but where the plant cover is thin, physical damage can be caused by trampling on such sites as eskers and blanket bog. In places affected by human trampling, the pressure is often aggravated by vehicles or fires and in sand dunes or on lakeshores the vegetation can break down and expose the soil to erosion.

Generally more serious to 'natural' grassland is the application of fertilisers. This is a different selective pressure and it favours coarse fast-growing grasses at the expense of the flowering plants that usually abound in such pastures. Certain species can disappear and with them their dependant butterflies and other insects. Local extinctions like this are seldom induced by grazing although it does often restrict flowering. Herbicides can obviously have a great effect where ever they are used. Generally, this is in greatly modified communities such as fields and gardens but where roadside verges are also treated, the depletion to the local flora and fauna can be significant.

Fire is a destructive agency in certain communities, such as fens, bogs with heather and sand dunes. However, in the absence of subsequent management its permanent effects are limited and the plants re-establish themselves quite quickly. There may be a more significant lag before the animal community returns to normal as many species travel very limited distances in any one season. Since all bogs have suffered from fire periodically in the past, they have in some respects become adapted to it. Any sensitive species have become very rare and those that resist burning by resprouting quickly have multiplied.

Aquatic communities are affected by changes of water level outside the normal seasonal fluctuations. The water table may be lowered by field or arterial drainage or a formerly moveable waterline may be stabilised. Alternatively, a lakeshore may be subjected to much greater changes in level if it is used as a reservoir. The junction between land and water is the main zone to be affected by drainage and the communities involved are marshes, fens and reedswamps. This complex of vegetation may simply re-establish itself at a lower level but some species may be unable to migrate so quickly, especially those that do not readily reproduce by seeds. Complete drying out or the disappearance of winter flooding is naturally more serious, as the whole marsh community with its dependant wildfowl and other animals may be destroyed.

Water pollution is a problem of growing importance due to the aggregation and increase of population and the growing size of agricultural and industrial units. Incoming matter cannot be localised in a waterbody, neither can it be absorbed. Thus pollutants may be recirculated by the bottom deposits long after their initial appearance and be depleted very slowly. Aquatic communities generally require less nutrients than land-based ones and enrichment by sewage or other organic matter leads rapidly to changes. The community of microscopic organisms is altered. Bacteria and the algae that can multiply most rapidly to form 'blooms' in early summer, are favoured and the whole assemblage of animals dependant on this food base changes. The oxygen supply in the water is reduced and this also leads to the disappearance of some animal forms. The result is the replacement of a complex community by a simplified one characteristic of stagnant water and with a few very common species. This can happen in both fresh and marine waters and is often noticed in estuaries.

Pollution with other industrial wastes takes many forms but the effluent generally reduces the variety of animal and plant life in the vicinity. It causes the organisms finely balanced with environmental factors (the rare ones) to die out. It may have a strong selective effect against certain groups which accumulate toxic substances to a level much higher than that in their surroundings (e.g. shellfish, birds of prey). Alternatively, it may act through a physiological quirk, as oil does on the feathers of water birds.

METHODS OF PROTECTION

Because of limited public interest in conservation up to a few years ago, the legal framework necessary for the adequate protection of our natural heritage is only just coming into existence. However, even those statutes that have been available up to this have not been fully utilised.

The main laws concerned are the Local Government (Planning and Development) Acts of 1963 and 1976 and the Wildlife Act 1976. In addition, there are certain laws under which conservation can be secured as an incidental benefit of their main purpose. These include the Foreshore Act, 1933, the Forestry Act, 1946, the Fisheries (Consolidation) Act, 1959, and the Protection of Animals (Amendment) Act, 1965.

The Local Government Acts allow a planning authority to develop or secure the development of land for conservation under the general area of preserving or improving amenities. This includes both ecological and geological sites. If conservation objectives are written into a Development Plan it is the duty of the Local Authority to carry them out.

The actual means of carrying them out lies in three positive instruments and in the more general obligation for a developer to retain planning permission before development starts. Residential and industrial works can be prevented in any area in this way, but agricultural buildings and those connected with forestry are largely exempt. Similarly, the Local Authority is given no control over large scale agricultural changes such as drainage and afforestation.

The Special Amenity Area Order under this Act reinforces the process of development control and gives a stronger hand to the planning authority seeking to prevent development, as it has the backing of the full Council and later the Minister and Oireachtas. With such an Order, development can be prevented or controlled at a certain level in the interest of amenity and/or nature conservation. Where this latter aspect is important the authority can go further by making a Conservation Order to protect the flora or fauna in a particular area. The purpose of the Tree Preservation Order is to impose a management plan on trees and woodlands of special amenity value - protecting the more important trees, but allowing felling and replanting when necessary. Both these Orders can be made without compensating the owner, and the planning authority may be reluctant to use them for this reason. Provision is made for compensation, but this usually has to come from local rather than central funds. Once such an order has been made, the planning authority has the power to acquire the site. In some cases it can also be obliged to purchase land where development has been refused.

The most important development in recent years has been the passing of the Wildlife Act, 1976, which gives the Minister for Lands, in consultation with a Wildlife Advisory Council, wide powers for the conservation of all wildlife and their habitat. He is able to establish nature reserves on State land, including the seabed of territorial waters, and also to designate refuges for fauna on private land after compensating the owner. Where drainage schemes will affect nature reserves he can modify them to minimise or avoid damage.

In addition, protection may be given to any species of flora or fauna in any part of the State. Hunting regulations for game can be specified and wildlife dealing is also regulated by licence. The import and export of both living and dead organisms may be controlled.

The Foreshore Act, 1933, allows public access to be prohibited on any part of the foreshore and also authorises the Minister for Transport and Power to prevent the removal of mineral matter, seaweed or bent grass from the somewhat wider zone of the seashore.

Among the provisions of the Forestry Act, 1946, is one requiring that anyone felling a tree outside an urban area must obtain a licence to do so. This can be refused by the Minister for Lands and, if it is allowed, conditions may be included for the planting of trees to compensate for the felling. Where a licence is refused on the grounds of amenity, the planning authority can be obliged to acquire the site.

The Fisheries (Consolidation) Act, 1959, is a complex instrument which, among other things, allows the Minister for Agriculture and Fisheries to set close seasons for some freshwater fish and marine shellfish. Certain fishing methods for freshwater and sea fish can be prohibited and there is also a provision to totally protect shellfish for a period of up to three years. It is an offence for anyone to allow deleterious matter to enter a watercourse. Sea fish regulations mainly deal with undersized fish whose capture is illegal.

Successful conservation must in many cases include the acquisition of a site and before the Wildlife Act, 1976, was passed this was only open to a private person or company, a planning authority or the Office of Public Works. Under the State Property Act, 1954, and the earlier land Acts this last body has acquired sizeable tracts of land, some of which is managed as National Parks or Monuments.

FORM OF THE REPORT

When an area is chosen its broadest features are described together with any particular aspect of interest. It is evaluated against similar sites within the county and outside it and is also given a rating. This scale has four points : international, national, regional and local importance. Since the majority of examples of a certain type of habitat are not listed at all, the 'local' rating should not be thought of as the actual bottom of the scale.

The ratings are derived quantitatively but them may be conveniently interpreted as the distance a specialist in a particular field would be prepared to travel to see the feature involved. Thus 'international' implies a change of country, 'national' a journey across the country, 'regional' a trip within a province and 'local' a visit if the researcher happened to be in the same general area.

The current use of each area may be mentioned in the body of the report and where a site seems specially suited for educational studies by reason of its character or accessibility, this has been indicated.

2. DESCRIPTION OF THE COUNTY

Cavan is one of the larger Irish counties with a size of 193215 ha (746 sq.mi.) Its peculiar shape bears no relationship with natural features and it stretches across several types of country in north central Ireland. It is separated from the sea by less than 30 km (19 miles) at each end.

The oldest rocks, of Ordovician age, lie as a strip across the centre of the county. They are sandstones and slates and are penetrated occasionally by bands of volcanic debris. In one place a granite inlier occurs, the Crossdoney granite, apparently of the same age as the Mourne intrusion.East of Cavan slightly younger rocks (Silurian) take over and as slates they rise into the isolated Slieve Glah and the ridge of Cornasaus (414 m) beside Bailieborough. Much of the country in this corner of Cavan is undulating with low ridges and valleys running NE-SW. The small first-order streams consequently run down these slopes in a NW-SE direction and link up to flow by more random routes.

Westwards from Cavan one travels over successively younger rocks, and working upwards in the Carboniferous strata one encounters the lower and upper limestones, Avonian shales and the Millstone Grit which forms Cuilcagh Mt. A few patches of Coal Measures occur but they are chiefly found in Leitrim and Roscommon. The rocks are relatively soft, the grits are much jointed and any ice-cut cliffs that still exist are in quite rapid retreat. The shales also weather fast and are deeply excavated by streams in the hilly regions. When rivers from these acid rocks meet the limestone they have sometimes dissolved an underground course for themselves and caves, potholes, and swallets are common around the Cuilcagh massif.

Solid geology is usually obscured by thick layers of drift material which was laid down by the icesheets. Drumlins are a very characteristic form in Cavan as they are also in parts of Leitrim and Monaghan. The soft uplands in the west have contributed much material to this drift and the shale and clay fractions are conspicuous. They produce a very poorly drained soil, saturated for long periods in the winter, and supporting a poor vegetation of rushes and grasses if unmanaged. The soil is, in fact, quite rich and trees grow well on it. Where the drumlins are adjacent to limestone, their soils are better drained and good pastureland results.

Marshes form in the hollows between drumlins and in the west of the county they show a tendancy to become acidic valley bogs,

now much reduced and cut. In the Erne valley these depressions are frequently flooded by parts of Lough Gowna, Lough Oughter or Lough Erne, and the drumlins are responsible for the fantastic forms that these lakes assume.

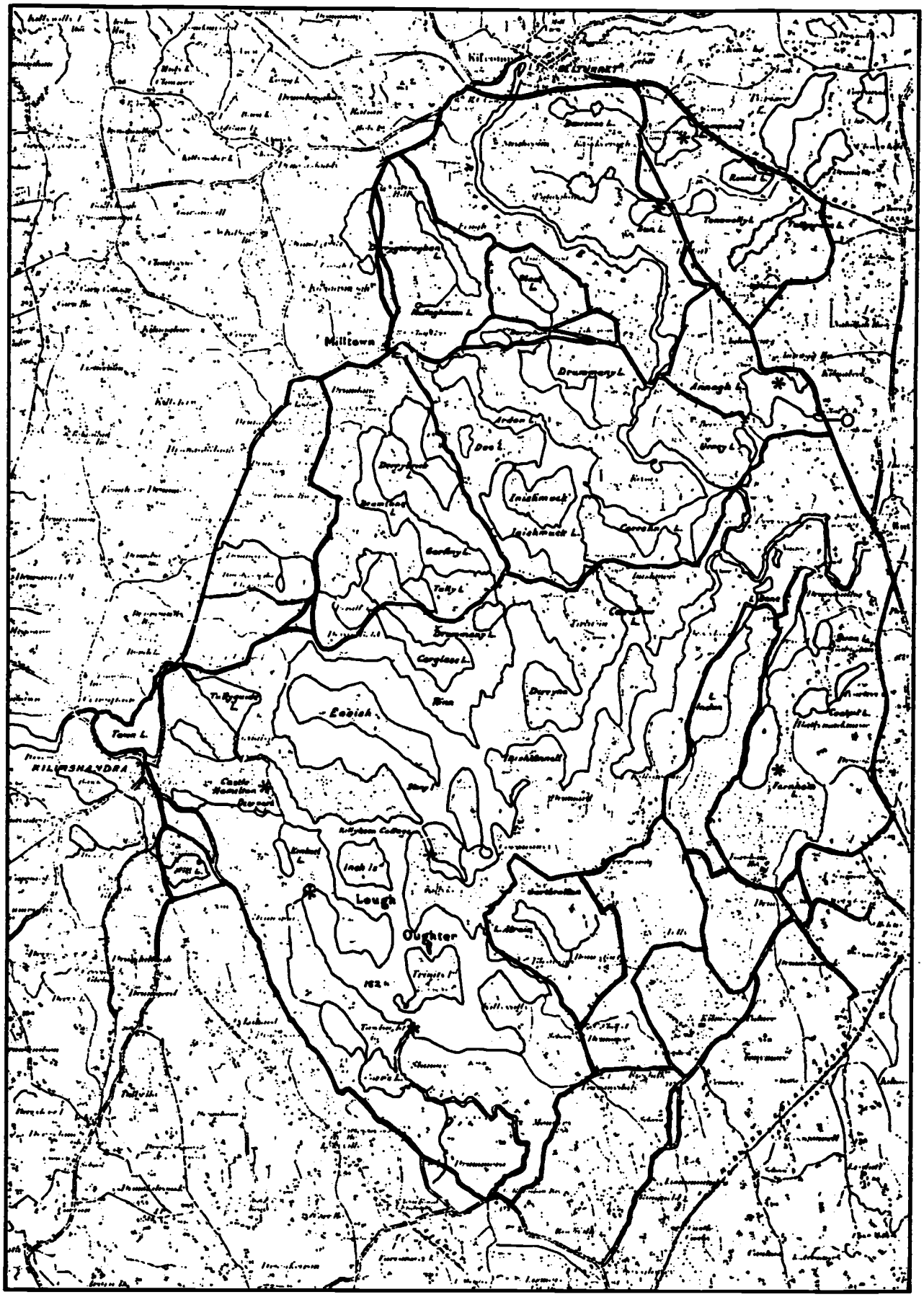
Aquatic sites are the major resource of Cavan from an ecological point of view. Waterbodies vary from the small reed-fringed pools between drumlins to the larger sinuous lakes of the Belturbet - Scrabby region. To the east and south extensive lakes, Loughs Sheelin and Ramor, have accumulated in natural depressions. These sites are of importance to wintering wildfowl, especially wild swans. They also have a rich variety of breeding species, ranging from grebes and waders to smaller terrestrial birds that are attracted to the marginal vegetation by its abundant insect life. Productivity is high in all these shallow lakes and introduced coarse fish abound. In the poorer waters such as Lough Sheelin the pre-existing brown trout remains the dominant fish but with artificial enrichment it would lose its position without management. The planktonic and invertebrate communities have already changed under this pressure, as they depend directly on water quality.

Peat boglands are quite rare in the county and cover only 2-3% of the surface as compared with 6-15% in many midland counties. The reason is the absence of large low-lying basins on the one hand and the scarcity of high land on the other. Where this does occur, near Bailieborough, on Bruse Hill and on the Cuilcagh Mts, blanket bog develops. On the flatter sites it retains its natural structure being too wet for burning or grazing, but these two influences have affected much of the drier bog and the underlying sandstone is gradually being revealed. The bird life of these desolate hills is relatively rich in species but, like all moorlands, poor in numbers. Raised bogs appear around Ballyconnell and Belturbet but are best developed along the southern margins of the county.

Cavan is predominantly a grassland region; it is low-lying and its soils are generally too heavy for arable farming. As a county it forms 2.8% of the total area of Ireland but has 3.3% of the improved land. The proportion under hay and pasture is high (82%) but only 1.2% of the county is in tillage. Livestock also have an impact on the countryside though often one that is not so immediately apparent. In this context, cattle and poultry numbers are above average but the two exceptional livestock features are the low sheep population (0.9% of the Irish total) and the high number of pigs (7.3%). The county has, in fact, the second largest pig herd after Co. Cork and because of its relative size it has the highest density of animals per unit area.

Since the land is under intensive use, practically all the natural vegetation has been modified and is held in an unnatural condition by various pressures. The only semi-natural areas are in the

Lough Oughter



Scale: 1cm = 730m (0.45mi)

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* indicates the more important botanical sites as at present known.

LOUGH OUGHTER

Grid reference:	H 34 05
Area:	8931 ha
Interest:	Ornithological, botanical, zoological
Rating:	International importance

Lough Oughter is part of the intricate middle course of the Erne River and since it is scarcely differentiated from the rest of the lakes that lie between Crossdoney and Belturbet it gives its name to the whole region. The landscape here is a drowned drumlin type and if water levels were some 15m higher it would closely resemble Clew Bay. There is a very low gradient in the river valley at this point as Lough Oughter lies only 3m above the level of Upper Lough Erne. The river therefore has little power to erode downwards and is confined to cutting laterally, breaking into the low lying lands between drumlins and flooding them.

The lake has submerged the bases of the drumlins so that its shores are quite steep in places and any development of marginal vegetation is limited. A relatively rich grassland is characteristic which is better drained than on those drumlins to the west. If not managed, however, it can revert to a rushy community with Juncus effusus and J. acutiflorus. Marsh plants of mineral soils occur close to the waterline, such as water mint (Mentha aquatica), flag iris (Iris pseudacorus) and willowherb (Epilobium spp). This habitat has limited feeding value for birds : meadow pipit and reed buntings occur with the grasshopper warbler where ranker growth with shrubs exists. In winter however large flocks of curlew, lapwing and golden plover feed on soil invertebrates, with thrushes. The multitude of hedges, characteristic of drumlin country, are also important to these latter birds.

Where a particularly steep slope or a general lack of grazing pressure has allowed it, deciduous woodland has re-established itself behind the reedbeds. Willows (Salix cinerea and S. caprea) are common in this, as is hazel, hawthorn and alder. Some ash, holly and oak (Quercus spp) also occur while the shrubs include blackthorn (Prunus spinosa), spindle-tree (Euonymus europaeus) and guelder rose (Viburnum opulus). The clayey soils beneath these trees have a characteristic flora, including wood avens (Geum urbanum), wood sorrel (Oxalis acetosella), primrose (Primula vulgaris), ivy (Hedera helix) and wood sedge (Carex sylvatica). Locally estate plantings have introduced oaks and other large trees and much of the floristic interest is centred in the more untouched areas kept as game or fox coverts. Here wych elm (Ulmus glabra), silver birch (Betula verrucosa) and aspen (Populus tremula) occur with bird cherry (Prunus padus) and buckthorn (Rhamnus catharticus). Interesting herb species include Carex strigosa, Epipactis helleborine, Lathraea squamaria and Neottia nidus-avis. Nahillah House, Farnham Lough, Bingfield, Castle Hamilton and Killykeen show examples of these richer woodland

communities.

In the valleys between drumlins, more gradual slopes are found so that shallow water exists and extensive marsh communities can develop. There is a rich growth of reeds (Phragmites australis), clubrushes (Scirpus lacustris) and sedges (especially Carex rostrata) and tall herbs occupy the drier regions behind this fringe. They include wild angelica (Angelica sylvestris) and meadow-sweet (Filipendula ulmaria). In this community, which is dissected by ditches and pools, a wide variety of other plants occurs in the neutral or basic soils. A list of the more interesting types would include Callitriche autumnalis, Cardamine amara, Carex acuta, C. elata, C. pseudo-cyperus, C. vesicaria, Cicuta virosa, Hydrocharis morsus-ranae, Lemna gibba, Ranunculus lingua, Rumex hydrolapathum, Sium latifolium, Thelypteris palustris and Utricularia intermedia.

Water levels fluctuate rather widely because of the storage function of the whole catchment for the hydro-electric station at Ballyshannon. A general rise in winter inundates additional land and creates conditions suitable for other plant species such as marsh foxtail (Alopecurus geniculatus), sedges (Carex panicea, C. nigra) a spike rush (Eleocharis acicularis), a bistort (Polygonum minus) and the yellow cresses (Rorippa amphibia and R. palustris). It also allows aquatic birds such as swans to swim over their food plants and feed from the safety of the water surface. Whooper swans are numerous in winter and the maximum count so far taken is of 563 birds. Duck also occur, though not in large concentrations. The main species is tufted duck with some mallard, teal and wigeon.

Aquatic insect life is everywhere abundant and is notably rich in the caddis and dragonfly groups. At least six species of water bug occur including three Corixids. Molluscs too are well represented. The lake is eutrophic in type and productivity is high. It is centred in the blue green algae with certain genera of diatoms. These organisms may have always occurred but in recent years they have become dominant and so numerous that their decomposition could soon reduce dissolved oxygen levels. Fish life is quite varied but dominated by 'eutrophic' species such as roach, perch, and pike. There are numbers of eels, bream and rudd but the pollan, an interesting glacial relict that occurs in the Lough Erne has not yet been taken. It may prefer the slightly poorer waters further down the catchment.

The higher plants characteristic of the lake are pondweeds (Potamogeton natans, P. gramineus, P. lucens, P. alpinus), the yellow water lily (Nuphar lutea) and various stoneworts (Characeae). The quillwort (Isoetes lacustris) has also been recorded. The low transparency* of the water may affect some of these species adversely.

Lough Oughter holds a substantial population of breeding water birds especially great crested grebe and little grebe, coot and mallard. Tufted duck also nest and in the marginal reed beds water rail and sedge warbler

are common. In the deciduous woodlands beside the lake the diversity of passerine birds is quite high : it includes the garden warbler and blackcap. Larger species such as jay, heron, woodcock and pheasant also nest.

Evaluation: The area as a whole is considered of international importance. It is the best inland example of a flooded drumlin landscape and has many rich and varied biological communities. Nowhere else does such an intimate mixture of land and water occur of similar size. The number of whooper swans which winter in the area represents about 3% of the total European population while the lake also houses the largest concentration of breeding great crested grebes in the Republic.

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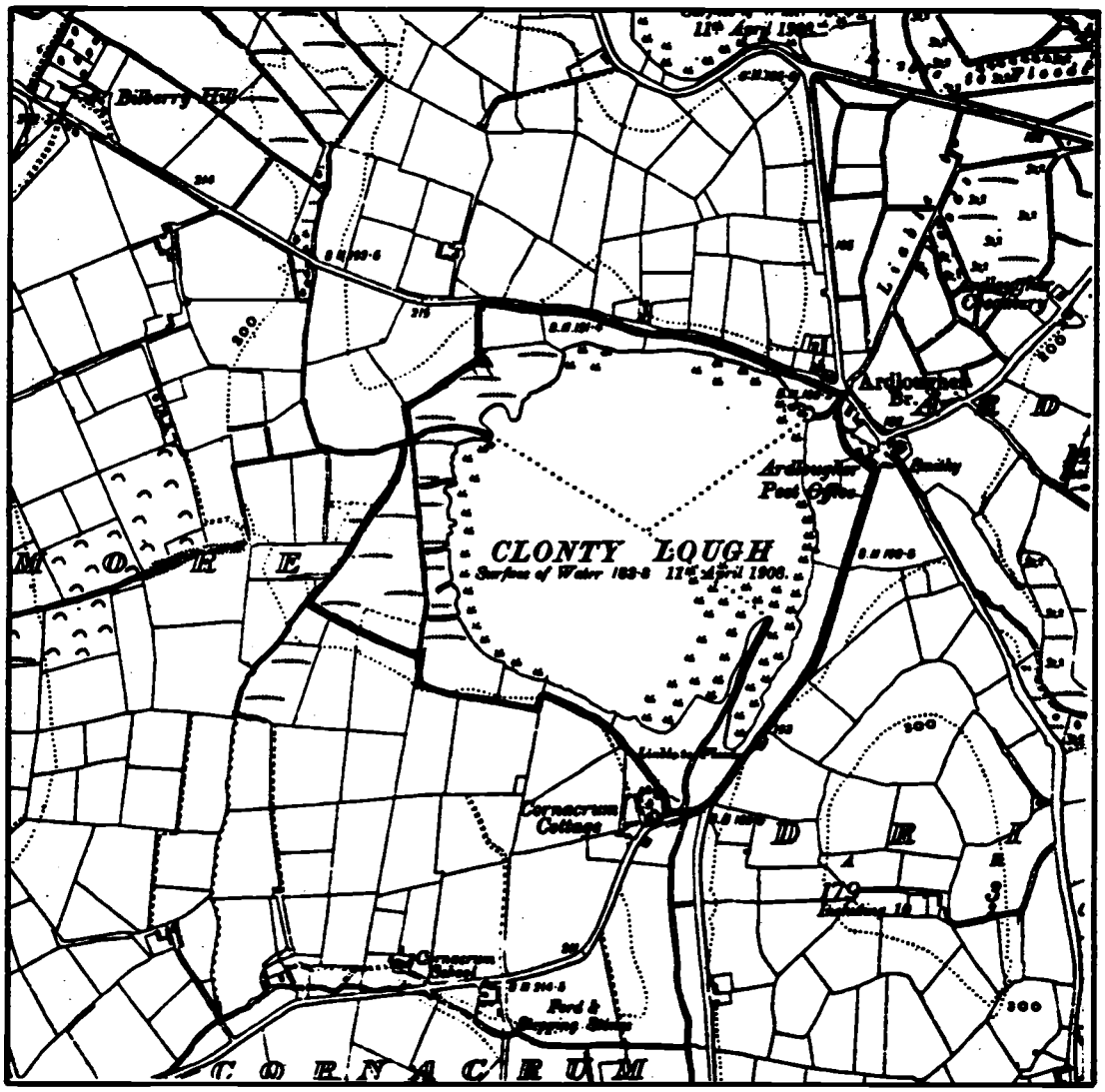
* See An Foras Forbartha (1975) A preliminary survey of Irish Lakes. Dublin.

Clonty Lough



Scale: 1cm = 105m (115 yds)

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CLONTY LOUGH

Grid reference: H 27 12

Area: 34 ha

Interest: Botanical, ~~zoological~~ Ornithological

Rating: Regional importance

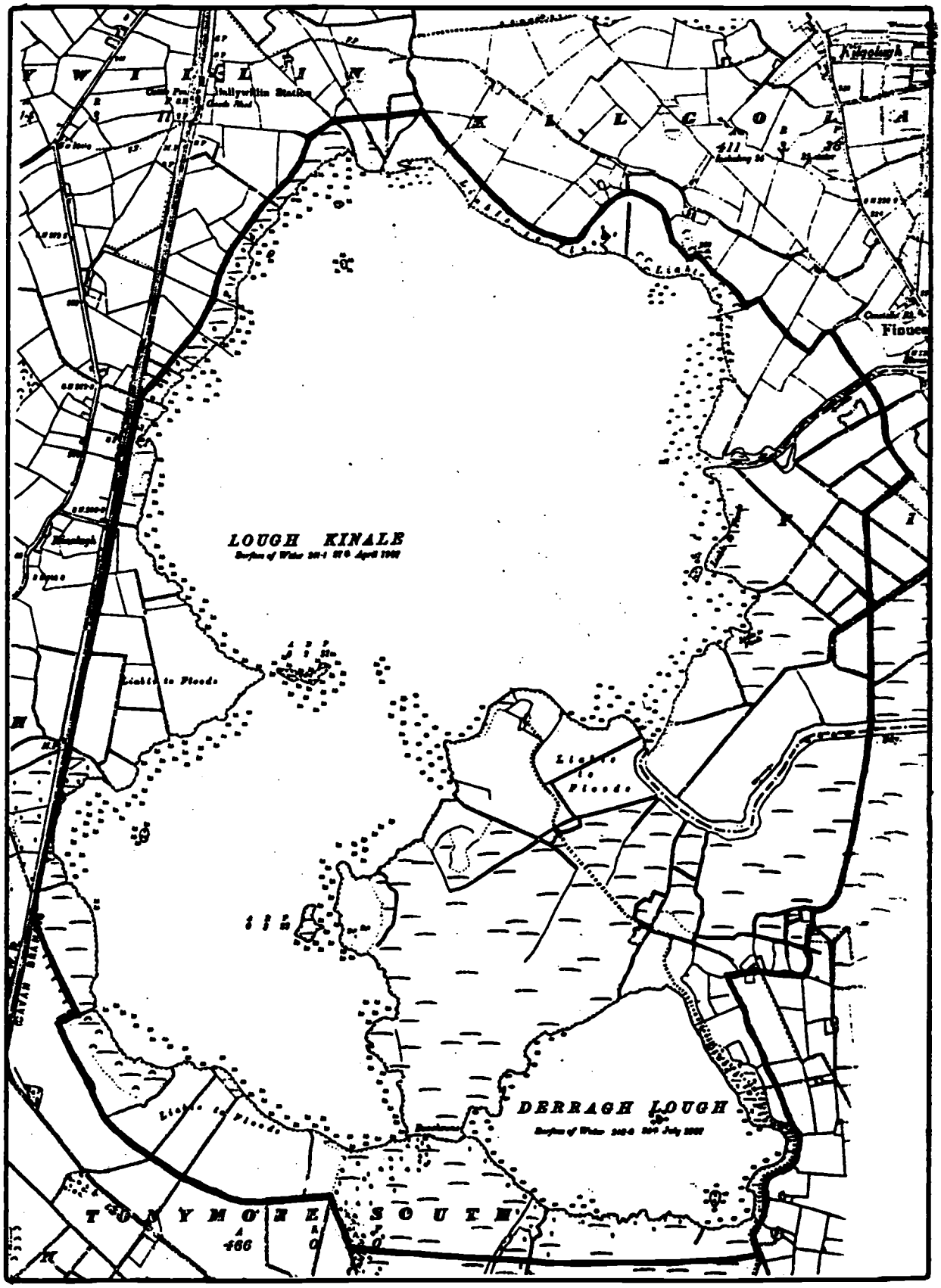
This lake is calcareous and is surrounded in places by a dense reedswamp of bullrush (Typha latifolia) and clubrush (Scirpus lacustris). Elsewhere the sedge Carex rostrata extends out into the water. The lake basin is flat so that plant growth is rapid and has extended the margins over former areas of water. The main marsh is therefore a floating mat of vegetation, based on marsh cinquefoil (Potentilla palustris) and bogbean (Menyanthes trifoliata). In this, many other species have become established including the sedges Carex lepidocarpa and C. panicea, marsh marigold (Caltha palustris), lady's smock (Cardamine pratensis) red rattle (Pedicularis palustris) and forget-me-nots (Myostis spp).

Behind this zone a more mineral marsh occurs which dries out significantly in summer and is flooded in winter. Rushes are frequent here especially Juncus acutiflorus and J. articulatus and they grow in company with meadow-sweet (Filipendula ulmaria), marsh ragwort (Senecio aquaticus), brooklime (Veronica beccabunga) and patches of bog myrtle (Myrica gale). The more interesting plant species that occur include Carex elongata, Cicuta virosa, Festuca arundinacea, Ranunculus lingua, and Sagina nodosa.

Colonisation of these communities by trees is conspicuous though a high grazing pressure keeps most of them small. Many willows (Salix cinerea and S. aurita), birches and alders occur, spreading from groups of more mature trees that in places reach the lakeshore. The two latter species provide feeding for insectivorous birds during the summer months and also attract flocks of finches (especially redpolls) in autumn. These seeds are eaten too by dabbling duck and small numbers of mallard and teal are present in winter. Snipe are noticeably common. Because of the large amount of low lying land aquatic invertebrates are well represented though beyond a few casual records they have not been studied. The fish life, however, has been considerably modified by management.

Evaluation: This site houses one of the largest concentrations of the sedge Carex elongata, which in the Republic is restricted to a very few sites in Cavan and Leitrim. It occurs also lower down the Erne valley and at Lough Neagh but at a lower density. Clonty Lough has considerable ecological value for this reason and would be an ideal location for a species study.

Lough Kinale



Scale: 1cm = 146m (161 yds)

½" sheet 12: 1" sheets 79,89: 6" sheet Cavan 41

LOUGH KINALE

Grid reference:	N 39 82
Area:	484 ha
Interest:	Ornithological, botanical, zoological
Rating:	Regional importance

Lough Kinale is shared by three counties : Longford, Cavan and Westmeath in order of size. The lake is an expansion of the R. Inny in a limestone trough which is based on the junction of two rock types. It is surrounded on two sides by the raised bogs of the Inny valley and so receives some acidic drainage as well as the predominant alkaline water from Lough Sheelin. The lake has a pH of about 8.5 and being shallow (maximum depth 4m)and eutrophic it is highly productive.

Artificial enrichment occurs to both lakes and results in large growths of phytoplankton, especially the blue-green algae Oscillatoria and Anaboena. The most common faunal organisms are Crustacea, Daphnia, Cyclops, Diaptomus (water fleas) and rotifers. The density of these organisms and of the large ones that feed on them is remarkable and they support a considerable bird population. Tufted duck (maximum count 2160) and pochard (2425) are the major species found but mallard, teal, mute swan and whooper swan also occur. It is not known if these numbers are regular in winter at this site as there is only limited data for it.

The plant communities around the lake are also of some interest. The largest area is covered by reeds and sedges (Phragmites/Carex elata). Behind this the fen vegetation includes species typical of basic marshes, for example the sedges, Carex panicea, C. lepidocarpa, C. demissa, marsh pennywort (Hydrocotyle vulgaris), mint (Mentha aquatica) red rattle (Pedicularis palustris), pearlwort (Sagina nodosa) and brookweed (Samolus valerandi). The mosses Acrocladium, Pseudoscleropodium, and Hypnum cupressiforme occur frequently, with Drepanocladus much more local.

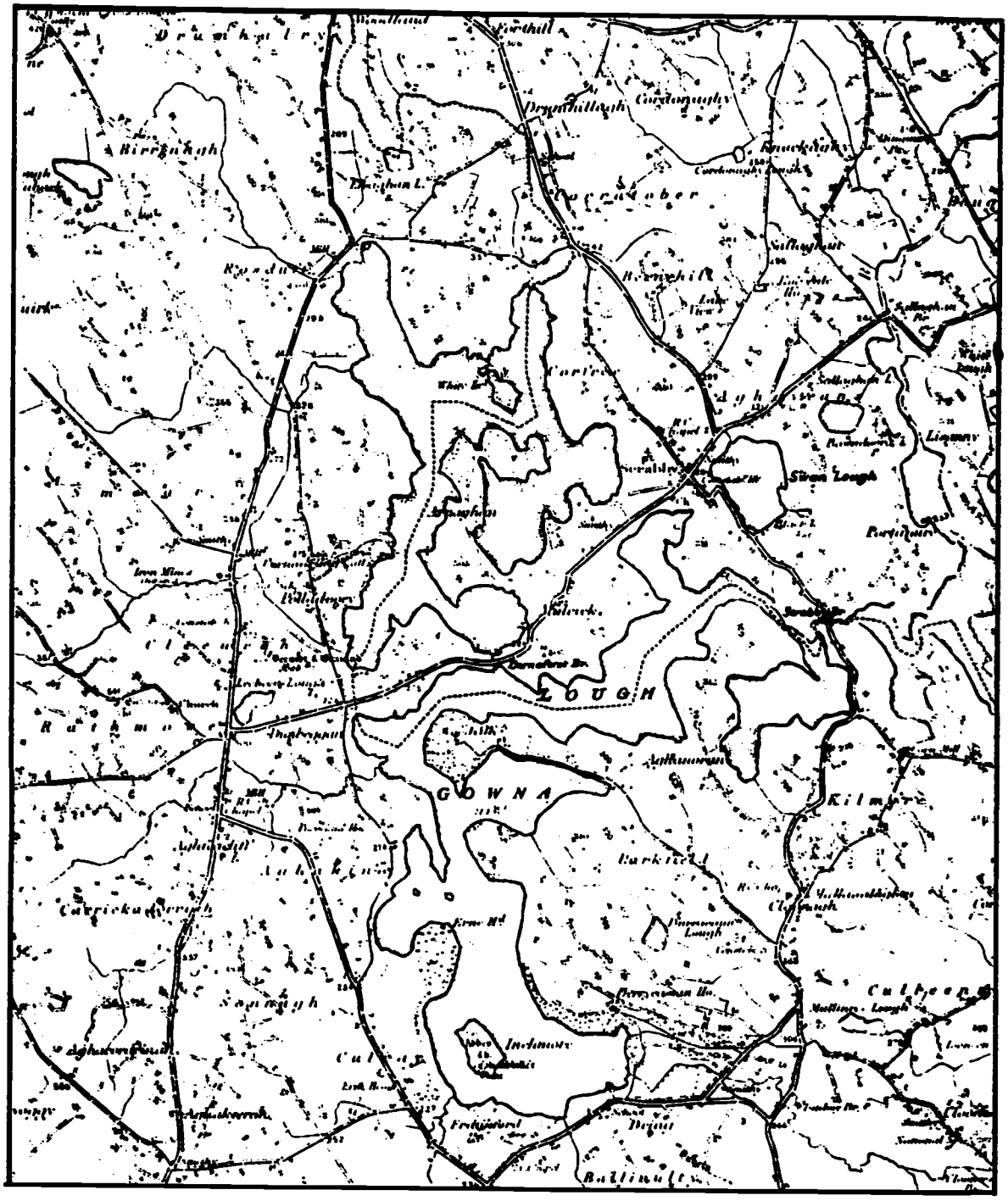
Invertebrates that are particularly common are molluscs and flies (Diptera, Trichoptera) and the lake is noted additionally for the number of wading birds it attracts during passage migration.

Evaluation: The large numbers of duck that have occurred on Lough Kinale give it a regional rating. They represent more than 5% of the Irish wintering population of the species but it is not known if they all feed here or just use it as a retreat during heavy shooting pressure.

Water quality is rather variable in the lake due to its small volume and pollution may result in temporary blooms of algae and the smaller invertebrates rather than a high overall productivity.

The presence of a more isolated late, Derragh L., is valuable for comparative purposes.

Lough Gowna



Scale: 1cm = 630m (0.4 mi)

½" sheet 12: 1" sheet 79 : 6" sheets Cavan 30,36

LOUGH GOWNA

Grid reference: N 29 92

Area: 1218 ha

Interest: ~~Ornithological~~, botanical, zoological

Rating: Regional importance

Lough Gowna resembles L. Oughter but the basement rocks in this case are Silurian grits and slates. Tortuous bays and rivers cover an area of 4.5 x 3 km and occur where the R. Erne meets a low-lying drumlin-filled basin. This is shared by Counties Longford and Cavan. The main river enters and leaves the lake at its eastern extremity but small feeders do flow in from the other sides. All bring relatively soft water giving the lake a pH of about 7.5*. Eutrophication is proceeding quite rapidly in the lake due to nutrient inflow and algal blooms occur locally in most years. The commonest planktonic organisms are diatoms (Asterionella), blue green algae (Anabaena, Coelosphaerium) and cladocera (Daphnia and Diaptomus).

The relatively low base status of the lake is shown by the occurrence of two plants, water lobelia (Lobelia dortmanna) and quillwort (Isoetes lacustris) which grow in the northern section at Arnaghan. A stonewort of limited distribution, Nitella flexilis, also occur. Peat bog occurs in places on the north and east shore, as at Scrabby Bridge and west of Dernaferst, where an unusual bulrush grows (Typha angustifolia), and a usually upland fern (Thelypteris limbosperma). Elsewhere the shores are stony, either sloping on the edges of drumlins or flat and open in the east. Swan Lough is included in the area as it has obvious similarities with the main lake.

A woodland fringe is present on some of the shore with willow, alder, ash, hazel and holly. Scattered oak trees occur and the ground flora includes calcifuge species such as cow wheat (Melampyrum pratense), hard fern (Blechnum spicant), frochan (Vaccinium myrtillus) and crinkled buckler fern (Dryopteris aemula). Passerine birds are well represented and include blackcap, while wood white butterflies also occur.

One of the main values of this whole area is as a wintering site for wildfowl species. A rich variety is present and numbers of goldeneye (up to 50), shoveler (80) and pintail (10) are noteworthy. The main species are mallard (200), tufted duck (250) and wigeon (400) with wild swans (84) and mute swans (150). Some wildfowl also nest, for example, tufted duck and red-breasted merganser, but the more noticeable species in summer are the black-headed gulls, nesting in colonies, the great-crested grebes and ringed plover.

Evaluation: The area is quite rich ornithologically and the numbers of whooper swans is significant. Of the plant communities the oligotrophic ones are of greatest value in view of the general lack of base-poor habitats in the midlands.

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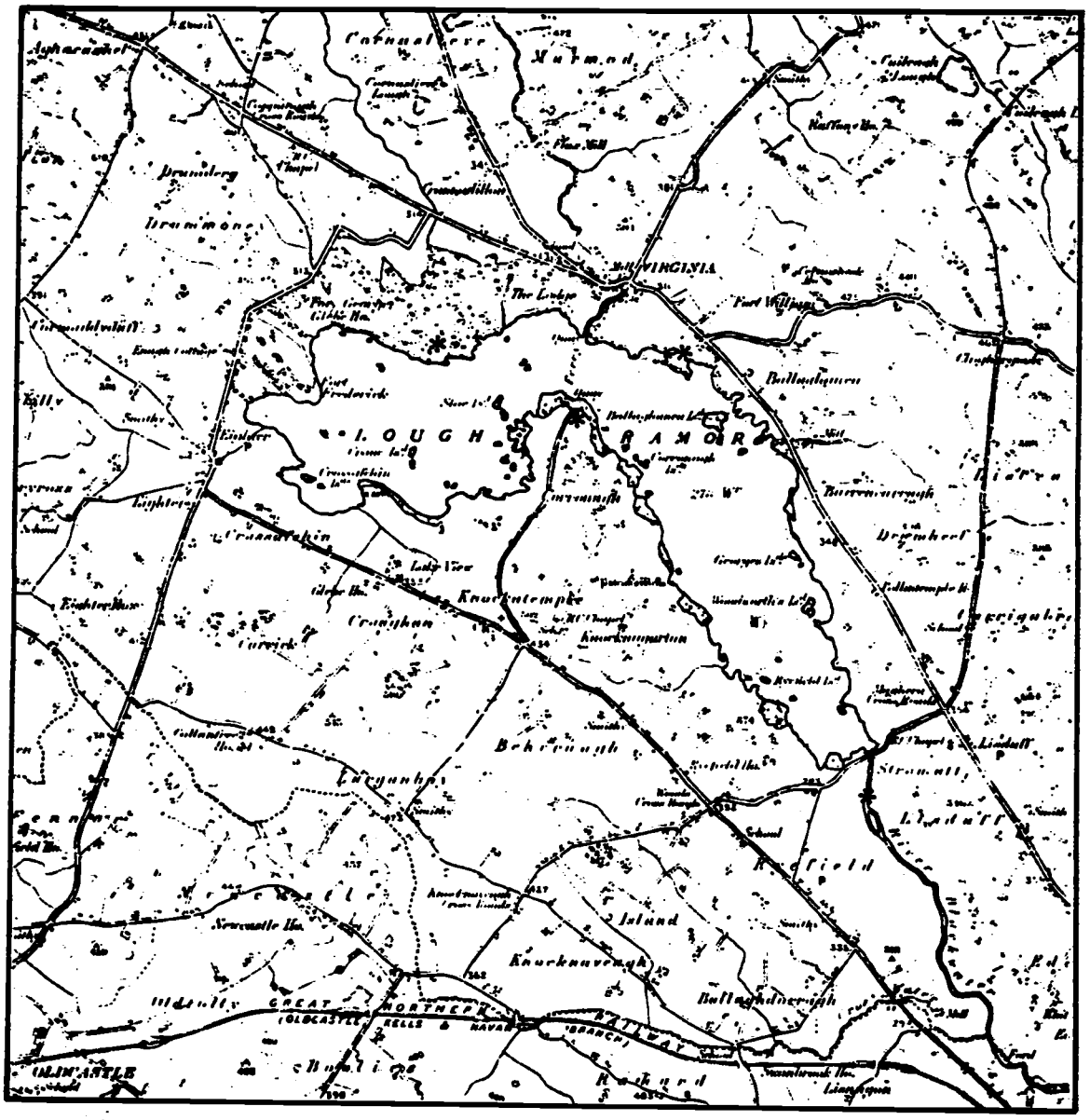
* An Foras Forbartha (1975) A Preliminary Survey of Irish Lakes, Dublin.

Lough Ramor



Scale: 1cm = 630m (0.4 mi)

½" sheet 13: 1" sheet 80: 6" sheets Cavan 39, 43

* indicates those parts of the area thought to be the most important

LOUGH RAMOR

Grid reference: N 6 8

Area: 758 ha

Interest: Botanical, ~~ornithological~~, ~~zoological~~

Rating: Local importance

Lough Ramor lies in a hollow in the Silurian strata that cover most of eastern Cavan. It is a very shallow lake with a pH of about 7.5 and a maximum depth of 6m. The water is nutritionally poor but suffers periodic enrichment, resulting in algal blooms. Being situated on a different rock type than the other Cavan lakes it differs also in appearance. Much of the shore is wooded naturally by alder, willow and hazel. Near Virginia extensive stands exist though these were originally planted.

Hazel and hawthorn scrub is widespread on relatively dry sites with brambles (Rubus fruticosus), false brome (Brachypodium sylvaticum), wood sedge (Carex sylvatica), violets (Viola riviniana) and primrose (Primula vulgaris). Where such communities occur on a rocky shore wild apple (Malus sylvestris) often grows with roses such as Rosa sherardii, R. canina and another violet (V. canina). The scrub grades into woodland in several places on the southern shore and here ash and oak occur with some holly. The bird community in such sites includes treecreeper, long-tailed tit, chiffchaff, willow warbler and, locally blackcap. Some larger species nest also, e.g. woodpigeon, sparrowhawk, jay, pheasant and woodcock.

The islands are usually covered by willows etc. but in more open places black-headed gulls nest. The few mallard, teal and red-breasted mergansers that breed also use island sites, but great creasted grebes prefer the mainland shore.

Marshes exist in many places around the shore but extensive reedbeds stretching out into the lake are rare. The marshes are usually dominated by sedge species at their outer limits; for example Carex rostrata, C. vesicaria, C. elata, C. nigra and occasionally C. aquatilis. The water horsetail (Equisetum fluviatile), marsh cinquefoil (Potentilla palustris) and bur-reeds (Sparganium spp) are also common. Inside these fringes a more varied community exists characteristic of base-poor areas. This includes much marsh ragwort (Senecio aquaticus), spearwort (Ranunculus flammula), devil's bit (Succisa pratensis), marsh bedstraw (Galium palustre) and willowherb (Epilobium parviflorum) with such ubiquitous grasses as Agrostis stolonifera, Anthoxanthum odoratum, Holcus lanatus and Molinia caerulea. Lady's smock (Cardamine pratensis) is abundant and bog violet (Viola palustris) and greater spearwort (Ranunculus lingua) occur in places.

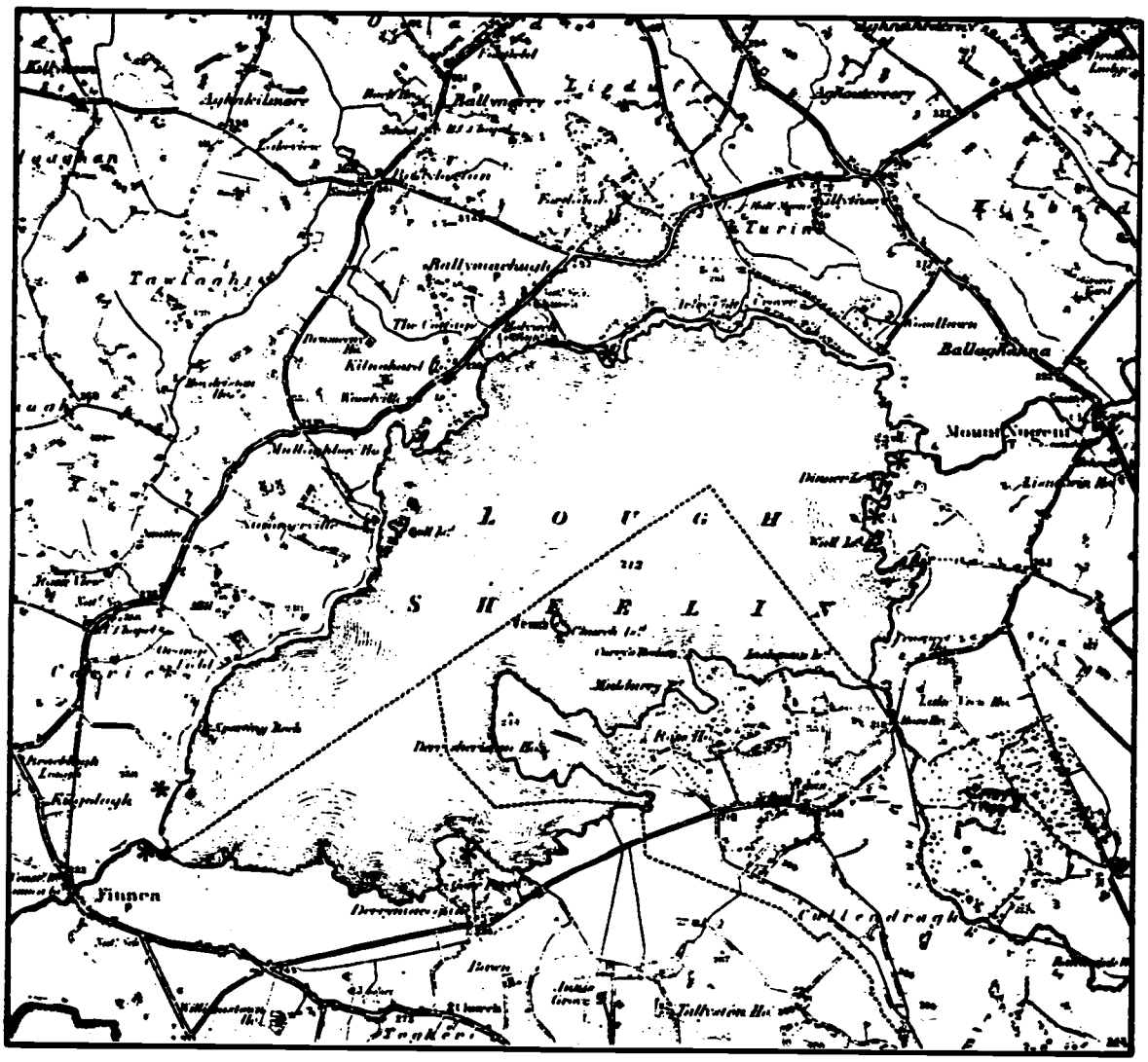
Snipe nest and feed in these areas with some lapwing and curlew. As yet only widely distributed species of insects are known from the site, such as the orange tip, ringlet, and meadow brown butterflies.

Open stretches of the shore also occur and with a muddy or stony substrate they provide niches for two bistorts (Polygonum minus and P. mite), and a bur-marigold (Bidens tripartita).

The wintering wildfowl population of L. Ramor is limited for such an extensive lake and numbers over 1-200 are exceptional. The main species are tufted duck, mallard and teal.

Evaluation: Some of the marginal communities of this lake are of interest and differ from the majority of sites in the county. Since they occur over a large area they are only given a local rating.

Lough Sheelin



Scale: 1cm = 630m (0.4 mi)

½" sheet 12: 1" sheet 79: 6" sheets Cavan 37,38,41,42

* indicates the most interesting parts of the shore, as at present known

ff 1977

LOUGH SHEELIN SHORE

Grid reference : N4 8

Area : not calculated

Interest : Botanical, ornithological

Rating : Local importance

Lough Sheelin is by nature a fairly oligotrophic calcareous lake with abundant mayflies (Ephemeroptera) and diatoms (algae) but with few blue-green algae. It therefore supports a food chain with brown trout as the major consumer. Since it has become polluted however, this has changed and 'blooms' of blue-green algae have become common. The introduction of non-native fish species has also upset the natural balance so that strenuous efforts now have to be made to retain a trout fishery there.

The lake itself is of comparatively little ecological interest for its size : midwater or bottom organisms are of widespread species and wildfowl numbers are low. However, several islands and individual stretches of the shore have valuable plant and bird communities. The islands usually have a covering of low willows (Salix aurita and S. cinerea) and are surrouned by a thin growth of reed (Phragmites and Scirpus lacustris). Black-headed gulls nest in places and when common terns were widespread inland breeders, they too occurred.

In quiet bays calcareous marl is deposited on the rocks producing a white substrate devoid of plant life except for a few starved-looking pondweeds (Potamogeton). With a sandy or muddy bottom however, reed beds can develop more fully and a variety of aquatic plants occur. These include a pondweed (Potamogeton filiformis) of limited distribution in the country, shoreweed (Littorella lacustris), and stoneworts (Chara, Nitella spp.) The molluscan fauna which feeds in shallower waters and frequently is cast up on the shore is made up of widely occuring species such as Bithynia tentaculata, Potamopyrgus jenkinsi, Limnaea spp., Planorbis spp., Physa fontinalis and Valvata piscinalis.

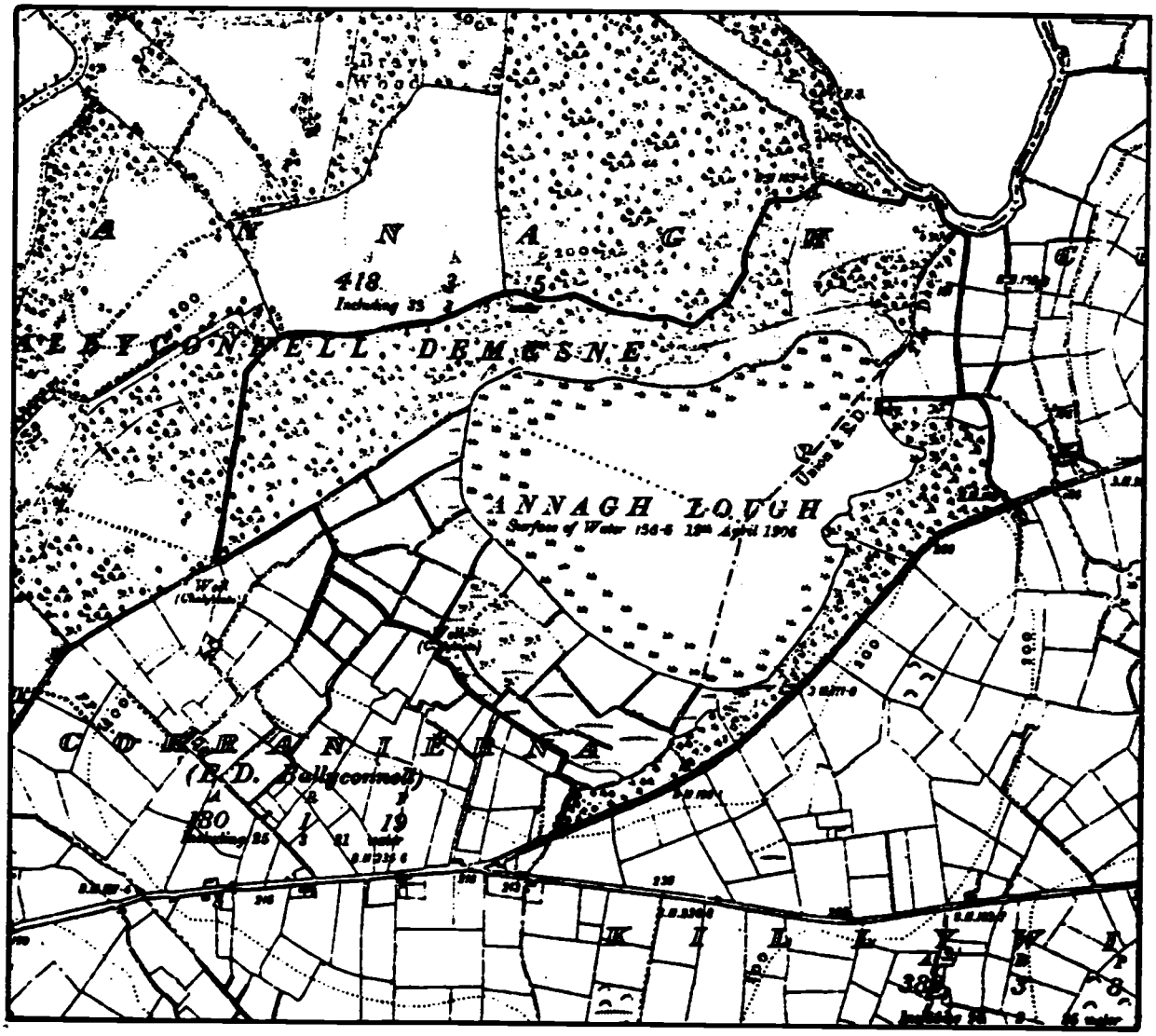
The majority of the shore is stony and this appearance has been accentuated by recent lowerings of the lake level. Seepage frequently runs across the flat surfaces, its lines being marked by rush growth (Juncus articulatus) and sometimes spike rushes (Eleocharis palustris). No plant is dominant over a large area but black bog-rush (Schoenus nigricans), the sedges (Carex lepidocarpa, C. demissa), water mint (Mentha aquatica) and spearwort (Ranunculus flammula) are all frequent. Species such as Festuca arundinacea, Lycopus europaeus, Cirsium dissectum, Rorippa palustris and Parnassia palustris are more restricted in distribution though still widespread. Where peat development extends to the shore, as in several places in the north side, the bog myrtle (Myrica gale), butterwort (Pinguicula vulgaris) and marsh pimpernel (Anagallis tenella) become frequent. Some of the bogs here have the cranberry (Vaccinium oxycoccus)

in them while elsewhere Lathyrus palustris and Carex aquatilis grow.

On the shores, several wading birds nest that require good visibility : e.g. redshank, ringed plover, common sandpiper, and lapwing. Other aquatic birds prefer the reedbeds and these include coot, great crested grebe and tufted duck. Low scrub on some parts of the shore introduces additional species such as willow warbler and grasshopper warbler, while derelict-looking sites colonised by rank herb growth with occasional gorse bushes are chosen by whinchat and reed bunting. Blackcaps nest in some of the taller woodlands.

Evaluation : The shoreline areas indicated include many examples of these communities which are attractive visually and useful for educational purposes.

Annagh Lough



Scale: 1cm = 105m (115 yds)

½" sheet 8: 1" sheet 57,68: 6" sheet Cavan 10

ANNAGH LOUGH, BALLYCONNELL

Grid reference: H 29 18

Area: 63 ha

Interest: Botanical, zoological

Rating: Local

This is a base-rich lake with a small peat bog beside it. This contrast is responsible for a rich flora and insect life. On the north side of the lake semi-natural deciduous woodland occurs with willow, birch, alder, ash and oak. This thins out by the shore where such herb species as tufted hair grass (Deschampsia caespitosa), yellow loosetrife (Lysimachia vulgatum) and a sedge Carex paniculata become common.

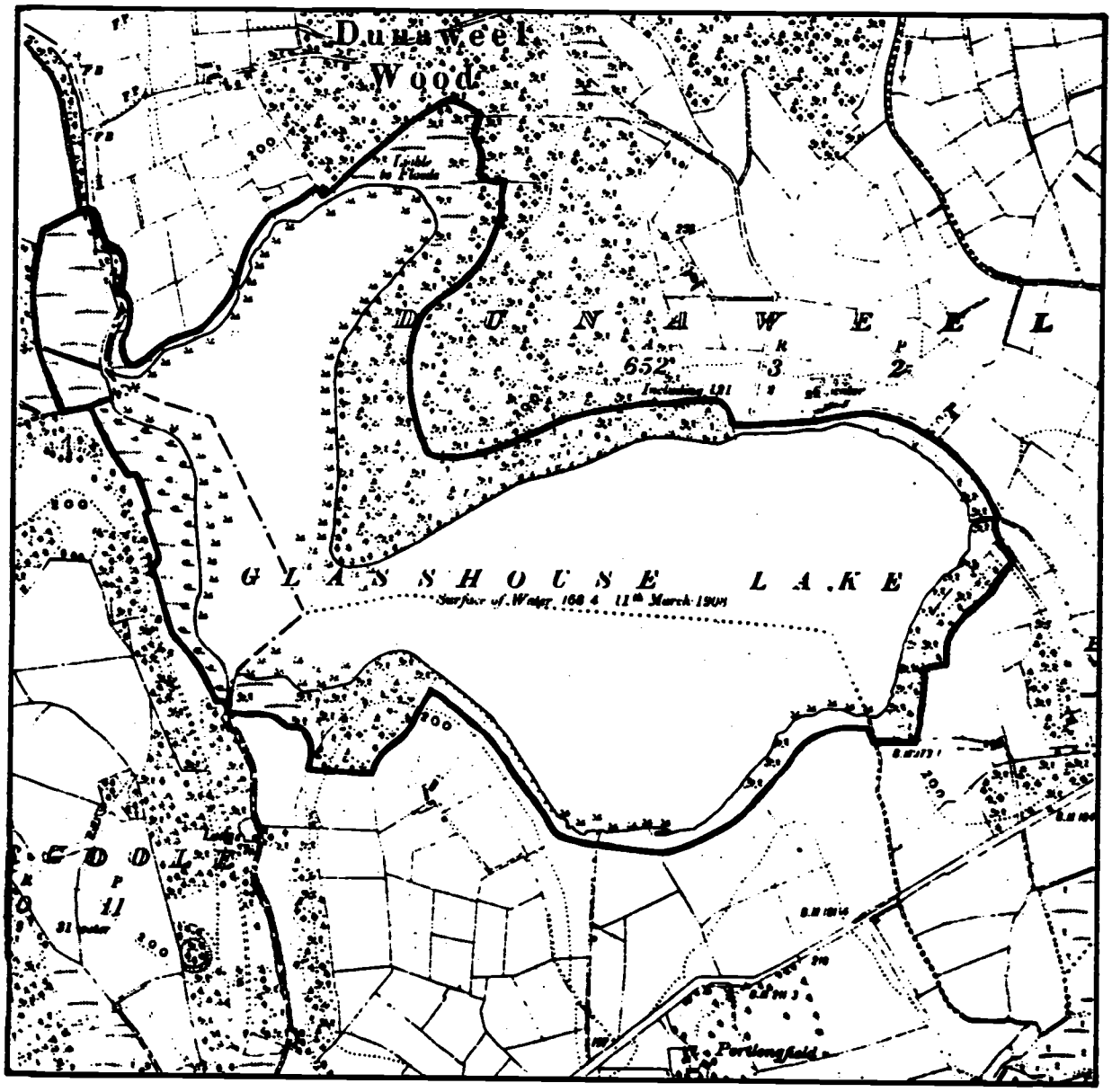
The rest of the shore is low lying, either covered by reedswamp or occasionally a stony beach. Extensive stands of reeds (Phragmites australis), club-rushes (Scirpus lacustris) and sedges (especially Carex rostrata) occur and are used by wildfowl at all times of the year. Behind these, pools, floating vegetation (based on marsh cinquefoil, Potentilla palustris), and organic marshes (fens) are found with a multitude of niches for insect and molluscan life. Some of the interesting plant species would be Achillea ptarmica, Carex diandra, C. elongata, C. vesicaria, Cicuta virosa, and Lysimachia nummularia.

The acidic influence of the peat bog by the southern and western shores is reflected by a change in vegetation and by the appearance of different invertebrates. Sphagnum mosses appear with purple moor grass (Molinia caerulea), tormentil (Potentilla erecta) and heathers (Erica tetralix and Calluna vulgaris). Two infrequent plant species are associated with these acidic conditions, a sedge, Carex curta, and the least bur-reed (Sparganium minimum).

The lake itself, being eutrophic, supports the coarse fish widespread in this catchment, e.g. bream, rudd, perch, pike and roach. Its native fauna is not known however, though four or five dragonfly species occur.

Evaluation: Annagh Lough has rich biological communities and certain uncommon species. The presence of both woodland and remnant raised bog adds to the value of this small area. It is one of the few stations for Carex elongata.

Glasshouse Lough



Scale: 1cm = 105m (115 yds)

½" sheet 8: 1" sheet 68: 6" sheets Cavan 19
Leitrim 30

GLASSHOUSE LOUGH

Grid reference: H 28 06

Area: 85 ha

Interest: Botanical ~~zoological~~ ornithological

Rating: Local importance

Glasshouse Lough is situated on the borders of Cavan and Leitrim a short distance from Killeshandra. It has several areas of woodland coming down to the shore, though mostly of planted origin. At the eastern end is a beech wood on a small hill. The trees are about 18m high and a thin understorey of holly is present. The variety of herbs here is quite high and it includes wood melick (Melica uniflora) an infrequent grass that requires a basic substrate.

Between the woods and lake there is a flat stony area about 10m wide. Much of this is bare ground and sedges are the most frequent plants : e.g. Carex caryophyllea, C. demissa, C. flacca, C. lepidocarpa, C. panicea, C. pulicaris. An unusual bog cotton, Eriophorum latifolium occurs in a flushed area where basic ground water reaches the surface. There is also a rich bryophyte community here with Philinotis, Marchantia etc.

The bird life closely resembles that of Lough Oughter but since the shores are low and stony, additional species such as redshank and ringed plover are found.

Evaluation: Most of the smaller Cavan lakes are surrounded by reedswamp and marsh. Glasshouse Lough is therefore of an uncommon type in its area with different plant and animal communities.

Lough Macnean Upper

Scale: 1 cm = 630m (0.4 mi)

½" sheet 7: 1" sheets 44, 56: 6: sheets Cavan 1, 2

LOUGH MACNEAN UPPER

Grid reference : H 04 37

Area : 195 ha

Interest : Botanical

Rating : Local importance

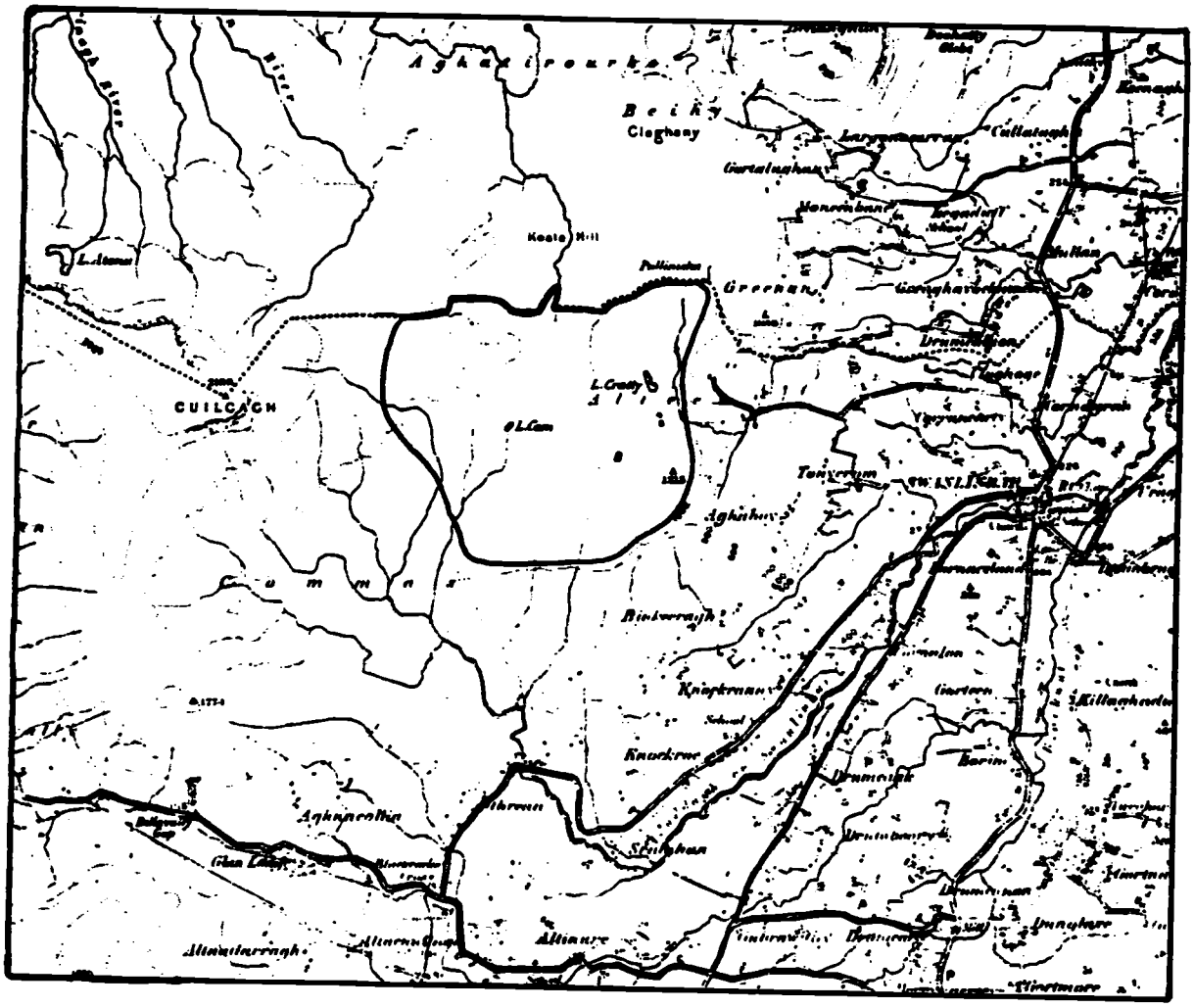
Lough Macnean Upper extends into Counties Fermanagh and Leitrim as well as Cavan. The Cavan shore is distinct however by being mostly formed of limestone. On this a heathy community exists with scattered shrubs and trees while on the lower shores it is replaced by wet grassland. Some alder growth occurs beside the lake with bugle (Ajuga reptans), self-heal (Prunella vulgaris), yellow pimpernel (Lysimachia nemorum) and early purple orchid (Orchis mascula) beneath the thin canopy.

In the heathy areas sedges such as Carex echinata, tormentil (Potentilla erecta), woodrush (Luzula multiflora) and devil's bit (Succisa pratensis) are frequent while the red rattle (Pedicularis palustris), ragged robin (Lychnis flos-cuculi) and pennywort (Hydrocotyle vulgaris) are restricted to the marshy meadows.

A lakeshore plant, northern bedstraw (Galium boreale), occurs widely on stony and rocky substrates and has a limited distribution in the country.

Evaluation : Little work has been done in this area and it may be that other features will appear to make the lakeshore of regional importance. It is one of the few lakes in the Republic that are set in the Upper Carboniferous strata.

Lough Cratty Bogland



Scale: 1cm = 630m (0.4 mi)

½" sheet 7: 1" sheet 56: 6" sheet Cavan 7
The extent of the same community in Co. Fermanagh is not known.

LOUGH CRATTY BOGLAND

Grid reference:	H 15 27
Area:	496 ha
Interest:	Botanical, zoological, ~~ornithological~~
Rating:	National importance

The higher Carboniferous rocks in Ireland usually lie unfolded in horizontal beds and give rise to distinctive landforms such as the Ben Bulben massif or the Burren. The shales and sandstones that form Cuilcagh are no exception to this rule; the mountain has distinct flat shoulders which have been eroded at the edges. On the eastern shoulder a thick blanket bog has developed and it still persists in a very untouched condition. The peat appears thick and encloses several acidic lakes, such as L. Cratty, and numerous bog pools. Mosses dominate the ground cover and include much Rhacomitrium, Sphagnum rubellum, S. angustifolium, and S. palustre with a little S. magellanicum. The cross-leaved heath (Erica tetralix) is considerably commoner than ordinary heather (Calluna vulgaris) but the most frequent higher plants are bog asphodel (Narthecium ossifragum) deer sedge (Scirpus cespitosus) and bog cottons (Eriophorum vaginatum and E. angustifolium). The two sundews Drosera rotundifolia and D. anglica occur widely and the liverwort Pleurozia is conspicuous.

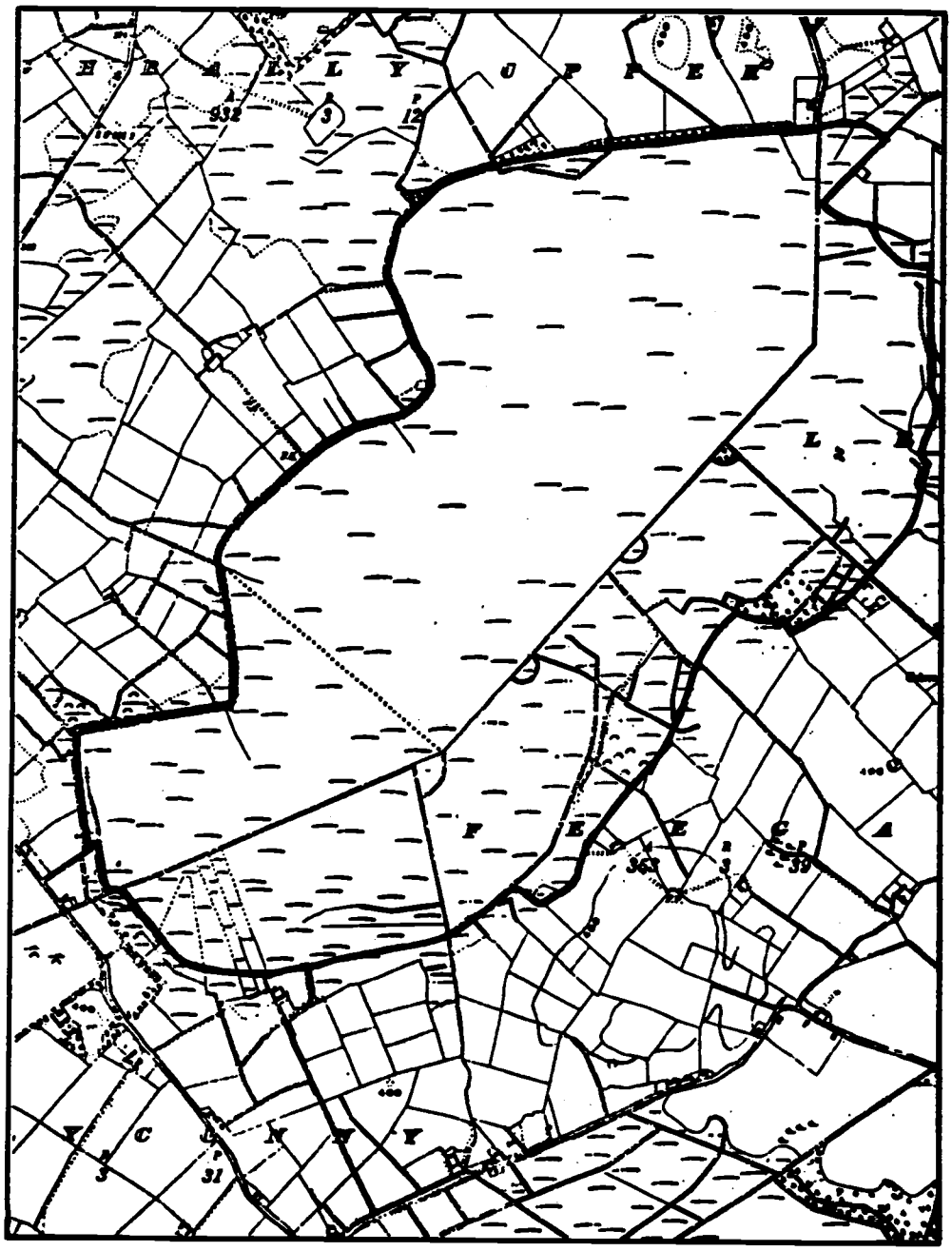
The bog appears to be actively growing through the agency of large Sphagnum cushions, mostly of S.rubellum, which are up to 2m across. The vigour and integrity of the plant cover is shown by the fact that only two large lichens were seen, Cladonia impexa and C. uncialis.

Because of the exceptional quality of this bog it can be expected to have the full animal community characteristic of this biotype. This may include relict northern forms, for example beetles and lower insects, that are susceptible to any habitat modification and therefore have very reduced ranges at present.

The bird life is restricted by the nature of the environment but curlew and meadow pipit nest with occasionally golden plover. The breeding range of this latter species has suffered a great reduction during this century and moorland in the north western part of the country now forms its head-quarters.

Evaluation: This area of blanket bog is of national importance and seems to be unique for its extent and its naturalness. It resembles areas in west Mayo and the Wicklow mountains but is probably less grazed and burnt than either of them. Some sheep do feed in the area but they are confined to the eastern crest of the hillside where they are initiating peat erosion.

Cloghbally Bog



Scale 1cm = 146m (162 yds)

½" sheet 13: 1" sheet 80: 6" sheets Cavan 44
Meath 10

CLOGHBALLY BOG

Grid reference:	N 68 83
Area:	174 ha
Interest:	Botanical, ~~zoological~~
Rating:	Local importance

As has been noted there are few areas of raised bog within the county and this seems one of the best developed. It lies on the border with Meath and though some marginal drainage and cutting has taken place the central part is relatively intact.

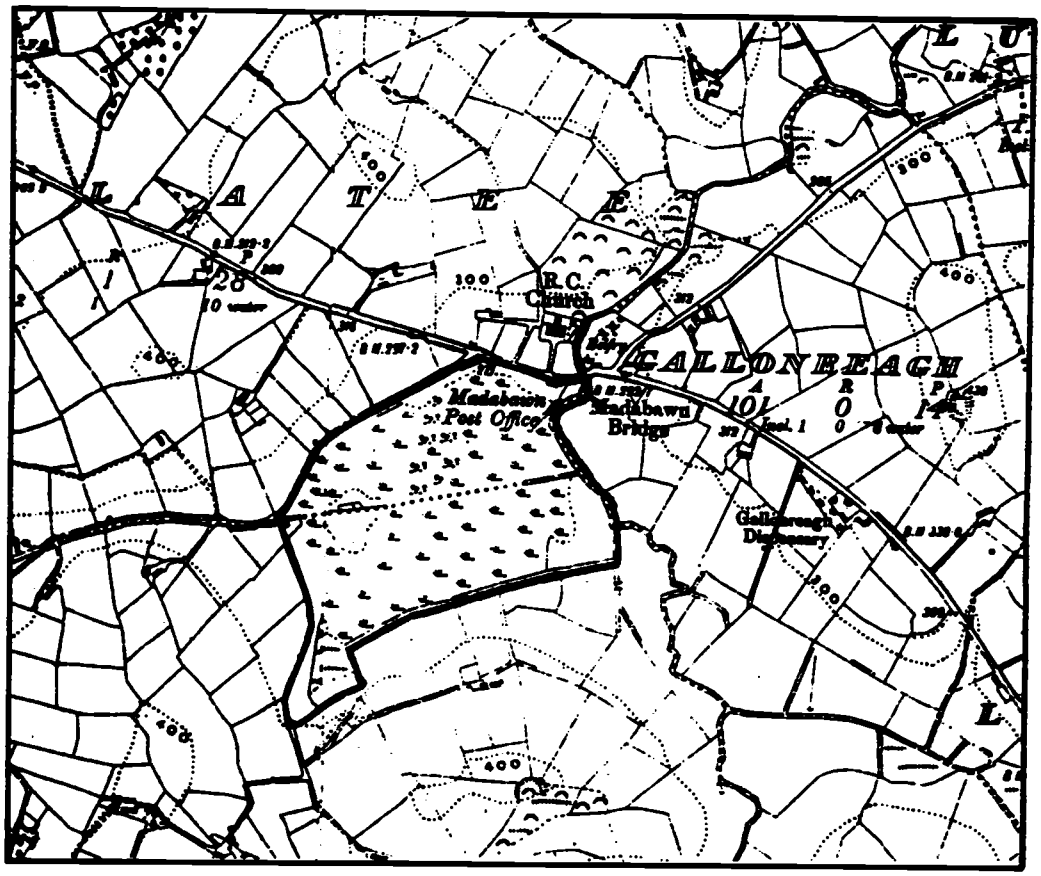
Much of the bog is very wet and there are many areas of pool and hummock formation - one of the possible methods by which a bog can grow. The pools have a good growth of algae in them in summer with some Sphagnum cuspidatum. Other Sphagnum mosses are important on the drier surfaces such as S. palustre, S. magellanicum, S. papillosum, S. fuscum, S. rubellum. Hypnum cupressiforme is another typical moss. Through this cover thin growths of larger plants occur - bog cotton (Eriophorum angustifolium and E. vaginatum). The heathers (Calluna vulgaris and Erica tetralix.) are common as, locally, are bog asphodel (Narthecium ossifragum) and beak sedge (Rhynchospora alba). A species very characteristic of raised bogs is the bog rosemary (Andromeda polifolia) which, being tied to this habitat, is rare in N.E. Ireland.

Occasionally higher areas with dense tussocks of bog cotton (Eriophorum vaginatum) are found, and these provide shelter for hares. There are also lines of water movement, shown by the occurence of sedges (Carex nigra) and rushes (Juncus effusus), but most of the surface is homogeneous and in the possession of meadow pipits and curlew. Kestrels and long-eared owl sometimes hunt over it for beetles, pigmy shrews or frogs.

Midland raised bogs have a peculiar invertebrate fauna and this presumably is present here.

Evaluation: The value of this area lies in its wet and untouched nature. It does not seem to be burnt very frequently. Raised bogs are valuable ecological entities being relatively independent of the surrounding countryside.

Madabawn Marsh



Scale: 1cm = 105m (115 yds)
½" sheet 8: 1" sheet 69: 6" sheets Cavan 22, 23.

MADABAWN MARSH

Grid reference : H 64 09

Area : 13 ha

Interest : Botanical, zoological

Rating : Local importance

This is a small area of very wet marshland beside the road, situated in a basin among six drumlins. The main plant species are bog bean (Menyanthes trifoliata), water horsetail (Equisetum fluviatile) marsh bedstraw (Galium palustre) and a sedge, Carex acuta. Marsh cinquefoil (Potentilla palustris), great water dock (Rumex hydrolapathum), spearwort (Ranunculus lingua) and the water hemlock (Cicuta virosa) occur with about 20 other main species.

The site is noteworthy for the abundance of several dragonfly species (Coenagrion spp., Enallagma, Ischnura) and the other invertebrates may also be interesting. Such a large, fairly homogenous, stand should give rise to high densities of certain species.

Water rail and moorhen probably nest on the site.

Evaluation : This is a small easily definable site with a limited range of species present. In view of this and its accessibility it may be useful for field studies.

BELLAVALLY MOUNTAIN

Grid reference: H 11 22

Area: 80 ha

Interest: Botanical, ~~zoological~~

Rating: Local importance

South of the Bellavally Gap there is an incipient corrie on the eastern flank of the mountain. Piles of glacial debris extend in a south-easterly direction beneath a cliff of fragile dripping rocks. The predominant plant species on the cliff are probably frochan (Vaccinium myrtillus) and heather (Calluna vulgaris) but there are large areas of woodrush (Luzula sylvestris), and of blue moor grass (Sesleria caerulea) and smaller ones of cowberry (Vaccinium vitis-idaea), mosses (Pleurozium, Rhytidiadelphus and Dicranum) and ferns (Dryopteris borreri and D. dilatata). Golden rod (Solidago virgaurea) is very common on rock surfaces with heath bedstraw (Galium saxatile) and woodland plant species are also quite frequent, e.g. Oxalis acetosella, Viola riviniana and Digitalis purpurea.

South west of this cliff across a patch of extremely tall and vigorous heather the land flattens out into normal but thin blanket bog. This seems to be burnt fairly often and whitened sandstone rocks stand out through it. At the headwaters of the stream marked on the map there is a fine example of the first stages of peat erosion. The moss Rhacomitrium lanuginosum is very abundant and grows on large peaty hummocks beside pools and runnells of water. The bog cotton, Eriophorum angustifolium, is abundant in the wetter areas, sometimes colonising reworked peat, and the clubmoss, Huperzia selago is characteristic. It grows on bare peat surfaces if they are wet enough and is replaced by about six species of Cladonia (lichens) above a certain level.

The animal community is also experiencing changes as the intact nature of the bog surface breaks down though these are less well documented. They involve major shifts in the decomposer food chains as much new material becomes aerated and available for breakdown.

Golden plover visit this area on migration and may still nest. The drier slopes harbour red grouse but their numbers depend on the quality and age structure of the heather.

Evaluation: The cliff site has certain features of interest, especially the occurrence of Sesleria on sandstone and the presence of Vaccinium vitis-idaea. The area of bogland shows the classical first stages of blanket peat erosion* and would be suitable for study.

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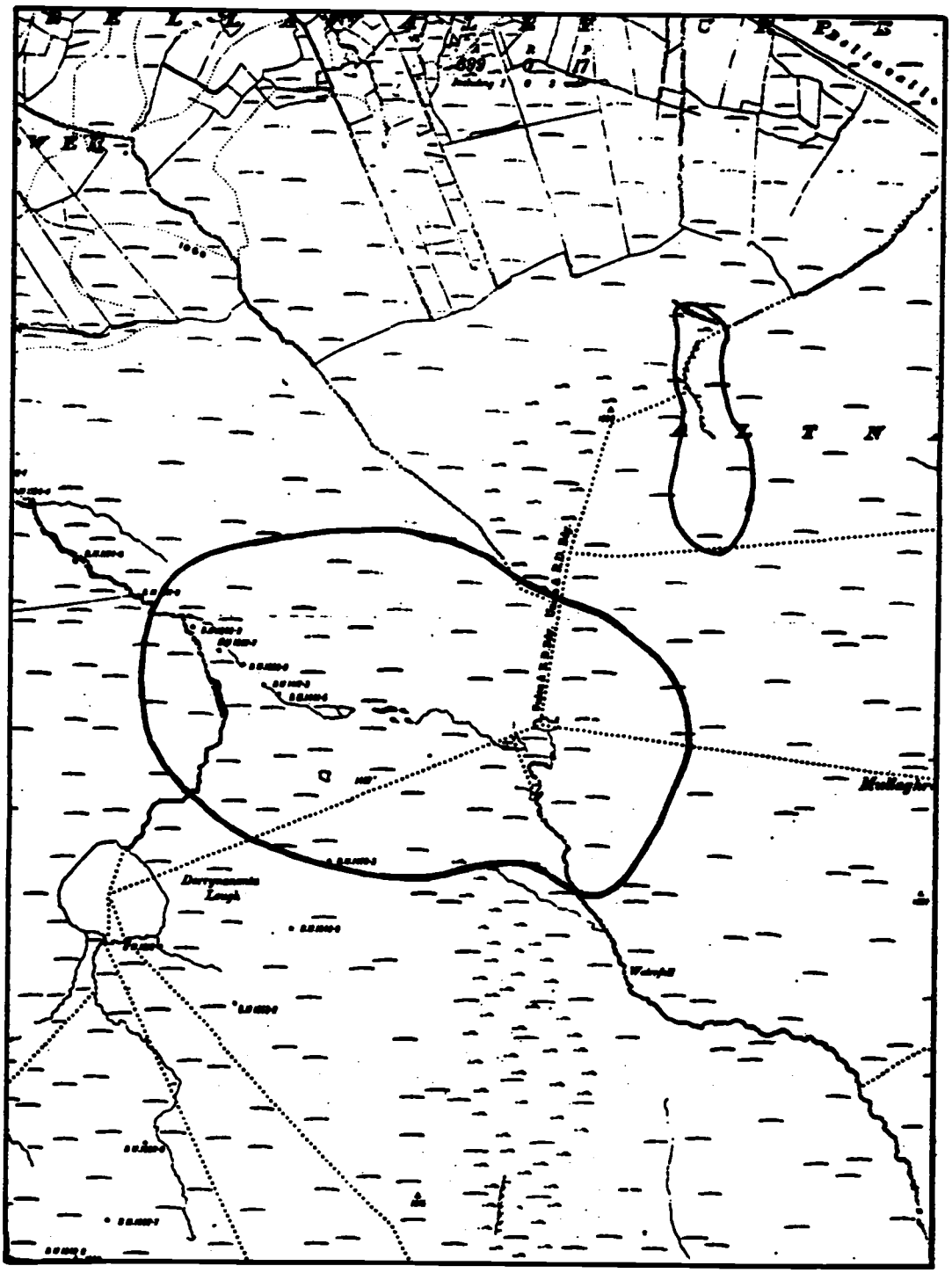
Bellavally Mountain



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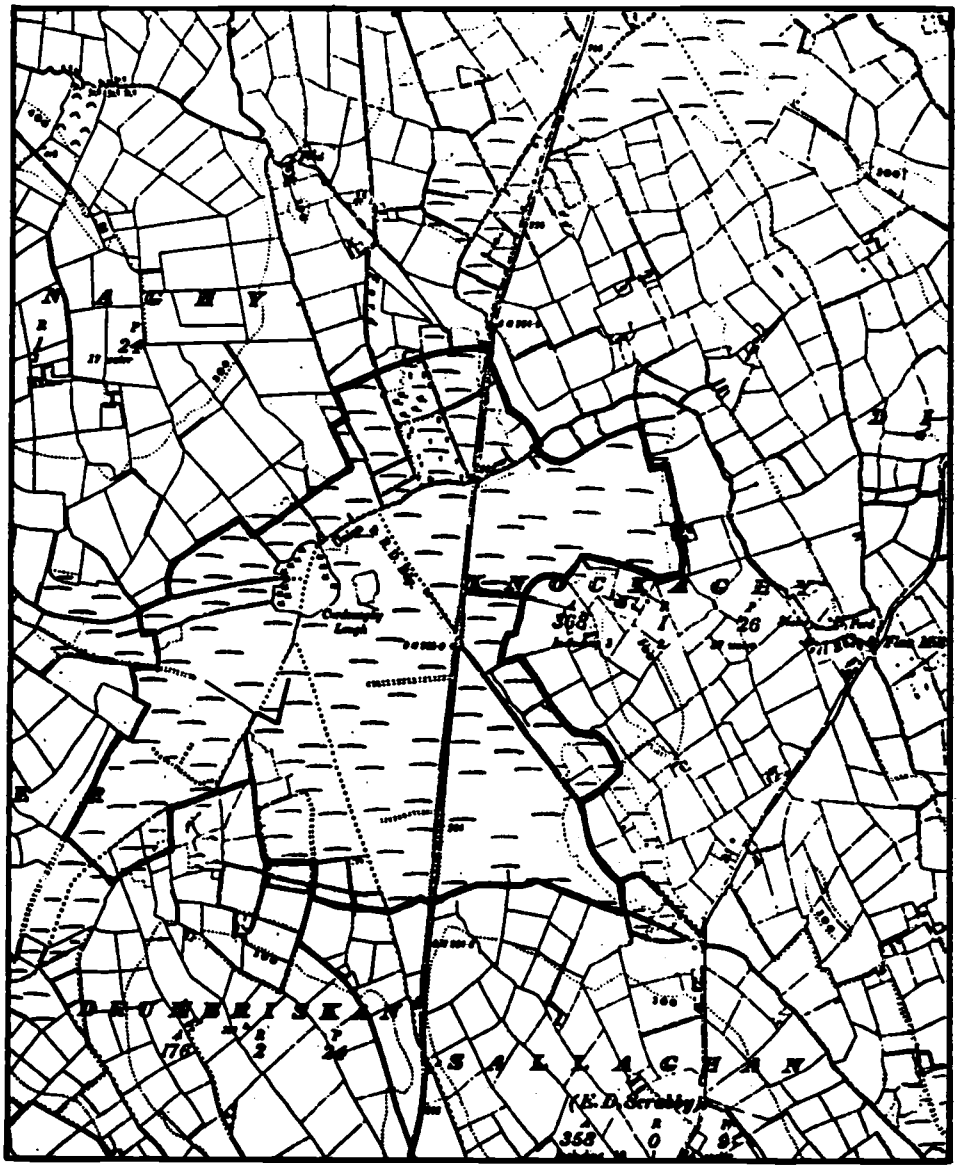
Cordonaghy Bog



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CORDONAGHY BOG

Grid reference	N. 310,946
Area:	74 ha
Interest:	Botanical, ~~zoological~~
Rating:	Local importance

This is a small area of cutover peat with numerous rectangular hollows which were peat cuttings and are now colonized almost completely by sedges. The raised areas between the hollows are sparsely covered with vegetation, the main species being tormentil (Potentilla erecta), heather (Calluna vulgaris), cross-leaved heath (Erica tetralix), purple moor grass (Molinia caerulea) and sweet vernal grass (Anthoxanthum odoratum).

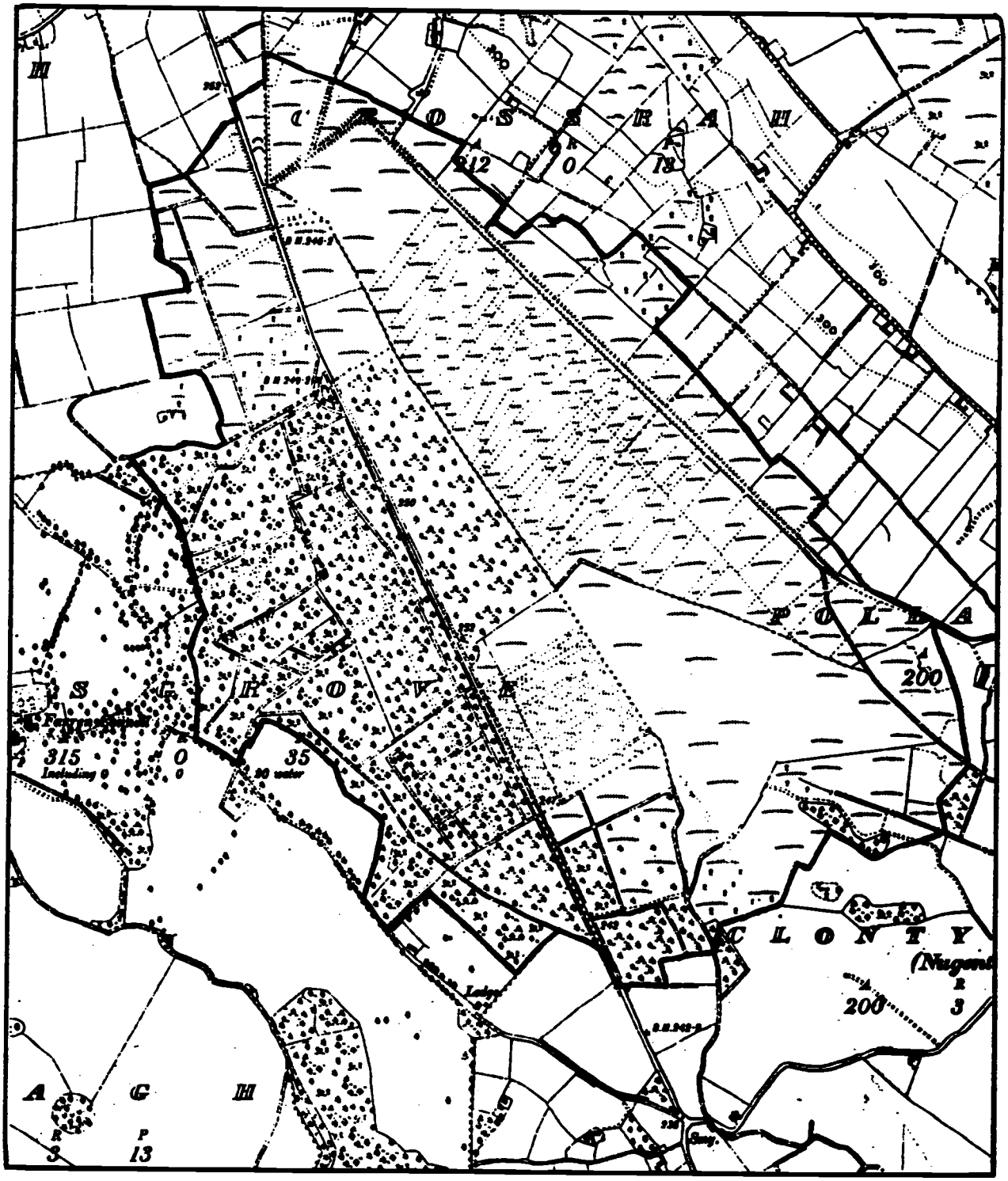
A virtually stagnant stream crosses the bog and several pools are associated with it, perhaps cut originally for the retting of flax. They now contain bog bean (Menyanthes trifoliata) and marsh violet (Viola palustris) and much sphagnum moss (S. cuspidatum).

Several variants in the vegetation pattern exist. In some areas cotton grass (Eriophorum vaginatum) is the dominant, whereas bracken (Pteridium aquilinum) covers other patches, and yet other parts have many small willow bushes.

The more interesting species include Carex limosa, Carex dioica, Hypericum elodes and Thelypteris phegopteris. The aquatic habitats contain a variety of beetle and dragon-fly species.

Evaluation: The area as a whole is not of great botanical importance, but the diversity of communities found here make it of educational value. It also has certain unusual ecological features.

Farren Connell Estate



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FARREN CONNELL ESTATE

Grid reference: N 49 82

Area: 140 ha

Interest: Botanical, ~~ornithological~~, zoological

Rating: Local importance

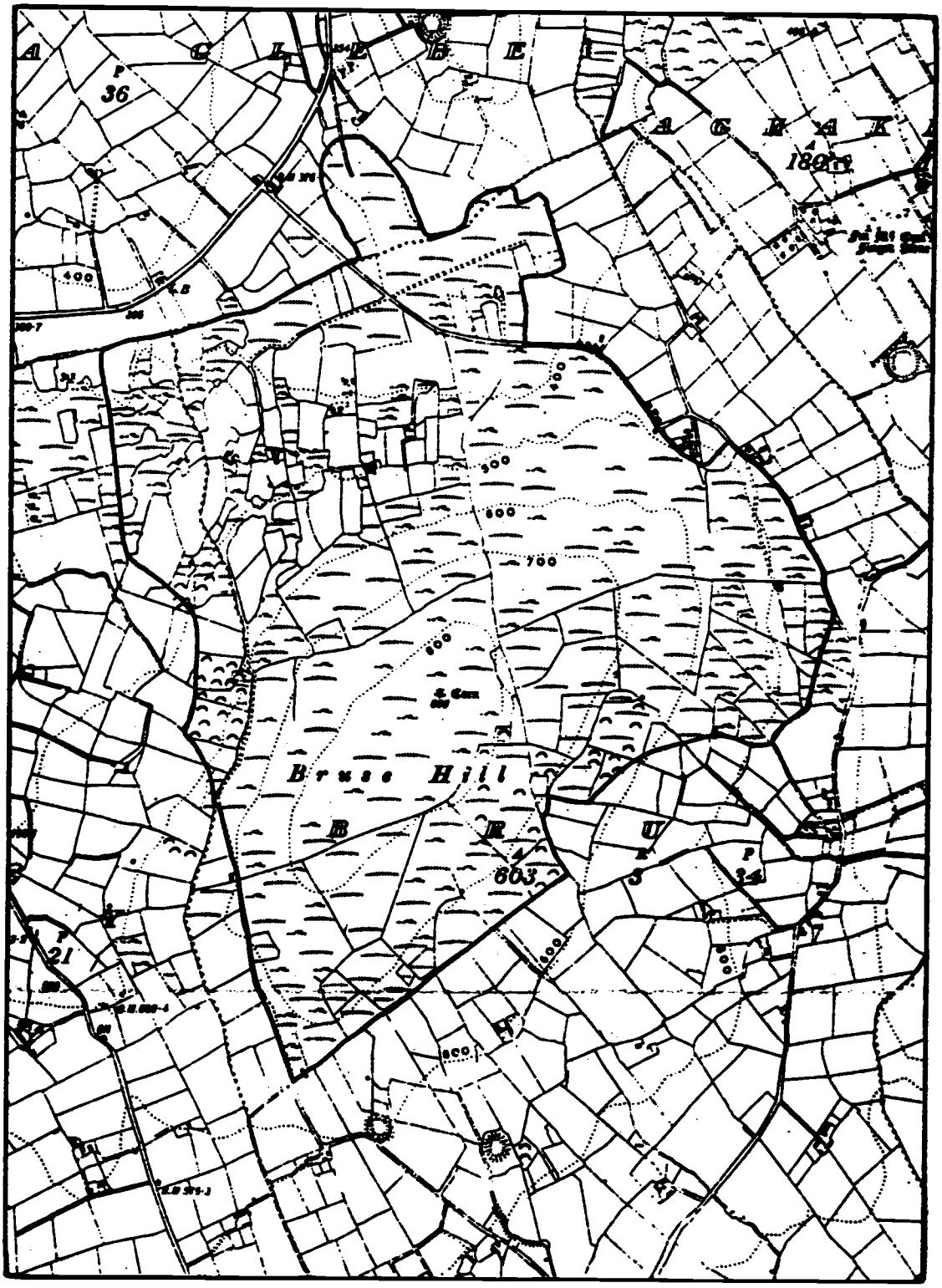
The woodland in this area is well grown but has a planted origin. It is mostly deciduous with beech, oak, sycamore, lime and horse chestnut. Some pines and firs (Abies spp) also occur. It is situated on the remnants of a raised bog and is dissected by old peat cuttings and drains.

The N.E. part remains unplanted and retains some slight importance as a bog community. There are intact patches with good Sphagnum growth and in these bog rosemary (Andromeda polifolia) sometimes occurs. Two sundews Drosera rotundifolia and D. anglica grow abundantly on the bog and in the cuttings while bladderwort (Utricularia sp) - another insectivorous plant - is confined to the deeper pools. A clubmoss (Huperzia selago) which is commoner on raised bogs to the west is found on bare peat surfaces.

The ground flora in the woodland is restricted by the nature of the soil. Bramble (Rubus fruticosus) is frequent in more open parts with bracken (Pteridium aquilinum) and other ferns. The animal communities in the woodland are relatively rich, and are improved by the presence of some dead timber and much leaf litter. Diptera and Hymenoptera seemed especially well represented on one visit. Birdlife also is abundant and includes species dependant on tall trees for nesting sites, such as heron, sparrow hawk and long-eared owl.

Evaluation: This is a varied area showing many different ecological communities of the woodland/bogland transition. It would be very suitable for educational use.

Bruse Hill



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BRUSE HILL

Grid reference:	N 31 98
Area:	102 ha
Interest:	Botanical - Zoological.
Rating:	Regional

Bruse Hill is an area of folded Palaeozoic rocks lying NE-SW, as do many of the ridges in this part of the county. Marshes and flushes alternate with drier peaty patches on which poor grassland prevails. Rock outcrops are scattered over the area, and become commoner near the summit.

The grassland plants are sweet vernal grass (Anthoxantum odoratum), sheep's fescue (Festuca ovina), mat grass (Nardus stricta) and heath rush (Juncus squarrosus) while deer sedge (Scirpus cespitosus) and another sedge (Carix binervis) occur higher up. Heather (Calluna vulgaris), frochan (Vaccinium myrtillus) are found throughout with bracken (Pteridium aquilinum) and gorse (Ulex europaeus) on the lower slopes. Herbs such as lady's mantle (Alchemilla spp) and devil's bit (Succisa pratensis) occur widely.

The flushes include a varied marsh flora in which sedges are the most frequent plants (Carex demissa, C. dioica, C. echinata, C. nigra, C. lepidocarpa, C. panicea and C. pulicaris). The two butterworts Pinguicula vulgaris and P. lusitanica also occur with the large and noticeable meadow thistle (Cirsium dissectum). A species of interest is a spikerush (Eleocharis multicaulis) which finds few suitable habitats in this region.

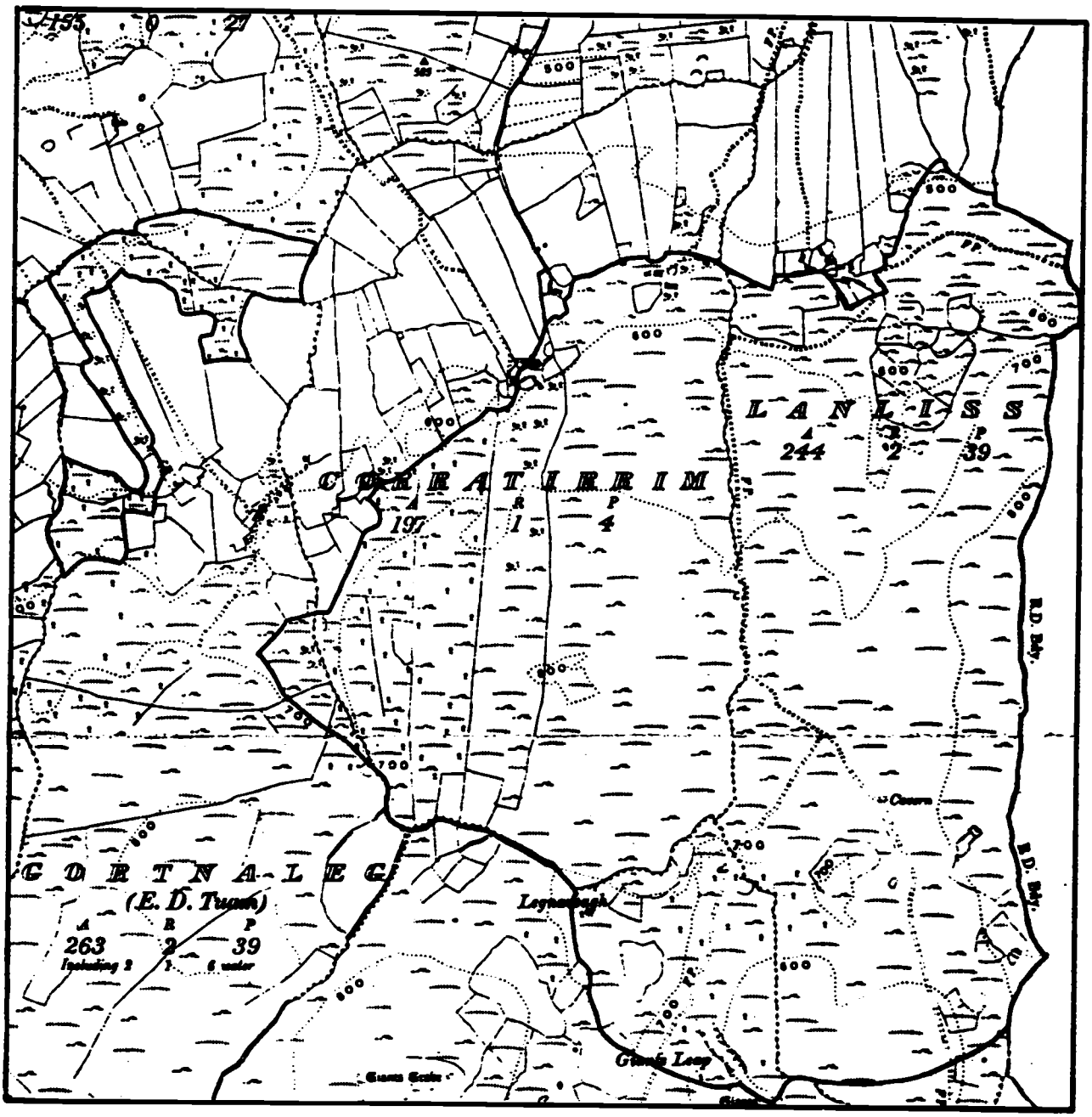
Rocky sites, sometimes tenanted by lizards, rabbits or foxes, allow the growth of ferns such as Blechnum spicant, Athyrium filix-femina, Thelypteris limbosperma and T. phegopteris while a filmy fern (Hymenophyllum tunbridgense) and the rare parsely fern (Cryptogramma crispa), one of the most local and fleeting Irish species, have been recorded.

The eastern slope of the hill is almost completely dominated by heather but willows occur quite low down with rowan, guelder rose (Viburnum opulus) and honeysuckle (Lonicera periclymenum). An infrequent orchid, Pseudorchis albida, grows within the area.

The bird life includes typical forms of hill land such as wheatear, stonechat, skylark, whitethroat, linnet and cuckoo but an absence of nesting sites limits the number of breeding species. Fieldfares and redwings visit the area in early autumn before the cold weather sets in. No particular interest has been noted in the insect population though the variety of Lepidoptera is quite good.

Evaluation: The chief value of this area lies in its varied habitats which differ significantly from the surrounding country. Floral diversity is relatively high and includes some uncommon species.

Corratirrim



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The extent of the same community in Co. Fermanagh is not known though it is probably considerable.

CORRATIRRIM

Grid reference: H 07 37

Area: 135 ha

Interest: Botanical, geomorphological, ~~zoological~~

Rating: Regional importance

In the extreme north west of the county the Carboniferous limestone outcrops over a relatively large area beneath the shales and grits which form the Cuilcagh range. The best examples of limestone communities occur in the district around Corratirrim which overlooks Upper L. Macneam. Numerous caves are located to the south and west and there are many small patches of limestone pavement where the rock strata are exposed on the surface. In addition acidic, peaty areas occur in places.

The vegetation of the slopes and small cliffs is predominantly grassland though there are also patches of hazel scrub. The blue moor grass (Sesleria caerulea) is especially common where the soil cover is thin but occurs throughout, with species such as sweet vernal grass (Anthoxanthum odoratum), sheep's fescue (Festuca ovina), hairy oat (Helictotrichon pubescens), quaking grass (Briza media), crested hair grass (Koeleria cristata) and glaucous sedge (Carex flacca). In flat areas the herb species are characteristic and include Bellis perennis, Cerastium fontanum, Galium verum, Lotus corniculatus, Pilosella officinarum, Polygala vulgaris, Potentilla erecta, Succisa pratensis, Thymus drucei. Some of these are attractive in flower and they give the impression of being commoner than the grasses.

Limestone pavement where it occurs harbours a community in which moss and lichen species such as Ctenidium and Rhizocarpon, are common. In the cracks (grikes) between rocks fern species sometimes have established themselves though not with the vigour and variety of the Clare/Galway limestone region.

Little zoological work has been done in the area but since pavement is a relatively uncommon and specialized habitat it is likely that its distinctive fauna is represented. In this community scavengers and litter-feeders are noticeable and Lepidoptera also frequent (small blue butterfly probably occurs). The bird life includes various passerines such as wheatear, skylark, meadow pipit, cuckoo and willow warbler.

A few shrubs of hazel and hawthorn are scattered over the hillside, and blackthorn sometimes springs from the areas of pavement though it is kept prostrate by grazing. Inside walls on the N.W. slopes however a reasonably large area of hazel woodland has developed with frequent individuals of ash, holly, hawthorn and blackthorn. Beneath the trees which bear a good growth of epiphytes especially the moss Ulota, and the liverworts Frullania and Metzgeria, a relatively rich ground flora has developed. It includes about 20 species of higher plant, some of them typical of base rich woods, such as wood anemone (Anemone nemorosa)

pignut (Conopodium majus), yellow pimpernel (Lysimachia nemorum), early purple orchid (Orchis mascula) and the violet, (Viola reichenbachiana).

The ground is rocky and moss covered and would seem to house good numbers of molluscs, woodlice etc. Larger deciduous woods occur on the north slopes of Cuilcagh, including the best developed ash woods in Ireland, and have probably provided a refuge for woodland organisms during the forest clearances of the past. Corratirrum is in a position to benefit from any expansion and dispersion of these populations, e.g. of the green hairstreak or holly blue butterflies, syrphid flies, beetles or birds such as chiffchaff and nightjar.

In this general area are several examples of subterranean drainage and a list* is given below of the main features so far explored.

1.	Shannon Pot	-	due west of the pot is a cavern. 1/3 mile N.E. of the pot is a stream sink.
2.	Pollboy	-	sink of water flowing north from Eden Lough.
3.	Pollnaowen	-	(Pollnaswen) Sink of water flowing from Garvagh Lough.
4.	Caverns	-	½ mile south of Garvagh Lough
5.	Pollnagossan	-	stream from Tallyboggan Lough sinks here
6.	Pollnaskeoge	-	no exploration possible
7.	Pollahuna	-	stream from Tittinbane (1713 ft.) flows north for 2 miles to sink here.

Evaluation: Corratirrim is a varied site and of ecological interest for the occurrence of limestone pavement. The fact that there are acidic areas interspersed with the limestone adds to its usefulness for education. There are no similar sites in Cavan so it is rated as of regional importance. Areas of much greater value however, with extensive pavement, cliffs and woodland, occur close by, in Co. Fermanagh.

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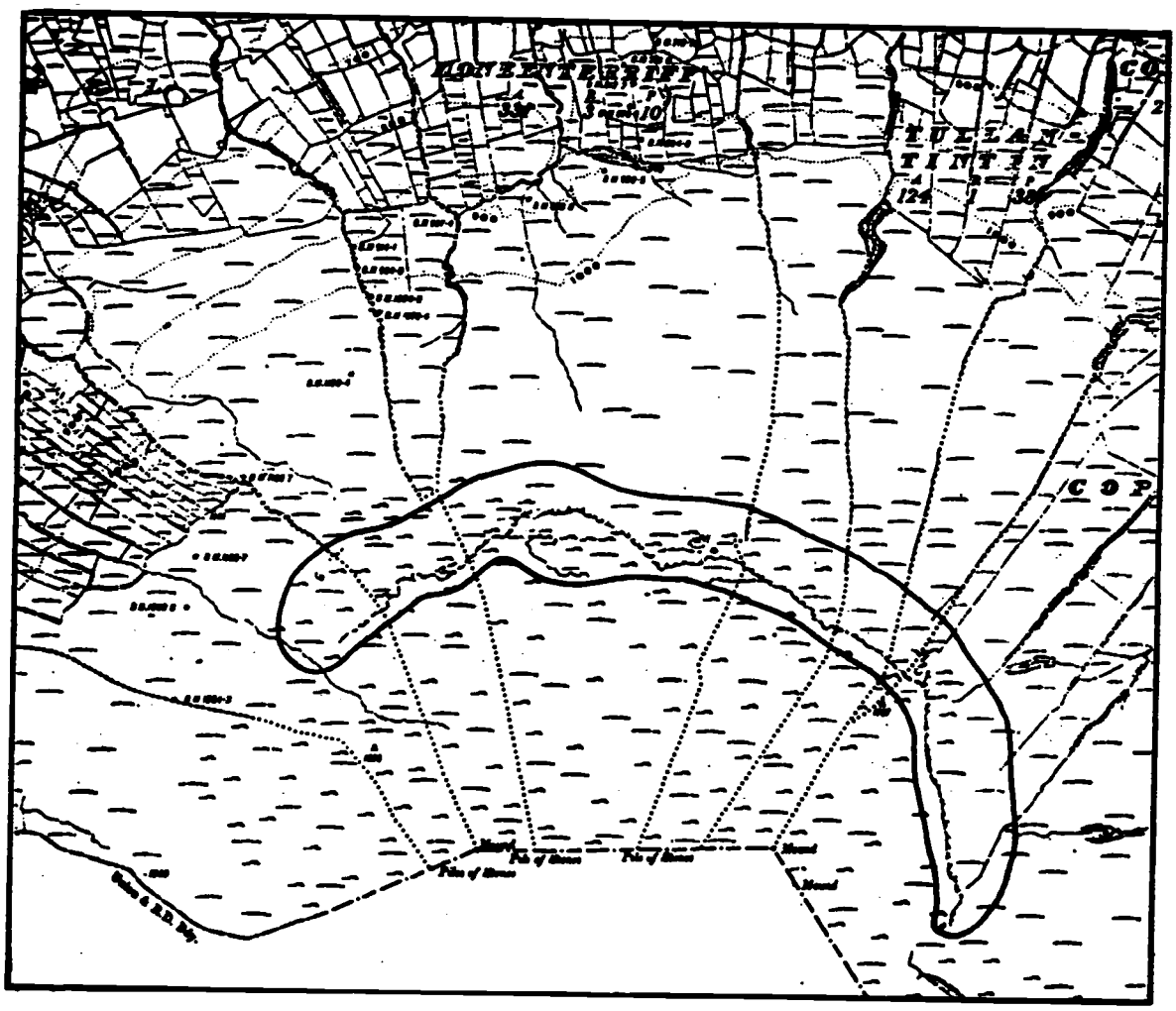
* From: Coleman, J.C. (1965) The Caves of Ireland Anvil, Tralee.

Moneenterriff Cliffs



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MONEENTERRIFF CLIFFS

Grid reference: H 03 25

Area: 33 ha

Interest: ~~Zoological~~, botanical - Ecological - Ornithological

Rating: Local importance

Erosion has accentuated the junction between two rock types in this area so that the Millstone Grit stands up as cliffs above the softer Avonian shales and sandstones. These weather to a fine-grained material in which the streams excavate deep gorges. Slumping can also occur when the slopes become saturated.

The cliffs, although of harder material than this are themselves rather fragile due to jointing and have produced an impressive block scree since the retreat of the ice-sheets. The rocks are of exceptional size and create a complex underground habitat in which plant material accumulates. Humidity encourages the growth of ferns for example buckler fern (Dryopteris dilatata) and a filmy fern (Hymenophyllum wilsonii) while on the drier surfaces a scanty peat supports vigorous heather (Calluna vulgaris), frochan (Vaccinium myrtillus), cowberry (V. vitis-idaea), and crowberry (Empetrum nigrum). The habitat offers many breeding sites for mammals and for birds such as the wheatear and ring ouzel - a species whose breeding range is now very restricted. In addition there may be unusual invertebrates present especially in the spider and springtail groups.

Above the scree a long line of cliffs occurs with surfaces facing west, north and east. Most is rather dry and depends on rainfall rather than seepage for a water supply. The vegetation is thin but good lichen growths occur, of species such as Alectoria.

A few trees are established, including rowan and willow and the hard fern (Blechnum spicant) grows with woodland species of herbs and mosses (e.g. Plagiothecium undulatum, Dicranum scoparium and Mnium hornum The large clubmoss Huperzia selago is characteristic, as well as stunted plants of golden rod (Solidago virgaurea). The mountain flora seems relatively poor and in the western part of the range, a hawkweed (Hieracium cf. anglicum) is the only plant of note.

A multitude of sites exist for cliff nesting birds such as jackdaw, raven and kestrel and several other species may nest as well. Swifts feed during the summer on the concentrations of aphids caught by the updraft on the cliffs.

Evaluation: The area presents a greater expanse of cliff and block scree than is found elsewhere in Cavan, Monaghan or Roscommon. Similar sites occur in Sligo and Leitrim in the Ben Bulben massif but they have developed in a different rock type and are ecologically distinct.

BLACKROCK'S CROSS

Grid reference:	H 15 23
Area:	16 ha
Interest:	Botanical, zoological ornithological
Rating:	Local importance

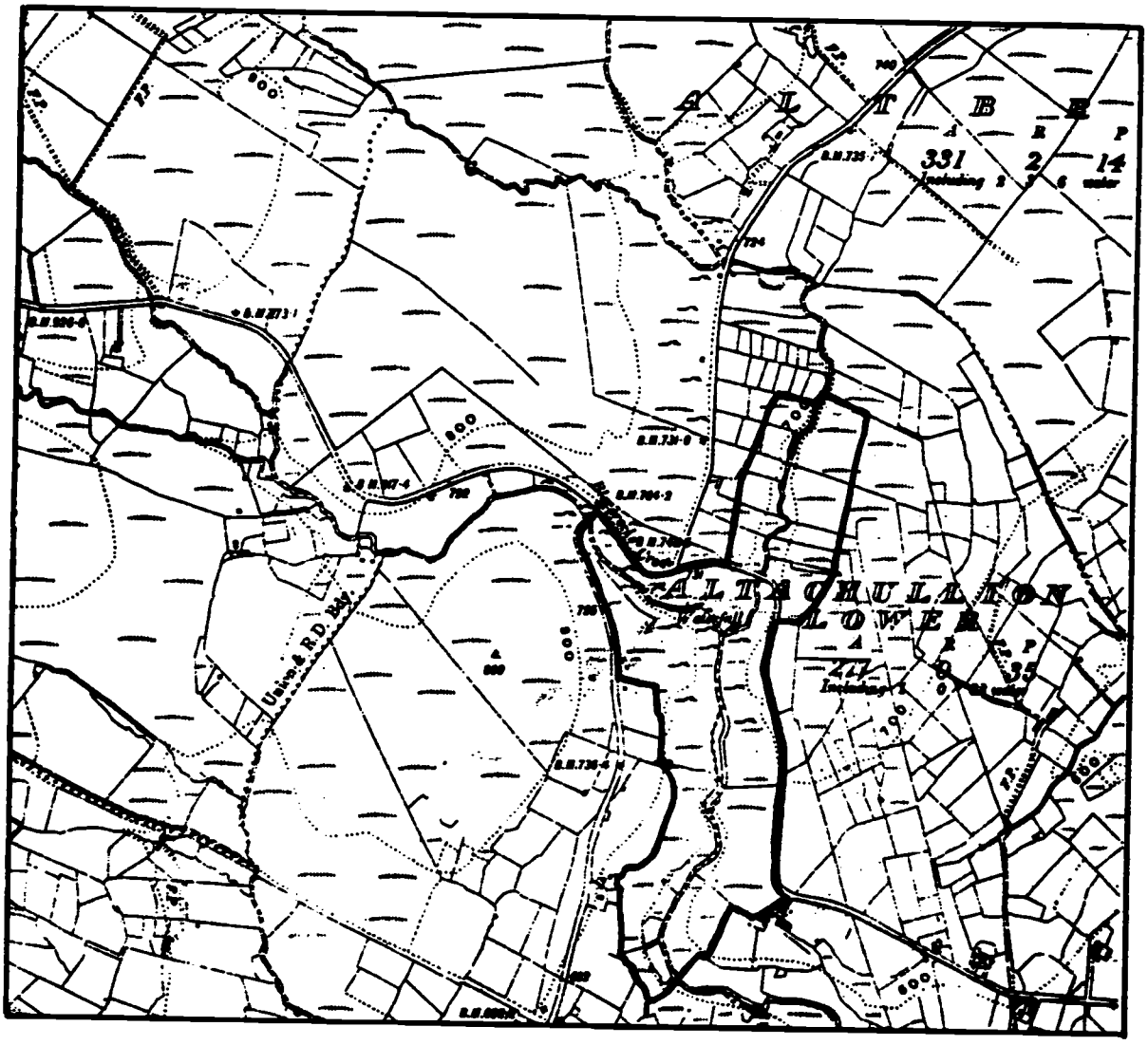
In the general area of Blackrock's Cross a variety of habitats occur. Blanket bog covers the higher slopes above about 300m, while below this, wet acidic grassland is found with such species as heath rush (Juncus squarrosus), deer sedge (Scirpus cespitosus), star sedge (Carex echinata) and bent grass (Agrostis tenuis and A. canina). Heather (Calluna vulgaris), frochan (Vaccinium myrtillus) and Sphagnum mosses are mixed extensively into this. Streams cut deeply into the substrata creating flushes along their valleys and boulders along their beds.

The site of interest is one such valley where tree and shrub species are re-establishing themselves naturally above a fast stream. Willows (Salix cinerea), birch, rowan, oak and elm (Ulmus glabra) are the main species involved and though they do not yet form a complete canopy, many individuals are touching their neighbours. Patches of woodrush (Luzula sylvatica), bracken (Pteridium aquilinum) and frochan cover the ground with quantities of bluebells (Scilla non-scripta) and heather. The soil is quite productive of invertebrates and ground feeding birds, such as woodcock, blackbird and robin, are found.

Among the damp rocks moss growth is luxuriant and the fern (Hymenophyllum tunbridgense) occurs. The creeping willow-herb (Epilobium brunnescens) and golden saxifrage (Chrysosplenium oppositifolium) are widespread. The stream itself, which has cut laterally to reveal thin fossil-bearing shales has a fully representative fauna including many species of Diptera (flies), mayflies and caddis flies. Dipper and grey wagtail visit the area.

Evaluation: This is a good example of a fast unpolluted stream with a full fauna and flora. It has the added attraction of developing woodland which is richer in insect and bird species than many a mature stand.

Blackrock's Cross



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DRUMKEEN HOUSE WOODLAND

Grid reference: H 41 07

Area: 17 ha

Interest: Botanical, ~~zoological~~ ornithological

Rating: Local importance

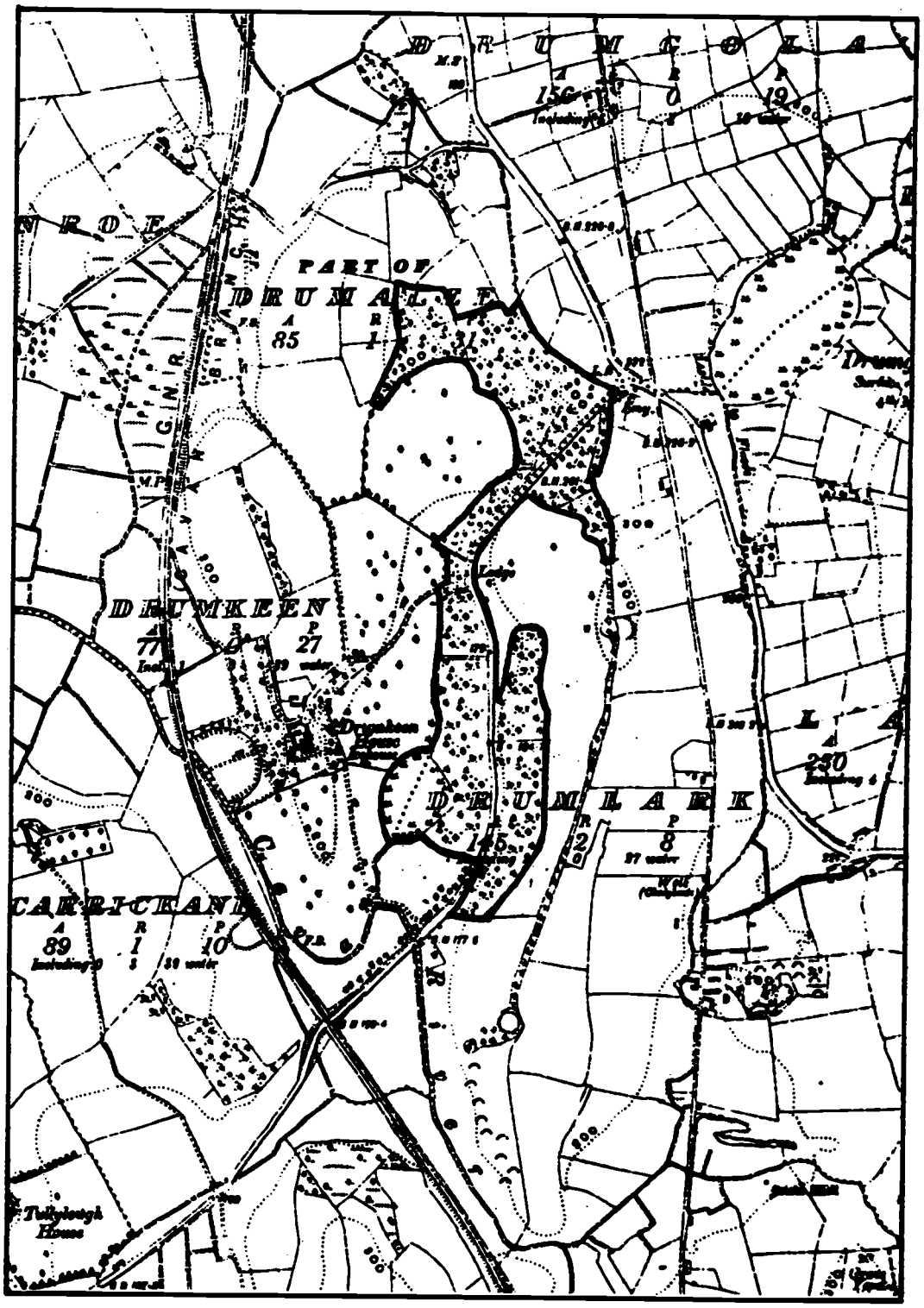
Planted deciduous woods occur east of Drumkeen House along the Cavan-Butlersbridge road. The species are mixed with beech being the most important, followed by sycamore, elm and oak.

The ground flora consists almost entirely of bluebell (Scilla non-scripta) on the slopes, whereas the flatter areas are colonized by goosegrass (Galium aparine), hogweed (Heracleum sphondylium), wood woundwort (Stachys sylvatica), herb robert (Geranium robertianum), wild garlic (Allium ursinum), & blackberry (Rubus fruticosus). A small stream flows through the woodland and this is covered by a carpet of creeping buttercup (Ranunculus repens) with alder trees at the edge.

Bird species found in the wood include most of the common small birds of this habitat such as dunnock, mistle thrush, great tit, spotted flycatcher, chiffchaff, tree creeper and bullfinch. In addition jay, and woodcock occur.

Evaluation: Although this is not an extensive area of woodland, it is of ecological interest because of its mixed deciduous nature and the different ground communities. The numbers of passerine birds are relatively high.

Drumkeen House Woodland



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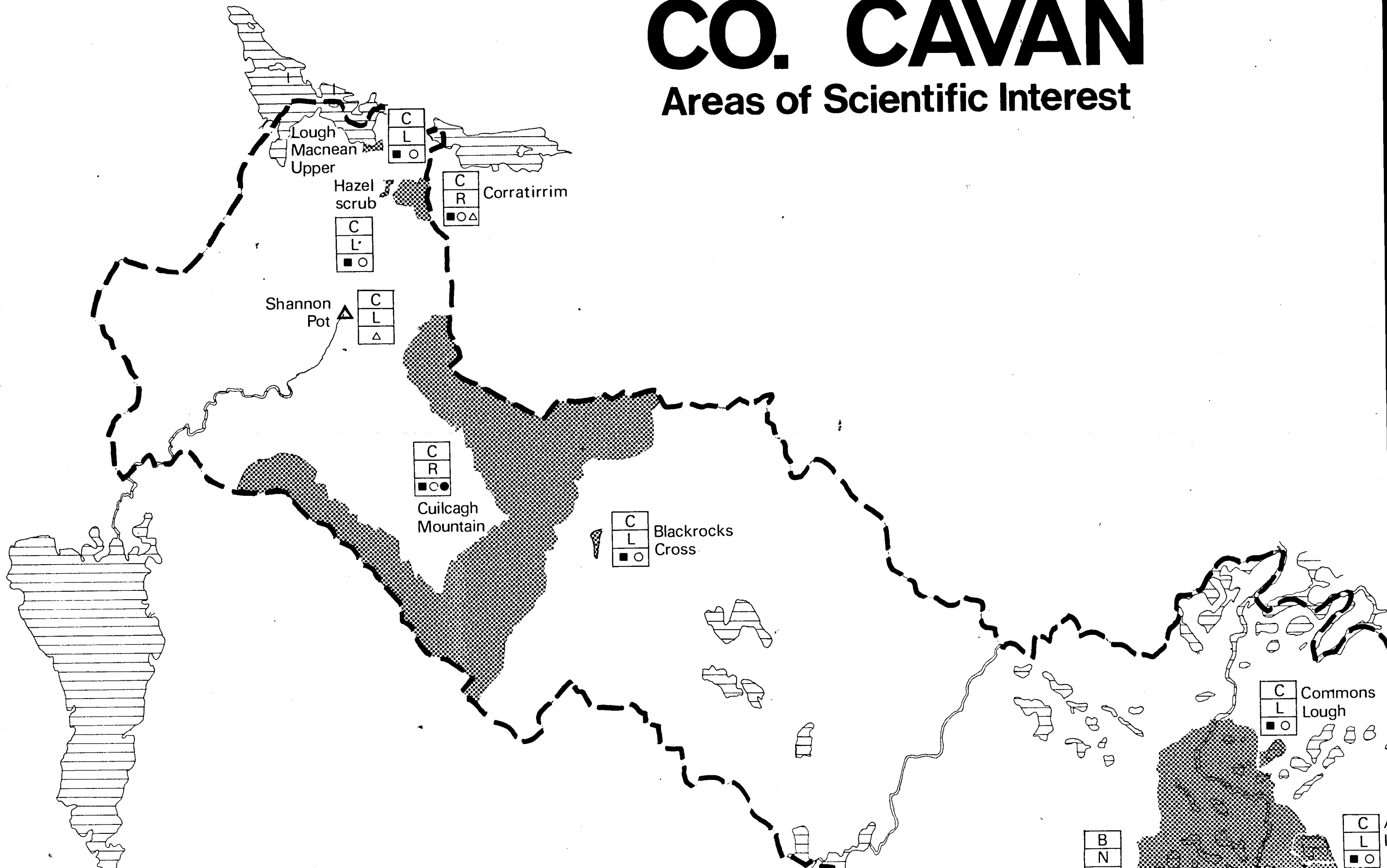
CO. CAVAN

Areas of Scientific Interest



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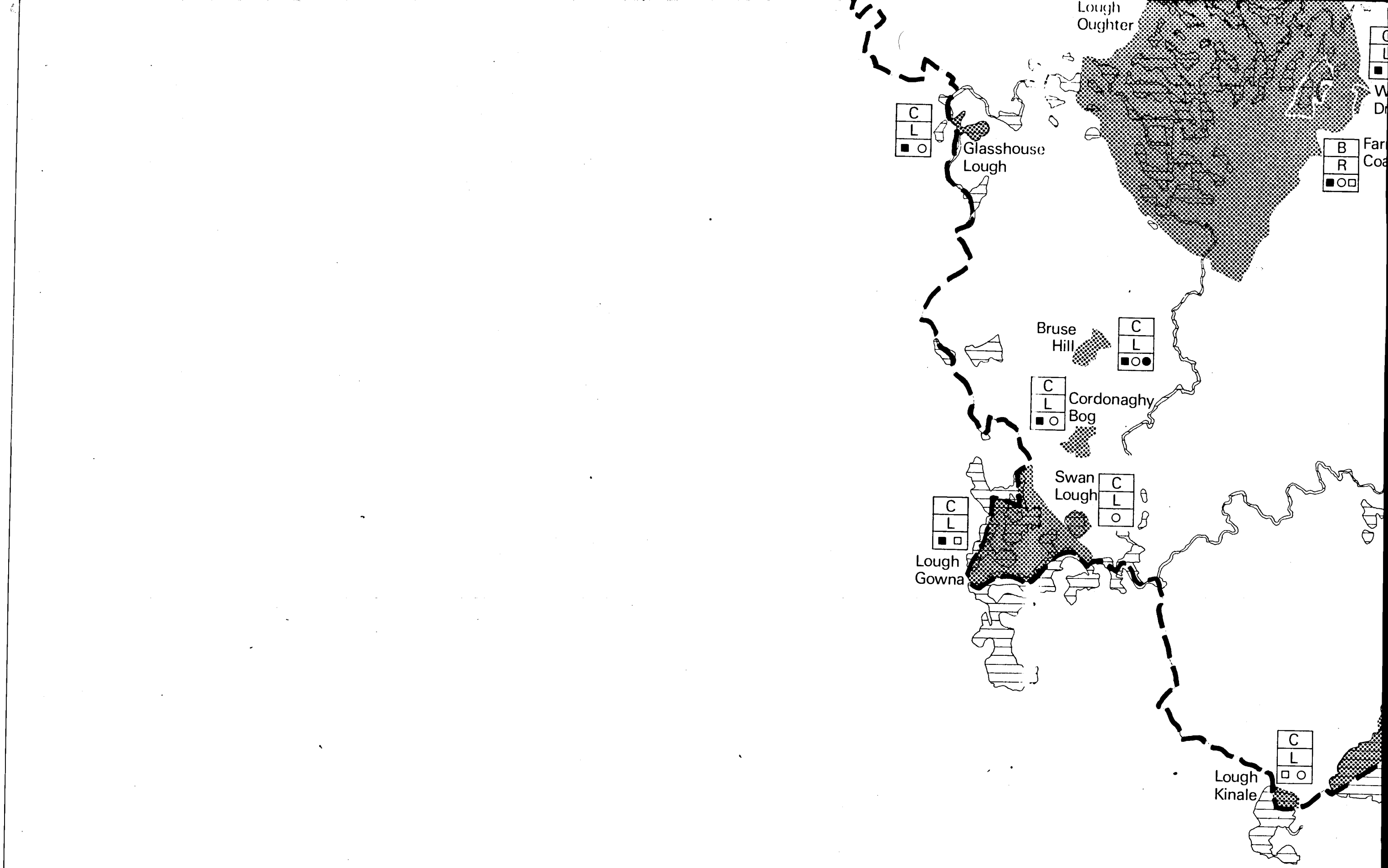
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PRIORITY ABC

RATING
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- National — N
- Regional — R
- Local — L

INTEREST
- Ecological — ■
- Ornithological — □
- Geological — ●
- Botanical — ○
- Zoological — ▲
- Geomorphological — △

Small or indeterminate area — △

JULY 1972

CONSERVATION AND AMENITY ADVISORY SERVICE