An Foras
Forbartha
Teoranta
The National
Institute
for Physical
Planning and
Construction
Research

CONSERVATION AND AMENITY
ADVISORY SERVICE

PLANNING DIVISION

AREAS OF SCIENTIFIC INTEREST IN CO. WICKLOW.

Teach Mhairtin
Bóthar Waterloo
Áth Cliath 4
Telefón 764211
St. Martins House
Waterloo Road

December, 1976

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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. Those 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 Wicklow, has been prepared by Tom Curtis under the direction of Rod Young. The help and assistance of the following is acknowledged. The Department of Lands, Forest and Wildlife Service - Mr. Michael Neff and Mr. Jim Ryan, Geological Survey - Dr. A.M. Flegg, Irish Wildbird Conservancy, Irish Biogeographical Society and Dublin Naturalists Field Club.

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

CONTENTS

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 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 movement.

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 significant 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 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 they 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

Geology and Landform

The landforms of County Wicklow are primarily a reflection of the solid geology of the area, the origins of which were in the Caledonian orogeny when a batholith of granite was intruded into the existing slaty Ordovician strata. It is this batholith which today forms the 'backbone' of the Wicklow Mountains - running across the whole county and occupying over a third of its area - its uniformity accounting for the rounded profiles of the mountains. As it cooled the intrusive mass caused the metamorphosis of surrounding slates to form a cover (aureole) of schist over the granite. This has been eroded away over most of the mountain area, however, only persisting in isolated patches, as on Lugnaquilla. Cambrian shales occupy a considerable portion of the NE of the county, with exposures of quartzite at Bray Head, Carrick Mountain, both Sugarloafs and the area to the north and west of Glenealy. To the west and south of this is the Ordovician area broken by volcanic intrusions e.g. Arklow Rock, where there is a good exposure of a volcanic crater and pipes.

The Pleistocene ice-sheets also had a major effect in the county, considerably altering the earlier landforms and leaving behind a wide variety of glacial features which can be seen all over the county - corries, dry valleys, moraines, U-shaped valleys etc.

Interesting geological sites, in fact, make up a considerable portion of the following list of areas of scientific interest. The solid geological features include several exposures of the contact zone between the granite and the schist (such can be seen at Glenmacnass, The Ravens Glen and Powerscourt) and, along the Dargle river, the exposure of the junction between the Cambrian strata and Ordovician rocks. Examples of glacial overflow channels are seen at the Glen of the downs, at the Toor Channel and Hollywood Glen. Deposits from the glacial Lake Blessington are seen at Hollywood Glen, Glen Ding and at the Athdown moraine, whilst further examples of moraines are found at the base of many of the mountain corries and at Templeraney near Arklow.

The coastline is interesting and varied, again showing the influence of the geology. In the extreme north of the County the Cambrian strata of Bray Head rise to 175 metres, but slope away to the south into much lower cliffs of boulder clay. These decrease in height towards Ballygannon, where they are replaced by a shingle beach, which, backed by extensive marshes and reedswamps, extends the 15 kms to Wicklow Harbour. From Wicklow to Seapark Point, Ordovician rocks have given rise to considerable cliffs rising to 90 metres, but south of here, as far as Arklow Head, the coast is mainly of sand dunes broken by isolated rocky headlands. Along this section a well-marked raised beach, capped by glacial drift, can be seen wherever rock outcrops occur. South of Arklow Rock - a volcanic intrusion - the coast is a low rock bench capped by glacial drift.

Plant and Animal Communities

The main granite ridge of the mountains is thickly covered with blanket peat; though rapid denudation is now occurring in many places and on some peaks the underlying rock has been exposed. The peat is dominated by Ling (Calluna vulgaris) with Cross-leaved Heath (Erica tetralix) and the moss Rhacomitrium lanuginosum, giving way to Deer Grass (Tricophorum caespitosum) in the wetter places and Mat Grass (Nardus stricta) in lower areas. Good examples of very wet blanket bog are to be seen in the Sally Gap area, where many bog pools occur with the Sphagnum mosses dominating much of the area. This blanket of peat is broken only where ice action has modified the landscape. Many corries and small moraine-dammed lakes occur on the eastern side of the range and most of the alpine plants are confined to these areas. The best examples of corries are the North and South Prisons on Lugnaquilla and at Lough Ouler on the N.E. side of Tonelagee.

The oligotrophic upland tarns are poor in species and all contain much the same range of plants - Quillwort (Isoetes lacustris) Shoreweed (Littorella lacustris), and the floating form of Bulbous Rush (Juncus bulbosus var fluitans). Lough Cleevaun is the highest standing water in Ireland but, like the rest of the tarns, it has a bottom of peaty mud and contains nothing of botanical interest.

At lower altitude are several larger moraine-dammed lakes such as at Loughs Dan and Luggela and at Glendalough. These contain the same vegetation as the higher tarns with only a few additions. However, these lakes are interesting zoologically in that they contain distinct races of char (Salvelinus sp.).

The two largest stretches of water in the county are both man made: the Vartry reservoir and the reservoir at Poulaphouca. The vegetation in the former area is now stable, many plant species having been introduced by waterfowl. In contrast, Poulaphouca (15 sq km in area) as yet lacks a highly developed lake flora, but will probably be colonized eventually by species found in the ox-bows of the Liffey near Blessington. This lake is an important site for waterfowl, however, and holds the highest inland numbers of wildfowl during the winter months.

The rivers throughout the county are rapid and much subject to heavy flooding and consequently they do not provide suitable habitats for many flowering plants. However, the valleys of the Liffey, the Slaney and the Derreen are mature in parts and all contain ox-bows or large stretches of slow-moving water, which are suitable for such species as Water Crowfoot (Ranunculus aquatilis), Bulrush (Typha latifolia), and Pondweeds, (Potamogeton spp.).

Marshes make up 2% of the area of the county and the best example is to be seen along the Murrough, extending from Ballygannon to Wicklow Town (15 km in length). This area is extremely rich, both botanically and zoologically - it is an important site for winter wildfowl and for several rare species of plants and invertebrates. The area is a complex one consisting of fen, reedswamp, marsh and brackish lagoon with salt-marsh development at Kilcoole and Broad Lough. The area is much grazed by cattle and drainage ditches have been cut, but the flora has been little affected. The ditches, in fact, harbour a rich and interesting flora. Other fen/swamp areas are found at Dunlavin, Lowtown, Lemonstown

and Buckroney and all these areas are of interest as fen is poorly represented in the county. One raised bog is found within the county boundary - south of Baltinglass. This has developed over a kettle-hole and shows the transition from open water to mature raised bog. Kettle holes also occur along the western edge of the county, but nowhere else have they developed the bog/scraw complex found at Holdenstown.

The headlands of Bray, Wicklow and Arklow, though differing in geology, all hold a basically calcifuge heath flora, with Gorse (Ulex europaeus) the commonest species. However, on some parts of the headlands a community is found on acid sandy soil which consists mainly of annual species. Here many rare species characteristic of similar areas in the south of England are found. This type of vegetation is best developed at Bray Head. The various sea cliffs are good nesting sites for seabirds and on some of them, particularly at Bray Head, a nice cliff flora is found.

Though there is a paucity of lime-rich rock in the County the deficiency of lime has been made up by the glacial deposits of the Ivernian ice sheets - left as moraines to the east, north and west of the mountains. These provide suitable habitats for calciole plants and associated invertebrate species.

The oakwoods of County Wicklow have been exploited for fuel in the past and this has led to the destruction of large areas of native timber. In some areas replanting has been undertaken, but there is little regeneration of oak in the County and continuous management and periodic replanting may be required to offset losses in the canopy. However, many areas in the Rathdrum, Avoca and Glendalough region hold well-developed oak woodland with a rich ground flora. In Knocksink Wood oak woodland grows side by side with ash and, though it is rare in the county, good examples of the latter type of woodland can be seen in the Enniskerry area, where hazel and willows make up the rest of the canopy. These woods provide habitats for a rich and varied flora and fauna. Conifers have been widely planted in recent years, particularly on the lower slopes of the mountains. These are of most interest when the trees mature, the canopy opens, and the resulting increased light levels allow the development of a ground flora.

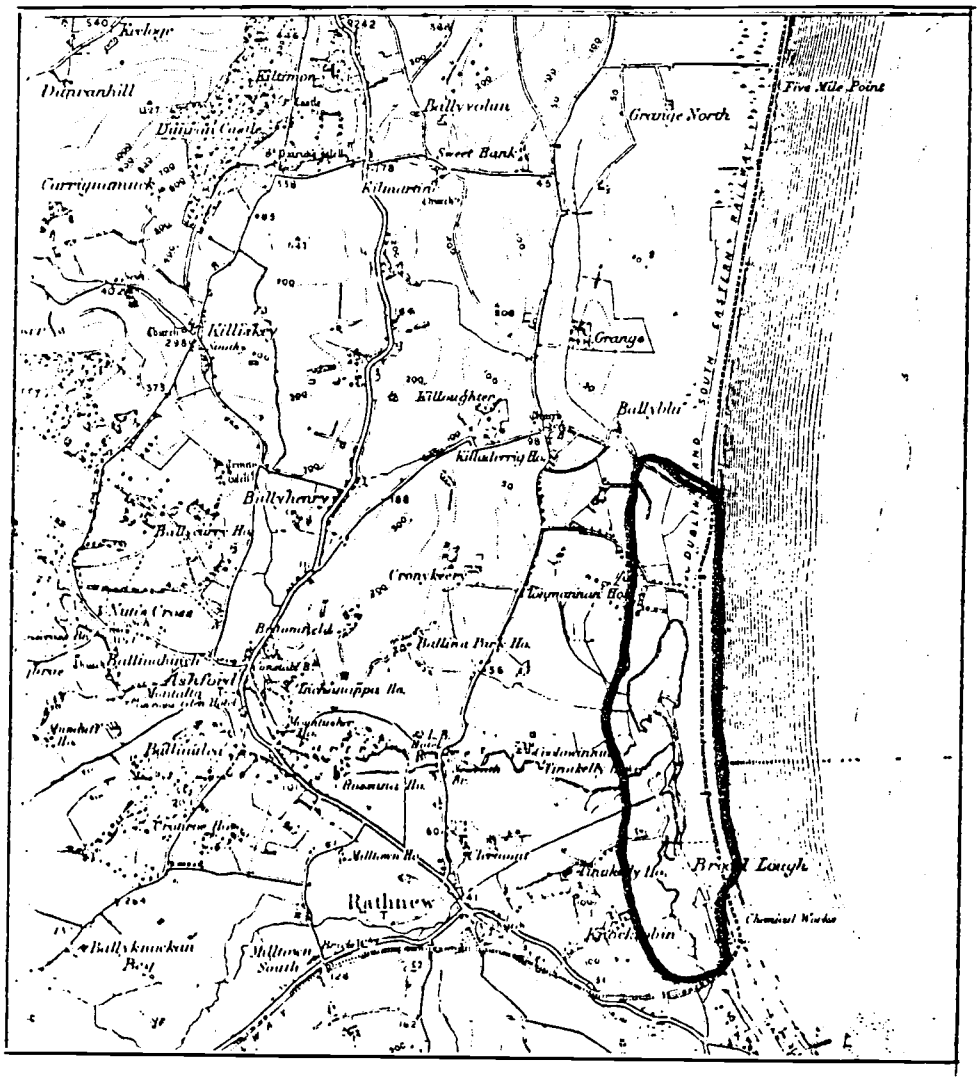
The sand dune systems on the east coast are valuable ecologically and include a good example of a stable dune system with associated rare plant species. However, other dunes are in danger of disintegration owing to intense recreational pressure, whilst in the area north of Arklow an area of dunes is being used as a construction site. A good management policy is necessary in order to conserve the amenity value and scientific interest of these coastal dunes.

The shingle beach along the Murrough has a well-developed flora, including some rare species. The frequency at which these species occur, however, has been reduced by the effect of the railway, which has stabilised the shifting shingle bank. Many introductions have occurred along this length of track and open areas hold an interesting flora of native annuals and alien plants. Waste areas near Wicklow town also hold a flora comparable with that of southern England. Some very rare species occurring here are in danger from rubbish dumping and recreational pressures.

Unfortunately, adequate information on the invertebrate fauna of Co. Wicklow is not available for inclusion in this report, but where information was to hand it has been included under the appropriate site. There are indications of a fauna that is peculiar to high mountains of Wicklow and Halbert reports finding sub-arctic Hemiptera on high mountains in the county. Detailed surveys have identified a number of high altitude communities in the Glenmalure area, dominated by the stonefly Diura bicaudata, with an arctic mayfly and other species of biting flies of high altitude habitats. The Murrough area and Knocksink Wood also promise to hold a rich invertebrate fauna and collecting on a small scale has been undertaken.

A list of references to County Wicklow will be found in the Bibliography.

THE MURROUGH I



Scale : 1 cm = 635 m (0.4 mile)

Sheets ; ½" : 16; 1" : 130; 6" : Wicklow 25.

THE MURROUGH 1

Area	310 ha.
Grid Reference	T. 30,96
Scientific Interest	Ornithological, botanical and zoological
Rating	International Importance

This site runs from Killoughter in the north to Wicklow town in the south.

An account of the various plant communities to be seen travelling westwards from the sea, across Broad Lough just north of Wicklow town, serves to give an idea of the range of habitats present at the southern end of the area:-

The shingle beach supports few plant species other than Sea Rocket (Cakile maritima) and Sea Purslane (Honkenya peploides), but grades into a rich grassy sward, which is occassionally burnt over - possibly accidentally. The dominant grasses are Sweet Vernal Grass (Anthoxanthum odoratum), Crested Dog's-tail (Cynosurus cristatus) and Yorkshire Fog (Holcus lanatus), while other common plants are chrysanthemum (Chrysanthemum leucanthemum), Wild Carrot (Daucus carota), Yarrow (Achillea millefolium), Sheep's Sorrel (Rumex acetosa), Burnet Saxifrage (Pimpinella saxifraga), Mouse-ear hawkweed (Pilosella vulgaris) and Burnet Rose (Rosa pimpinellifolia). This community extends as far as the railway, whose banks harbour several interesting species - Bugloss (Echium vulgare), Pennycress (Thlaspi arvense), Early Forget-me-not (Myosotis ramosissima), three species of poppy (Papaver spp.) and three much rarer plants.

To the west of the railway, gorse (Ulex europaeus) is dominant, with Burnet Rose, Bird's-foot Trefoil (Lotus corniculatus) and the grasses Cynosurus cristatus and Anthoxanthum odoratum also present. This runs to the shore of the brackish lough, which is formed of shingle on firm mud. Few species are found here, but Sea Couch grass (Agropyron pungens), Sea Plantain (Plantago maritima) and Sea Lavender (Limonium humile) are frequent. (Further north this gorse dominated community is replaced by pasture dominated by Rye grass (Lolium perenne) and Cock's-foot (Dactylis glomerata), with Knapweed (Centaurea nigra) and Chrysanthemum (Chrysanthemum leucanthemum)).

The western shore of the lake is dominated by Reed (Phragmites australis) giving way to saltmarsh species to the southwest - Sea Rush (Juncus gerardii), Sweet Sea grass (Puccinellia maritima), Sea Aster (Aster tripolium), Sea Purslane (Halimione portulacoides), Sea Beet (Beta maritima), Seablite (Suaeda maritima) and Common Scurvy Grass (Cochlearia officinalis). (The much rarer English Scurvy Grass (Cochlearia anglica) occurs on stretches of mud near the railway bridge).

Further north towards Killoughter there are well-developed marshes. Reed is dominant over much of the area, but where drains have been cut many other species occur. These include Bottle Sedge (Carex rostrata), Great Spearwort (Ranunculus flammula), Great Pond-sedge (Carex riparia) and Bog-bean (Menyanthes trifoliata). Fen also occurs here, with Black Bog-rush (Schoenus nigricans) dominant and with Marsh Pennywort (Hydrocotyle vulgaris), Purple Moor Grass (Molinia caerulea) and Marsh Orchid (Dactylorhiza latifolia) occurring. This whole wetland complex is very diverse and rich botanically and holds some rare flowering plants.

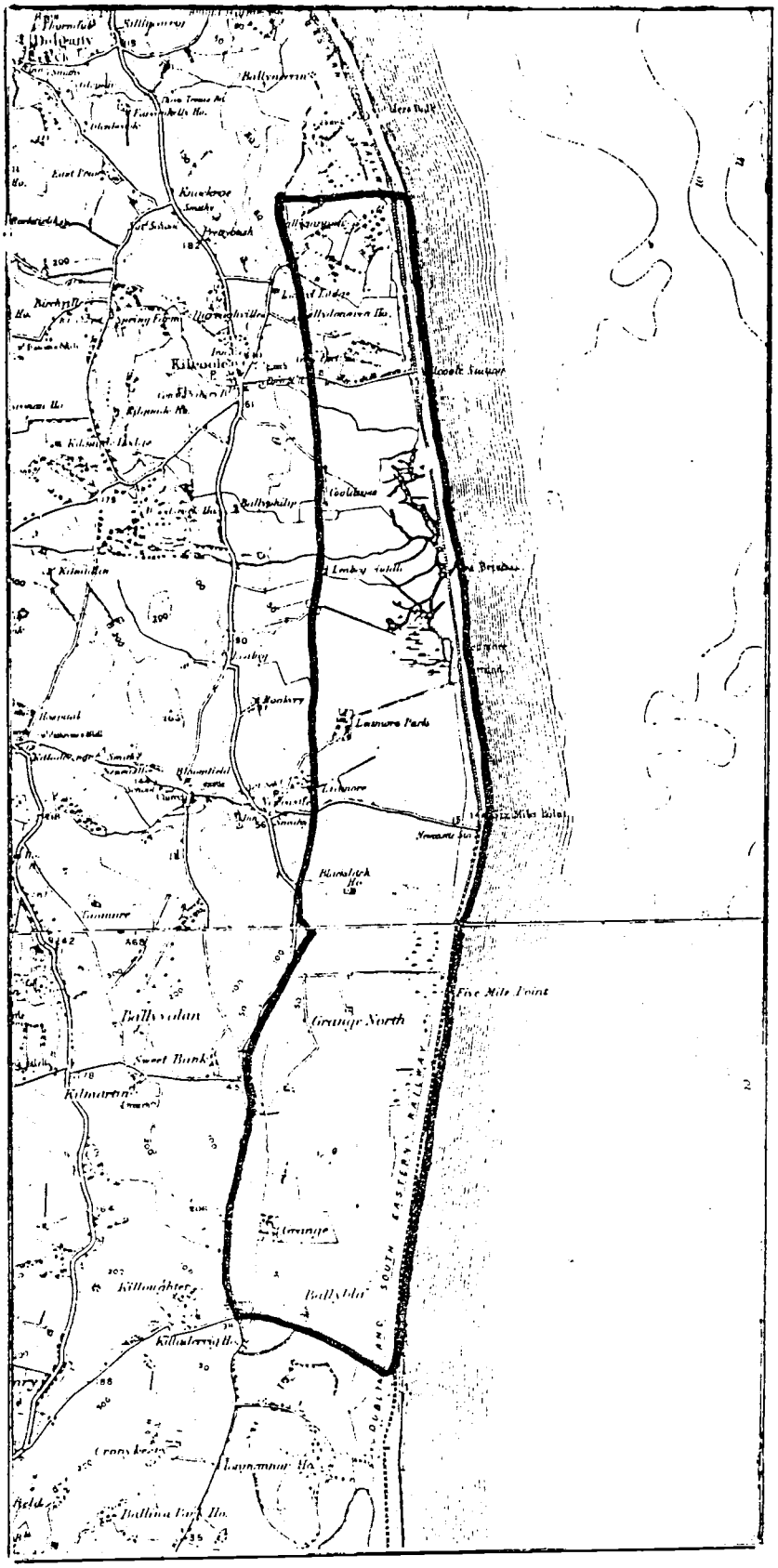
Also of interest at the northern end of the area are the low sandhills between the marshes and the sea, on which Marram grass (Ammophila arenaria) is dominant and Bird's-foot Trefoil (Lotus corniculatus), Kidney Vetch (Anthyllis vulneraria) and Sea Convolvulus (Calystegia soldanella) occur.

The area is also of interest ornithologically and 37 species of bird have been confirmed as breeding here. These include heron, mallard, shellduck, little tern, kittiwake, black guillemot, razorbill and mute swan. An additional 34 species may possibly breed here, including tufted duck, red breasted merganser, corncrake, common tern, stock dove, cuckoo, kingfisher, 5 species of warbler and spotted flycatcher. Many waterfowl frequent Broad Lough in the winter and during recent counts the following were seen ; mallard, 8-47; teal, 31-62: widgeon, 35-380; mute swan, 29-32; whooper swan 13; coot, 11-15. Greylag geese and other ducks (pintail, shoveller, goldeneye, merganser and shelduck) also occur.

Evaluation

The description indicates the number and diversity of habitats within this area. The site and the adjoining one, the Kilcoole marshes, form a mosaic of reed swamp, fen, marsh and saltmarsh 15 km in length - from just south of Greystones to Wicklow. This coupled with the sandhills, rough grassland, shingle beach and brackish lagoon makes the entire area unique in Ireland and of great importance, as it provides habitats for an extremely diverse and rich flora and fauna (in all 10 nationally rare Angiosperms grow within the area) and, as indicated above, the bird life is of great interest.

THE MURROUGH II



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½" : 16; 1" : 121, 130; 6" : Wicklow 13,19,25.

THE MURROUGH II

Area	c.1400 ha.
Grid Reference	O. 31,05
Scientific Interest	Ornithological, botanical and zoological
Rating	International Importance

This site is a continuation of the Broad Lough area and runs from Killoughter to Ballygannon in the north. It contains salt marsh, mud flats, fen, marsh, reed beds, drainage ditches, sand hills and shingle beach.

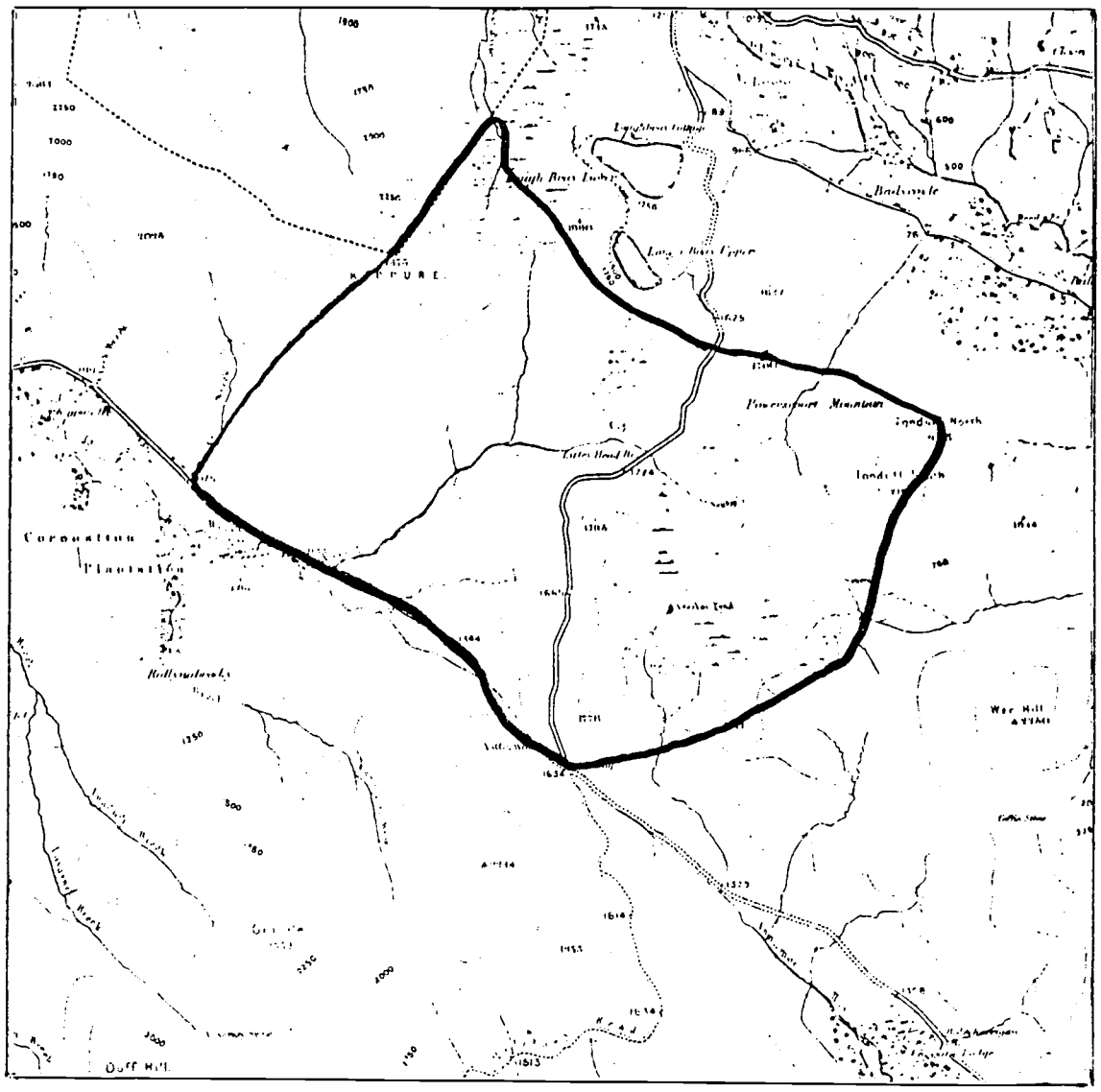
Wetlands, of one type or another, stretch the whole length of the area, varying according to the amount of drainage carried out, the brackishness of the water, etc. They hold a wide variety of plant communities and a number of rare plants. The marshes at Kilcoole are also of great interest ornithologically as many waterfowl visit the area in winter and numerous passage migrants occur here. Maximum numbers from spot checks during 1968 were mallard 16, teal 7, widgeon 1,225, pintail 390, shelduck 23, whooper swan 30, greylag goose 5, golden plover 2,000+. 52 species of bird have been confirmed breeding and 10 other species may do so, including three species of hawk.

Sand dunes and shingle beaches also extend the length of the area and several more rare plants occur in these areas. The railway has played an important role in the recent development of the flora of these areas by introducing several alien species. The Hottentot Fig (Carpobrotus edulis) has established itself widely between the railway and the dunes and Dwarf Spurge (Euphorbia exigua), Clover Broomrape (Orobanche minor) and Lesser Toadflax (Chaenorrhinum minus) also occur.

Evaluation

Like the Broad Lough site this area is very rich botanically and zoologically and the whole area is unique nationally and of great importance. In all 23 species of rare flowering plants occur in this site and in the adjoining Broad Lough area and it also promises to be a rich area for invertebrates.

KIPPURE AND SALLY GAP BOGS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121; 6":Wicklow 6. 7.

KIPPURE AND SALLY GAP BOGS

Area	1,700 ha.
Grid Reference	Around O. 13, 13.
Scientific Interest	Botanical, ecological and zoological
Rating	International Importance

This high-lying area of blanket bog, which ranges from 1,500 ft. at Sally Gap to 2,600 ft. at Kippure. The bogs at Sally Gap and around the sources of the Liffey and Dargle are extemely wet and bog pools are a common feature of the landscape. The blanket peat covering the slopes of the mountains is, in contrast, somewhat drier, but any hollow still produces a flora characteristic of the wetter areas of the Sally Gap bogs.

The mountain peat is largely dominated by Ling (Calluna vulgaris) and Cross-leaved Heath (Erica tetralix) with Bog Cotton (Eriophorum vaginatum) and Deer Grass (Tricophorum caespitosum) also present. These last two species themselves dominate over much of the wetter areas. Drier areas produce Cowlberry (Vaccinium vitis-idaea), Bilberry (Vaccinium myrtillus) the ferns Dryopteris carthusiana and Blechnum spicant, the following mosses - Polytrichum commune, Hypnum cupressiforme, Rhytidiadelphus squarrosus, R. triquetrus and Thuidium tamariocinum. Several species of Sphagnum also occur and lichens of the Cladonia group. Where slopes begin to level off conditions become wetter, Bog Asphodel (Narthecium ossifragum) occurs, and the Deer Grass (Tricophorum caespitosum) becomes dominant.

Over the very wet bogs at Sally Gap, Bog Cotton (Eriophorum vaginatum) is extremely abundant, whilst near the sources of the Liffey, Deer Grass is dominant, Calluna diminishes, and Bog Asphodel and Marsh Andromeda (Andromeda polifolia) are common. On raised parts of these areas, particularly beside deep channels cut by streams, the moss Rhacomitrium lanuginosum forms great bosses several feet in height. In the bog pools Sphagnum cuspidatum is the only species found, but the pools are fringed by Club Moss (Lycopodium selago), Bog Cotton (Erioporum angustifolium), Marsh Andromeda and other species of Sphagnum.

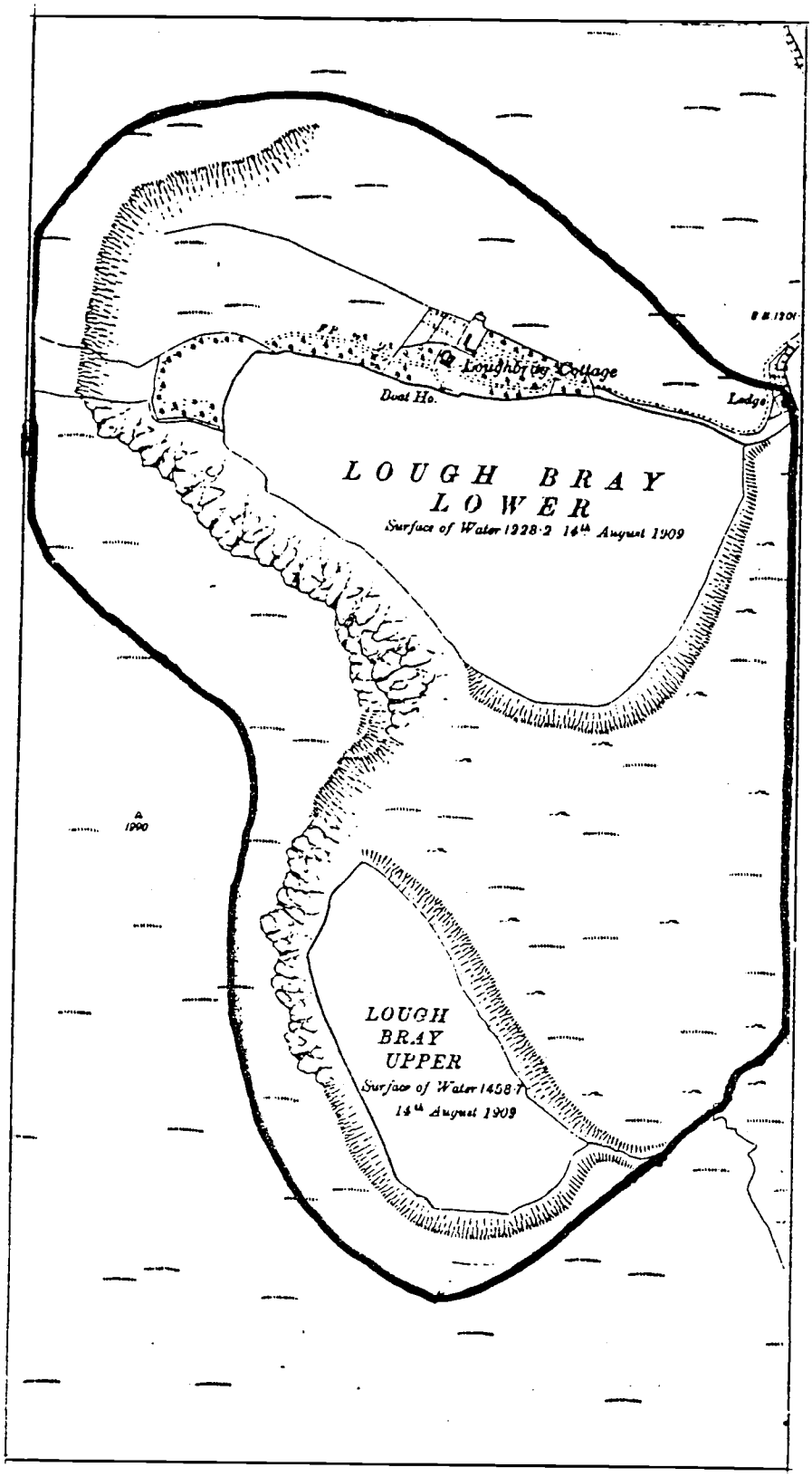
The tops of Kippure, Tonduff and Powerscourt Mountain are severely denuded of peat with the characteristic formation of peat rills and hags. Here Rhacomitrium lanuginosum is dominant on the flatter areas and Cowberry (Vaccinium vitis-idea) and Clubmoss (Lycopodium selago) are common in places.

Earlier cutting of the bog has resulted in some areas in the formation of trenches in which bog regeneration is taking place and Sphagnum growth has resumed. However considerable areas near the Military Road are still being cut and the turf removed.

Evaluation

These very fine examples of high altitude blanket bog and this site is one of those listed by project Telma as worthy of preservation. The invertebrates have not yet been investigated but the area promises to be interesting.

LOUGH BRAY CORRIES



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 6.

LOUGH BRAY CORRIES

Area	90 ha.
Grid Reference	O. 130, 160
Scientific Interest	Geological and botanical
Rating	International Importance

The site consists of two corries, with associated mountain tarns and a number of moraines.

The corries are the most spectacular in the east of Ireland. They exhibit a fine sequence of moraine stages - a huge outer one and a series of small but clear minor ones.

The lakes hold some interesting plant species and in one of the tarns a curious form of the Quillwort (Isoetes lacustris var moorei) occurs. Two other rare species have been recorded from the lake.

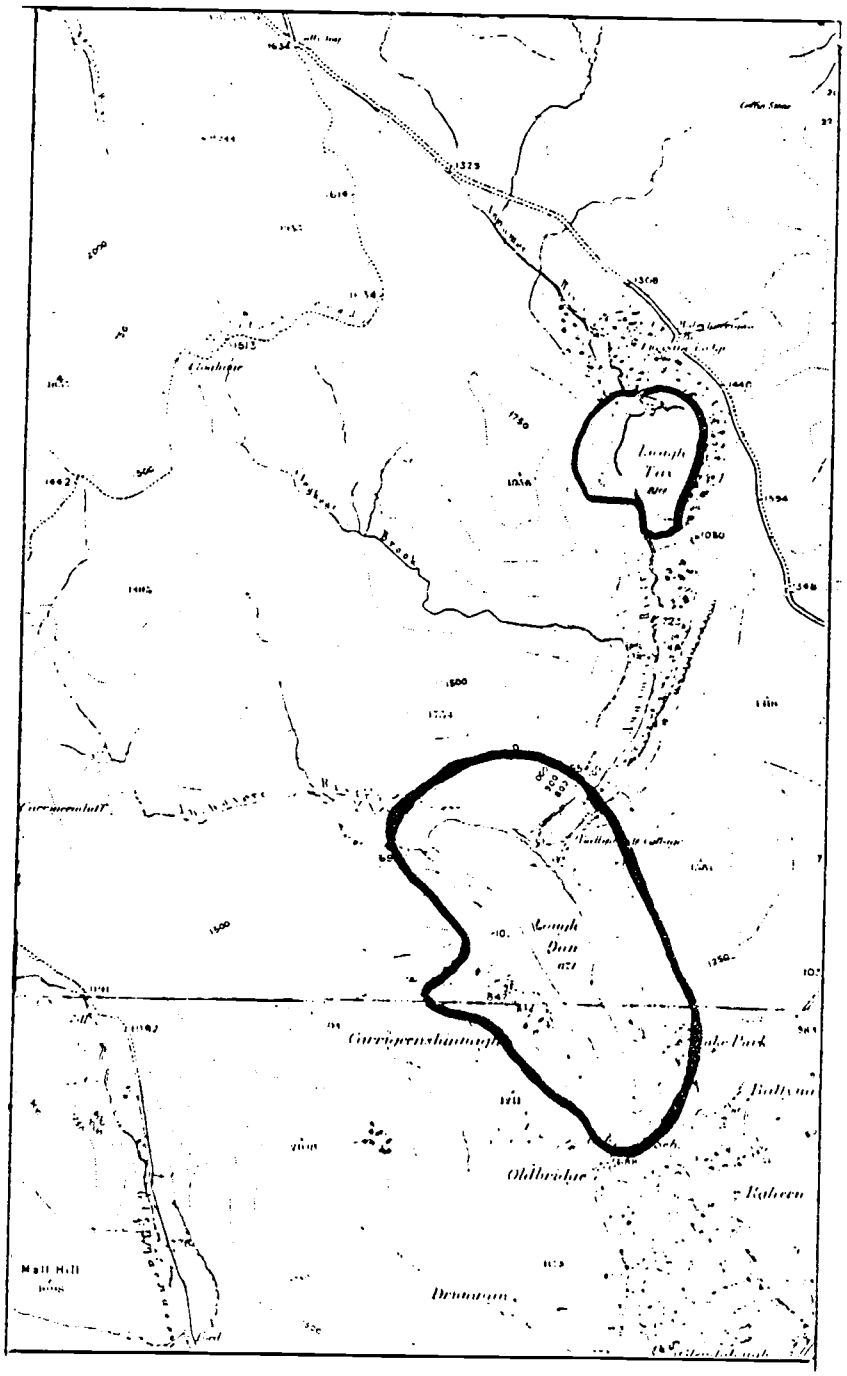
The lake is set amongst blanket bog consisting of Ling (Calluna vulgaris), Cross-leaved Heath (Erica tetralix) and Deer Grass (Tricophorum caespitosum). Wood Rush (Luzula sylvatica) dominates the ground where scattered Birch (Betula pubescens) occurs.

The moraines hold Ling, Bell Heather (Erica cinerea) and Cowberry (Vaccinium vitis-idaea).

Evaluation

The site holds fine corries and associated moraines. The lakes hold some interesting plant species and this is the only area where the variety moorei of Quillwort (Isoetes lacustris), occurs in Ireland.

LOUGHS DAN AND LUGGELA



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½" 16; 1" 121+130; 6" Wicklow. 12, 17 and 18.

LOUGHS DAN AND LUGGELA

Area	c.575 ha.
Grid Reference	O. 155,035
Scientific Interest	Botanical and zoological
Rating	National

Both of these lakes are moraine-dammed as a result of heavy glaciation by local ice and are low-lying and acid in reaction.

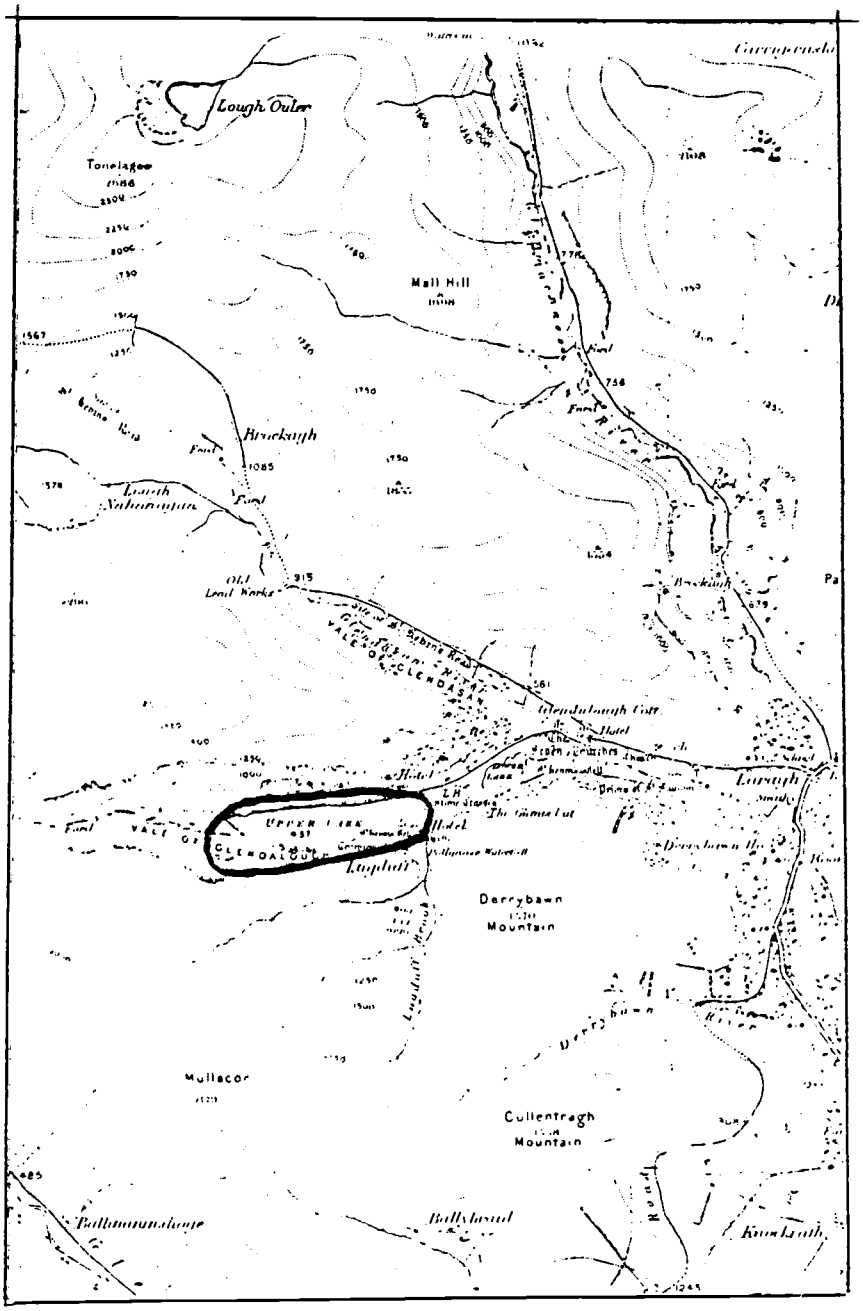
A very rare stonewort, Nitella gracilis, occurs in both these lakes, along with Shoreweed (Littorella lacustris) and Quillwort (Isoetes lacustris), whilst Lough Dan also contains Floating bur-reed (Sparganium angustifolium) and White waterlily (Nymphaea alba). In mountain pastures by the lakes are found the two orchids, Coeloglossum viride and Leucorchis albida.

Lough Dan is also of zoological interest, as the char Salvelinus obtusus is found there.

Evaluation

These lakes are the only Irish station for Nitella gracilis and the various angiosperms mentioned above are all uncommon species. This botanical interest, and the presence of Salvelinus obtusus - found only in Wicklow and Kerry - make the lakes of national importance.

UPPER LAKE, GLENDALOUGH



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½" : 16; 1" : 130 6" : Wicklow 23.

GLENDALOUGH UPPER LAKE

Area	48. ha.
Grid Reference	T. 100,960
Scientific Interest	Zoological
Rating	National importance

This is a low-lying, oligotrophic lake, which, like Loughs Dan and Luggela, is moraine-dammed as a result of glaciation. The shore for the most part is stony, with occasional large boulders, but to the western end large deposits of sand of granite origin are found. Heath, consisting of Gorse (Ulex europaeus and Ulex gallii), Bell Heather (Erica cinerea) and Tormentil (Potentilla erecta), fringes the lake where the woodland canopy is open or absent. Woodland occurs to the north and south of the lake, the latter being stands of planted conifers, whilst that to the north is dominated by Oak (Quercus petraea).

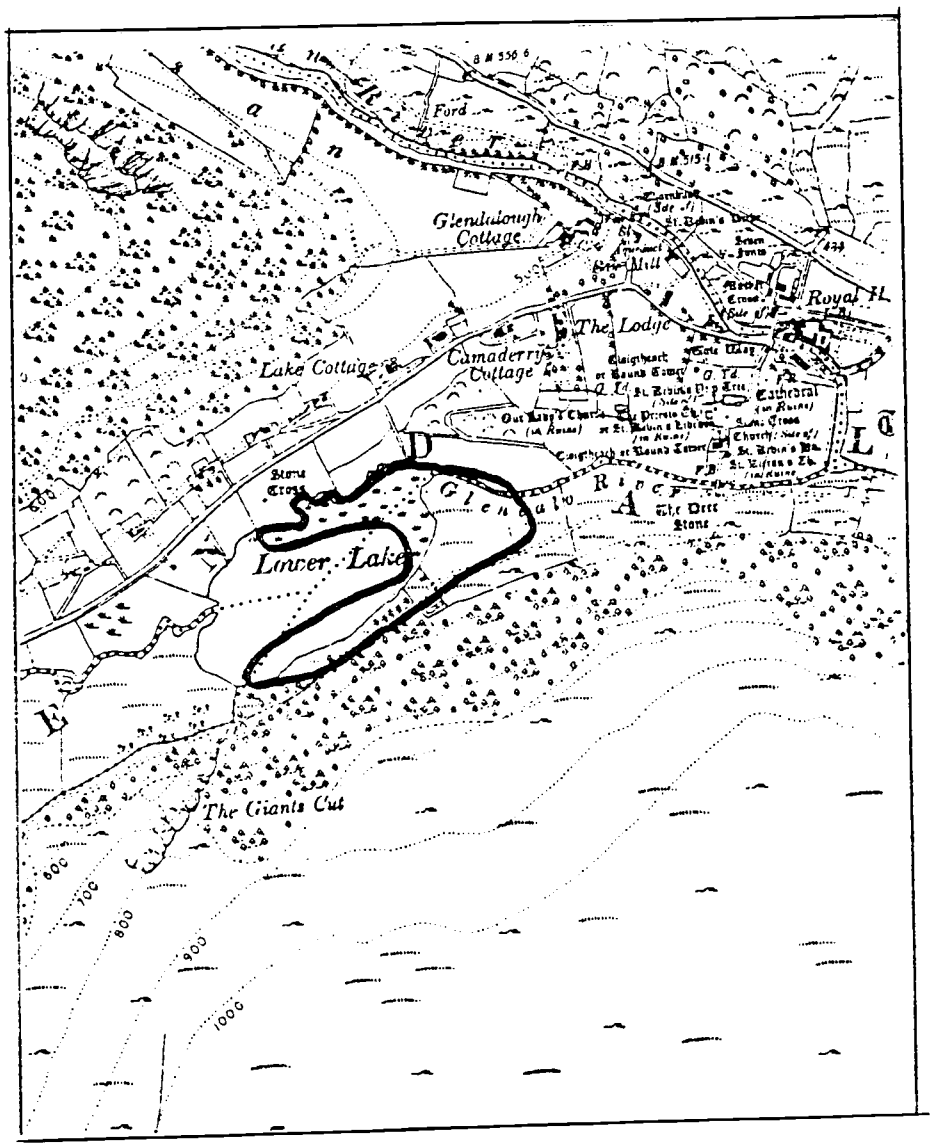
The marsh at the western edge of the lake is dominated by reed (Phragmites australis), while Bottle Sedge (Carex rostrata), Marsh St. John's Wort (Hypericum elodes), Articulated Rush (Juncus articulatus), Purple Moor Grass (Molinia caerulea), Horsetail (Equisetum fluviatile), and Marsh Violet (Viola palustris) are frequent.

In the lake itself occur White Water Lily (Nymphaea alba), Broad-leaved Pondweed (Potamogetan natans) and the floating form of the Bulbous Rush (Juncus bulbosus var fluitans).

Evaluation

A wide variety of plant associations are found around the lake and these are of interest both ecologically and educationally. In addition the lake itself holds a rich invertebrate fauna and the char. Salvelinus obtusus.

SHORELINE OF LOWER LAKE AT GLENDALOUGH



Scale : 1 cm = 105 m (115 yards).

Sheets : ½" : 16; 1" : 130; 6" : Wicklow 23

SHORELINE OF LOWER LAKE AT GLENDALOUGH

Area	4.5 ha.
Grid Reference	T. 117,965
Scientific Interest	Botanical
Rating	National Importance

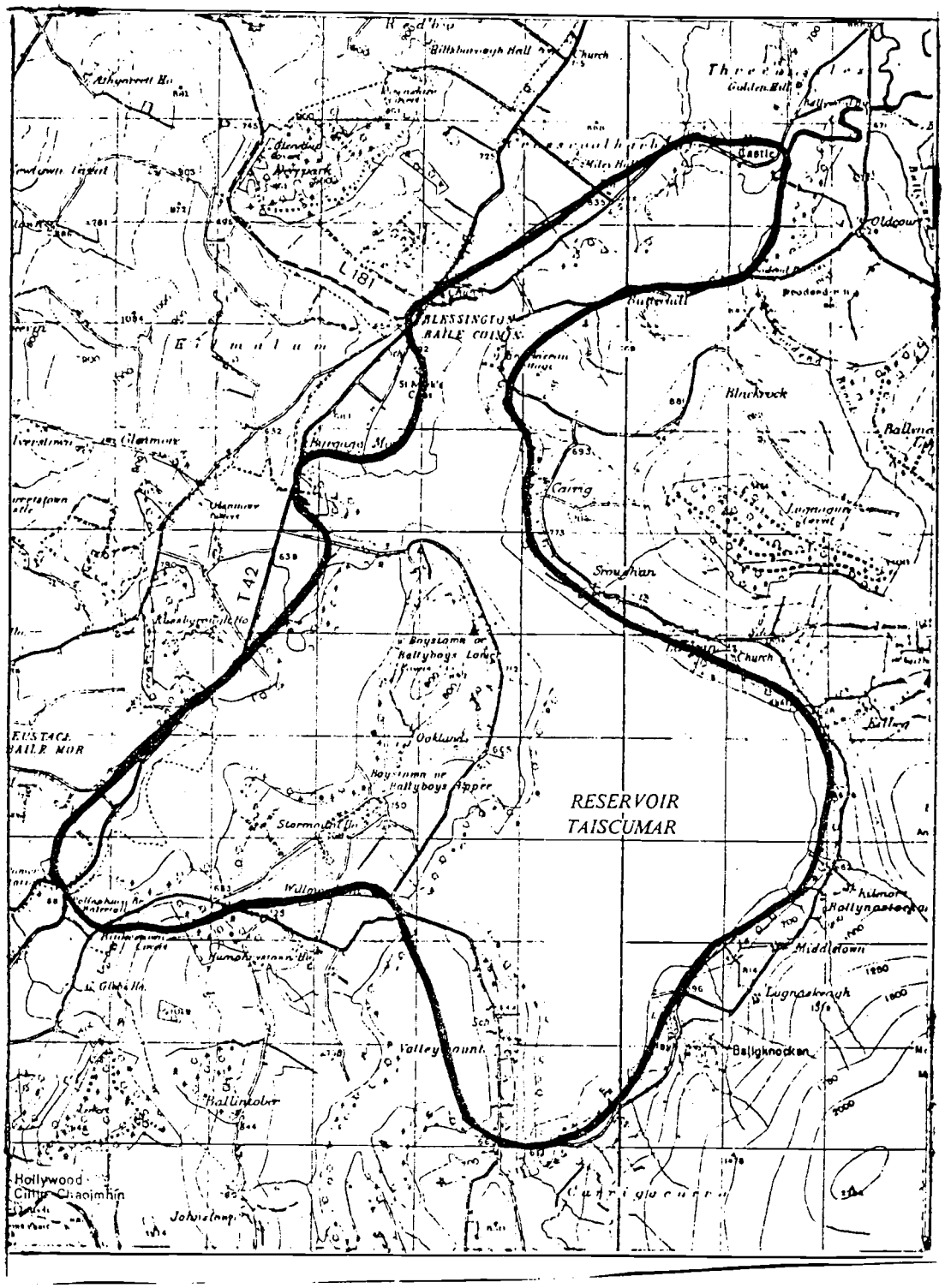
The lake shore is fringed by a marsh containing Tormentil (Potentilla erecta), Purple moor grass (Molinia caerulea), Sphagnum mosses, Articulated Rush (Juncus articulatus), Horsetail (Equisetum fluviatile) and Marsh Violet (Viola palustris). Bordering the marsh is a belt of deciduous trees - mainly oak with a ground flora of Woodrush (Luzula sylvatica), Herb Bennet (Geum urbanum), and the ferns Dryopteris felix-mas, Dryopteris dilatata and Thelypteris oreopteris.

The area is of botanical note because of the presence of a rare Pteridophyte and a rare flowering plant.

Evaluation

The lake is considered of national importance because of the presence of a plant with an extremely restricted distribution in Ireland and Britain and another species that is rare in the east and south of Ireland.

POULAPHOUCA RESERVOIR



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½"; 16"; 1" : 120; 6" : Wicklow 5

POULAPHOUCA RESERVOIR

Area	3,400 ha.
Grid Reference	0. 00,10
Scientific Interest	Ornithological, Botanical and Zoological
Rating	Regional Importance

This site is a reservoir, the shores of which are mostly of sand. New plant species are still colonising the lake and its shores, but the communities are now achieving a certain degree of stability.

On the exposed shores Purple Loosestrife (Lythrum salicaria), Water mint (Mentha aquatica), Articulated Rush (Juncus articulatus) and Shoreweed (Littorella lacustris) are the commonest species. Sheltered areas have Reed (Phragmites australis) dominant, with Amphibious Bistort (Polygonum amphibium) in its aquatic form frequent in the areas in front of the reeds. Sneezewort (Achillea ptarmica) and Yellow cress (Rorippa islandica) are also frequent along the shores. Along the shore are Hawthorn (Crataegus monogyna) and Common Willow (Salix atrocinerea).

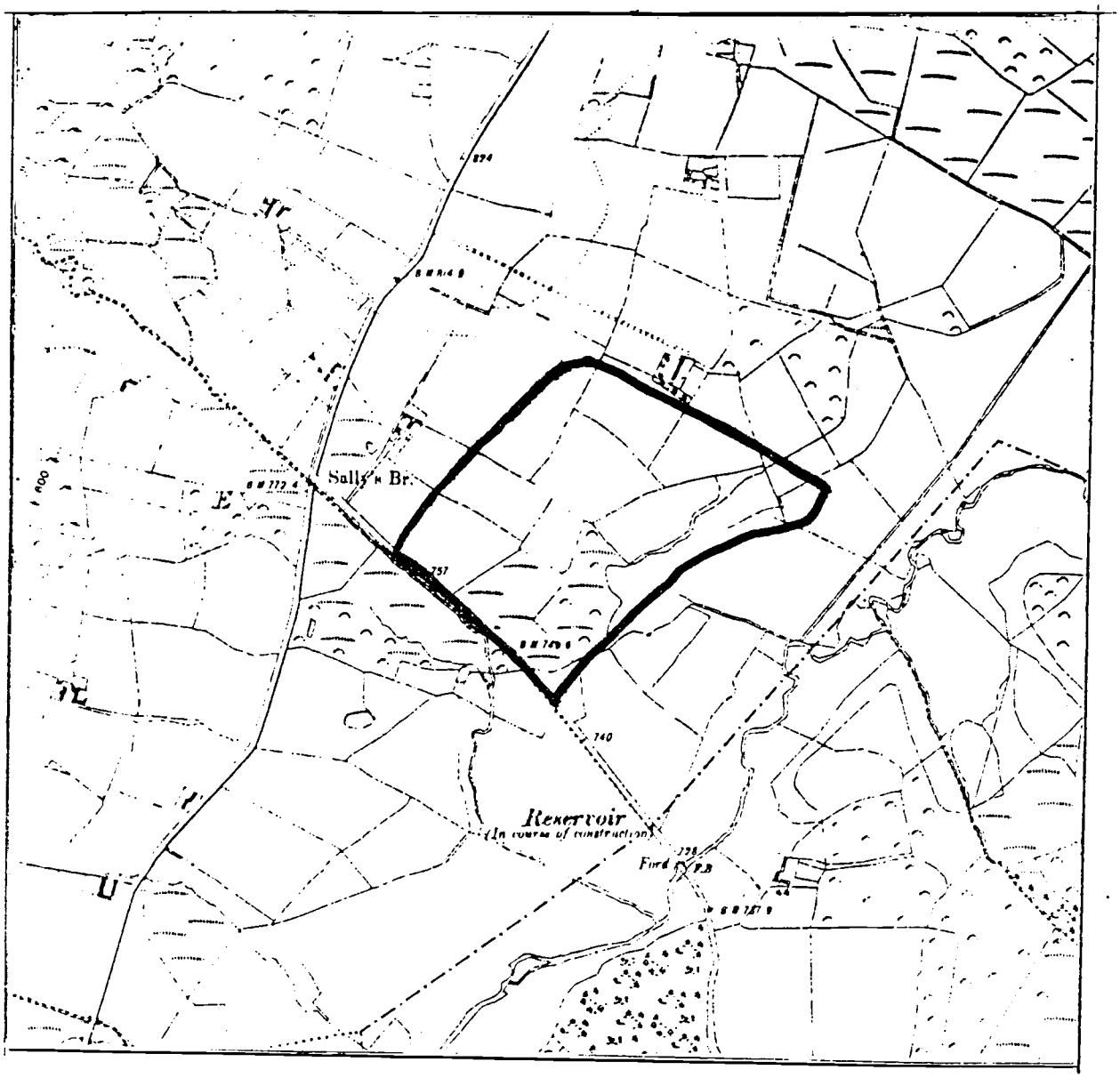
This is the only large area of open water in the region and contains the largest inland stocks of water fowl in Co. Wicklow during the winter months. Counts carried out in November and January of 1969/70 to 1973/74 revealed average populations of :- Greylag Goose 200 - 275, Mallard 200, Teal 250, Wigeon 250, Pochard 40, Tufted Duck 200 and Whooper Swans 22. Other species occurring during this period were :- Goldeneye, White Fronted Goose, Pink-Footed Goose and Mute Swan.

The most important grazing area for the Greylag Geese is the shore SW of the lake where there are fields of Perennial Rye Grass (Lolium perenne), Creeping Bent (Agrostis stolonifera) and Clover (Trifolium repens). The dabbling and diving duck and the two species of swan may be observed feeding in shallow bays, where the alga Nitella occurs with Water-weed (Elodea canadensis).

Evaluation

As this site is relatively near Dublin (30 kms), contains the largest winter inland stocks of waterfowl in the county, and is the feeding ground for one third of the County's Greylag Geese population, it is of considerable ornithological interest. In addition, 12 species of bird breed or probably breed on or close to the lake - these include Moorhen, Coot, Teal, Tufted Duck, Mute Swan, Lapwing and Snipe.

WEST BANK OF THE VARTRY RESERVOIR



Scale : 1 cm = 105 m (115 yards)

Sheets : 1" : 16; 1" : 121; 6" : Wicklow 12

WEST BANK OF VARTRY RESERVOIR

Area	18 ha.
Grid Reference	0.100.062
Scientific Interest	Botanical, ornithological
Rating	Regional Importance

This site, on the margin of the Vartry reservoir, consists of marshy ground backed by hillocks of drier ground. In addition, open mud, exposed when the level of the water in the lake drops owing to dry summer conditions, provides another habitat.

The dry hummocks are covered by the Willow, Salix aurita, and a ground flora dominated by Creeping Bent (Agrostis stolenifera). Marsh bedstraw (Galium palustre), Ragwort (Senecio jacobea), Wild Angelica (Angelica sylvestris), Devils-Bit Scabious (Succisa pratensis) and Common Buttercup (Ranunculus acris) also occur. The mosses Polytrichum commune and Rhytidiadelphus squarrosus are also conspicuous.

A fringe of Alder (Alnus glutinosa) and Common Willows (Salix atrocinerea) with Blackberry (Rubus fruticosus agg.) separates this community from the marshy area.

Typical marsh species, such as the rushes Juncus inflexus and J. conglomeratus) occur with Marsh Marigold (Caltha palustris), Horsetail (Equisetum fluviatile), Water chickweed (Montia fontana agg.), Valerian (Valeriana officinalis), Lesser spearwort (Ranunculus flammula), Bottle sedge (Carex rostrata), Carnation sedge (C. panicea), Purple Loosestrife (Lythrum salicara) and Marsh Speedwell (Veronica scutellata). Several species of Sphagnum mosses are also found here.

On the reservoir edge is an area of very soft mud where Silverweed (Potentilla anserina) and Flote Grass (Glyceria declinata) occur.

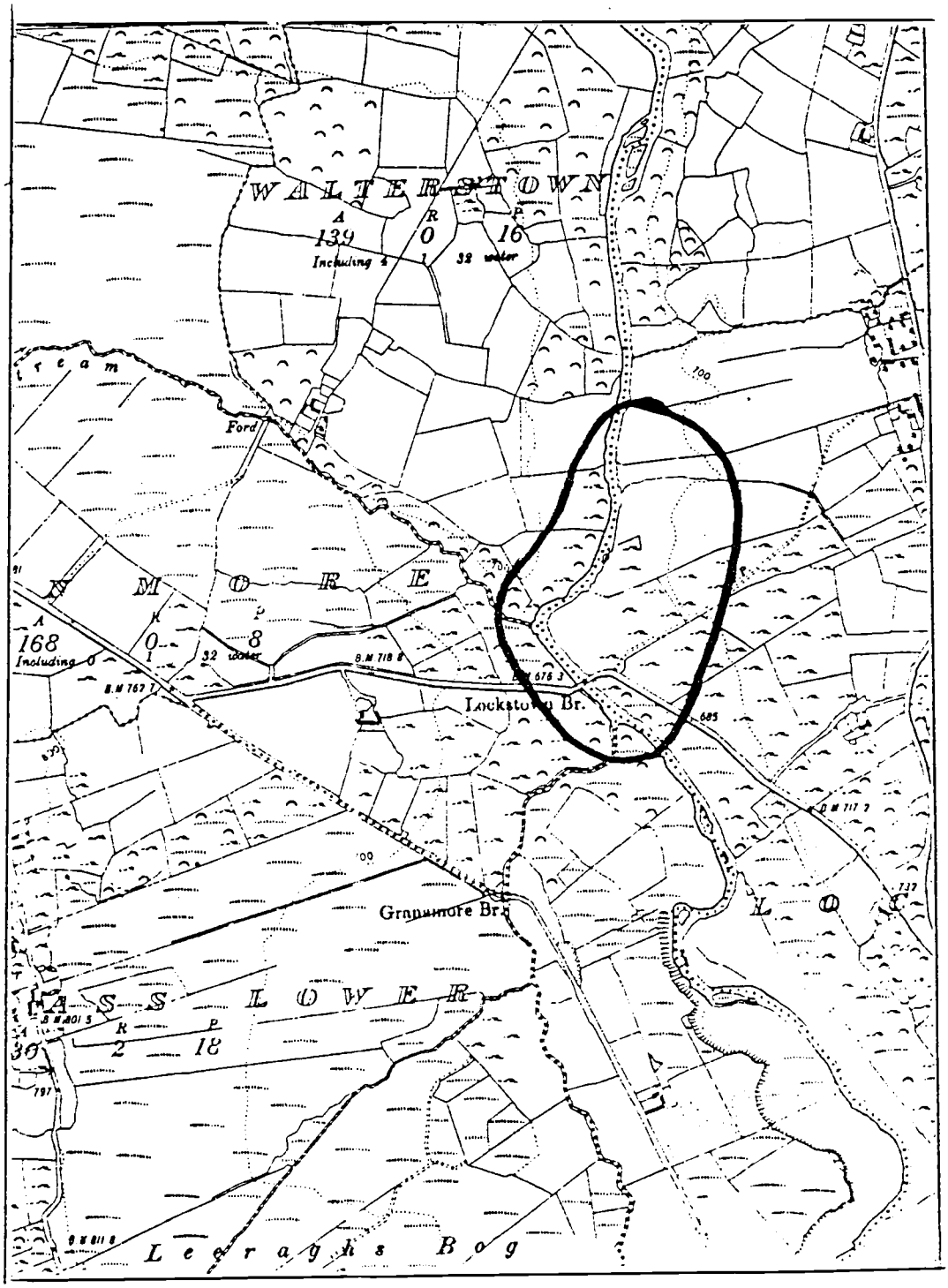
When stretches of open mud are exposed, Water Crowfoot (Ranunculus hederaceus), Shoreweed (Littorella lacustris), and the Bistorts, Polygonum amphibium and P. hydropiper, can be seen. A rare plant species occurs with these species.

The area is also of interest ornithologically, the following species frequenting the area : - Sedge Warbler, Grasshopper Warbler, Dabchick, Hen Harrier, Mallard, Teal, Tufted Duck, Goldeneye, Whooper Swans, Coot and Waterhen.

Evaluation

This site contains a rare plant species, which in the East of Ireland is found only in Wexford and Wicklow. Also the site contains interesting associations of species on the mud and in the marsh areas and is of interest ornithologically.

SITE ALONG THE KING'S RIVER



Scale : 1 cm = 105 m (115 yards)

Sheets : ½" : 16; 1" : 120; 6" : Wicklow 16

SITE ALONG THE KING'S RIVER

Area	7 ha.
Grid Reference	N. 980,032
Scientific Interest	Botanical
Rating	Regional Importance

The King's River is a tributary of the Liffey and this site is a sandy area of river bank surrounded by pasture partially dominated by Gorse (Ulex europaeus).

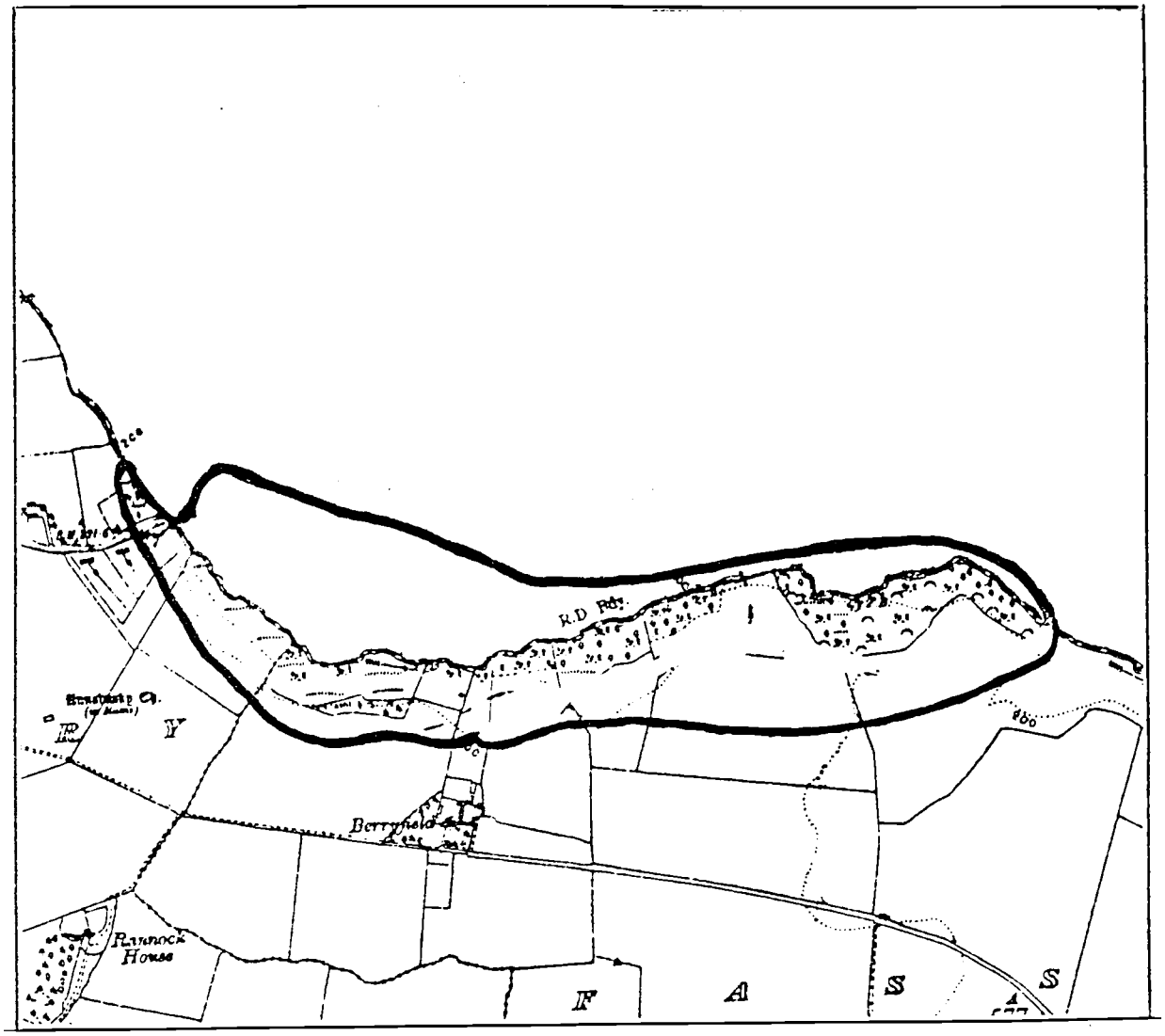
The sand is of granite origin and hence the substrate is acidic. Common plant species occurring at the site are Bent Grass (Agrostis stolonifera), Crested Dogs-tail (Cynosurus cristatus) and Broom (Sarothamnus scoparius).

Wetter areas along the bank hold a marsh flora consisting of Wild Angelica (Angelica sylvestris), Marsh Violet (Viola palustris), Meadow Sweet (Filipendula ulmaria), Yarrow (Achillea millefolium), Devil's-bit Scabious (Succisa pratensis), Creeping Buttercup (Ranunculus repens), Marsh Bedstraw (Galium palustre), Wood Anemone (Anemone nemorosa) and a moss - Mnium sp.

Evaluation

A rare species which occurs abundantly in this site is widespread in the uplands of West Wicklow, but outside of this area is found only in Clare and Cork.

BALLYMAN GLEN



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":12½; 6":Wicklow 3

BALLYMAN GLEN

Area	20 ha. in Co. Wicklow
Grid Reference	O. 225,185
Scientific Interest	Botanical and zoological
Rating	Regional Importance

To the north and south the glen is bounded by steeply-sloping pasture with Gorse (Ulex europaeus) invading the lower slopes. This grades into calcareous pasture at the top of the slope with Cat's ear (Hypochaeris radicata), Spring Sedge (Carex caryophyllea), Red Fescue (Festuca rubra), Bent Grass (Agrostis stolonifera) and Quaking Grass (Briza media) the main species throughout the area. Extensive sandpits occur to the south and east of the glen.

The glen contains a small strip of fen which runs along the county boundary and extends into County Dublin. This is very alkaline with thick deposits of marl. A stream runs through this fen area and along its length there is a dense growth of Willow (Salix atrocinerea), Alder (Alnus glutinosa), Birch (Betula pubescens), Blackthorn (Prunus spinosa) and Hawthorn (Crataegus monogyna) with some Spindle Tree (Euonymus europaeus). The main part of the fen, however, is dominated by Greater Tussock Sedge (Carex paniculata), with Tall Fescue (Festuca arundinacea), the Orchids Dactylorhiza incarnata and D. traunsteineri, Butterwort (Pinguicula vulgaris) and Marsh Willowherb (Epilobium palustre). Twenty species of Carex also occur in the area, including C. panicea, C. hirta, C. lepidocarpa, C. nigra, C. echinata and C. dioica. This area is being invaded by Birch (Betula pubescens).

In very wet areas in the western end of the fen Carex rostrata Bottle Sedge, Bogbean Menyanthes trifoliata and Horsetail Equisetum fluviatile occur.

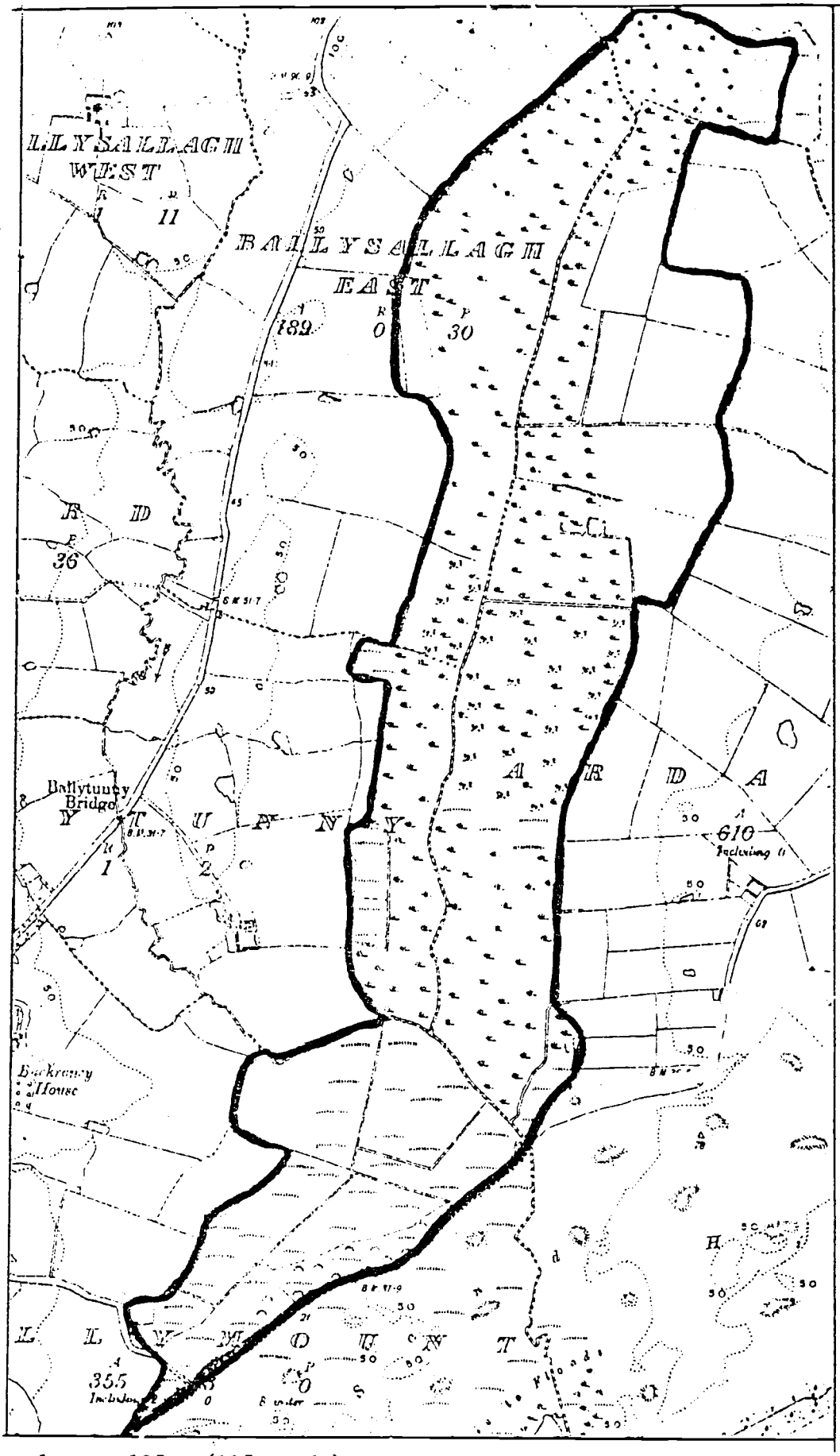
The sandpits nearby have a typically calcicole flora and another rare plant species occurs here. Common species occuring here are Dyers's Rocket (Reseda luteola), Carline Thistle (Carlina vulgaris), Sandwort (Arenaria serpyllifolia), Purging Flax (Linum catharticum), Creeping Bent (Agrostis stolonifera), Dove's-foot Cranesbill (Geranium molle), Rest Harrow (Ononis repens) and Kidney Vetch (Anthyllis vulneraria).

Evaluation

Fens are rare in the county and this area is one of only two sites in the county for Dactylorhiza traunsteineri. The fen vegetation is well developed and an unusually large number of species of Carex are to be found, as well as two rare plant species. Another rare species occurs in the sandpits.

As the whole area is calcareous the total number of species is very high, and includes some typically calcicole representatives. Such a high number of diverse habitats within such a small site, makes the area valuable botanically and unusual in Co. Wicklow.

BUCKRONEY MARSH



Scale : 1 cm = 105 m (115 yards)

Sheets : ½" : 19; 1 : 139; 6" : Wicklow 36,41

BUCKRONEY MARSH

Area	90 ha.
Grid Reference	T. 293, 810
Scientific Interest	Botanical and zoological
Rating	Regional Importance

This wetland lying to the west of Mizen Head is separated from the sea at both N and S ends by sand dunes. The area is a waterlogged fen, backed to the west by dense reedswamp dominated by Phragmites australis.

The area is flanked at its eastern edge by rough grazing with scattered Gorse (Ulex europaeus). This quickly merges into a wet grazing area which is greatly disturbed by cattle and contains the following species : Silverweed (Potentilla anserina), Creeping Bent (Agrostis stolonifera), Geniculate Foxtail (Alopecurus geniculatus) and Toad Rush (Juncus bufonius).

The fen area is dominated by Tussock Sedge (Carex paniculata), with Water Mint (Mentha aquatica). Purple Loosestrife (Lythrum salicaria), Marsh Pennywort (Hydrocotyle vulgaris), Greater Birdsfoot-trefoil (Lotus uliginosus), Carnation Sedge (Carex panicea), Bottle Sedge (Carex rostrata), Horsetail (Equisetum fluviatile), Bog Bean (Menyanthes trifoliata) and Marsh Bedstraw (Galium palustre). Throughout this area the Marsh Fern (Thelypteris palustris) is common.

Behind this fen area Phragmites australis is dominant with occasional Blackberry (Rubus fruticosus agg.) and Common Willow (Salix atrocinerea). On the edge of this reed area the Cyperus Sedge (Carex pseudo-cyperus) is found.

Channels have been cut in an attempt to drain the area and in these Reed, Fools Watercress (Apium nodiflorum), Starwort (Callitriche platycarpa), Lesser Spearwort (Ranunculus flammula) and Pondweed (Potamogetan natans are found. The channels are fringed by a belt of Common Willow (Salix atrocinerea).

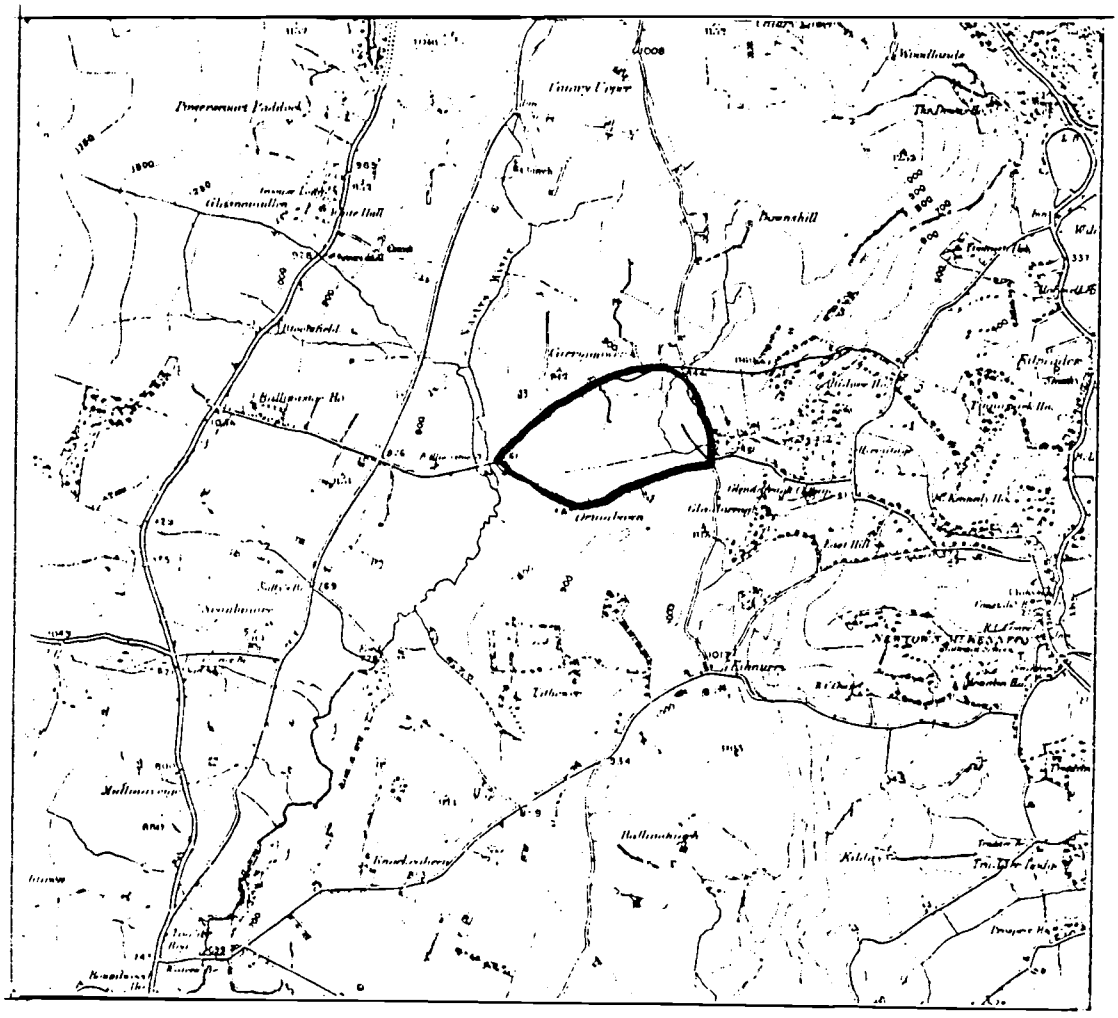
The ungrazed areas of the marsh also contain large stands of Marsh Fern with Hard Rush (Juncus inflexus), Yorkshire Fog (Holcus lanatus), Ladies Smock (Cardamine pratensis), Lesser Stitchwort (Stellaria graminea), Willowherbs (Epilolium obscurum and E. palustre), Wild Angelica (Angelica sylvestris), Marsh Bedstraw (Galium palustre), Tufted Vetch (Vicia cracca) and Creeping Bent (Agrostis stolonifera).

Evaluation

Fen areas are uncommon in Wicklow. This particular one is rich botanically and is an important site for the rare Marsh Fern (Thelypteris palustris) which is very common throughout the area - this is possibly the largest stand of the species in Ireland.

Some contraction of the area has occurred as a result of attempts at drainage but it remains to be seen whether this will affect the site adversely.

DRUMBAWN - CARRIAGOWER BOG



Scale : 1 cm = 635 m (0.4 mile)

Sheets : $\frac{1}{2}$":16; 1":121; 6":Wicklow 12.

DRUMBAWN - CARRIAGOWER BOG

Area	c. 125 ha.
Grid Reference	O. 220, 070
Scientific Interest	Botanical
Rating	Regional Importance

The site on the Calary plateau is a very wet area showing a transition stage between fen and bog. The area is fringed by heath dominated by Gorse (Ulex europaeus and Ulex gallii), Bell Heather (Erica cinerea) and Ling (Calluna vulgaris).

Drier parts of the site are dominated by the grasses, Holcus lanatus, H. mollis, Anthoxanthum odoratum and Sharp-flowered Rush (Juncus acutiflorus) with Marsh Bedstraw (Galium palustre), Lady's Smock (Cardamine pratensis) and Ragged Robin (Lychnis flos-cuculi). Where conditions are wetter, however, Bogbean (Menyanthes trifoliata), Marsh Cinquefoil (Potentilla palustris) and Bottle Sedge (Carex rostrata) dominate, with Cross-leaved Heath (Erica tetralix), Purple Moor Grass (Molinia caerulea), Marsh Marigold (Caltha palustris), Marsh Pennywort (Hydrocotyle vulgaris), Bulbous Rush (Juncus kochii) and the sedges Carex demissa, C. panicea, C. echinata and C. curta.

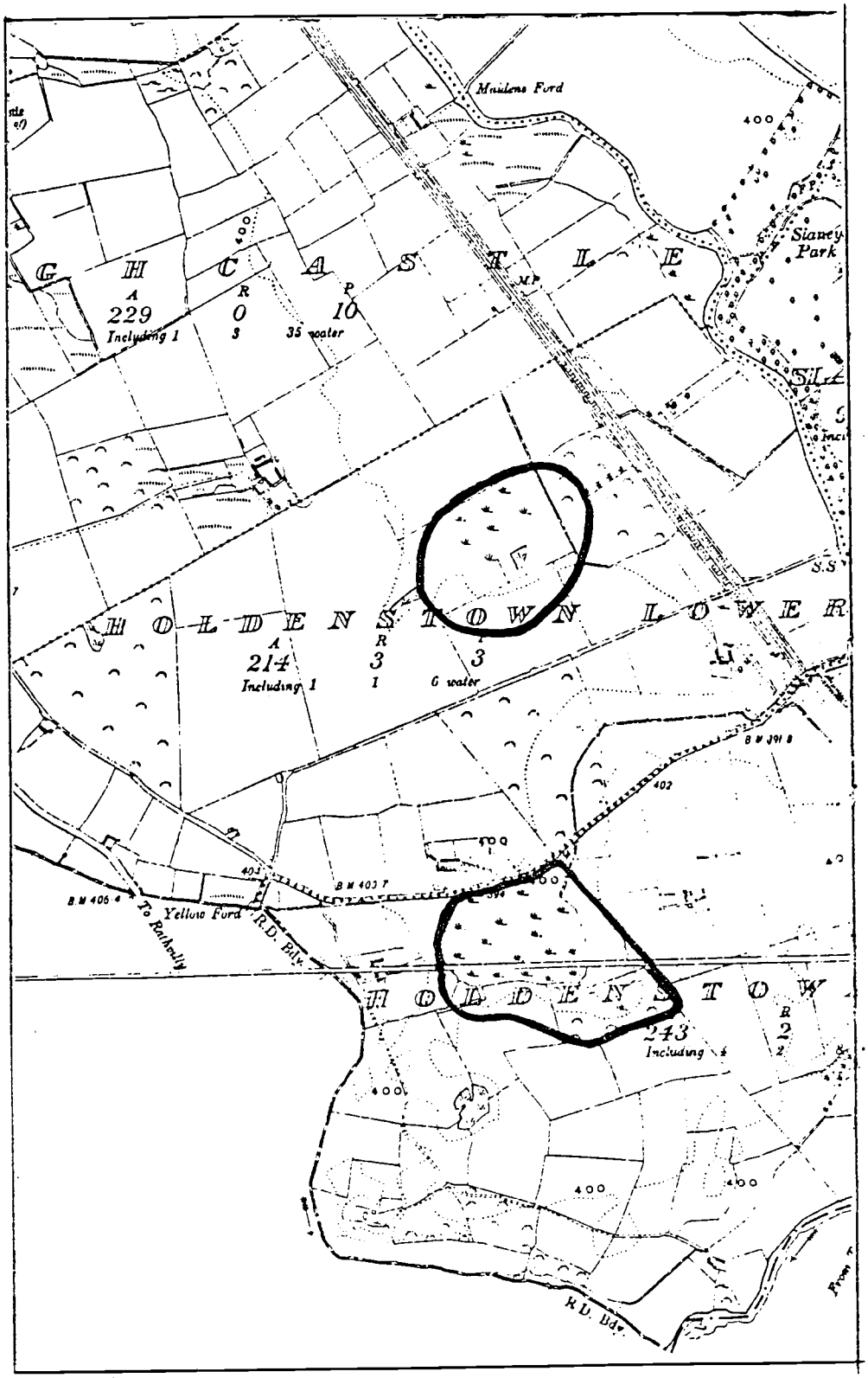
The centre of the area holds some large Willows (Salix atrocinerea and some Salix aurita) under which there is little ground cover, but Angelica (Angelica sylvestris) and the fern, Dryopteris dilatata occur.

Three Sphagnum sp. are found in the area including S. recurvum, on the hummocks of which Ling (Calluna vulgaris) occurs, along with Bog Asphodel (Narthecium ossifragrum). Such hummocks are found throughout the Southern part of the area where some very wet flushes also occur. These are dominated by Bottle Sedge (Carex rostrata), Bog Bean (Menyanthes trifoliata) and the three Sphagnum species. Frequent are Marsh St. John's Wort (Hypericum elodes), Pennywort (Hydrocotyle vulgaris), the sedges, Carex curta, C. echinata and C. panicea, Wavy Hair Grass (Deschampsia flexuosa), the moss Aulacomnium palustre, the Pondweed, Potamogeton polygonifolius, and Bog Cotton (Eriophorum angustifolium).

Evaluation

This site shows an interesting transition between fen and bog (with the fen being rapidly colonized by characteristic bog species) and holds a rich and varied flora.

HOLDENSTOWN BOG



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":129; 6":Wicklow 27. 32.

HOLDENSTOWN BOG

Area	c. 12 ha.
Grid Reference	S. 883, 850
Scientific Interest	Botanical and zoological
Rating	Regional Importance

This site consists of two kettle holes over which small raised bogs have developed. There is also a small area of open water along the western fringe of the southern kettle hole.

The bog margins are largely dominated by Alder (Alnus glutinosa) and Common Willow (Salix atrocinerea). Under the trees Bog Bean (Menyanthes trifoliata) and Marsh Marigold (Caltha palustris) are found on the soft mud, with some Hairy Sedge (Carex hirta). There are also areas of scraw on the bog margins, however, dominated by rushes (Juncus subnodulosus, J. effusus and J. articulatus). The following species also occur - Marsh Pennywort (Hydrocotyle vulgaris), Meadow Vetchling (Lathyrus pratensis), Lesser Spearwort (Ranunculus flammula), Marsh Thistle (Cirsium palustre), Skullcap (Scutellaria galericulata), Water Mint (Mentha aquatica), Marsh Cinquefoil (Potentilla palustris and the sedges Carex nigra, C. otrubae, C. diandra, C. hirta and C. echinata.

The bog surfaces are dominated by hummocks of Ling (Calluna vulgaris) and Cranberry (Vaccinium oxycoccus), with Sphagnum spp. Alternating with these hummocks are hollows dominated by Sphagnum spp. and in which Purple Moor Grass (Molinia Caerulea) and Bog Bean (Menyanthes trifoliata) occur.

Throughout the raised bog areas Birch (Betula pubescens) is found and young trees are frequent, indicating recent invasion.

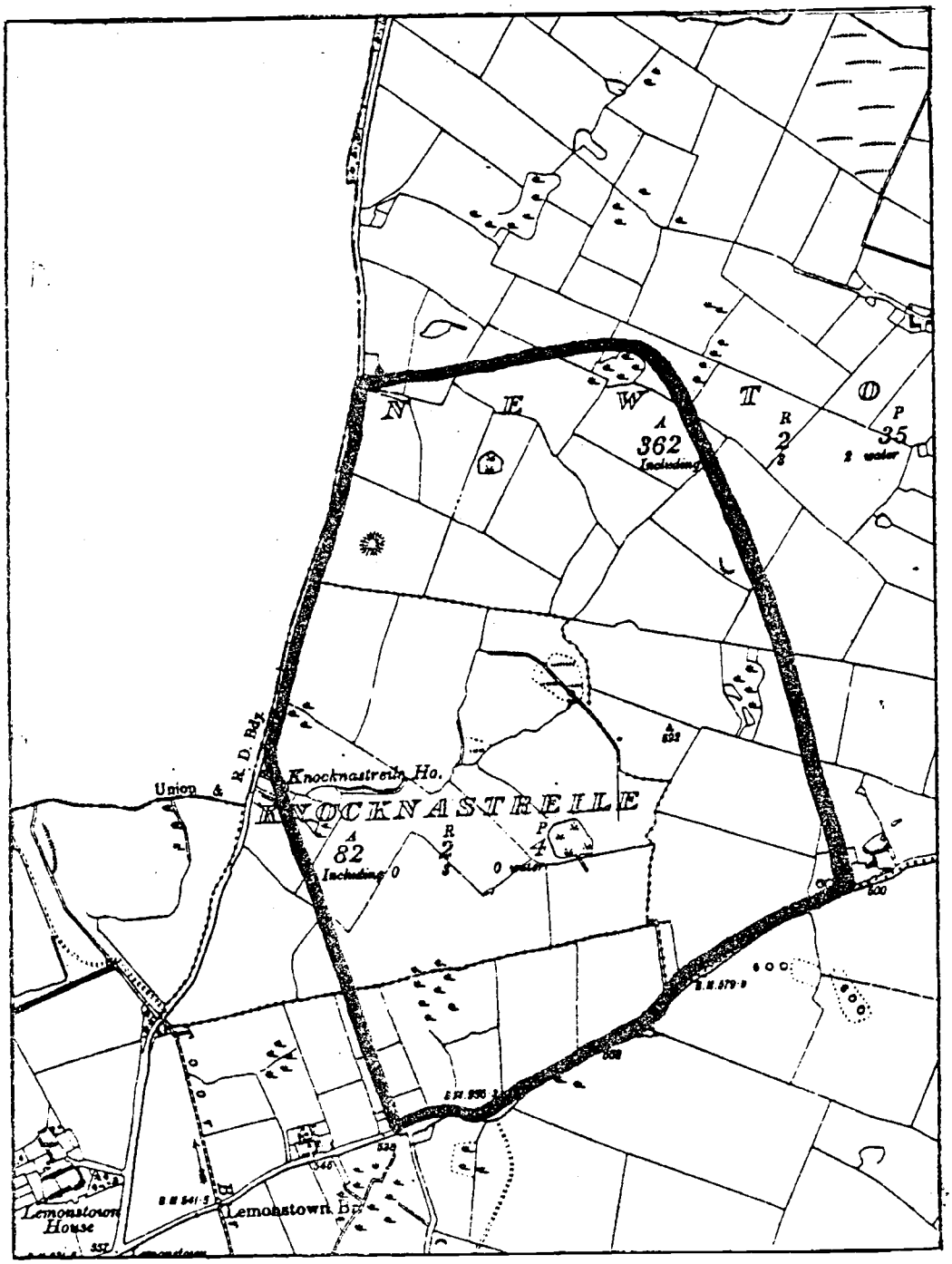
In the southern part of the site the area of open water is surrounded by Alder (Alnus glutinosa) and Willow (Salix atrocinerea). A floating mat of Bottle Sedge (Carex rostrata) and Bog Bean (Menyanthes trifoliata) occurs with duckweeds (Lemna minor and L. trisulca), Amphibious bistort (Polyganum amphilium) and Pondweed (Potamogeton natans).

The pastures fringing the area are separated from the bog by ditches, in which Marsh Speedwell (Veronica scutellata), Forget-me-not (Myosotis secunda agg.), Horsetail (Equisetum fluviatile) and Bog Bean (Menyanthes trifoliata) are common.

Evaluation

Raised bog is unusual in the east of Ireland and this is the only area where it occurs in Wicklow. This site is thus of value as a wetland containing a typical raised bog and Scraw flora. The bog holds a rich invertebrate fauna -many species of Odonata (Dragonflies) and Lepidoptera (Butterflies and moths) occur.

MARSHES NEAR LEMONSTOWN



Scale : 1 cm = 105 m (115 yards)

Sheets : ½" ; 16" 6" : Wicklow 9

MARSHES NEAR LEMONSTOWN

Area	c. 60 ha. exact limites of site not determined
Grid Reference	N. 923,051
Scientific Interest	Botanical and Zoological
Rating	Regional Importance

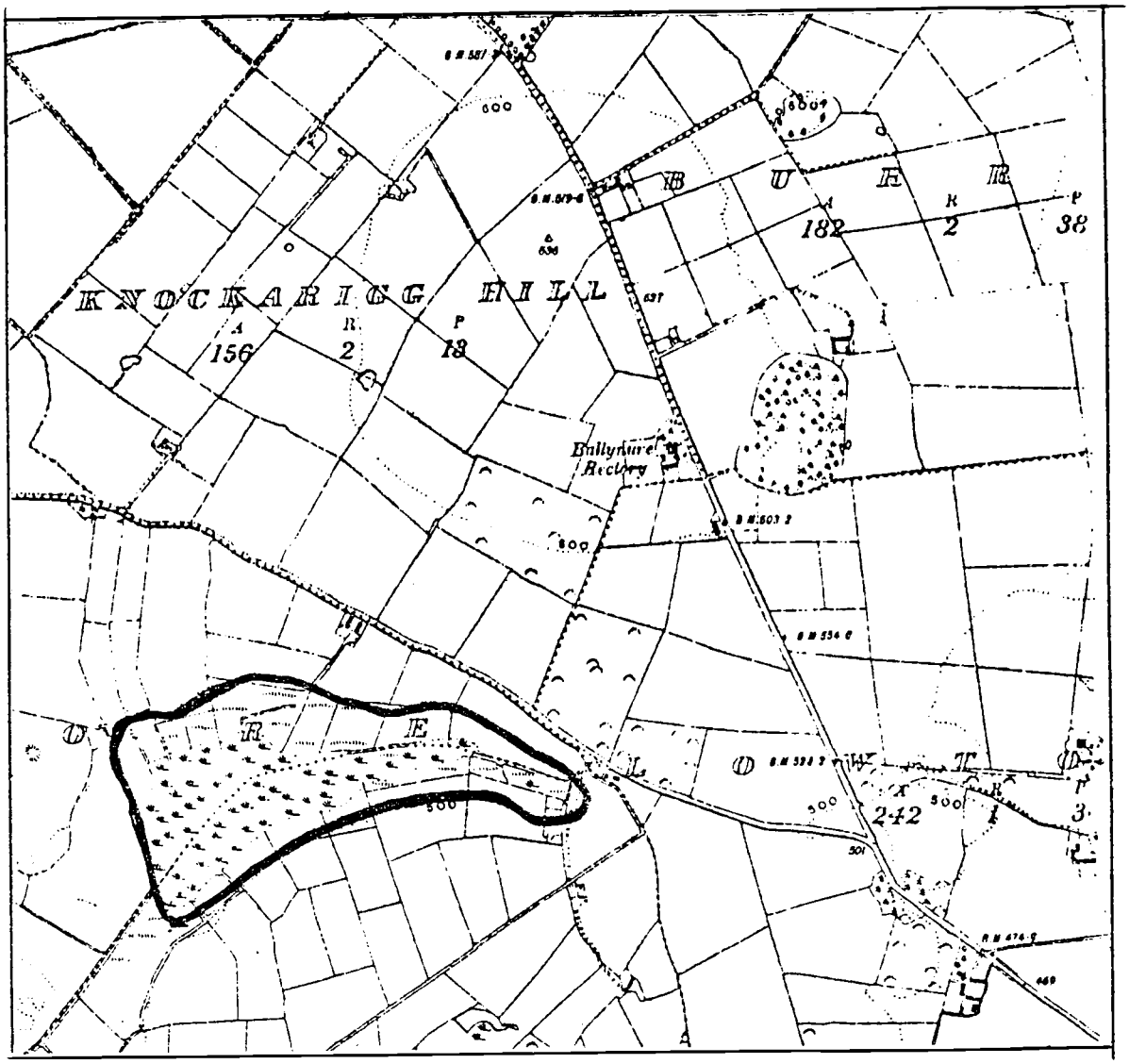
This site is a complex of calcareous eskers, with marshes and occasional open water in hollows between them. In these wet areas, a rich flora has developed, consisting of the following species : Marsh Cinquefoil (Potentilla palustris), Bog Willow-herb (Epilobium palustre), Bogbean (Menyanthes trifoliata), Bottle Sedge (Carex rostrata), Lady's Smock (Cardamine pratensis), Soft Rush (Juncus effusus), Marsh Bedstraw (Galium palustre), Lesser Spearwort (Ranunculus flammula) and Creeping Bent (Agrostis stolonifera). Floating species present are Duckweed (Lemna minor), Starwort (Callitriche stagnalis) and the liverwort Riccia fluitans.

A cursory examination of the invertebrate fauna showed that most common species found in base-rich, slightly eutrophic waters were present.

Evaluation

Though this site holds several examples of a typical calcicole marsh flora, the presence of Riccia fluitans in places indicates a degree of eutrophication - unusual in Wicklow marshes.

LOWTOWN FEN



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":129; 6":Wicklow 20

LOWTOWN FEN

Area	13 ha.
Grid Reference	S. 845,923
Scientific Interest	Botanical, ecological
Rating	Regional Importance

There has been an attempt to drain this area, but this seems to have been ineffective and to have had little effect on the flora.

The fen is flanked by steeply-sloping, tilled land, from which it is separated by steep banks. At the base of these banks are drainage ditches, bordered by Common Willow (Salix atrocinerea). They contain Marsh Foxtail (Alopecurus geniculatus), Marsh St. John's Wort (Hypericum tetrapterum) and Creeping Bent (Agrostis stolonifera). Below the ditches is a fen association bordered by Wavy Hair Grass (Deschampsia caespitosa) and Tall Fescue (Festuca arundinacea) and containing : Marsh Cinquefoil (Potentilla palustris), Meadow Sweet (Filipendula ulmaria), Bog Cotton (Eriophorum angustifolium), Ragged Robin (Lychnis flos-cuculi), and various sedges Carex disticha, C. panicea, C. echinata, C. hirta, C. otrubae, C. pulicaris and C. nigra). Five species of orchid also occur - Scented Orchid (Gymnadenia conopsea). Frog Orchid (Coeloglossum viride), Marsh Helleborine (Epipactis palustris) and 2 species of Dactylorhiza.

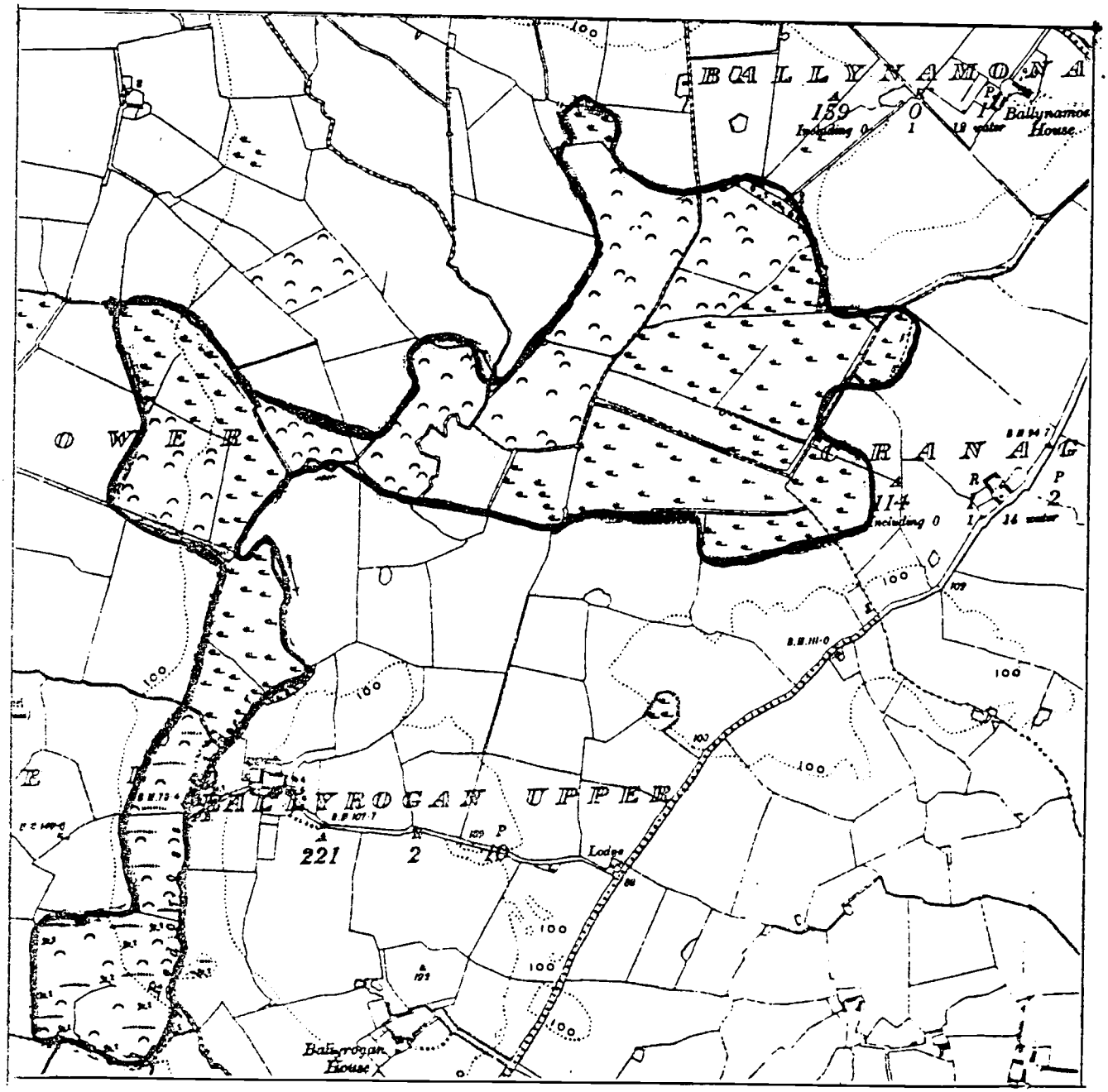
The ground then becomes flatter and very wet. Here Water Whorl-grass (Catabrosa aquatica), Lesser Spearwort (Ranunculus flammula), Fools Water Cress (Apium nodiflorum) and Forget-me-not (Mysotis secunda agg.) are found. The centre of the area is occupied by dense reedswamp (Phragmites australis). Amongst the reeds occur no other species other than an occasional plant of Water Mint (Mentha aquatica), but on the margin of the swamp are Greater Tussock Sedge (Carex paniculata) and Lesser Tussock Sedge (Carex diandra).

At the western edge of the area the ground is a little drier with many drainage channels dissecting the area. Another type of plant association occurs here and consists of Yorkshire Fog (Holcus lanatus), Common Sorrel (Rumex acetosa), Devil's-bit Scabious (Succisa pratensis), Yellow Meadow Vetchling (Lathyrus pratensis), Marsh Thistle (Cirsium palustre), Selfheal (Prunella vulgaris), Soft Rush (Juncus effusus), Lousewort (Pedicularis sylvatica), Lady's Smock (Cardamine pratensis) and Ragged Robin (Lychnis flos-cuculi).

Evaluation

In spite of drainage attempts the area is still very rich botanically and also promises to harbour an interesting invertebrate fauna. It is a very good example of fen/reed swamp development and most of the area is ungrazed, unlike the few other fen sites in Co. Wicklow.

BALLYNAMONA MARSH



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":139; 6":Wicklow 36

BALLYNAMONA MARSH

Area	37 ha.
Grid Reference	T.270,823
Scientific Interest	Ecological
Rating	Local Importance

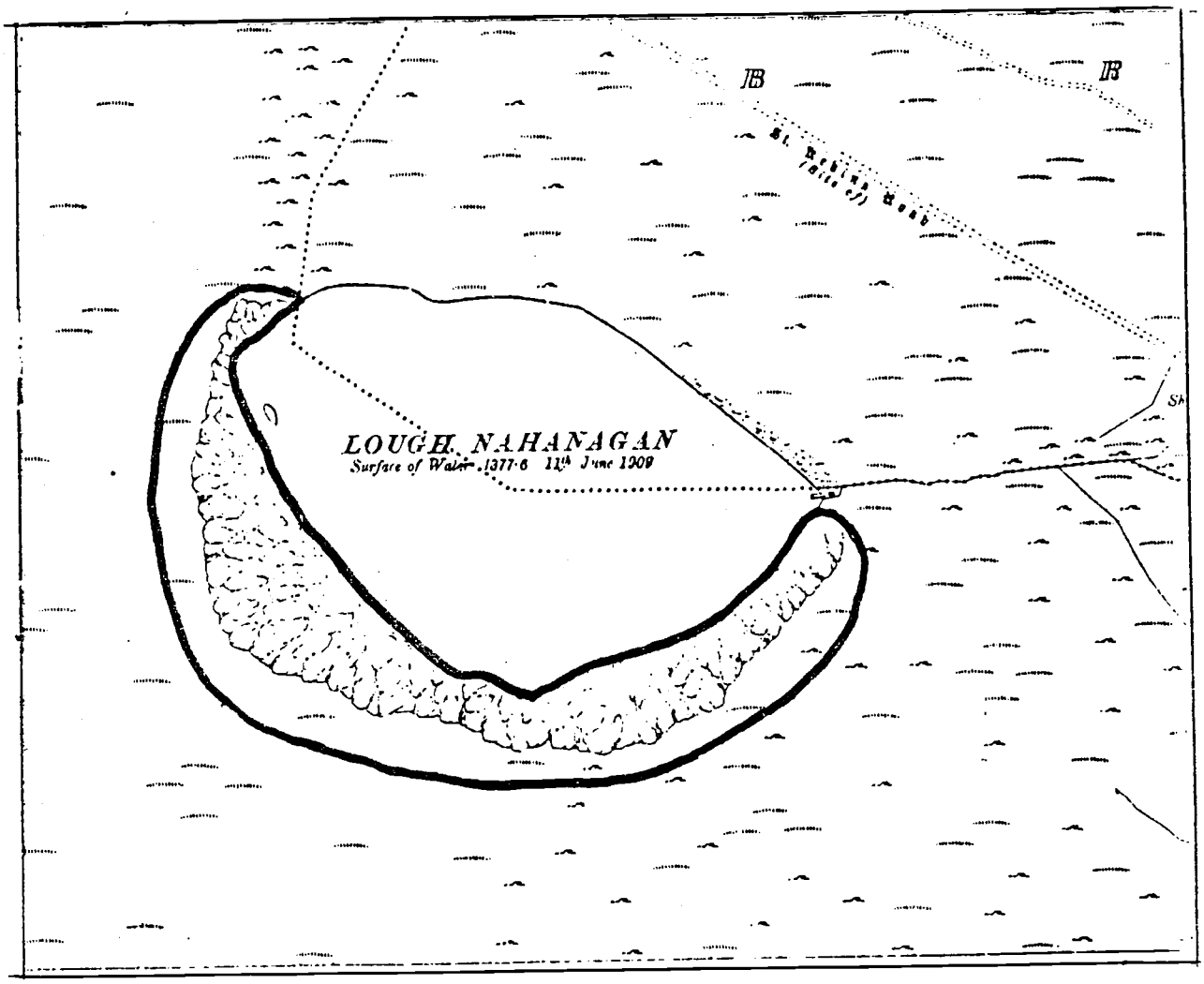
There are two large marshes within this area with the following species common to both : (Myosotis secunda agg.), Horsetail (Equisetum telmateia), Valerian (Valeriana officinalis), Iris (Iris pesudacorus), Marsh Thistle (Cirsium palustre), Meadowsweet (Filipendula ulmaria), Rushes (Juncus articulatus and J. effusus), Marsh Bedstraw (Galium palustre), Water Mint (Mentha aquatica), Devil's-bit Scabious (Succisa pratensis), Tussock Sedge (Carex paniculata), Bur-reed (Sparganium ramosum) and Starwort (Callitriche stagnalis). Alder (Alnus glutinosa) is also frequent throughout the area and Willow (Salix atrocinerea) is common.

Dry hills also occur within the area and their ground flora consists of the following species : Common Buttercup (Ranunculus acris), Bush Vetch (Vicia sepium), Purple Loosestrife (Lythrum salicaria), Ragwort (Senecio jacobea), St. John's Wort (Hypericum tetrapterum), Honeysuckle (Lonicera periclymenum), Knapweed (Centaurea nigra), Heath Grass (Sieglingia decumbens), Crested Dogs-tail (Cynosurus cristatus) and Creeping Bent (Agrostis stolonifera). Gorse (Ulex europaeus) is dominant in most of these areas.

Evaluation

This site contains a good range of plant associations and is likely to be rich in invertebrates.

LOUGH NAHANAGAN



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":130; 6":Wicklow 17.

LOUGH NAHANGAN

Area	26 ha.
Grid Reference	T. 080, 991
Scientific Interest	Botanical
Rating	Local Importance

This site, like Lough Ouler, is a steep corrie with a tremendous talus of large granite blocks.

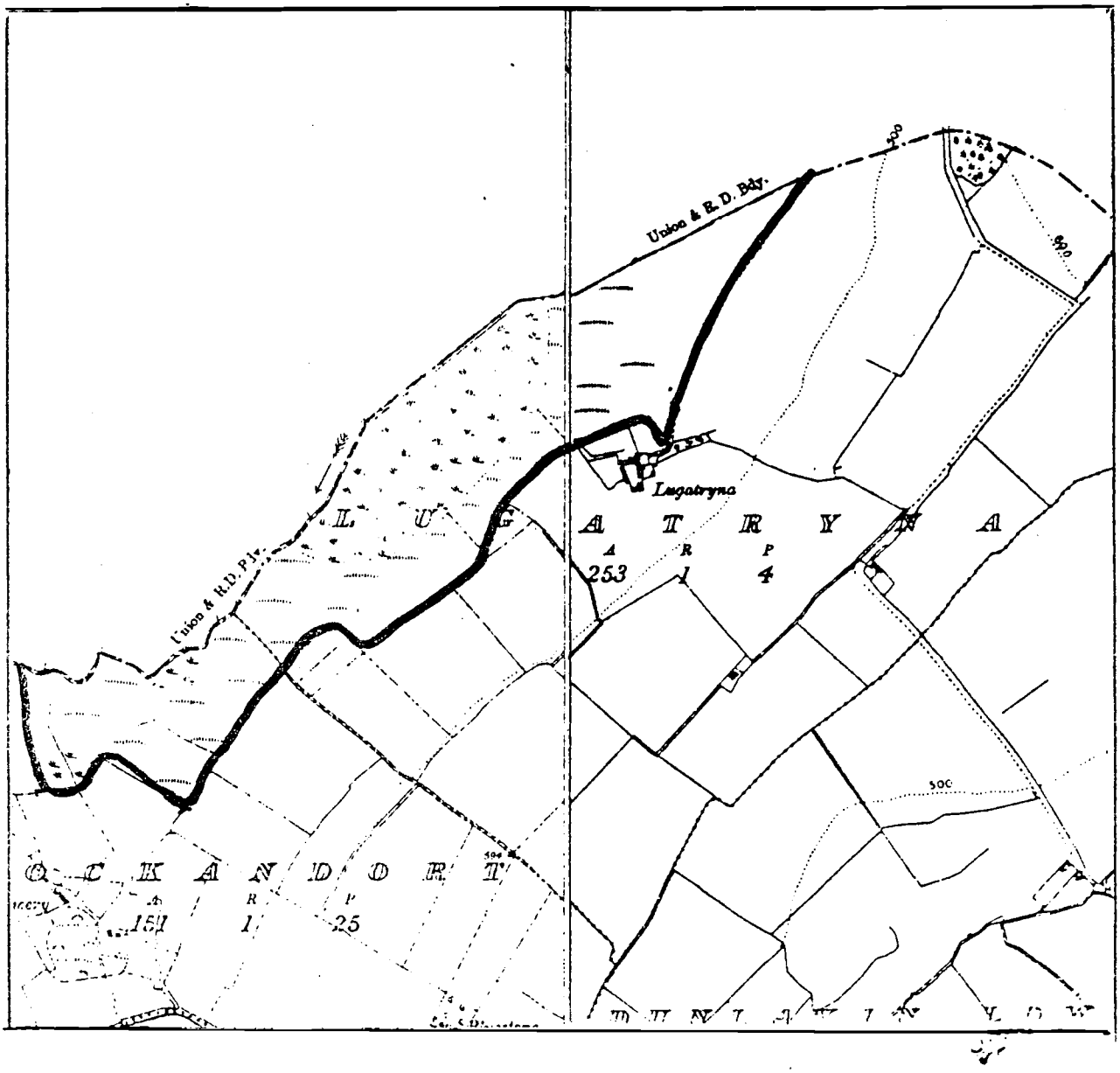
The lake is fringed by a flora similar to that at Lough Ouler - Ling (Calluna vulgaris) is dominant over most of the area, with Cross-leaved Heath (Erica tetralix), Bilberry (Vaccinium myrtilus), Green-ribbed Sedge (Carex binervis), Common Tormentil (Potentilla erecta) also occurring; Sphagnum spp. dominate the wetter areas.

On the cliffs overlooking the lake Rosebay Willow herb (Chamaenerion angustifolium) is frequent alongside Filmy Fern (Hymenophyllum wilsonii), Cowberry (Vaccinium vitis-idaea), Clubmoss (Lycopodium selago) and Brittle Bladder Fern (Cystopteris fragilis).

Evaluation

The site contains one very rare plant species and a good mountain flora though with fewer species than L. Ouler. It is therefore rated as of local importance.

DUNLAVIN MARSHES



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":120. 129; 6":Wicklow 14. 15.

DUNLAVIN MARSHES

Area	24 ha. in Co. Wicklow
Grid Reference	N. 853,025
Scientific Interest	Ecological and botanical
Rating	Local Importance

This site is a strip of ground running along the County boundary west of Dunlavin. Here very alkaline moraines alternate with fen which has formed on the hollows between them (in a manner similar to that at Lemonstown).

No stretches of open water occur, but a stream runs through the area, in which the following species occur : Water Cress (Rorippa nasturtium-aquaticum agg.), Fool's Water Cress (Apium nodiflorum), Water Mint (Mentha aquatica) and Marsh Marigold (Caltha palustris). At the margins of the stream Purple Loosestrife (Lythrum salicaria) is dominant.

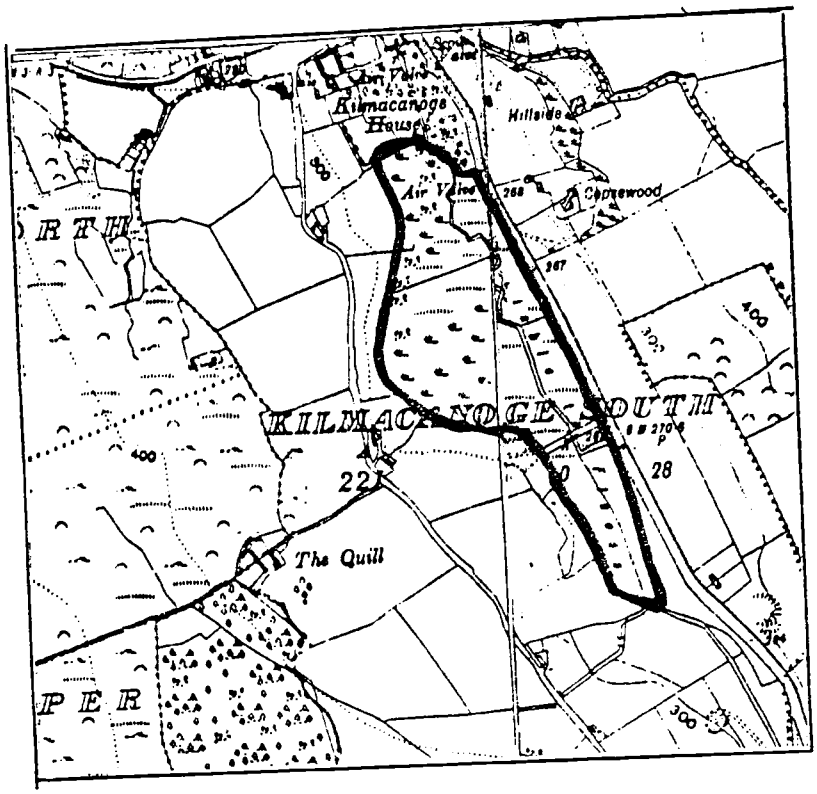
Surrounding the stream Reed (Phragmites australis) and Tussock Sedge (Carex paniculata) are dominant and found here also are Lesser Tussock Sedge (Carex diandra) and Lesser Pond-sedge (Carex acutiformis).

The rest of the area is either fen, or is dominated by Yorkshire Fog (Holcus lanatus), with the following associated species : Lady's Smock (Cardamine pratensis), Marsh Bedstraw (Galium palustre), Meadow Sweet (Filipendula ulmaria), Horsetail (Equisetum fluviatile) and Devil's-bit Scabious (Succisa pratensis). The fen contains Black Bog Rush (Schoenus nigricans) - frequent throughout the area - Grass of Parnassus (Parnassia palustris), Twayblade (Listera ovata), Creeping Bent (Agrostis stolonifera), Tall Fescue (Festuca arindinacea) and Sawsedge (Cladium mariscus). The Bladderworts Utricularia intermedia and U. minor are abundant in this area.

Evaluation

This site, which extends into Co. Kildare, is one of the most extensive marsh and fen areas in Co. Wicklow. Its flora is diverse and the area is probably a good invertebrate habitat. In view of the scarcity of wetlands of this type in the county the area can be considered as of local importance.

MARSH CLOSE TO THE GLEN OF THE DOWNS



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 7. 8.

MARSH CLOSE TO THE GLEN OF THE DOWNS

Area	10 ha.
Grid Reference	O. 253,134
Scientific Interest	Botanical and zoological
Rating	Local Importance

This site, beside the main Wexford road South of Kilmacanogue, is periodically flooded owing to the overflowing of the small stream that runs through the area.

Part of this area is dominated by Purple Loosestrife (Lythrum salicaria) and Nettle (Urtica dioica) and here the vegetation is tall and very dense with the following associated species : Hairy Sedge (Carex hirta), Remote Sedge (Carex remota), Tall Fescue (Festuca arindinacea). Horsetail (Equisetum telmateia), Rush (Juncus acutiflous), Valerian (Valeriana officinalis) and Rosebay Willowherb (Epilobium angustifolium).

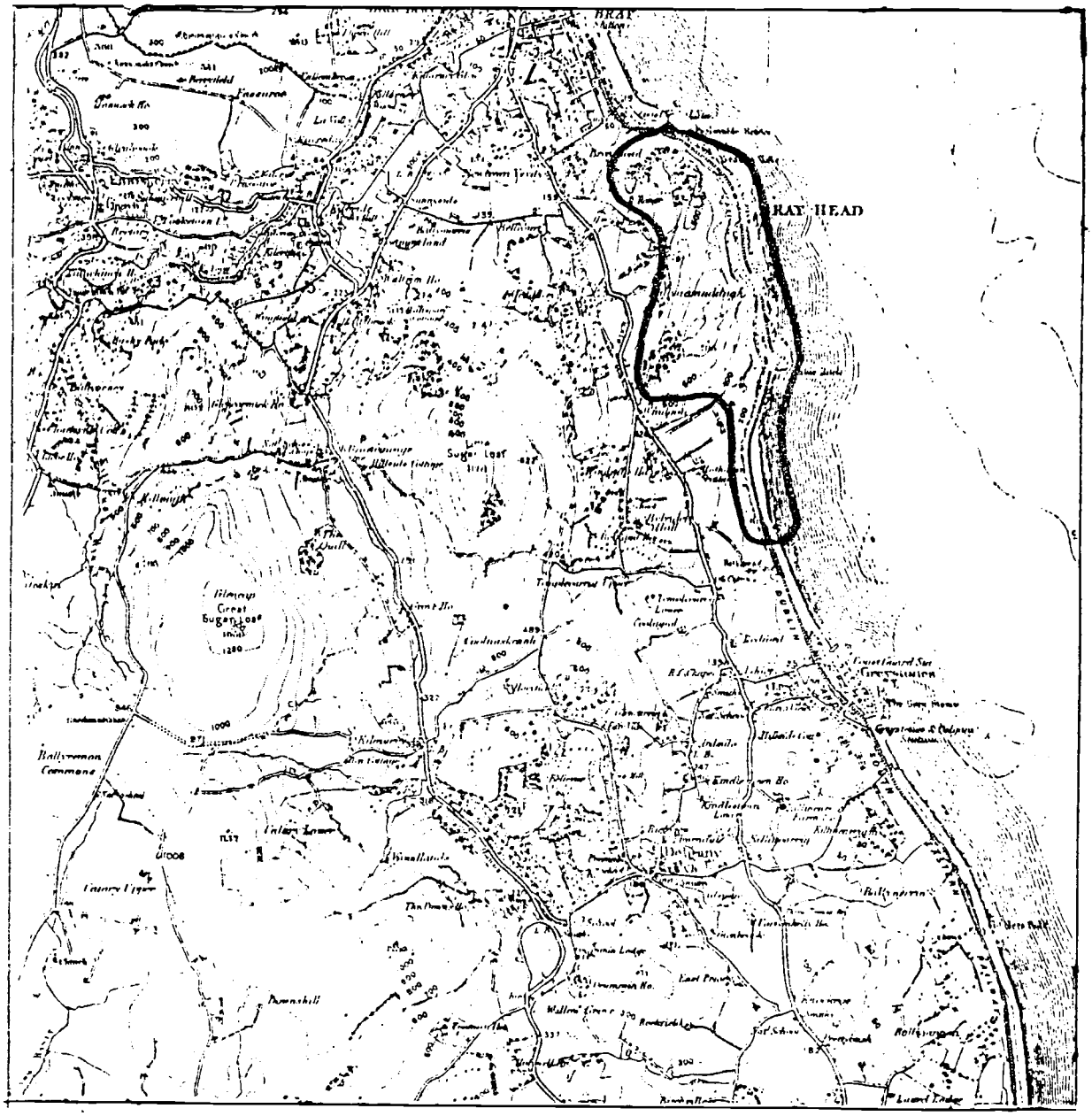
A wetter type of community is also found (to the west of the above) comprising Greater Tussock Sedge (Carex paniculata), Carnation-grass (C. panicea), Common Sedge (C. nigra), Bogbean (Menyanthes trifoliata), Willowherbs (Epilobium obscurum and E. palustre), Ragged Robin (Lychnis flos-cuculi), Common Spotted Orchid (Dactylorhiza fuchsii) and Horsetail (Equisetum fluviatile).

By the stream Alder (Alnus glutinosa) and Willow (Salix atrocinerea) are dominant and there is little ground cover under these trees. Greater Tussock Sedge is scattered throughout the area, however, and Yellow Pimpernel (Lysimachia nemorum) and Marsh Marigold (Caltha palustris) also occur. Actually in the stream Horsetail (Equisetum fluviatile), Fool's Water Cress (Apium nodiflorum), Water Mint (Mentha aquatica) and Reed Grass (Phalaris arundinacea) occur, with a little Creeping Bent (Agrostis stolonifera) and the Starworts (Callitriche spp.).

Evaluation

The area has a well developed marsh flora and is likely to have a rich invertebrate fauna. It is thus rated of local importance.

BRAY HEAD AREA



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121; 6":Wicklow 8.

BRAY HEAD AREA

Area	c. 300 ha.
Grid Reference	O. 286, 174
Scientific Interest	Geological, ornithological zoological and botanical
Rating	National Importance

Most of this area of scientific interest consists of steep, rocky slopes with an acid heath vegetation. Highly calcareous drift occurs in several places, however, (large deposits are in evidence on the northern and southern flanks of the site) and this holds a different flora and several rare plants. Steep sea cliffs also occur, which hold a characteristic flora and provide nesting sites for many species of sea birds.

The northern areas of heath are largely dominated by Gorse (Ulex gallii) and Bell Heather (Erica cinerea), with Ulex europaeus replacing Ulex gallii in certain situations. Also occurring are Decumbent Heath Grass (Sieglingia decumbens), Wavy Hair Grass (Deschampsia flexuosa), Common Bent (Agrostis tenuis and A. canina), Milkwort (Polygala vulgaris) and Tormentil, (Potentilla erecta). Bracken (Pteridium aquilinum) is dominant in some areas and where rock outcrops occur Sheep's-bit Scabious (Jasione montana), Black Spleenwort (Asplenium adiantum-nigrum), Bladder Campion (Silene maritima) and Stonecrop (Sedum anglicum) can be found.

The sea cliffs of Bray Head are fringed by a Fescue sward (Festuca rubra) and hold a flora consisting of Rock Spurrey (Spergularia rupicola), Sea Pink (Armeria maritima), Scurvy Grasses (Cochlearia officinalis and C. danica), Sea Aster (Aster tripolium), Sea Plantains (Plantago maritima and P. coronopus) and Sea Spleenwort (Asplenium marinum). Drift banks bordering these cliffs are rich in calcicole species. Fescue (Festuca rubra) is dominant, with Flea Sedge (Carex pulicaris), Spring Sedge (C. caryophyllea), Blackberry (Rubus fruticosus agg.), Salad Burnet (Poterium sanguisorba), Pyramidal Orchid (Anacamptis pyramidalis) and Scented Orchid (Gymnadenia conopsea). Where the drift banks are wet, as on the south side of Bray Head, Willow (Salix atrocinerea) dominates a community containing Horsetail (Equisetum telmateia), Black Bog-rush (Schoenus nigricans), Common Spotted Orchid (Dactylorhiza fuchsii), Tall Fescue (Festuca arundinacea) and Brooklime (Samolus valerandi).

Cable Rock is a steep-sided rocky headland south of Bray. Its cliff and its heath formation are both rich in rare plants. The heath here is a mixture of Gorse (Ulex europaeus) and Wood Sage (Teucrium scorodonia) alternating with annual species which occur in open sandy situations. Typical species occurring here are Pimpernel (Anagallis arvensis), Hair Grass (Aira praecox), Narrowleaved Vetch (Vicia angustifolia) and Rat's-Tail Fescue (Vulpia myuros). The clovers Trifolium dubium and T. campestre are common and with them occur Black Medick (Medicago lupulina), Lady's Vetch (Anthyllis vulneraria) and Field Madder (Sherardia arvensis). Near the sea Bladder Campion (SileneZmaritima) becomes common.

The sea cliffs hold those species already described and also Sea Samphire (Crithmum maritimum) and Mallow (Lavatera arborea). Ivy (Hedera helix) is common along the top of the cliffs and on it is found Ivy Broomrape (Orobanche hederae).

South of Cable Rock drift banks also occur which give way to scrub on the western side. Wood Vetch (Vicia sylvatica) is dominant here with Blackthorn (Prunus spinosa), Blackberry (Rubus fruticosus agg.) and Bracken (Pterdium aquilinum). The rock outcrops here show a well developed flora.

Sea birds breeding on cliffs in the area include Fulmar, Herring Gull, Great Black-backed Gull, Kittiwake, Razorbills, Black Guillemots, Manx Shearwaters and Rock Doves. The area surrounding the cliffs and the heath dominated areas are also rich in species and the following breed. Woodcock, Pheasant, Grasshopper Warbler, Whitethroat, Reed Bunting, Linnet, Stonechat, Wheatear, Meadow Pipit, Rock Pipit and several other common passerines. The area is also an important area for passage migrants.

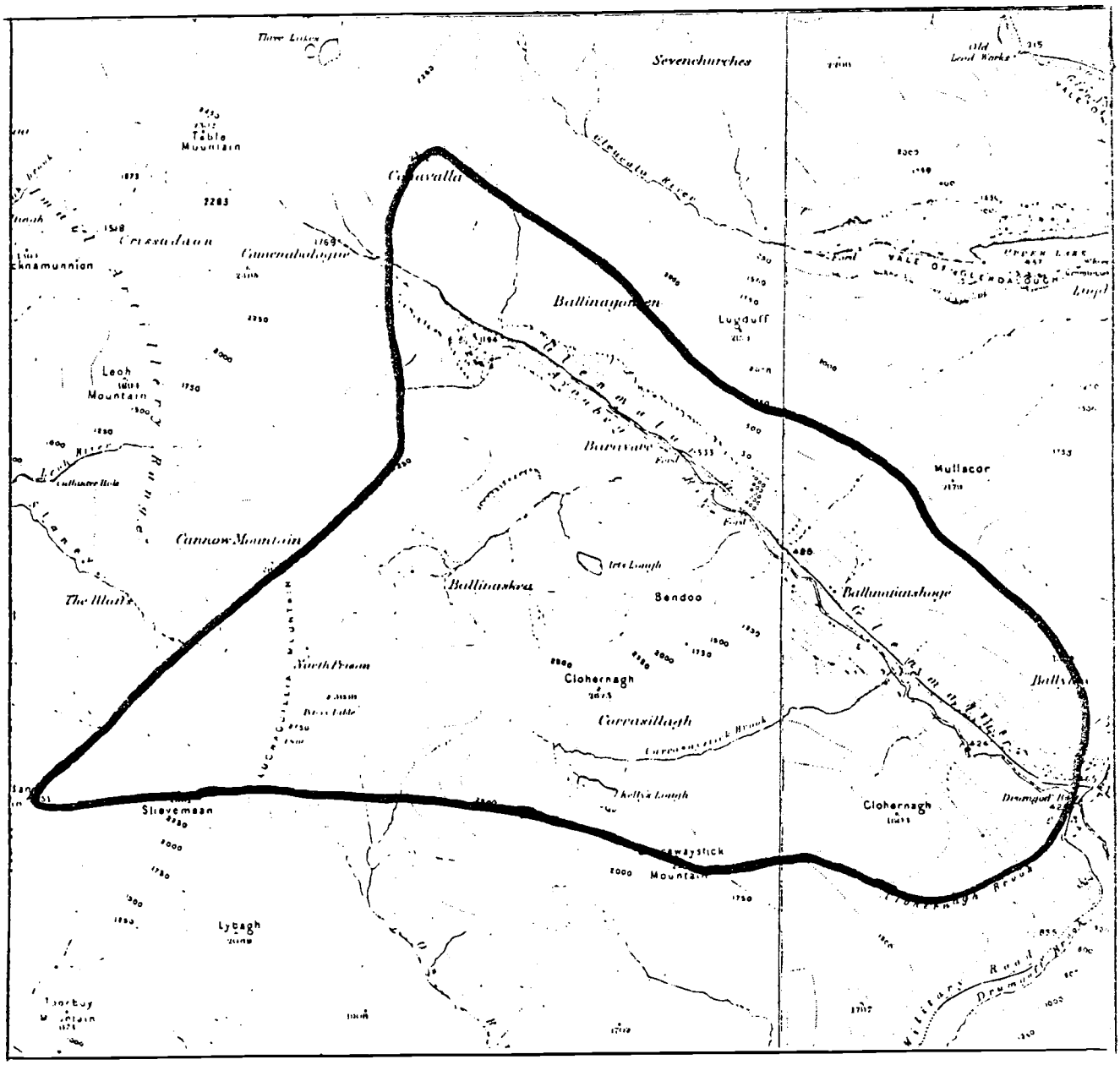
Evaluation

Bray Head consists of Cambrian quartzites and shales and a number of important geological features are exposed on the cliffs. It is also an important locality for Cambrian fossils.

The area is also rich in sea birds and very interesting botanically. Eleven nationally rare species of plant are found and many uncommon species occur. The sandy heath community, rich in annual species, found on Cable Rock is rarely met with in Ireland.

The area is also rich in Lepidoptera (moths and butterflies) and promises to hold a rich and varied fauna of other invertebrates.

LUGNAQUILLA AND GLENMALUR



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":129. 130; 6":Wicklow 22. 23. 28. 29.

LUGNAQUILLA AND GLENMALUR

Area	3,700 ha.
Grid Reference	Around T. 06, 92
Scientific Interest	Botanical, zoological, ecological and geological
Rating	National Importance

This site consists of the Glenmalur Valley, the Lugnaquilla massif and part of Conavalla Mountain.

The whole area is of geological and geomorphological interest - it lies over the centre of the exposed granite batholith, with remnants of the schist aureole at Lugnaquilla and various smaller associated peaks; Glenmalur is one of the most striking examples of a glaciated valley and there are several fine hanging valleys.

Over most of the area, blanket bog predominates, with Ling (Calluna vulgaris) dominant. Denudation has occurred on most of the mountain ridges in the area and in many instances the peat covering is entirely gone exposing the underlying rock. This, however, allows many interesting species of plant to colonise the areas.

The summit of Lugnaquilla yields the following association of species and this is fairly typical of all the summits in the area : Mouse-eared Chickweed (Cerastium fontanum), Common Tormentil (Potentilla erecta), Starry Saxifrage (Saxifraga stellaris), Heath Bedstraw (Galium saxatile), Bilberry (Vaccinium myrtillus), Ling (Calluna vulgaris), Sorrels (Rumex acetosa and R. acetosella), Crowberry (Empetrum nigrum), Heath Rush (Juncus squarrosus), Sweet Vernal Grass (Anthoxanthum odoratum), Bent Grass (Agrostis tenuis), Hair Grasses (Deschampsia flexuousa and D. caespitosa), Clubmoss (Lycopodium selago) and Stiff Sedge (Carex bigelowii). (It is interesting that only the latter species is essentially a mountain plant).

Lower down the slopes Ling is abundant but gives way to Bog Cotton (Eriophoum vaginatum) and Deer Grass (Trichophorum cespitosum) where conditions become wetter.

The ridges denuded of peat hold 2 rare species of plant which are associated with Cowberry (Vaccinium vitis-idaea), Club Moss (Lycopodium selago) and Mountain Cats-ear (Antennaria dioica).

Cliffs are found on the north and south sides of the summit of Lugnaquilla and six species of rare plant occur in the area. Common cliff plants are Creeping Bent (Agrostis stolonifera), Sweet Vernal Grass, Golden Saxifrage (Chrysosplenium oppositifolium), Filmy Fern (Hymenophyllum wilsonii), Starry Saxifrage and Cowberry.

Arts Lough and Kellys Lough both contain Shoreweed (Littorella lacustris) and Quillwort (Isoetes lacustris) is a common species in Kellys Lough. The steep ground behind the lakes and the moraines support a luxuriant growth of Ling with Crowberry and Filmy Fern commonly occurring.

The floor of Baravore Glen is very wet and Purple Moor Grass (Molinia caerulea) is dominant. This area is a site for a rare Lusitanian plant species, which also occurs in the Conavalla area.

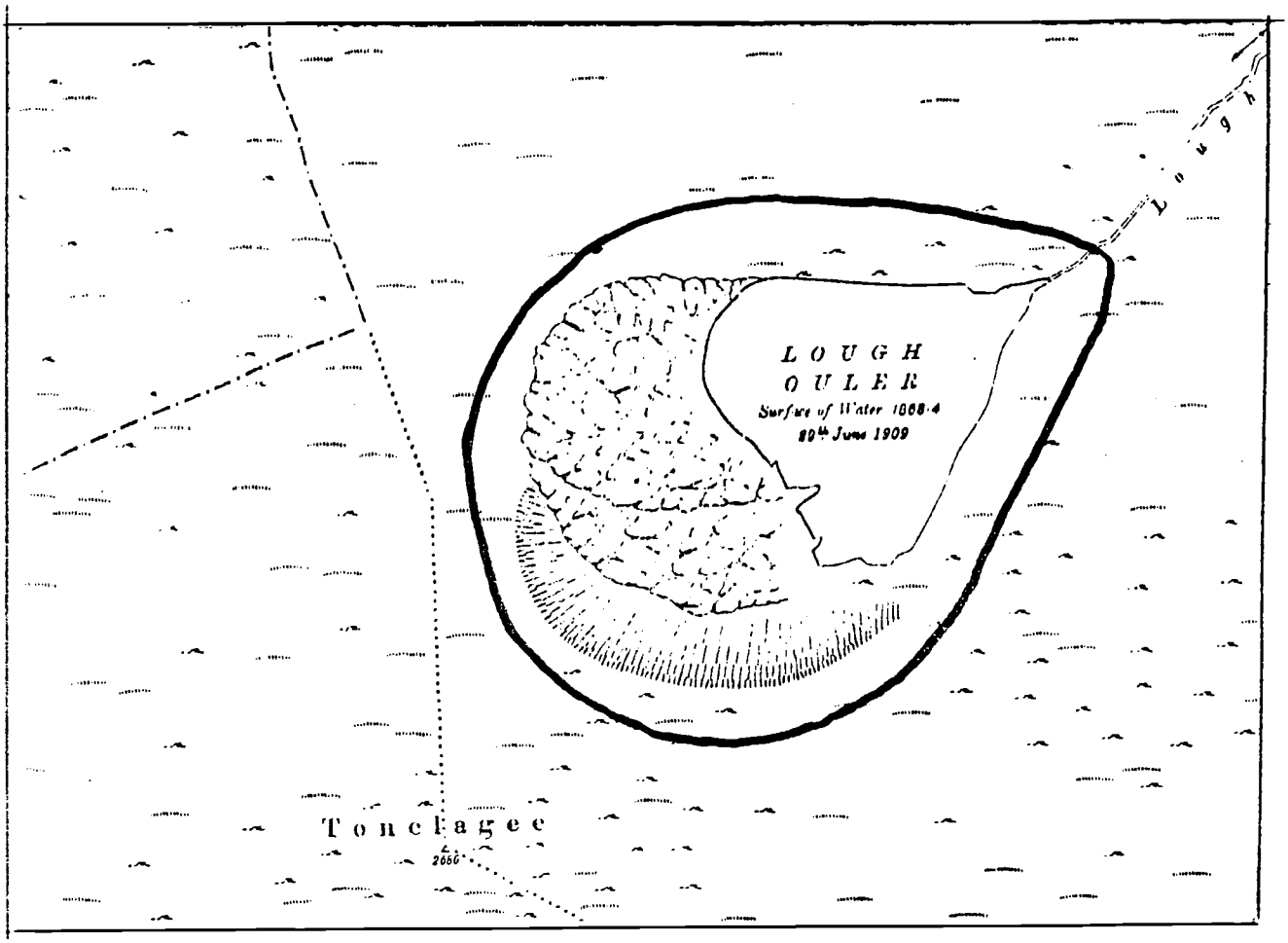
An unusual combination of invertebrates occurs in the streams in the Glenmalur Area and the following have been recorded : the mayflies Ameletus eriopinatus (an arctic - alpine sp.), Baetis shodani and Rhitorgena lemicolorata; the stoneflies Chloroperla bipunctata and Diura bicaudata (both of which have a coastal contribution in Ireland); the Simulid Prosimulium arvense (first recorded from Ireland in Wicklow) and four species of the Caddis Flies including Rhacophila munda.

Evaluation

The site contains a number of rare plant species and a well-developed alpine vegetation is to be seen on the cliffs. This is also the only site in eastern Ireland for the Lusitanian species mentioned and hence its occurrence there is of considerable biogeographical interest.

Zoologically, an interesting and unusual combination of invertebrates occurs in the streams of the area. Geologically a striking example of a glaciated valley and other geomorphological features are to be seen in Glenmalur.

LOUGH OULER CORRIE



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":130; 6":Wicklow 17.

LOUGH OULER CORRIE

Area	38 ha.
Grid Reference	O. 090, 022
Scientific Interest	Botanical and Geological
Rating	National Importance

Lough Ouler lies in a fine corrie on the north-eastern side of Tonelagee. The corrie has a steep west wall of approximately 100 m. in height and the schistose part of these cliffs holds good examples of alpine vegetation. The lake is enclosed to the north east and south east by two moraine systems.

The vegetation surrounding the lake is dominated by Ling (Calluna vulgaris). The Heaths, Erica cinerea and E. tetralix - the former being found in the drier areas - Green-ribbed Sedge (Carex binervis), Common Tormentil (Potentilla erecta), Wood Rush (Luzula sylvatica) and the moss Polytrichum commune also occur. In flush areas Sphagnum spp. are dominant with Bog Cotton (Eriophorum angustifolium), Soft Rush (Juncus effusus) and Heath Rush (Juncus squarrosus). The Lesser Twayblade Listera cordata is frequent under the old Calluna bushes.

The lake holds few species but Shoreweed (Littorella lacustris) and Quillwort (Isoetes lacustris) occur.

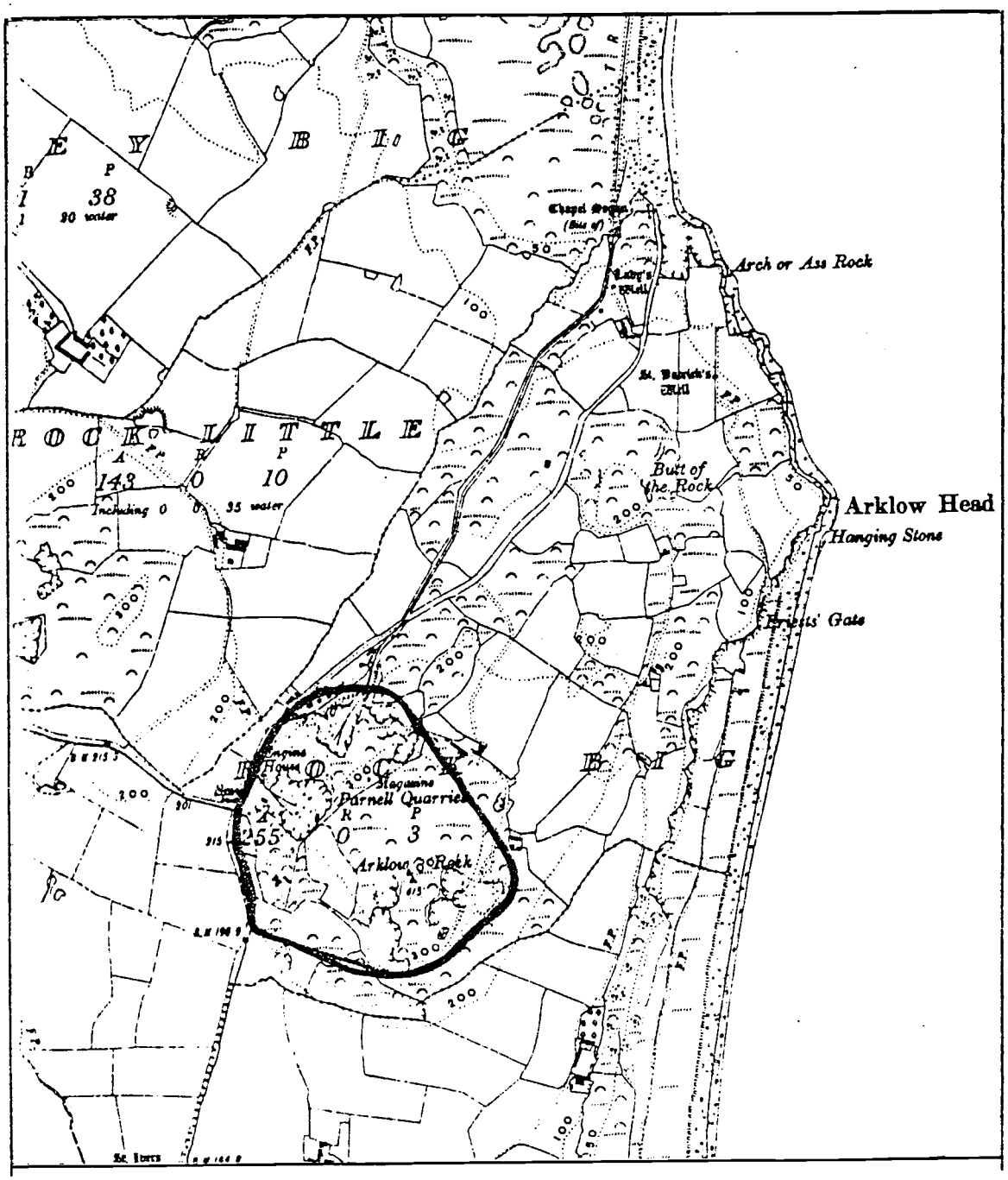
The cliffs are very steep and wet and are dominated by Creeping Bent (Agrostis stolonifera) and Sweet Vernal Grass (Anthoxanthum odoratum) with Golden Saxifrage (Chrysosplenium oppositifolium) and Starry Saxifrage (Saxifraga stellaris) occurring commonly in the rivulets running down the cliffs. In the flatter areas Ling, Cross-leaved Heath (Erica tetralix) and Purple Moor Grass (Molinia caerulea) occur.

The ridge to the summit from the south west above the cliffs is severely denuded of peat and stunted Ling occurs here with Bog Cotton (Eriophorum vaginatum) and Clubmoss (Lycopodium selago).

Evaluation

This site is of botanical importance because of the alpine vegetation on the cliffs and the presence of a very rare species. It is also geographically interesting, as unusual rock structures occur on the high back wall and the moraines at the base of the corrie show a succession from young to old deposits.

ARKLOW ROCK



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":139; 6":Wicklow 45.

ARKLOW ROCK

Area	15 ha.
Grid Reference	T. 240, 700
Scientific Interest	Geological and botanical
Rating	Regional Importance

This is a rocky knoll - a volcanic intrusion of Ordovician age - into which several quarries have been cut, some of which are still being worked.

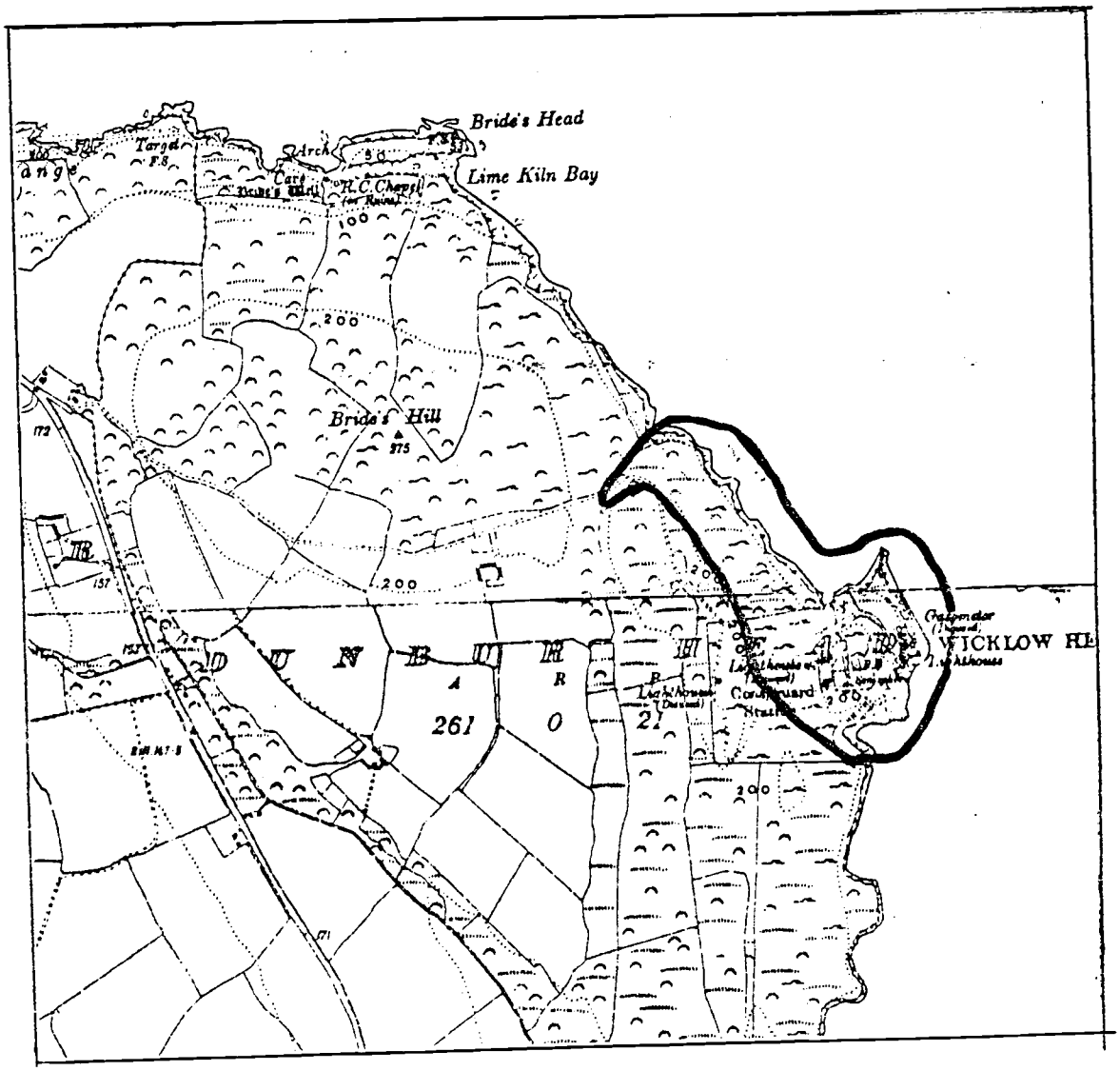
The intact vegetation is typical of sandy heath.

Evaluation

The quarrying has opened up fine exposures of volcanic crater pipes in the pale, acidic Rhyolite. A rare plant species also occurs here, which is found in only one other place in the County and only 3 other Irish vice-counties.

The site is thus of regional importance.

WICKLOW HEAD



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":130; 6":Wicklow 25. 31.

WICKLOW HEAD

Area	5 ha.
Grid Reference	T. 345, 924
Scientific Interest	Botanical, zoological and ornithological
Rating	Local Importance

The site is a rocky headland with extensive exposures of mica-schist. The landscape is similar to Bray Head and sheer cliffs occupy the south-eastern side.

The area behind the headland is rough pasture with Gorse (Ulex europaeus) dominant over much of the area, with Blackberry (Rubus fruticosus agg.) and the Bent Grasses (Agrostis canina and A. stolonifera) also occurring.

The rest of the area adjacent to the rough pasture is marshy and Skull Cap (Scutellaria minor) occurs.

The headland itself is rocky, with Fescue (Festuca rubra) dominant over much of the area. Where sandy patches of ground occur between the rocks, the following species are found : Hair Grass (Aira praecox), Narrowleaved Vetch (Vicia angustifolia), Stonecrop (Sedum anglicum) and Cranesbill (Geranium molle). 5 species of rare plant occur within the area also - the Spring Squill (Scilla verna) is frequent.

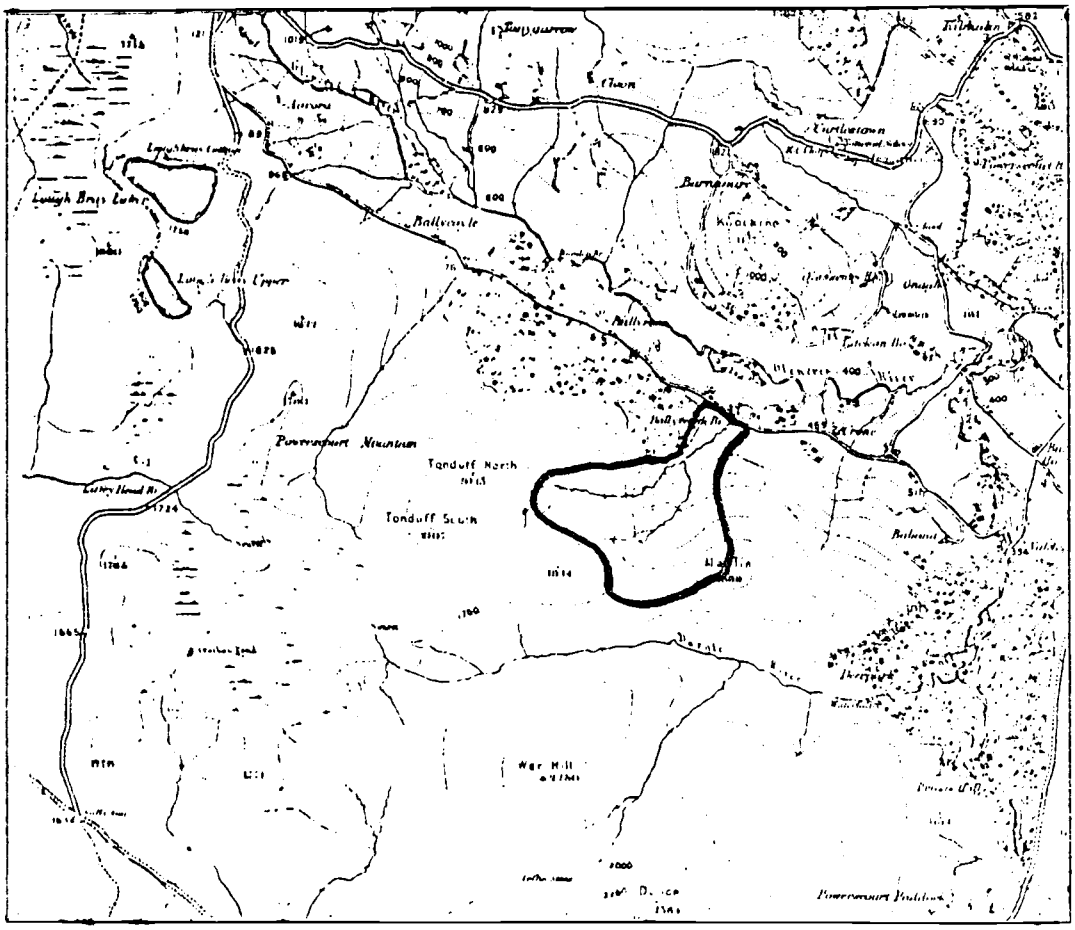
Nearing the sea cliffs, Festuca rubra remains dominant, but Bladder Campion (Silene vulgaris), Sea Pink (Armeria maritima) and Scurvy Grass (Cochlearia officinalis) become more frequent and Long-bracted Sea Sedge (Carex extensa) occurs. Within the area subjected to salt spray Sea Fern (Asplenium marinum), Sea Aster (Aster tripolium) and Sea Orache (Atriplex hastata) occur.

The area is also interesting ornithologically. Many species of sea-bird breed on the cliffs, particularly Fulmars, Kittiwakes and Gulls, and the area is important for passage migrants in spring and autumn.

Evaluation

The plant communities are similar to those at Bray Head with fewer rare species, but two of the species do not occur at the latter site. The area is also a valuable site for cliff-nesting birds.

RAVENS GLEN



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121; 6":Wicklow 7.

THE RAVENS GLEN

Area	c. 150 ha.
Grid Reference	O. 177, 137
Scientific Interest	Botanical and geological
Rating	Local Importance

This site, lying between Maulin and Tonduff, holds a well-developed corrie with a waterfall and low cliffs on which a few uncommon plant species occur. The granite - schist boundary is within the site and an interesting geological feature of the area is that a well developed planar crush structure is clearly visible on a large aplite body, marginal to the Leinster Granite.

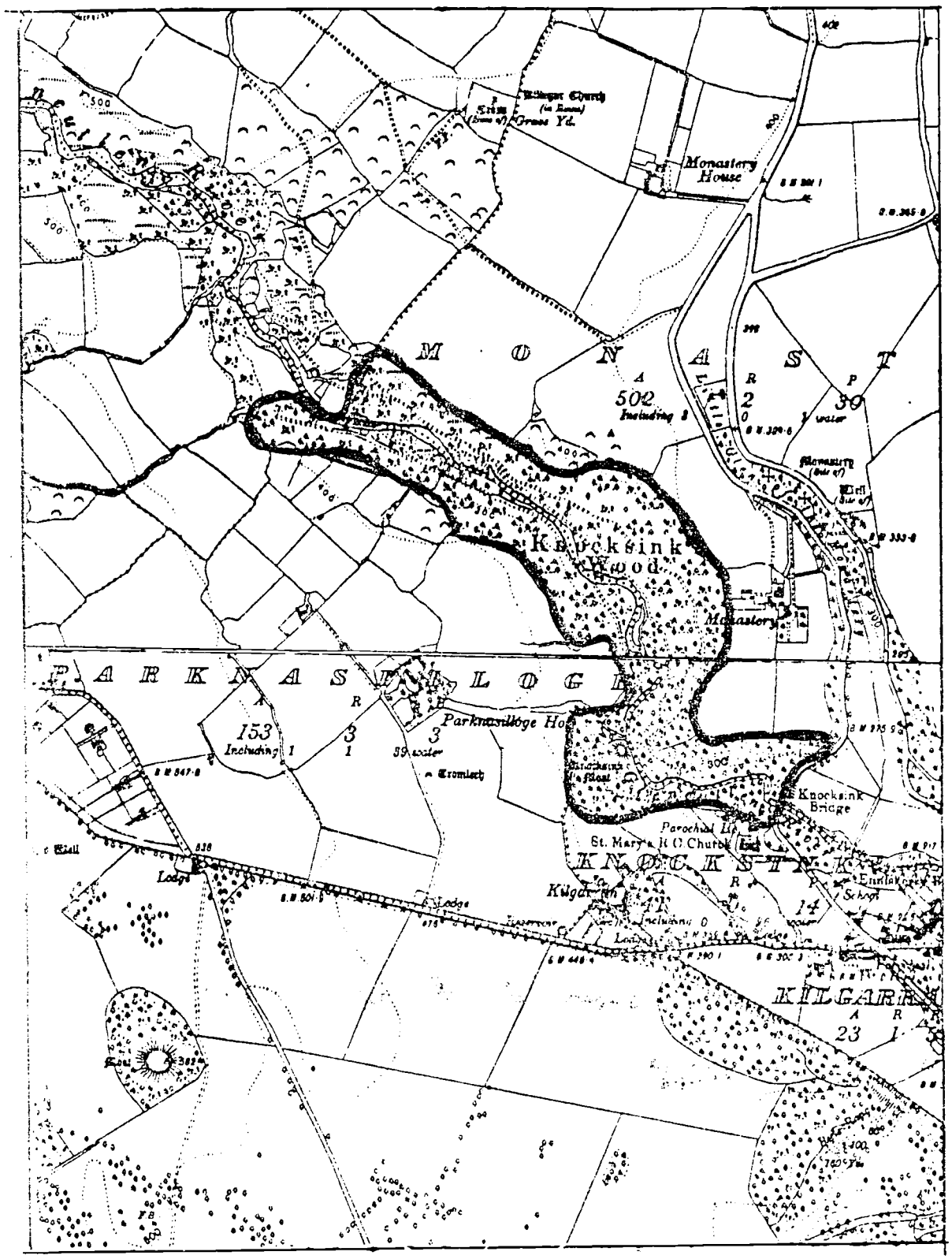
The surrounding blanket bog is dominated by Ling (Calluna vulgaris), Deer Grass (Trichophorum cespitosum) and Bog Cotton (Eriophorum vaginatum). In the flush area at the base of the corrie, Purple Moor Grass (Molinia caerulea) and Cross-leaved Heath (Erica tetralix) are generally dominant, but in the more open areas Sundew (Drosera rotundifolia), Marsh lousewort (Pedicularis palustris) and the sedges Carex echinata, C. panicea and C. curta occur.

The area beside the river is dominated by large tussocks of Purple Moor Grass until the base of the cliffs are reached. The cliffs for the most part are steep only near the waterfall and the more gently sloping parts are covered with a luxuriant growth of Wood Rush (Luzula sylvatica), Bilberry (Vaccinium myrtillus) and Ling. Some Rowan (Sorbus aucuparia) occurs throughout these areas, with Hard Fern (Blechnum spicant), Wood Rush and Common Bent (Agrostis tenius) under the canopy. The steep parts of the cliffs are shaded and damp; or very wet near the waterfall. Filmy Fern (Hymenophyllum wilsonii) is frequent in the drier, shaded areas and several other species of ferns occur : Hart's-tongue (Phyllitis scolopendium), Beech Fern (Thelypteris phegopteris), Soft Shield Fern (Polysticlum setiferum) and Lady Fern (Athyrium felix-femina). The area is also rich in Bryophytes and the Clubmoss, Lycopodium selago, is common.

Evaluation

The corrie is interesting botanically with two rare plant species occurring on the cliffs. Geologically the site is important because of the well-developed planar cursh structure.

KNOCKSINK WOOD



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 3. 7.

KNOCKSINK WOOD

Area	28 ha.
Grid Reference	0.21,18
Scientific Interest	Botanical,zoological and ecological
Rating	National Importance

This is an area of mixed deciduous woodland with planted conifers fringing the area to the north west and east. It lies along the banks of the Glencullen river, which are extremely steep and along which large rock outcrops are a prominent feature and in some cases gorges have developed.

The area contains homogenous stands of oak and beech woodlands, some hazel scrub and other parts dominated by Ash (Fraxinus excelsior) and Willows (Salix sp.).

Oak woodland (dominated by Quercus petraea) is well developed on the acid soils on the north bank of the river. Typically, the ground layer is dominated by Wood Rush (Luzula sylvatica) with Blackberry (Rubus fruticosus agg.) and Bracken (Pteridium aquilinium) making up the rest of the cover. Wood Sage (Teucrium scorodonia), Gorse (Ulex europaeus) and Rowan (Sorbus aucuparia) are scattered throughout the woodland.

Where the soil becomes rich in nutrients, a well-developed ground flora occurs,dominated by Ivy (Hedera helix) and Wood Sanicle (Sanicula europaea). Wood rush is frequent, with Wood Melick (Melica uniflora), Primrose (Primula vulgaris), Woodrush (Galium odoratum), False Brome (Brachypodium sylvaticum) and Wood Brome (Bromus ramosus) also occurring. 3 rare plant species are found in these areas, contributing a considerable amount of cover in the ground layer.

Woodland dominated by Birch (Betula pubescens) has developed on very acidic hummocks on the edge of the oak woodland. Again the ground layer is dominated by Wood Rush with Blackberry, Honeysuckle (Lonicera periclymenum), Holly (Ilex aquifolium) and Ling (Calluna vulgaris) occurring commonly.

Much of the area on the northern bank of the river consists of young ash trees with the willows Salix atrocinerea and S. caprea. This area is wet and calcareous and dominated in the herb layer by Horsetail (Equisetum hyemale), Great Willow Herb (Epilobium hirsutum) and Hemp Agrimony (Eupatorium cannabinum) with Rush (Juncus inflexus), Creeping Bent (Agrostis stolonifera), Yorkshire Fog (Holcus lanatus) and Nettle (Urtica dioica).

Some hazel (Corylus avellana) scrub occurs on the steep slopes above this Fraxinus area. Ash is scattered throughout the scrub and Sycamore (Acer pseudoplatanus) is common. The ground layer is dominated by Ivy(Hedera heli Wood Violet (Viola reichenbachiana) and Wood Sanicle. Two rare plant species occur in the scrub.

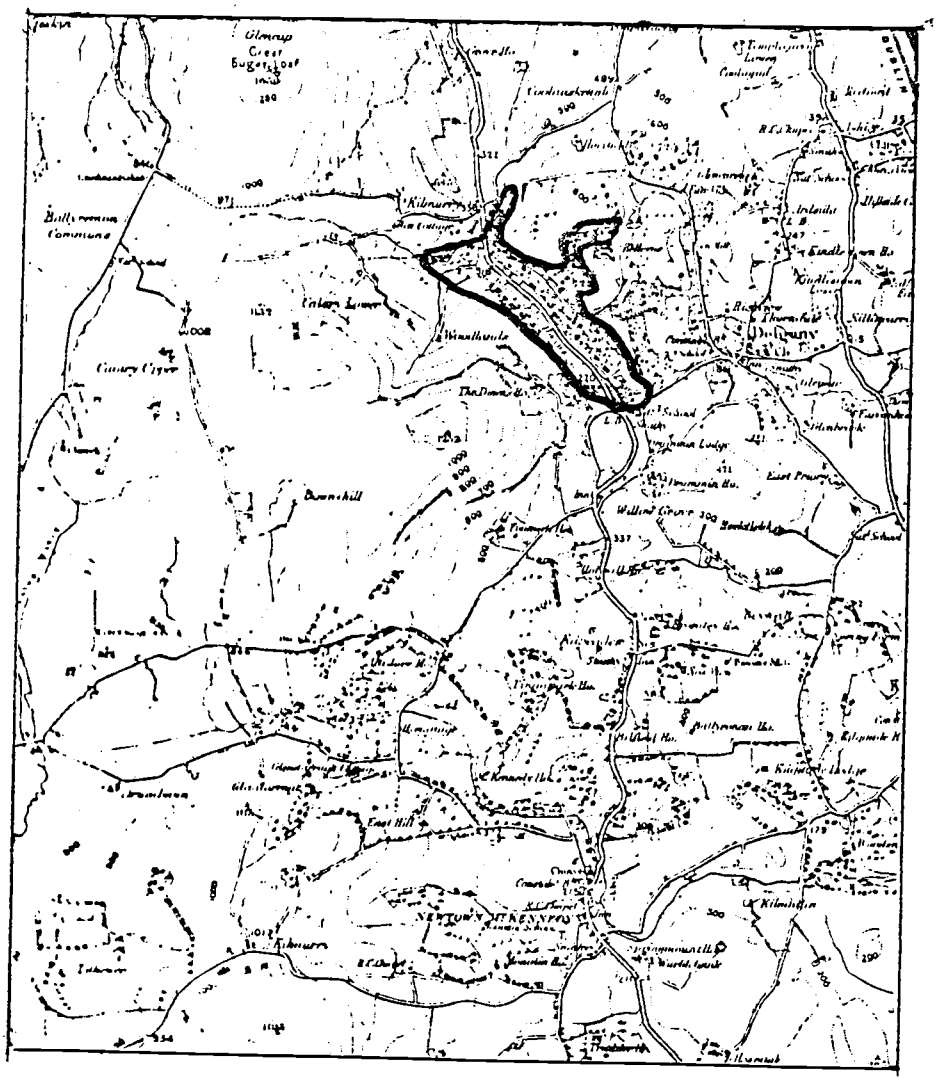
Beech (Fagus sylvatica) woodland is found adjoining this scrub area. The common species of the ground layer being Ivy and Wood False Brome (Brachypodium sylvaticum).

Ash - Willow woodland dominates much of the southern bank of the river. This area is very calcareous and the ground layer consists mainly of Blackberry, Ramsons (Allium ursinum), Meadowsweet (Filipendula ulmaria), Woundwort (Stachys sylvatica), Wood Sorrel (Oxalis acetosella) and Golden Saxifrage (Chrysosplenium oppositifolium). Bryophytes include Plagiochila asplenioides, Metzgeria furcata, Thuidium tamariscinum, Hypnum ericetorum and Mnium undulatum. Seven rare plant species occur in the area.

Evaluation

This site is valuable as it contains many types of woodland and a rich and varied vascular flora, including some rare species. The woodlands are also rich in bryophytes and macro-fungi (again including some uncommon species). A rich bryophyte flora is also found by the river, particularly in the gorges. Some interesting invertebrates have been collected in the area and there promises to be a rich fauna here.

GLEN OF THE DOWNS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121; 6":Wicklow 8. 13.

GLEN OF THE DOWNS

Area	95 ha.
Grid Reference	T. 260, 110
Scientific Interest	Ecological, botanical, zoological and geological
Rating	National Importance

This area is a woodland dominated by Oak (Quercus petraea) with Ash (Fraxinus excelsior), Rowan (Sorbus aucuparia), Beech (Fagus sylvatica), Hazel (Corylus avellana), Spindle Tree (Euonymus europaeus) and conifers - mostly pine (Pinus sylvestris).

There is also a low canopy of Holly (Ilex aquifolium) with Rhododendron (Rhododendron ponticum) and Laurel (Prunus laurocerasus).

The gound flora is rich in species and the Wood Rush (Luzula sylvatica) and Ivy (Hedera helix) are dominant. Frequent are Ramsons (Allium ursinum), Wood Sanicle (Sanicula europaea), Pignut (Conopodium majus) and the fern, Dryopteris dilitata. The following also occur : Stitchwort (Stellaria holostea), Wood Sage (Teucrium scorodonia), St. John's Wort (Hypercium pulchrum), Violet (Viola reichenbachiana), Lesser Celandine (Ranunculus ficaria), Wood Sorrel (Oxalis acetosella), Germander Speedwell (Veronica chamaedrys), Sweet Woodruff (Galium odoratum), Wood Anemone (Anemone nemorosa), Wood Melick (Melica uniflora), Bluebell (Endymion non-scriptus), Goldilocks (Ranunculus auricomus) and Honeysuckle (Lonicera periclymenun).

The rock outcrops in the area are dominated by Gorse (Ulex europaeus) and Bilberry (Vaccinium myrtillus) with Wood Sage (Teucrium scorodonia) and Red Fescue (Festuca rubra).

The small stream running through the glen has a flora typical of such habitats and contains Water Moss (Fontinalis antipyretica), Starworts (Callitriche spp.), Water Speedwell (Veronica beccabunga) and Water Cress (Korippa nasturtium-aquaticum).

Evaluation

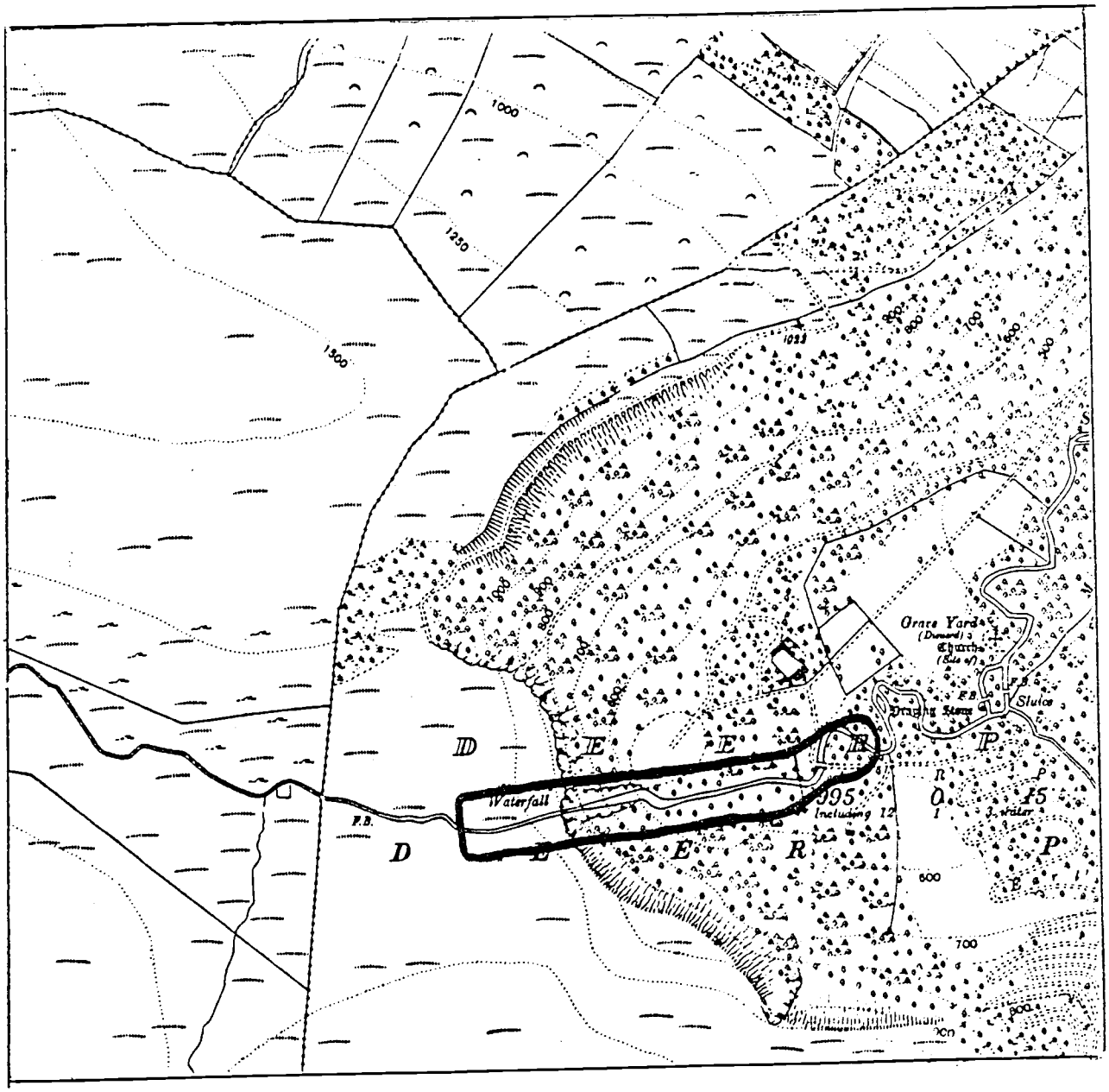
The oak wood has a rich ground flora and it is of interest ornithologically as a breeding site for the Jay and Blackcap, which are uncommon on a national scale.

Some work has been carried out on the insects (Fahy, E. 1970. The distribution of the Irish Pscoptera, Proc. R. Ir. Acad. (B) 71 : 139-163) and this suggests that the fauna does not contain the introduced species which occur in oakwoods in Southern Ireland. The invertebrates are therefore representative of a native rather than an introduced fauna.

The coniferous plantation close to the oak wood is rich in macrofungi.

The site is of additional value as it is a good example of a glacial overflow channel.

POWERSCOURT WATERFALL



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 7.

POWERSCOURT WATERFALL

Area	5 ha.
Grid Reference	O. 195, 118
Scientific Interest	Geological and botanical
Rating	National Importance

This river section contains a steep waterfall approximately 100 M in height. At the base of the waterfall there is a small corrie and associated small moraines. The schist/granite junction is very well exposed at the site.

The waterfall is fringed on both sides by steeply sloping ground dominated by Wood Rush (Luzula sylvatica) with Wood Sorrel (Oxalis acetosella), the Sorrels (Rumex acetosa and R. acetosella) and various ferns (Dryopteris felix-mas, Dryopteris aemula, Blechnum spicant and Polystichum setiferum).

The grassy area below the fall is dominated by Sweet Vernal Grass (Anthoxanthum odoratum), Common Bent (Agrostis tenuis) and Red Fescue (Festuca rubra).

The moraines hold one rare plant species, whilst the area saturated by the spray supports many interesting Bryophyte species. Flanking the spray area are outcrops of rock where Club Moss (Lycopodium selago) and Filmy Fern (Hymenophyllum wilsonii) are common, with Marsh Hawksbeard (Crepis paludosa) and Hart's-tongue Fern (Phyllitis scolopendrium).

A very rare plant was once recorded by the waterfall but it has not been seen for many years.

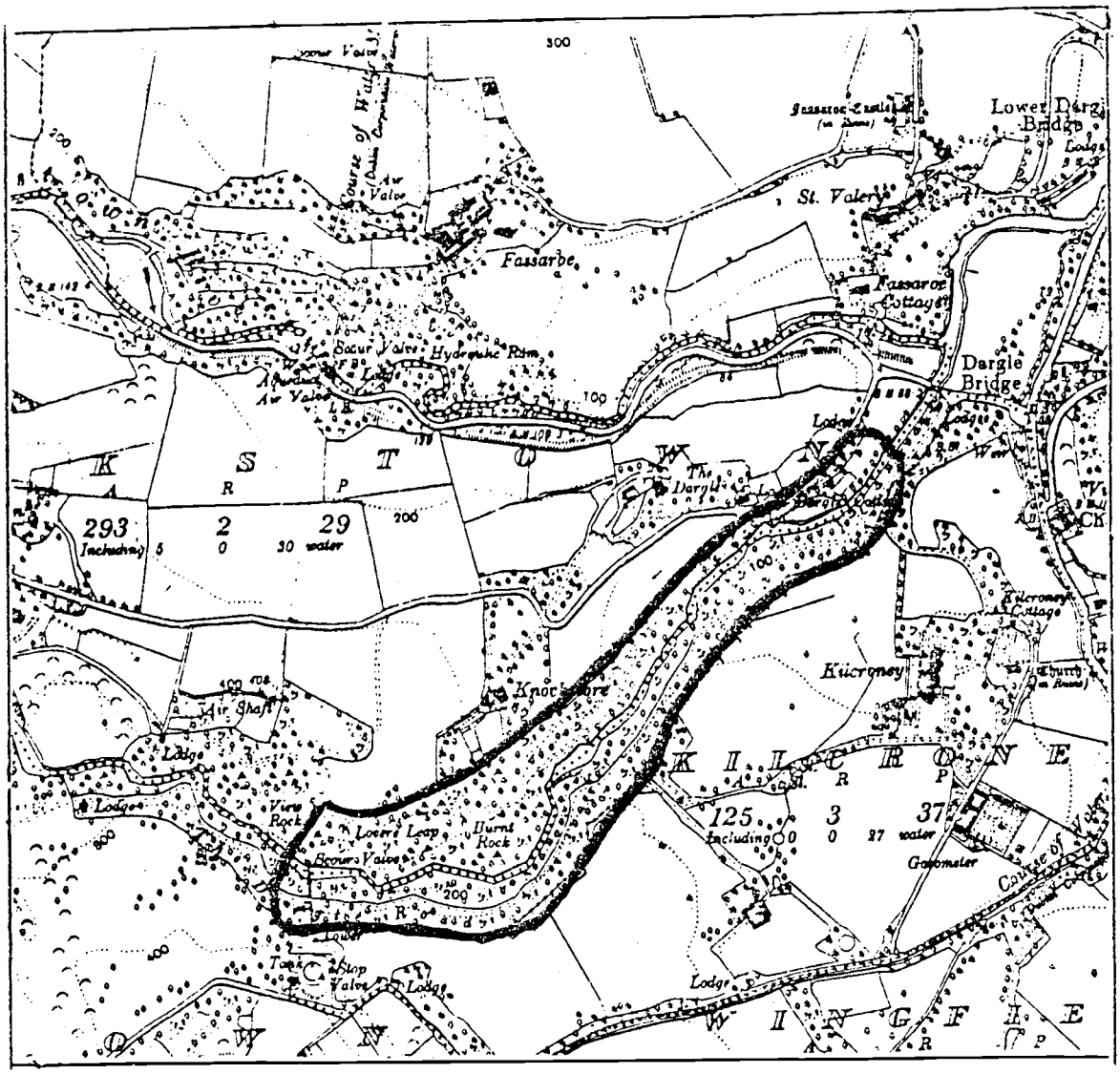
The area at the top of the fall is dominated by Oak (Quercus petraea), with some Rowan (Sorbus aucuparia). The ground flora consists mainly of Wood Rush, Ling (Calluna vulgaris), Bilberry (Vaccanium myrtilus) and Cow Wheat (Melampyrum pratense). Lichen species of the following genera have been recorded : Sticta, Lobaria and Alectoria - 3 genera which are mainly found in the west of Ireland.

Evaluation

This site is one of the most spectacular waterfalls in Ireland and the schist/granite junction is well exposed here. The area is also interesting botanically and uncommon species of Angiosperms, Lichens and Bryophytes occur, either in the vicinity of, or on, the waterfall.

AFF AS/5 Wicklow. Part 2.

DARGLE RIVER VALLEY



Scale : 1 cm · 105 (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 7.

DARGLE RIVER VALLEY

Area	c. 18 ha.
Grid Reference	O. 241, 169
Scientific Interest	Geological and botanical
Rating	Regional Importance

The site is a river section with very steep banks.

The area is dominated by oak woodland (Quercus petraea) with some Hazel scrub (Corylus avellana). The commonest species on the floor of the woodland are Wood Rush (Luzula sylvatica) and Blackberry (Rubus fruticosus agg.). However, many introduced trees and shrubs are found in the area, notably Laurel (Prunus laurocerasus), which has escaped from a garden nearby.

The river falls through some deep gorges, which hold a luxuriant growth of mosses. Species common along the riverside are Water Moss (Fontinalis antipyretica), Red Campion (Silene dioica), a Fescue (Festuca gigantea), Hair Grass (Deschamsia caespitosa), Wood Pimpernel (Lysimachia nemorum), Creeping Willow-herb (Epilobium brunnescens), Marsh Hawksbeard (Crepis paludosa) and many species of Hawkweed (Hieracium spp.). 2 rare species of plant are recorded, but have not been seen recently. – Lamiastrum galeobdolon still present

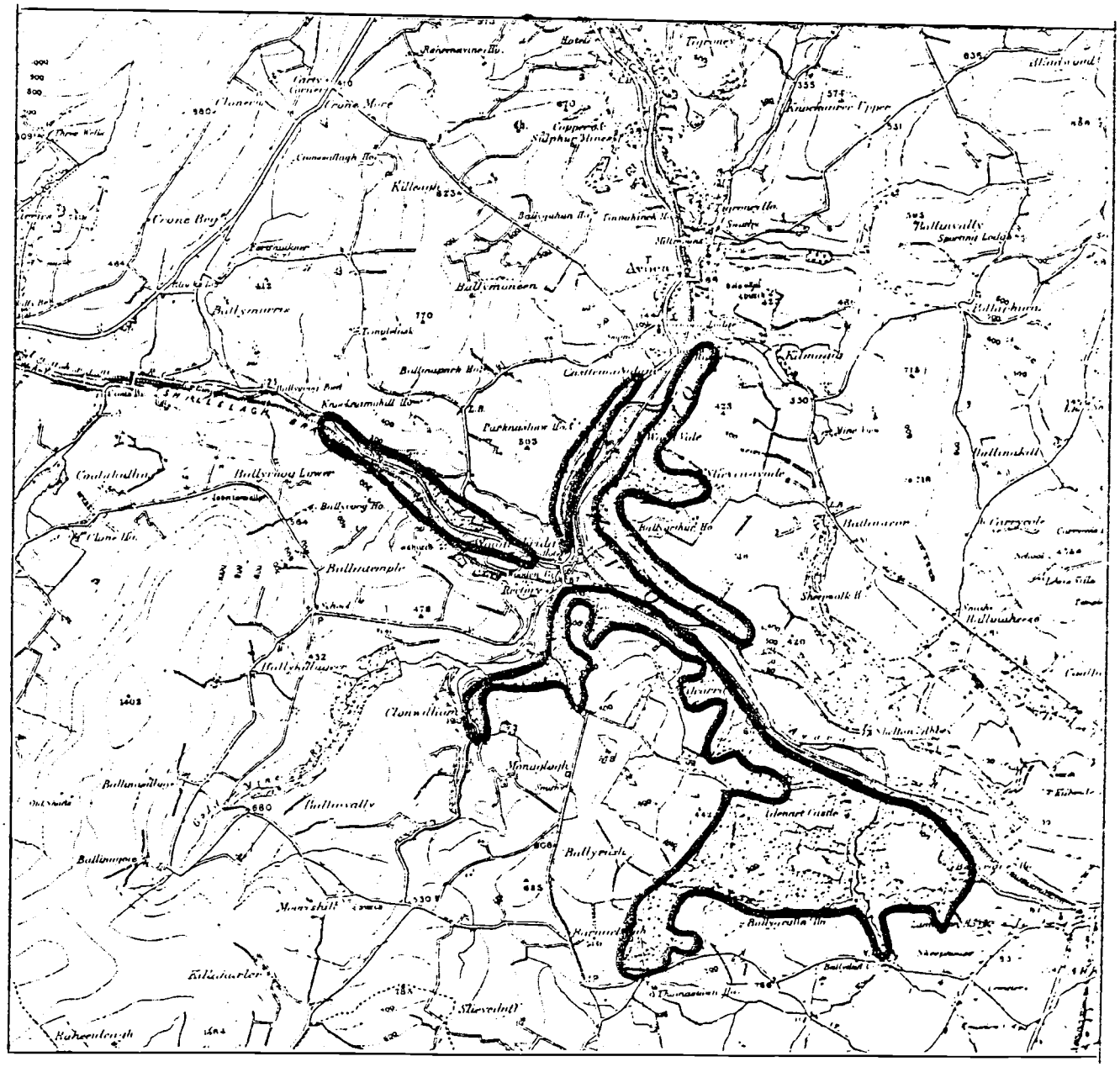
At one point along the river a well exposed series of Ordovician volcanic rocks are faulted against well-exposed Bray group Cambrian strata.

Evaluation

Such a clear exposed junction between the Ordovician and Bray Group strata is not seen elsewhere in Co. Wicklow.

The areas also holds oak woodland and hazel scrub and, though the flora is generally poor, the occurrence of some uncommon species make the area of local importance botanically.

AVOCA RIVER VALLEY WOODLANDS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":19; 1":139; 6":Wicklow 40.

AVOCA RIVER VALLEY WOODLANDS

Area	525 ha.
Grid Reference	T. 215, 755
Scientific Interest	Ecological, botanical and zoological
Rating	Regional Importance

This area contains both coniferous and deciduous woodland, the latter mostly dominated by Oak (Quercus petraea), but with Beech (Fagus sylvatica) occupying the eastern fringe of the area.

A well developed secondary canopy of Hazel (Corylus avellana), Holly (Ilex aquifolium) and Hawthorn (Crataegus monogyna) occurs throughout the oak woods, whilst Bird Cherry (Prunus avium) and Rowan (Sorbus aucuparia) are occasional.

The ground flora is dominated by Wood Rush (Luzula sylvatica) and Blackberry (Rubus fruticosus agg.). Occurring with these are Yellow Pimpernel (Lysimachia nemorum). Honeysuckle (Lonicera periclymenum), Wood Sorrel (Oxalis acetosella), Bluebell (Endymion non-scriptus), Arum Lily (Arum maculatum), Stitchwort (Stellaria holostea), Violet (Viola reichenbachiana) and Wood Sanicle (Sanicula europea), Herb Bennet (Geum urbanum), Wood Sedge (Carex sylvatica), Wood Meadow Grass (Poa nemoralis), Ivy (Hedera helix), Wood Fescue (Festuca sylvatica) and Cow Wheat (Melampyrum pratense).

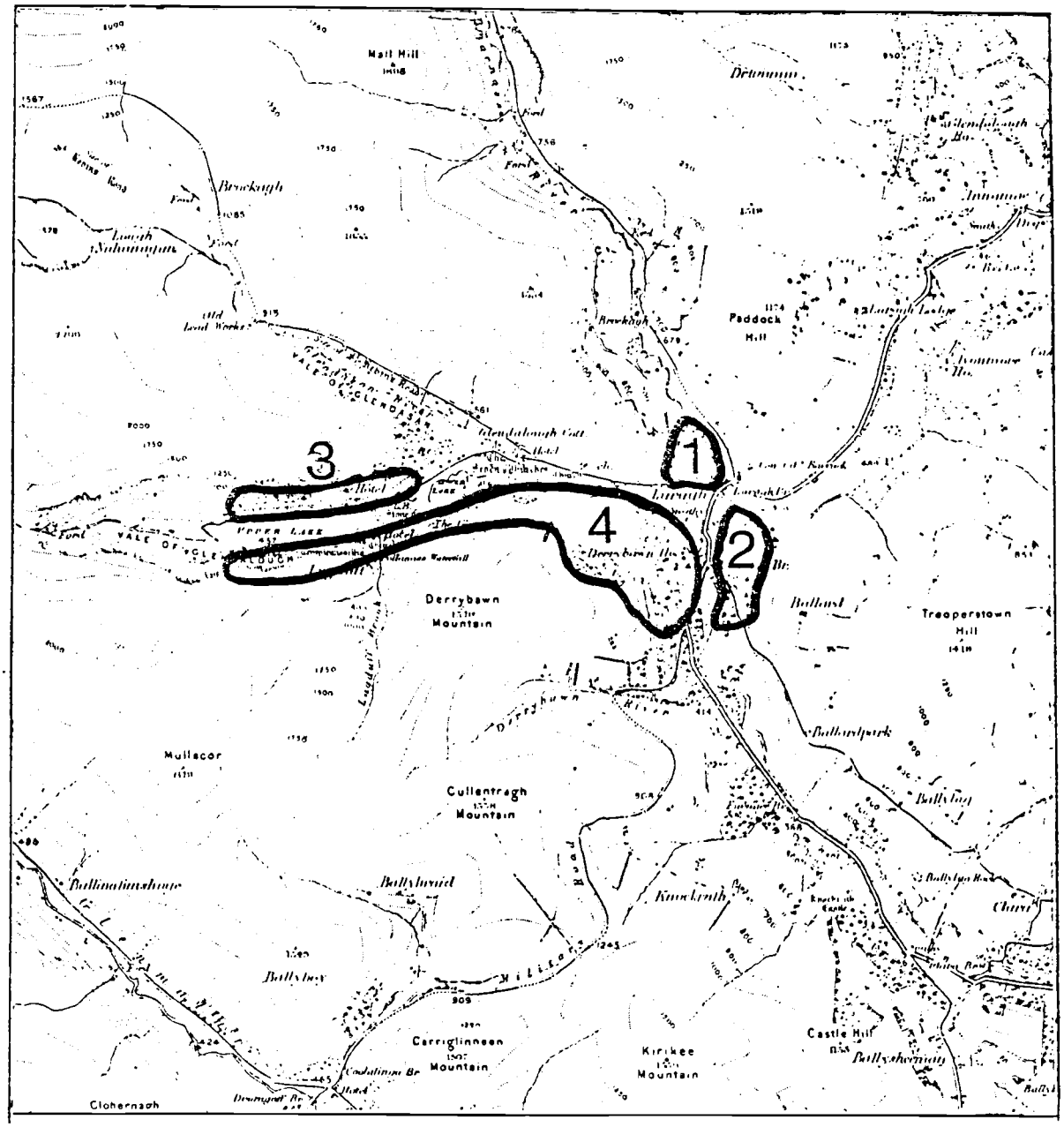
Yew (Taxus baccata) occurs rarely in the area, and 5 other rare species occur here also.

Evaluation

The site has good examples of deciduous woodland containing a typical flora and fauna with some rare species occurring. The bird-life of the area is rich and interesting.

This area has been subject to great disturbance from the mines situated at Avoca, the planting of conifers and from air pollution emanating from the fertiliser factory situated downstream, nearer Arklow. Some of the vegetation (notably Ivy) has died and the tops of the tree canopy have been severly affected. The eastern part of the site has been more affected by pollution than the western end. It remains, however, of considerable importance.

VALES OF CLARA AND GLENDALOUGH WOODLANDS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":130; 6":Wicklow 23. 24.

...S OF CLARA AND CLENDALOUGH WOODLANDS

Area	267 ha.
Grid Reference	T. 135, 960
Scientific Interest	Ecological, botanical and zoological
Rating	Regional Importance

This site consists of 4 distinct blocks of woodlands (see map).

Sub-site I

This is nearly all taken up by deciduous scrub of hazel, birch and oak with a ground flora consisting of the following species : Bell Heather (Erica cinerea), Cross-leaved Heath (Erica tetralix), Hard Fern (Blechnum spicant), Wood Rush (Luzula sylvatica), Buckler Fern (Dryopteris dilitata), Bilberry (Vaccinium myrtillus), Honeysuckle (Loniceria periclymenum), Wood Sage (Teucrium scorodonia) and Bent Grass (Agrostis stolonifera).

Sub-site II

This consists of mature Oak (Quercus petraea) and coniferous trees. The ground flora is dominated by Bilberry, Hard Fern, Common Bent (Agrostis tenuis), Sweet Vernal Grass (Anthoxanthum odoratum) and Cow Wheat (Melampyrum pratense).

Sub-site III

This site is dominated by Oak (Quercus petraea) with some conifers (notably Pine, Pinus sylvestris) along the shore of the Upper Lake, where heath vegetation occurs under the canopy.

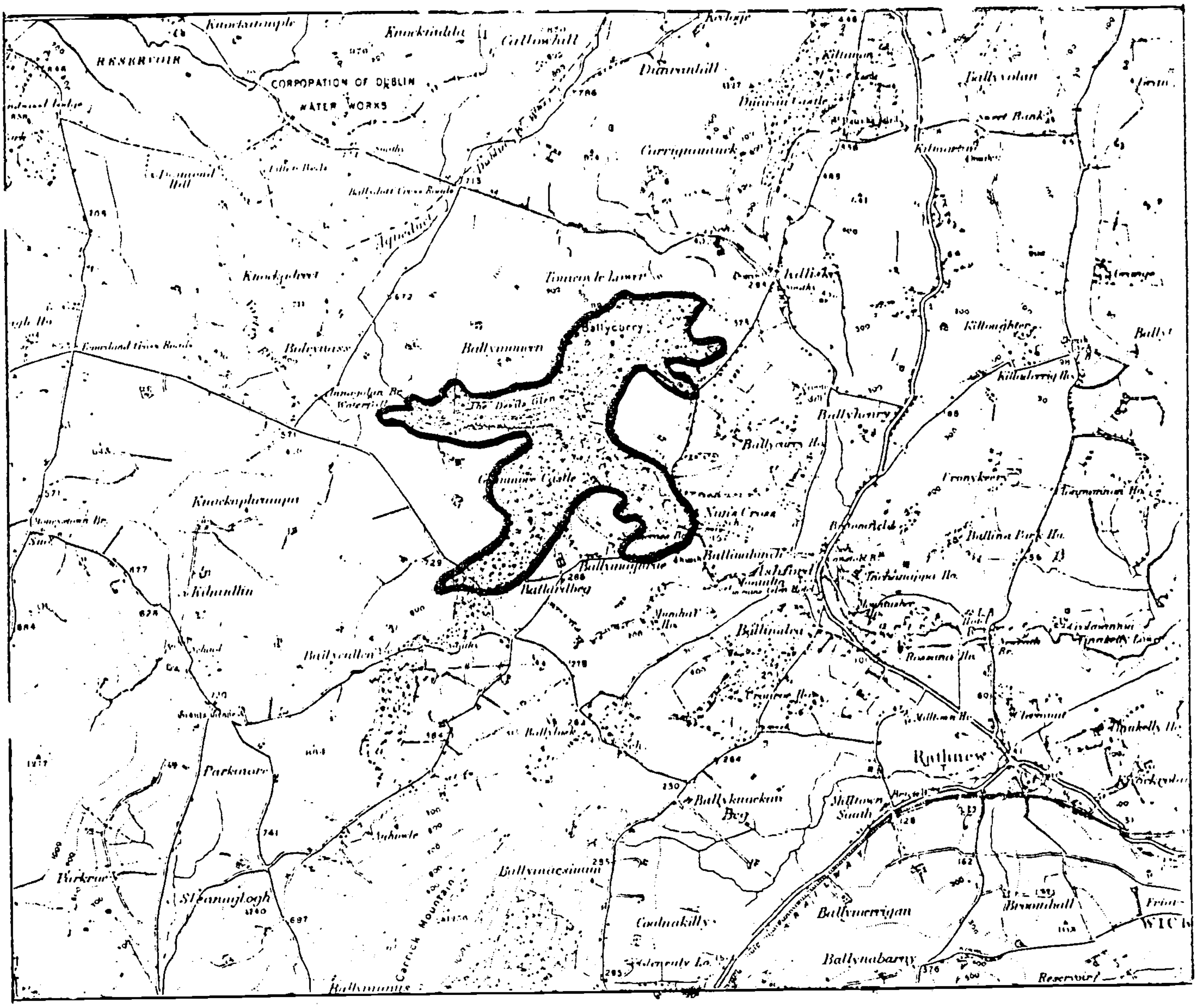
Sub-site IV

This area of oak woodland holds a rich woodland flora : Wood Rush, Sweet Vernal Grass, Common Bent, Foxglove (Digitalis purpurea), the ferns, Dryopteris filix-mas and Dryopteris dilitata, Wild Strawberry (Fragaria vesca), Wood Avens (Geum urbanum), Ivy (Hedera helix), Tuberous Bitter Vetch (Lathyrus montanus), Wood Pimpernel (Lysimachia nemorum) and Yorkshire Fog (Holcus lanatus) and Mountain Fern (Thelypteris oreopteris). There is also a well developed layer of holly (Ilex aquifolium) in the woods and the Rhododendron (Rhododendron ponticum) has invaded the area.

Evaluation

All the areas contain good examples of mature woodland, much of which is deciduous. The ground flora is well developed in some parts and contains many typical woodland plants.

THE DEVILS GLEN



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":130; 6":Wicklow 18. 24.

LEVEL'S GLEN

Area	350 ha.
Grid Reference	T. 250, 985
Scientific Interest	Ecological, botanical, zoological and ornithological
Rating	Regional Importance.

The area is a deep, rocky gorge, through which the Vartry River flows. The sides of the glen are extremely steep and dominated by oak (Quercus petraea) with some holly (Ilex aquifolium). The most interesting parts of the area are on the north side of the river, where some pure stands of mature oak occur. Elsewhere the canopy includes some conifers.

Vasular plants are rather sparse in the ground zone and field layer. Wood Rush (Luzula sylvatica) is locally dominant and common associated species are Birch (Betula pubescens), Common Bent (Agrostis tenuis), Hard Fern (Blechnum spicant) and Ling (Calluna vulgaris). Frequent are Wavy Hair Grass (Deschampsia flexuosa), Ivy (Hedera helix), the moss Thuidium tamariscinum, the ferns Dryopteris dilitata, D. felix-mas and D. borreri, Heath Bedstraw (Galum saxatile), Honeysuckle (Lonicera periclymenum), Blackberry (Rubus fruticosus agg.), Stitchwort (Stellaria holostea), Wood Sage (Teucrium scorodonia) and Bilberry (Vaccinium myrtillus). Hieracium spp. are abundant, however, and 5 rare species of plant occur in the Glen.

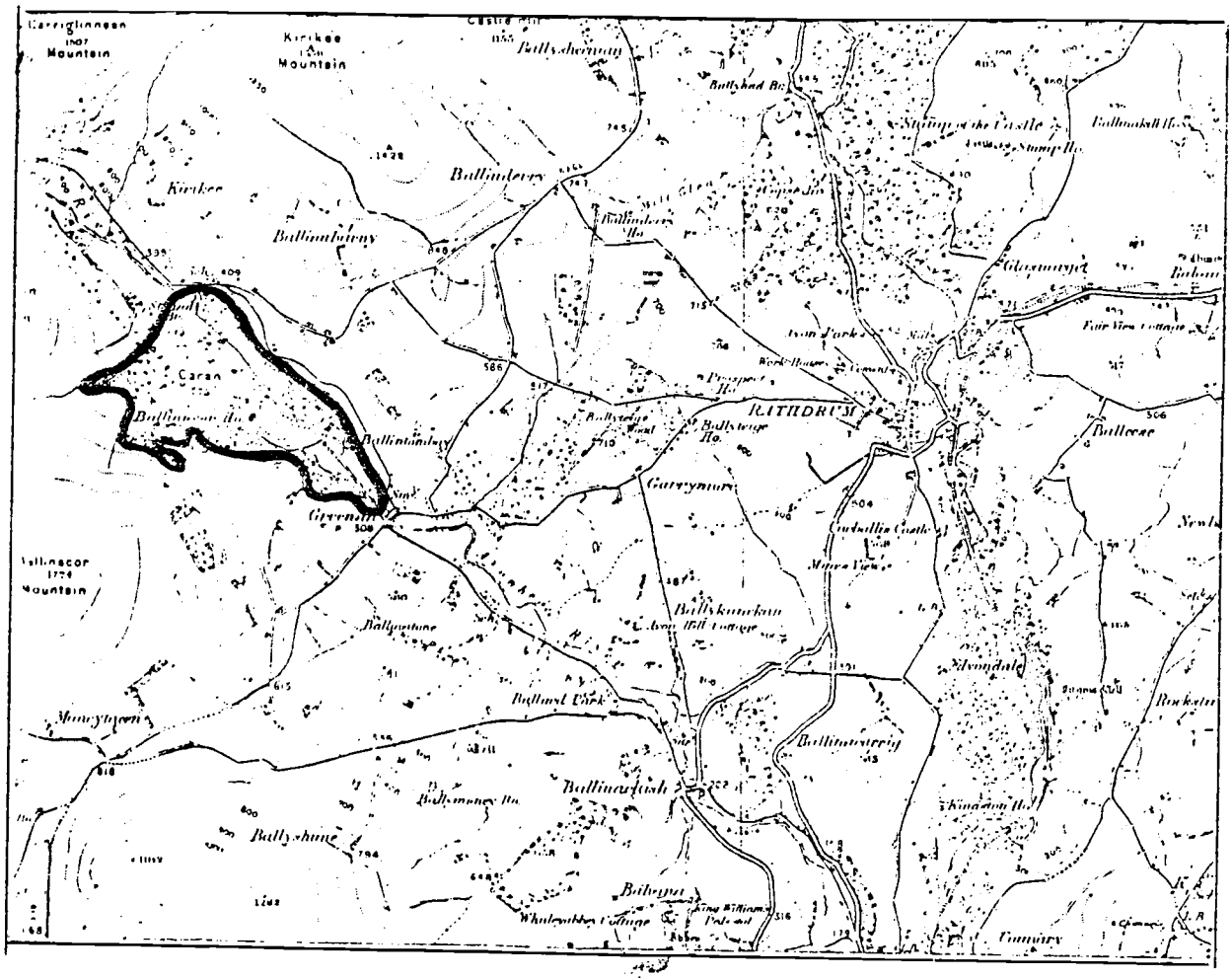
The area is noted for its luxuriant cryptogamic flora, which indicates oceanic conditions and includes some uncommon species of bryophytes. This also suggests that the invertebrate fauna may be distinctive. The Orthopteran Leptophyes punctatissima has been recorded.

A pond in the site is frequented by Teal, Mallard and Mute Swans and a large number of passerine species occur in the woods.

Evaluation

This woodland holds good stands of mature oaks with associated ground flora, several of which are rare species. A wealth of crytogamic species occur including many macro-fungi and the area promises to be of great interest zoologically.

BALLINACOR WOOD



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":130; 6":Wicklow 29.

KILLINACOR WOOD

Area	162 ha.
Grid Reference	T. 130, 885
Scientific Interest	Ecological, botanical and zoological
Rating	Local Importance

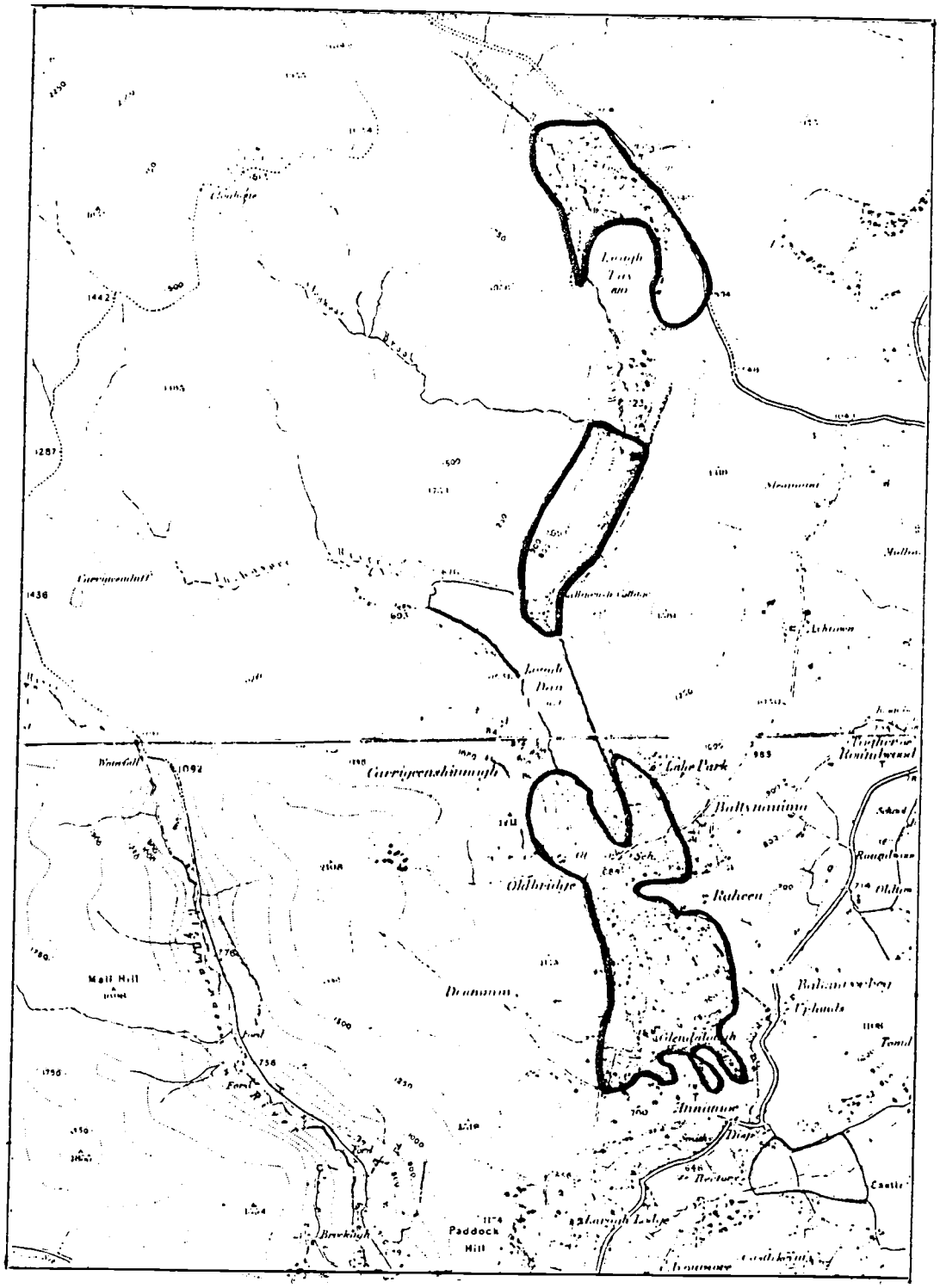
These woodlands are composed of very old oak trees with some birch (Betula pubescens) and beech (Fagus sylvatica) close to the Rathdrum road. The woodland is situated on a steep slope at the base of which wet areas occur. The flora found close to the foot of the slope consists of the mosses, Sphagnum spp. and Polytrichum commune, Soft Rush (Juncus effusus) and Blackberry (Rubus fruticosus agg.).

Higher up the hillside the flora becomes more that of a deciduous woodland with typical species of that habitat. Bluebell (Endymnion non-scriptus) and Wood Sorrel (Oxalis acetosella) form the greater part of the ground cover. In addition, Honeysuckle (Lonicera periclymenum), Bracken (Pteridium aquilinum), Hard Fern (Blechnum spicant) and the moss Rhytidiadelphus triquetrus occur and Rhododendron is dominant over large areas.

Evaluation

The area is a good example of oakwood having, in places, a typical ground flora. It is likely to be a good invertebrate habitat also.

OAKWOODS AT LOUGH DAN AND LOUGH TAY



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121. 130; 6":Wicklow 17. 18.

OAKWOODS AT LOUGH DAN AND LOUGH TAY

Area	c. 650 ha.
Grid Reference	O. 158, 048
Scientific Interest	Ecological and botanical
Rating	Local Importance

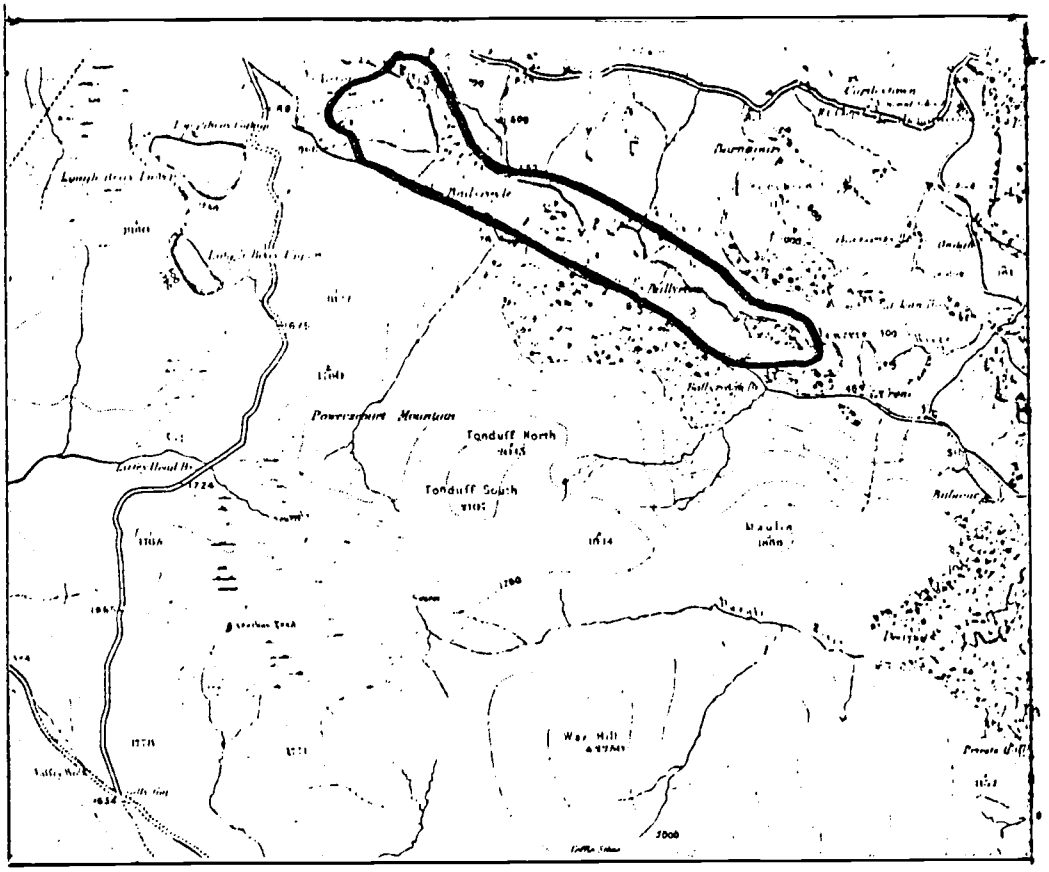
These woods consist mostly of Oak (Quercus petraea) with some Birch (Betula pubescens) and Hazel (Corylus avellana). Conifers occur in some areas of the woods.

The woodlands hold a typical calcifuge flora dominated by Wood Rush (Luzula sylvatica), Hard Fern (Blechnum spicant) and Ling (Calluna vulgaris). Also in the ground layer are Bilberry (Vaccinium myrtillus), Buckler Fern (Dryopteris dilitata), Honeysuckle (Lonicera periclymenum) and Woodsage (Teucrium scorodonia). The common bryophytes associated with these species are Thuidium tamariscinum, Polytrichum commune and Mnium hornum.

Evaluation

These are good examples of oak woods with a typically calcifuge ground flora.

GLENCREE



Scale : 1 cm = 635 m (0.4 mile)

Sheets : $\frac{1}{2}$":16; 1":121; 6":Wicklow 6. 7.

GLENCREE

Area	c. 250 ha.
Grid Reference	O. 165, 160
Scientific Interest	Botanical and ecological
Rating	Local Importance

This woodland, which is located on the floor of a glacial valley, thins out considerably towards its eastern end. The area is dominated by oak (Quercus petraea), but birch (Betula pubescens), hazel (Corylus avellana) and Aspen (Populus tremula) occur. Holly is frequent.

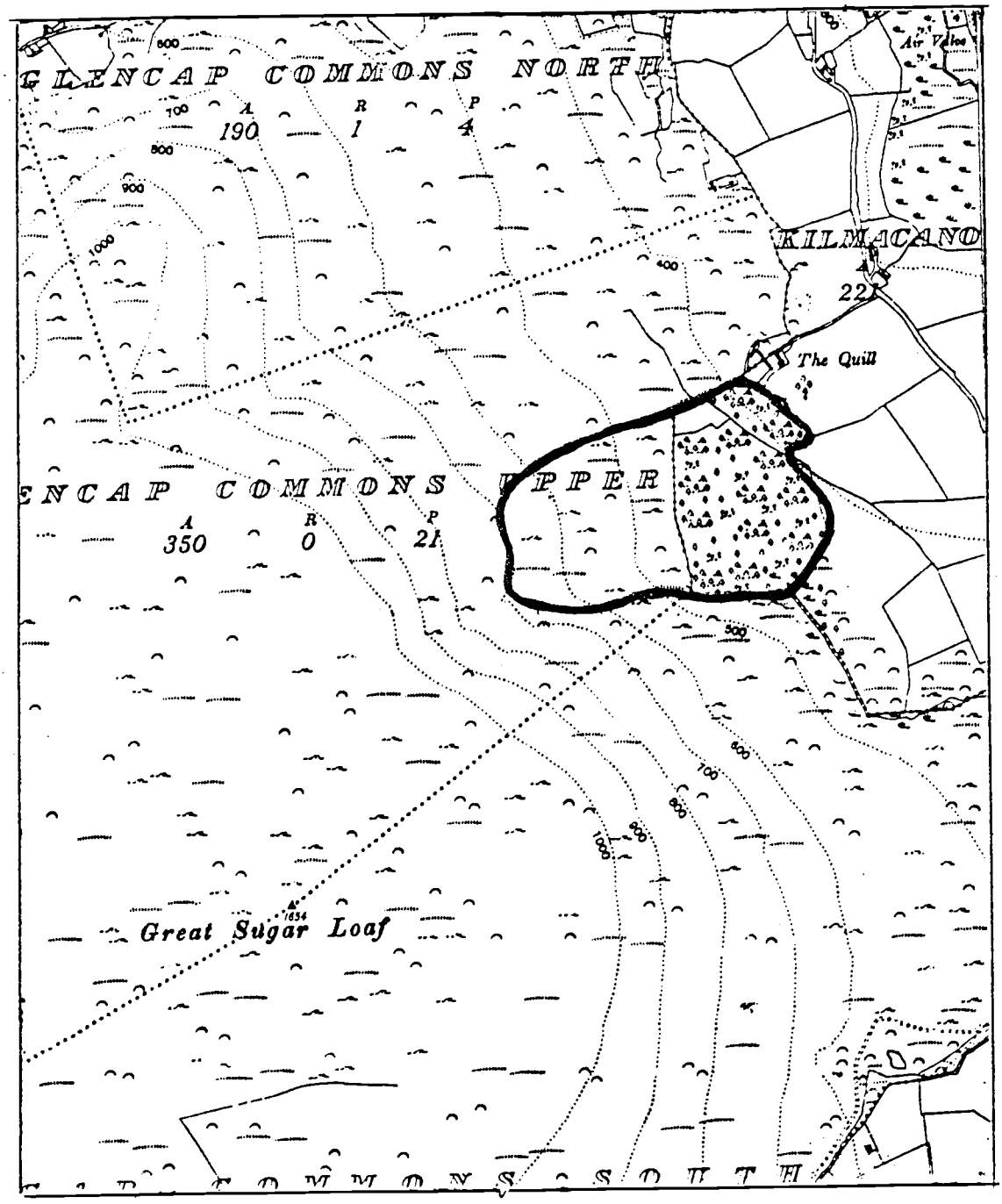
Among the trees the ground vegetation cover is composed mainly of Bryophytes, e.g. Acrocladium cuspidatum, Plagiothecium undulatum, Hypnum cupressiforme, Thuidium tamariscinum, Polytricum commune, Mnium hornum, Pleurozium schreberi. The following flowering plants occur however : Bilberry (Vaccinium myrtillus) which is dominant in some areas, Woodrush (Luzula sylvatica), Hard Fern (Blechnum spicant), Golden Saxifrage (Chrysosplenium oppositifolium), Wood Sorrel (Oxalis acetosella), Spring Woodrush (Luzula pilosa), Cow Wheat (Melampyrum pratense), Flexous Hair Grass (Deschampsia flexuosa) and Common Bent (Agrostis tenuis).

Open areas of bog occur dominated by the following species : Heather (Erica tetralix), Ling (Calluna vulgaris), Purple Moor Grass (Molinia caerulea), Deer Grass (Tricophorum caespitosum).

Evaluation

The site is a good example of deciduous woodland and is likely to contain several invertebrate habitat types.

THE QUILL



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":121; 6":Wicklow 7.

THE QUILL

Area	10 ha.
Grid Reference	O. 240, 135
Scientific Interest	Ecological and zoological
Rating	Local Importance

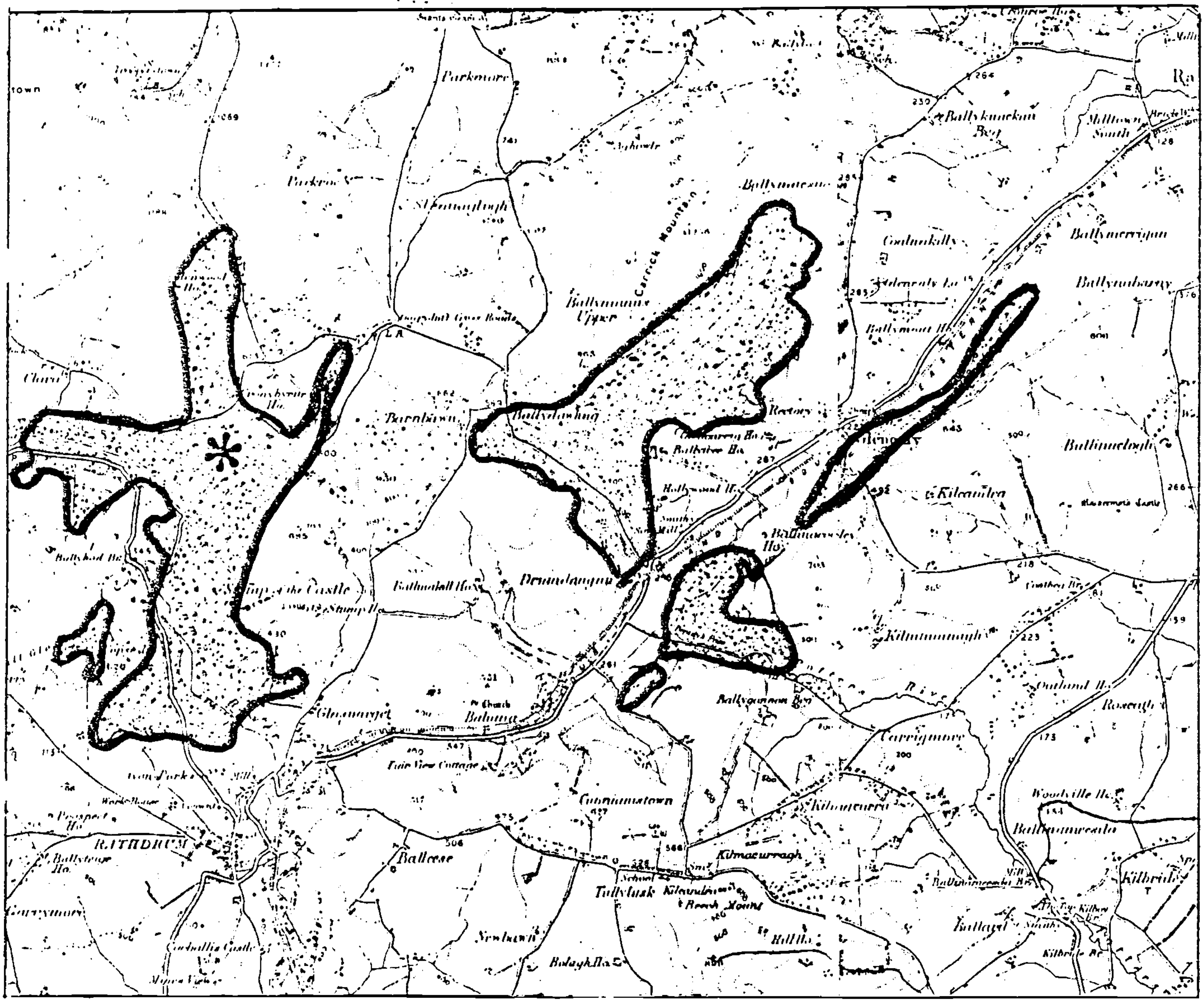
The area is a small apparently secondary woodland, dominated by oak, birch and holly. Blackberry (Rubus fruticosus agg.), Wood Rush (Luzula sylvatica) and Ivy (Hedera helix) are frequent in most of the area and also occurring are :- Hard Fern (Blechnum spicant), Bracken (Pteridium aquilinum), Bilberry (Vaccinium myrtillus), Ling (Calluna vulgaris) and the mosses Hylocomium splendens, Pleurozium schreberi and Dicranum majus.

The western end of the site, however, has a ground flora more characteristic of wet heath and here Birch (Betula pubescens) is more common than in other parts of the area.

Evaluation

This woodland is noteworthy as a collecting site for invertebrates and has been visited by various collectors including Beirne who gives a number of references to it in his published work.

RATHDRUM AND GLENEALY FORESTS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":130; 6":Wicklow 30.

RATHDRUM AND GLENEALY FORESTS

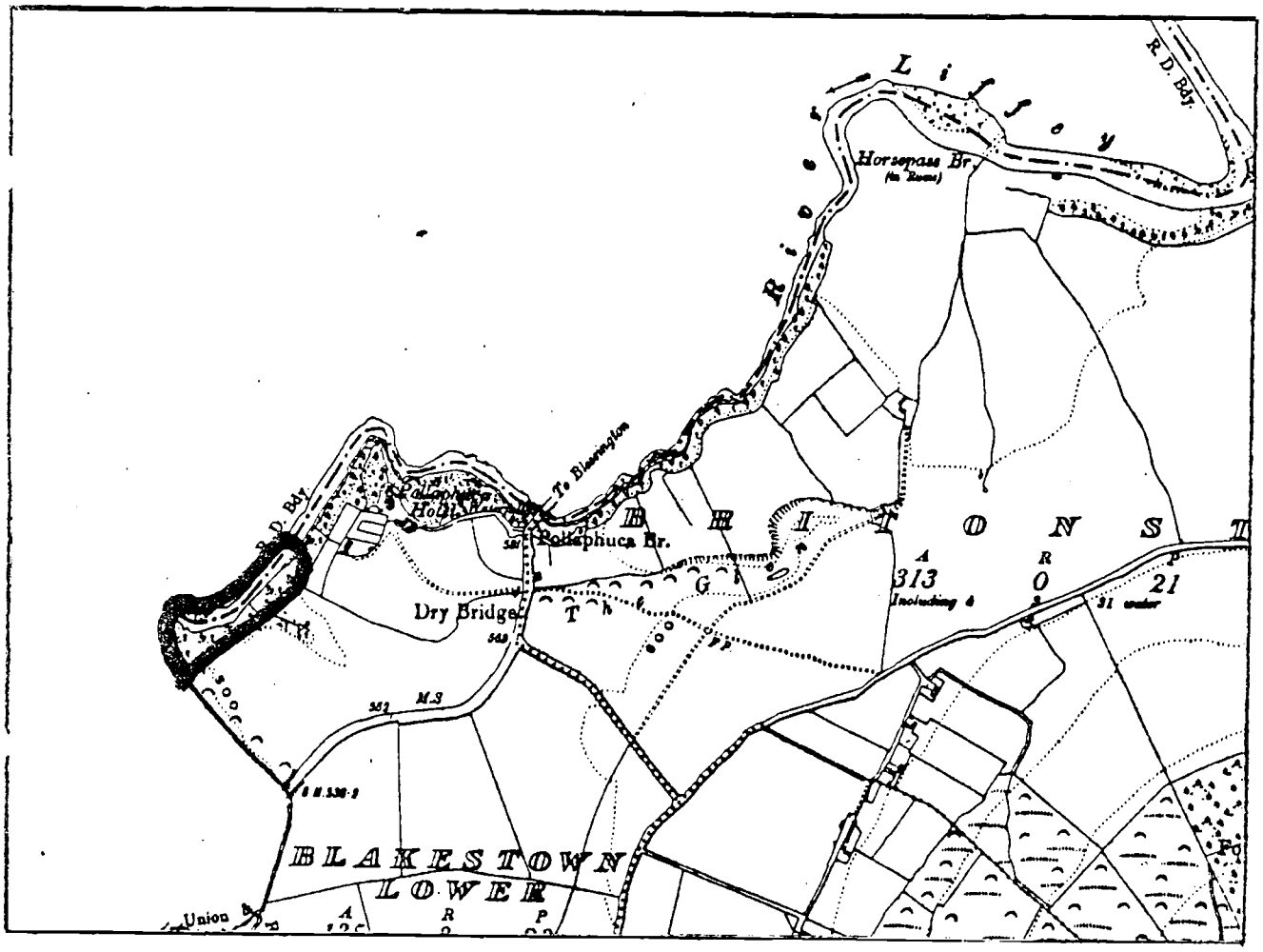
Area	925 ha.
Grid Reference	T. 245, 990
Scientific Interest	Ecological, botanical and zoological
Rating	Local Importance

These are all areas of mixed forest. The area marked with an asterisk contains a high proportion of deciduous wood with Oak (Quercus petraea) dominant and a good ground flora. Most of the species occurring at the Glen of the Downs are present including Blackberry (Rubus fruticosus agg.), Ivy (Hedera helix), Wood Avens (Geum urbanum), Wood Sanicle (Sanicula europaea), Yellow Pimpernel (Lysimachia nemorum) and Hart's-Tongue Fern (Phyllitis scolopendrium).

Evaluation

These areas are of local interest by virtue of their ground flora; all are likely to hold invertebrate faunas.

POULAPHOUCA GORGE



Scale 1 cm = 105 m (115 yards)

Sheets ½" : 16 ; 6" : Wicklow 9

POULAPHOUCA GORGE

Area	c. 1 ha in Co. Wicklow
Grid Reference	N.947, 085
Scientific Interest	Botanical
Rating	Local Importance

The hydro-electric scheme at Poulaphouca has resulted in the River Liffey no longer flowing through this gorge, which is now dry and streamless.

The slopes are dominated by Beech (Fagus sylvatica) around the top part of the gorge whilst Laurel (Prunus laurocerasus) predominates lower down. Sycamore (Acer pseudoplatanus) is widely scattered throughout the area.

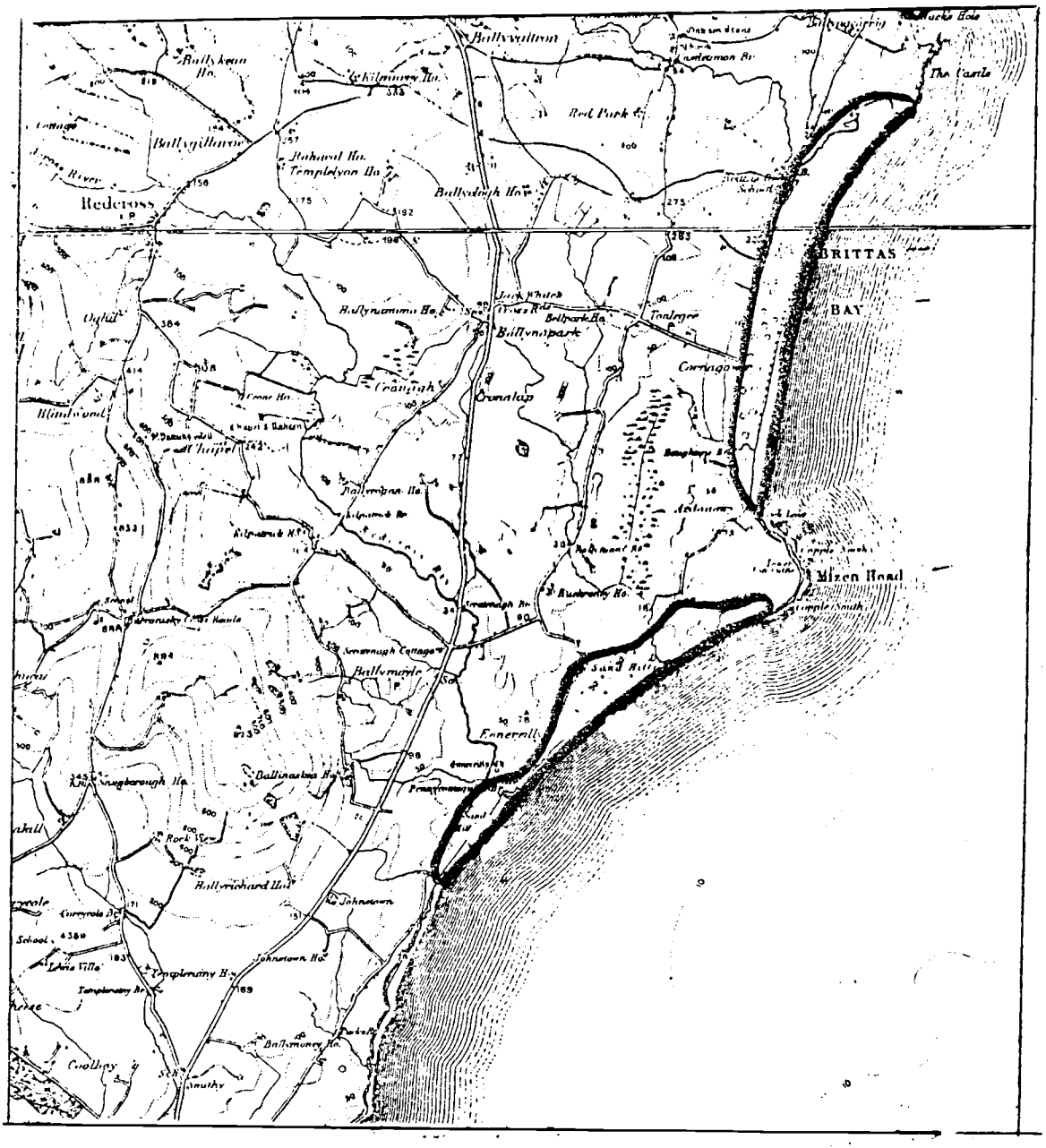
The ground flora is well developed and is dominated by Wood Rush (Luzula sylvatica) and Wood Sorrel (Oxalis acetosella). The following species also occur : Soft Shield Fern (Polystichum setiferum), Wood Sanicle (Sanicula europaea), Pennywort (Umbilicus rupestris), Pignut (Conopodium majus), Red Campion (Silene dioica), Primrose (Primula vulgaris), Dog Violet (Viola riviniana), Bush Vetch (Vicia sepium) and Water Avens (Geum rivale).

Some uncommon species are also found in the gorge.

Evaluation

The site is interesting as it contains a few uncommon species of plants. One of the species found here is, in fact, only known from this site in Co. Wicklow.

BRITTAS BAY AND BUCKRONEY SAND DUNES



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16. 19; 1":130. 139; 6":Wicklow 36. 41.

BRITTAS BAY AND BUCKRONEY SAND DUNES

Area	c. 225 ha.
Grid Reference	T. 290, 795
Scientific Interest	Botanical, zoological and ecological
Rating	National Importance

The site is a stable sand dune system and consists of two sub sites, Brittas Bay N of Mizen Head and Buckroney sand dunes, S of Mizen Head.

The fore dunes have a sparse covering of marram grass (Ammophila arenaria) and Sea Wheat Grass (Agropyron junceiforme). Occurring also are Sea Rocket (Cakile maritima), Sea Orache (Atriplex hastata) and Sea Purslane (Honkenya peploides).

Behind this area the main sand dune ridge system commences and is dominated by Marram (Ammophila arenaria) with the sea spurges (Euphorbia portlandica and E. paralias), Rest Harrow (Ononis repens) and Sand Cats Tail (Phleum arenarium).

Further back from the ridges Ammophila becomes less frequent and the older areas of the sand dunes are dominated by Red Fescue (Festuca rubra), Birds Foot Trefoil (Lotus corniculatus), Dandelion (Taraxacum laevigatum agg.), Wild Thyme (Thymus drucei) and Silverweed (Potentilla anserina). Common associated species are Ragwort (Senecio jacobea), Blackberry (Rubus fruticosus agg.), Sand Pansy (Viola curtisii), Creeping Clover (Trifolium repens), Ladys Bedstraw (Galium verum), Sand Sedge (Carex arenaria), Wall Pepper (Sedum acre) and Lesser Meadow Rue (Thalictrum minus ssp. arenarium). The species of mosses present are Bryum capillare, Pseudoscleropodium purum, Rhytidiadelphus triquetrus, Campothecium lutescens, Tortula ruraliformis and two species of lichen, Cladonia impexa and C. pixidata.

Where gaps in the cover occur or where there is little ground cover annual species predominate and here occur Sand Cats Tail (Phleum arenarium), Hair Grass (Aira praecox), Dwarf Sea Wheat (Catapodium marinum), Soft Brome (Bromus mollis), the Scorpion Grass (Myosotis discolor) and the moss (Tortula ruraliformis).

Further back, grasses dominate with Cocks Foot (Dactylis glomerata) and Red Fescue (Festuca Rubra) being the main species. Carline Thistle (Carlina vulgaris), Polypody Fern (Polypodium vulgare agg.) and Field Wood Rush (Luzula campestris) also occur.

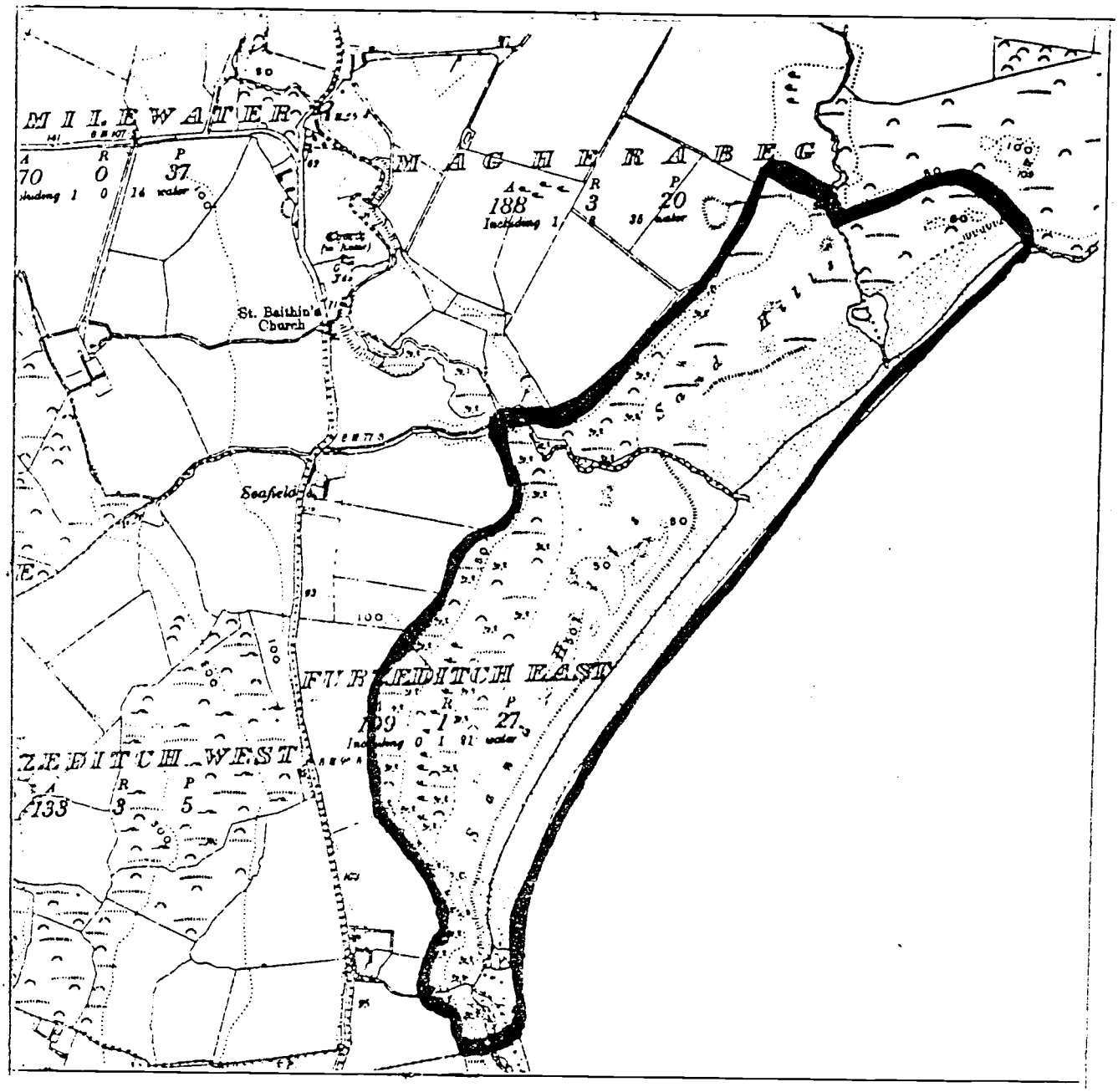
Bracken (Pteridium aquilinum) is dominant over much of this area and it also dominates the tops of some of the mature dunes.

The dune slacks are dominated by Creeping Willow (Salix repens) with Great Sea Rush (Juncus acutus) a common associated species and Sand Sedge (Carex arenaria).

Evaluation

Four rare plant species occur at the site. The site is also a good example of a sand dune habitat and contains representative plant species. The area also promises to be rich zoologically.

MAHERABEG SAND DUNES



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":130; 6":Wicklow 31.

MAHERABEG SAND DUNES

Area	53 ha.
Grid Reference	T 323,875
Scientific Interest	Botanical and zoological
Rating	National Importance

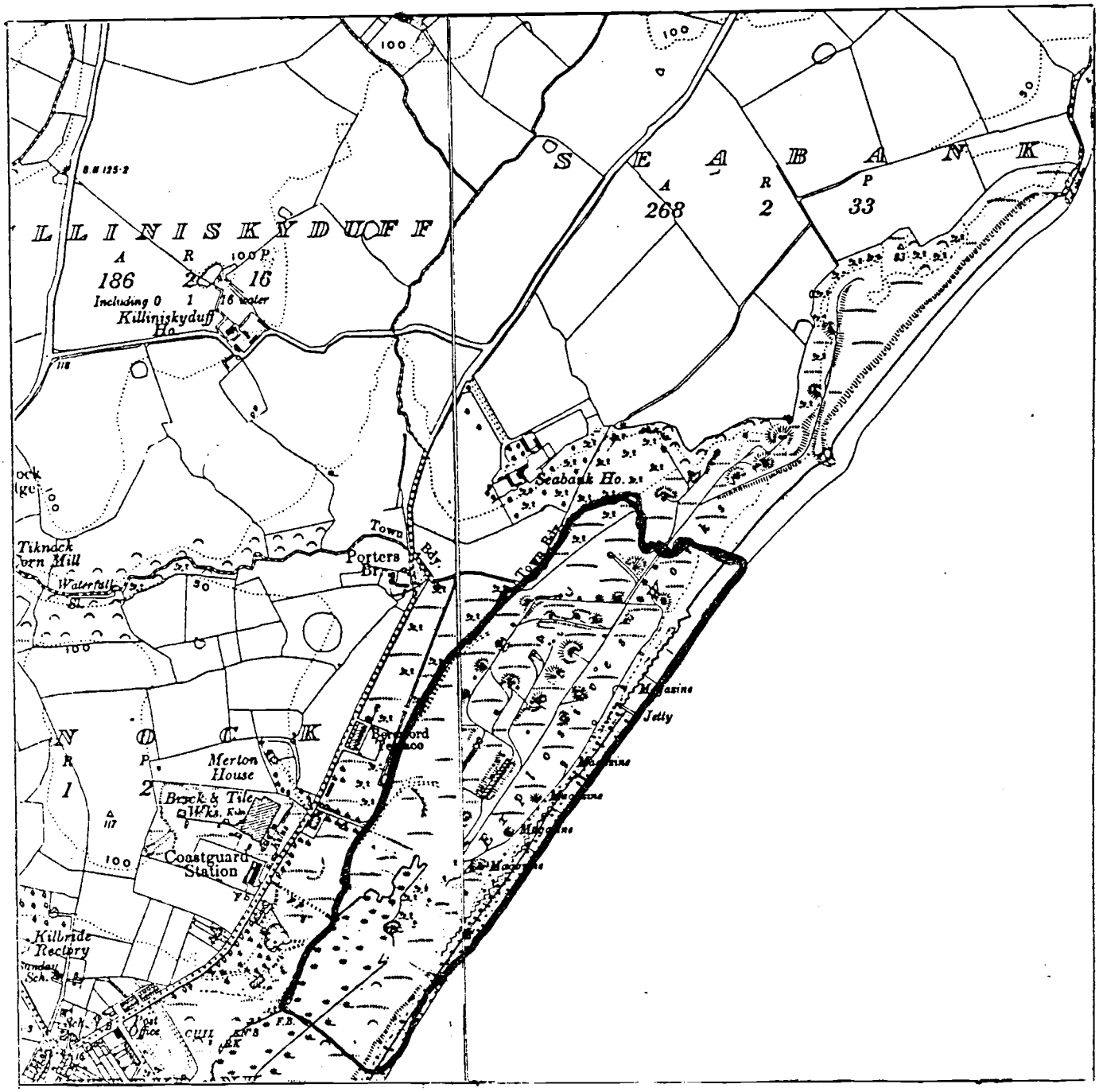
This area contains a sand dune system bordered by drift banks. The dune flora is typical of the Wicklow coast with Marram Grass (Ammophila arenaria) and Bracken (Pteridium aquilinum) dominant. A lagoon occurs within the site, which is overgrown with a mat of Bladder Sedge (Carex vesicaria). Fox Sedge (Carex otrubae), Grey Sedge (Carex divulsa) and Prickly Sedge (C. muricata) occur by the Three Mile Water associated with Yellow Loosestrife (Lysimachia vulgaris).

The drift banks in the area are wet and are dominated by Hemp Agrimony (Eupatorium cannabinum), Fleawort (Pulicaria dysenterica), Coarse Fescue (Festuca arundinacea) and Horsetail (Equisetum telmateia). Associated species are Knotted Spurrey (Sagina nodosa), Brooklime (Samolus valerandi) and Yellow-wort (Blackstonia perfoliata).

Evaluation

The national importance rating of this site stems from the occurrence of a very rare hybrid sedge and two other uncommon species. In addition the sand dunes hold a typical, well-developed flora and fauna.

ARKLOW SAND DUNES



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":139; 6":Wicklow 41. 41.

ARKLOW SAND DUNES

Area	32 ha.
Grid Reference	T. 255, 743
Scientific Interest	Botanical and zoological
Rating	Regional Interest

This site is a badly-eroded sand dune system, which contains a dune slack and a small lagoon.

The ground flora is as described for the other sand dune areas along the coast - Marram Grass (Ammophila arenaria) is dominant over most of the dunes and Birds-foot Trefoil (Lotus corniculatus), Kidney Vetch (Anthyllis vulneraria) and Red Fescue (Festuca rubra) frequent or co-dominant.

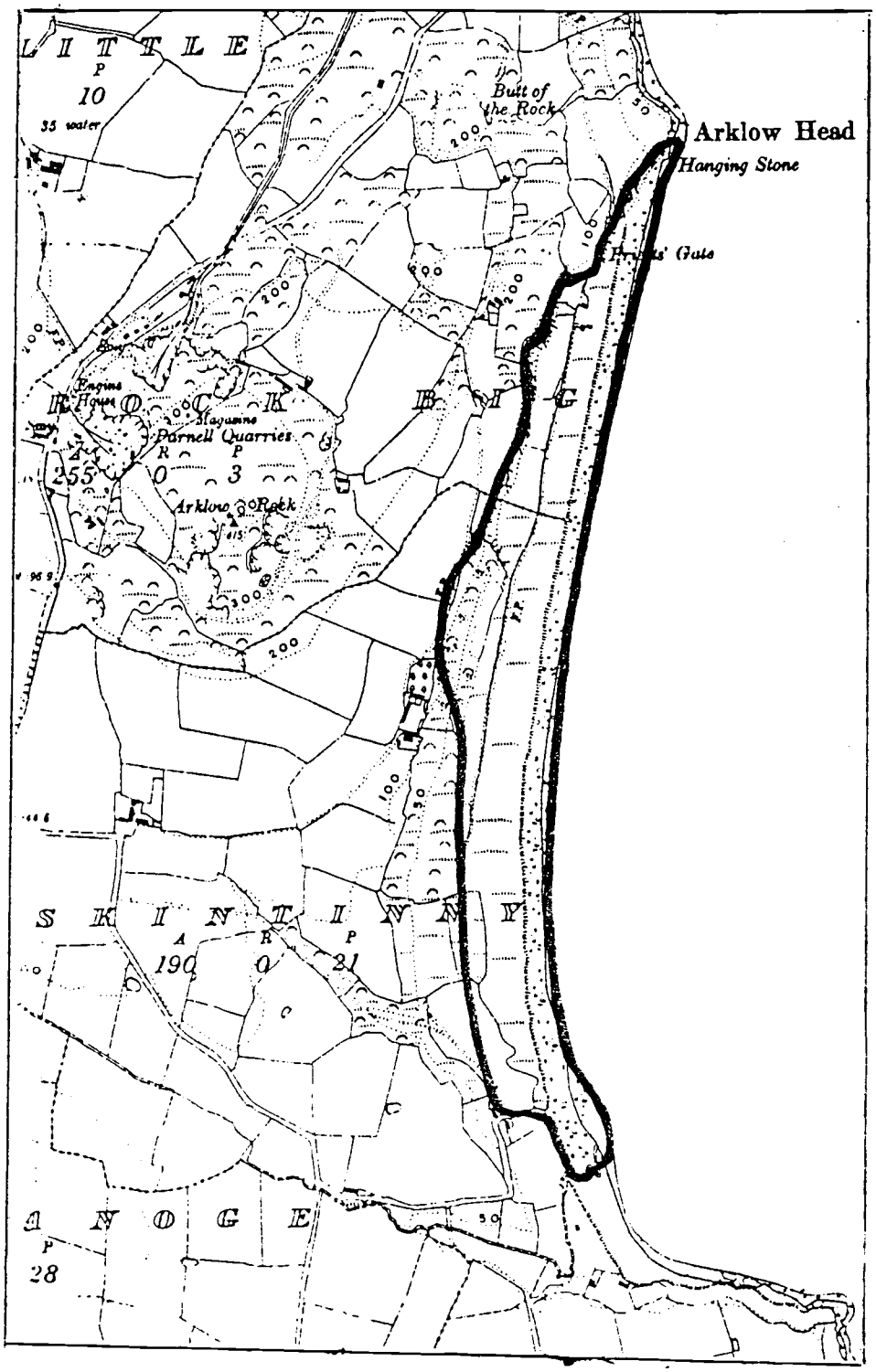
The dune slack flora is dominated by Creeping Willow (Salix repens) with S. aurita and S. atrocinerea making up the rest of the shrub layer. Sharp Sea Rush (Juncus acutus) is the dominant herbaceous species with Marsh Thistle (Cirsium palustre) and Creeping Bent (Agrostis stolonifera).

In the lagoon vegetation is sparse, though Starwort (Callitriche sp.), Great Water Dock (Rumex hydrolapathum) and Spiked Water Milfoil (Myriophyllum spicatum) occurring frequently.

Evaluation

Though the dunes are not as well developed as those occurring north of this area, they are relatively untouched in places and a typical sand dune flora occurs where there is least disturbance. A rare plant species is abundant at the site. Intense recreational pressures have eroded part of the site at the northern end and further south the dune slacks are being used for refuse dumping.

ASKINTINNY



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":139; 6":Wicklow 45.

ASKINTINNY

Area	39 ha
Grid Reference	T. 255, 696
Scientific Interest	Botanical and ecological
Rating	Regional Importance

This site is a stabilised sand dune system and the flora is typical of the sand dune areas along the stretch of coast south of Wicklow Head.

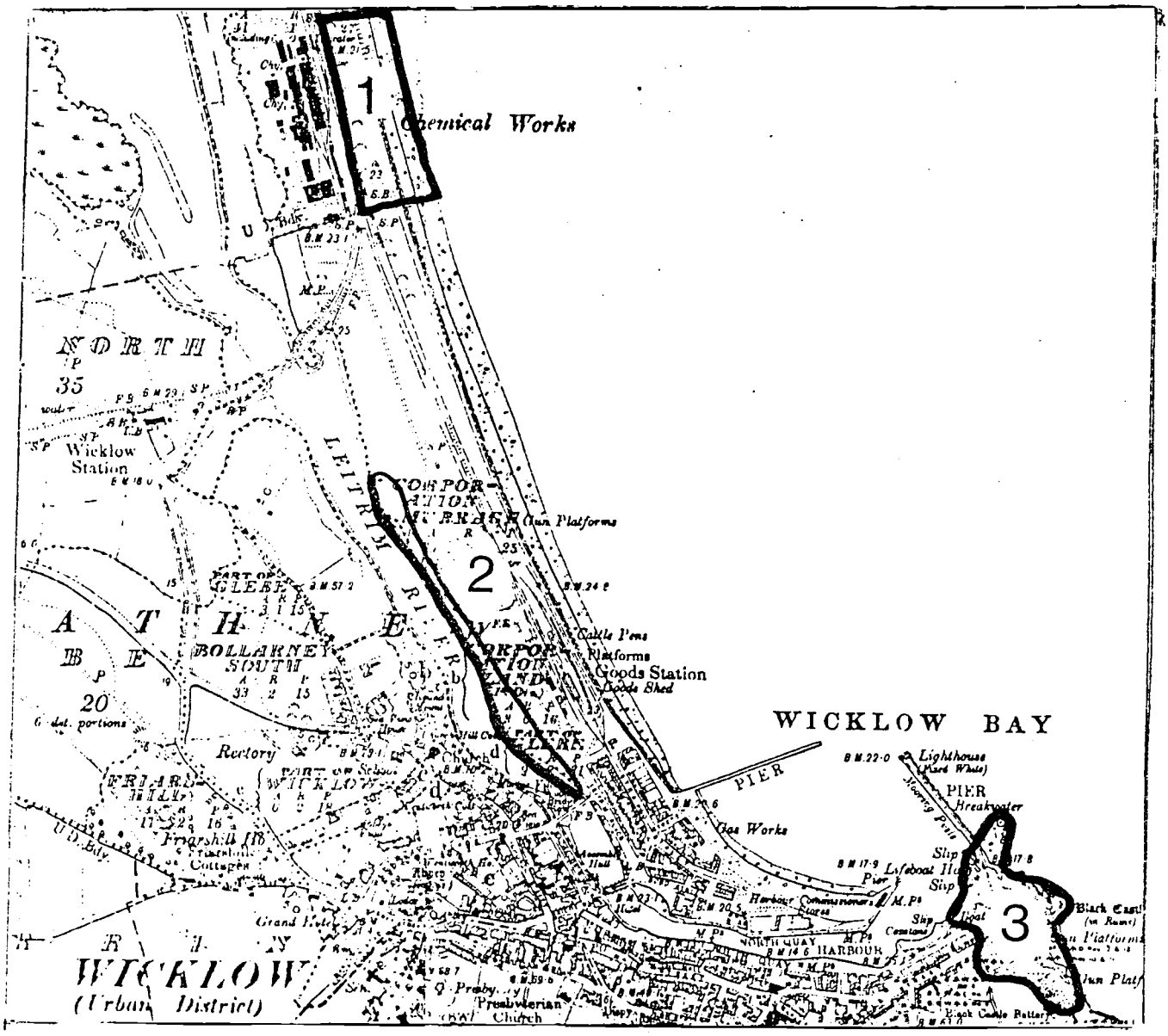
Marram Grass (Ammophila arenaria) is dominant over much of the area, with Bracken (Pteridium aquilinum) replacing it on the tops of the older dunes and in the sandhills further inland. Other dominant species in the area are Red Fescue (Festuca rubra), Birds-foot Trefoil (Lotus corniculatus) and Yarrow (Achillea millefolium).

Behind the dunes marshy areas merge with dune slacks and the flora is rich and varied with the Willows Salix aurita, S. atrocinerea and S. repens dominant. Frequent are Yellow Flag (Iris pseudacorus), Wild Angelica (Angelica sylvestris), Horsetail (Equisetum telmateia) and Creeping Bent (Agrostis stolonifera). Also present are Purple Loosestrife (Lythrum salicaria), Yellow Meadow Vetchling (Lathyrus pratensis), Purple Moor Grass (Molinia caerulea), Silverweed (Potentilla anserina), Common Sorrel (Rumex acetosa), Creeping Buttercup (Ranunculus repens) and Sharp-flowered Rush (Juncus acutiflorus). The orchids Dactylorhiza incarnata and Listera ovata are very common in the slacks.

Evaluation

The area is mainly of value because of a rare plant species occurring here in great quantity. The dune slack/marsh areas are also of interest and hold a varied and rich flora.

WICKLOW TOWN SITES



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":130; 6":Wicklow 25.

WICKLOW - TOWN SITES

Area	c. 15 ha. in total
Grid Reference	T. 31,94
Scientific Interest	Botanical
Rating	National

Three sub sites are included within this site, two of them being north of the harbour and the other further south at the Black Castle.

Sub-Site I

This sub-site is a piece of waste ground close to the Dublin-Wicklow railway and lies between this and the sea. The area is subject to burning from time to time.

Within the area Gorse (Ulex europaeus) is dominant, but where open areas occur the following are found : Sheeps Sorrel (Rumex acetosella), Scurvy Grass (Cochlearia officinalis), Bush Vetch (Vicia sepium), Yarrow (Achillea millefolium) and Burnet Rose (Rosa pimpnellifolia). A rare plant species occurs here.

Sub-Site II

This sub-site fronts the Leitrim river and consists of a gravelly area backed by sandy banks, on top of which occur Cats-ear (Hypochoeris radicata), Clover (Trifolium repens and T. dubium), Soft Brome (Bromus mollis), Daisy (Bellis perennis), Red Fescue (Festuca rubra), Smooth Meadow Grass (Poa pratensis), Buck's-horn Plantain (Plantago cornopus), Ragworts (Senecio jacobea and S. vulgaris) and Perrenial Rye Grass (Lolium perenne). 4 rare plant species occur in the area.

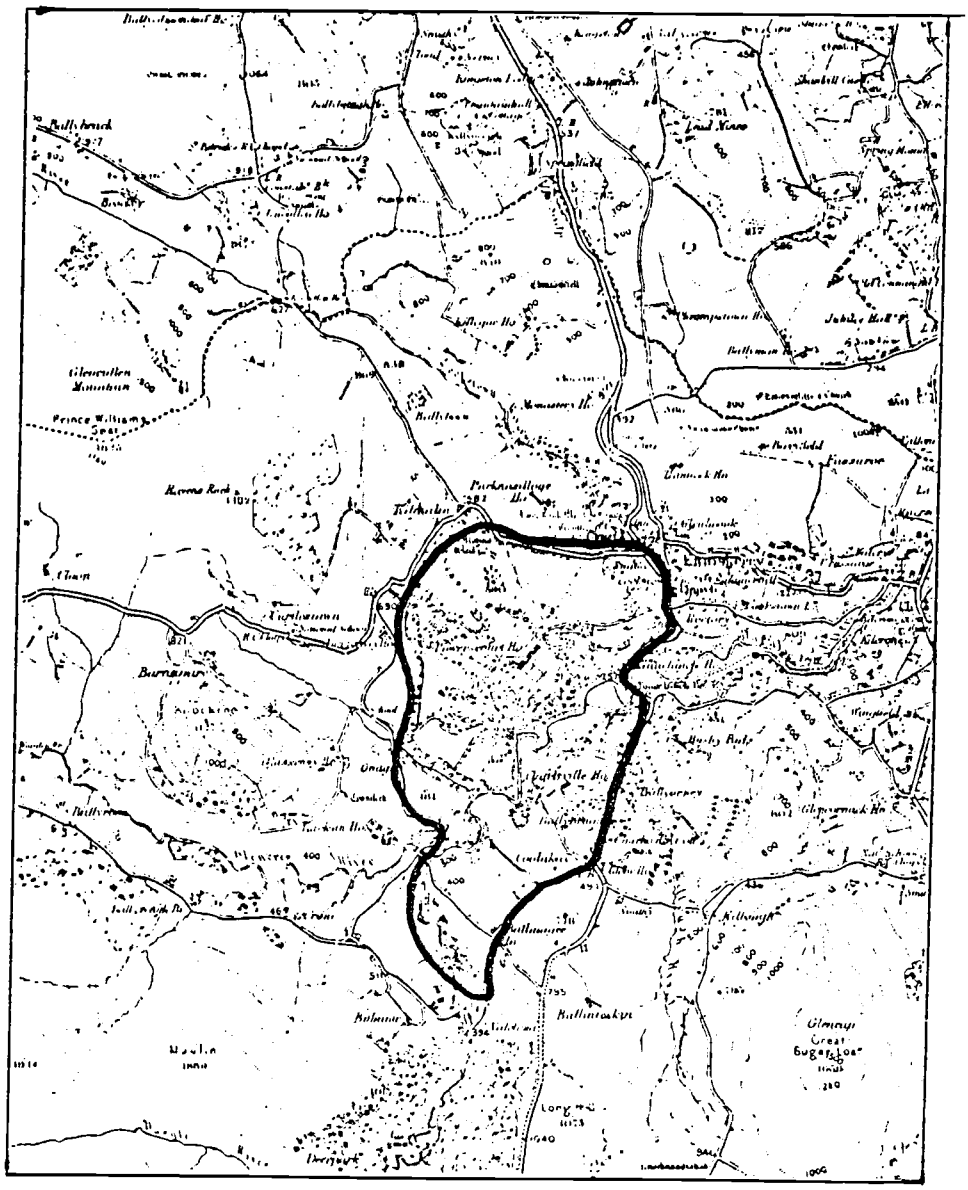
Sub-site III

This is a rocky area adjoining the cliffs. Red Fescue (Festuca rubra) dominates the area, but Hair Grass (Aira praecox), Wall Speedwell (Veronica arvensis) and Dove'sfoot Cranesbill (Geranium molle) are frequent. Three of the rare species occurring at II above are also found here.

Evaluation

In all five rare species occur within the site. The area is the only location in Ireland for one of these species; the remaining species being found only along the east and parts of the south coast. All these areas are extremely vulnerable to disturbance, dumping or recreational pressures.

POWERSCOURT DEMESNE



Scale : 1 cm = 635 m (0.4 mile)

Sheets : $\frac{1}{2}$":16; 1":121; 6":Wicklow 7.

POWERSCOURT DEMESNE AND SURROUNDING AREA

Area	c. 550 ha.
Grid Reference	O. 215, 165
Scientific Interest	Ecological, botanical and zoological
Rating	Regional Importance

This area comprises pasture, tillage, parkland, woods and river-side habitats. It has an interesting and varied flora and contains a representative selection of birds (including two rare breeding species) and a deer park. (The waterfall and its environs are dealt with elsewhere in this report. See p).

The vegetation is very disturbed over most of the area, owing to introductions and escapes from the gardens, but some rare native plant species do occur.

Lining the approach to the house are mature (and over-mature) beeches. The ground flora beneath them is sparse - the main species being Common Bent (Agrostis tenuis) and Ivy (Hedera helix).

The Dargle River, which runs through the estate for a few miles of its length, holds a rich flora on its banks including Red Campion (Silene dioica), Tufted Wheatgrass (Agropyron caninum), Wood Fescue (Festuca gigantea), Wood Brome (Bromus ramosus), Goldilocks (Ranunculus auricomis) and the Wood Rush (Luzula pilosa). These species occur along the rocky and sandy areas level with the river bed or on sandy banks adjoining the river.

In most cases the river bank is dominated by Hazel (Corylus avellana) and Alder (Alnus glutinosa) but elsewhere planted trees, especially Horse Chestnut (Aesculus hippocastanum) provide the main canopy cover with Beech (Fagus sylvatica). Further upstream near the junction of the Glencree and Dargle rivers, the banks are dominated by Hazel. Here exposed areas in the centre of the river hold Coltsfoot (Tussilago farfara), Water Mint (Mentha aquatica), Welsh Poppy (Meconopsis cambrica), Remote-flowered sedge (Carex remota), Purple Loosestrife (Lythrum salicaria) and Sweet Vernal Grass (Anthoxanthum odoratum).

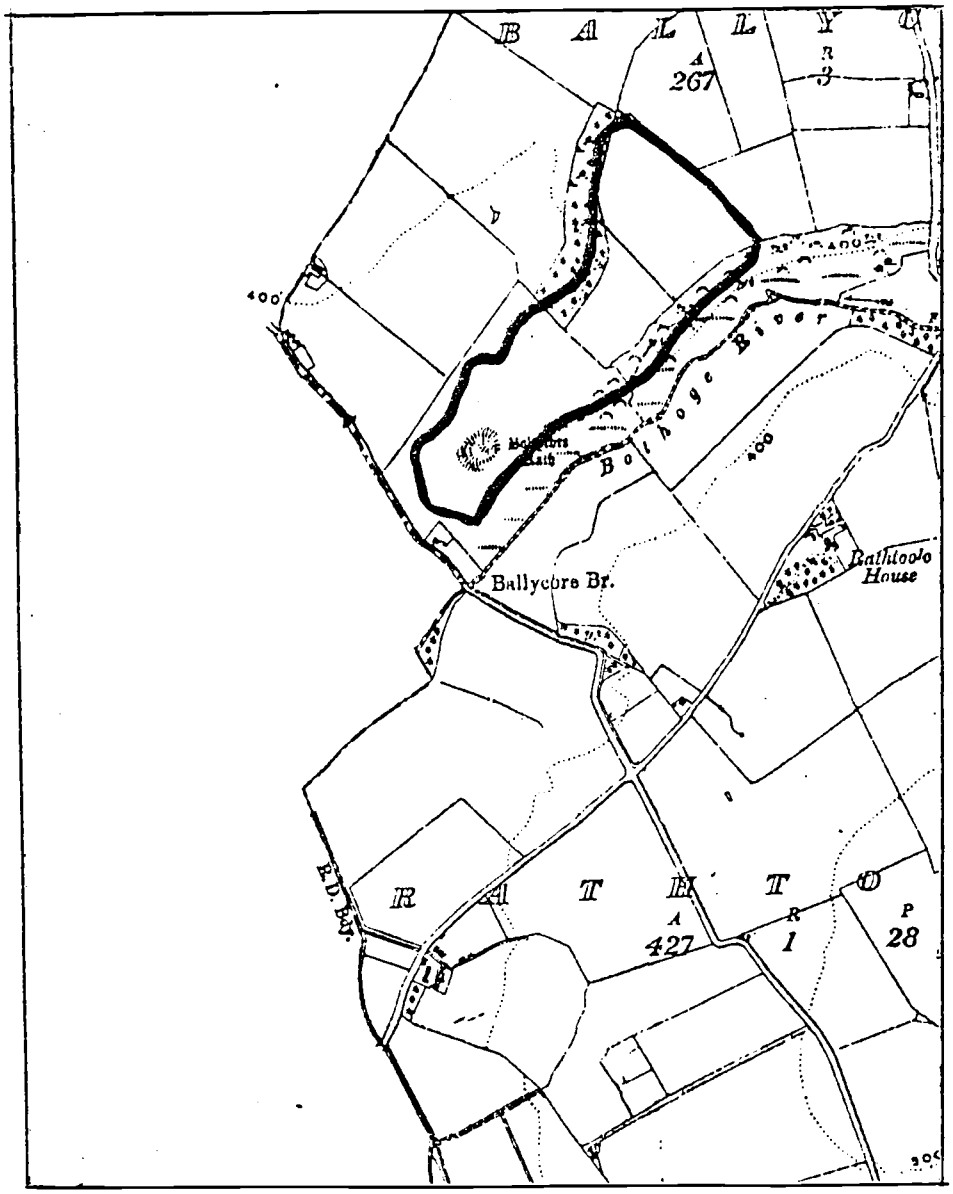
The woodland areas fringing the river and near the garden end of the demesne are calcareous and the ground cover is sparse in places. Ramsons (Allium ursinum) is dominant over much of the area, with Blackberry (Rubus fruticosus agg.). Occurring also are the Germander Speedwells (Veronica chamaedys and V. montana), Early Purple Orchid (Orchis mascula), Twayblade (Listera ovata), Sedges (Carex pendula, C. remota and C. sylvatica), Herb Bennet (Geum urbanum) and Wood Sanicle (Sanicula europaea). A mixture of trees occurs, planted and native, but Ash (Fraxinus excelsior) is common. Several rare species of plant occur.

The meanders of the Dargle near the waterfall are fringed by a heath association dominated by Gorse (Ulex europaeus), Bell Heather (Erica cinerea) and Wavy Hair Grass (Deschampsia flexuosa). Broom (Sarothamnus scorparius) is frequent along the sandy areas of the river bank. An interesting escaped plant species, Musk (Mimulus moschatus) occurs in this area.

Evaluation

The demesne and the surrounding area holds a large number of diverse habitats which contain rich floras. The area is a site for 6 rare plant species and for two rare breeding bird species. Many species of macro-fungi are to be found and the area should prove to be a rich site for invertebrates.

BALLYCORE RATH



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":129; 6":Wicklow 20.

BALLYCORE RATH

Area	10 ha.
Grid Reference	S. 815, 942
Scientific Interest	Botanical
Rating	Local Importance

This site is a large drift deposit of morainic origin, which is steep-sided and crowned by a Rath.

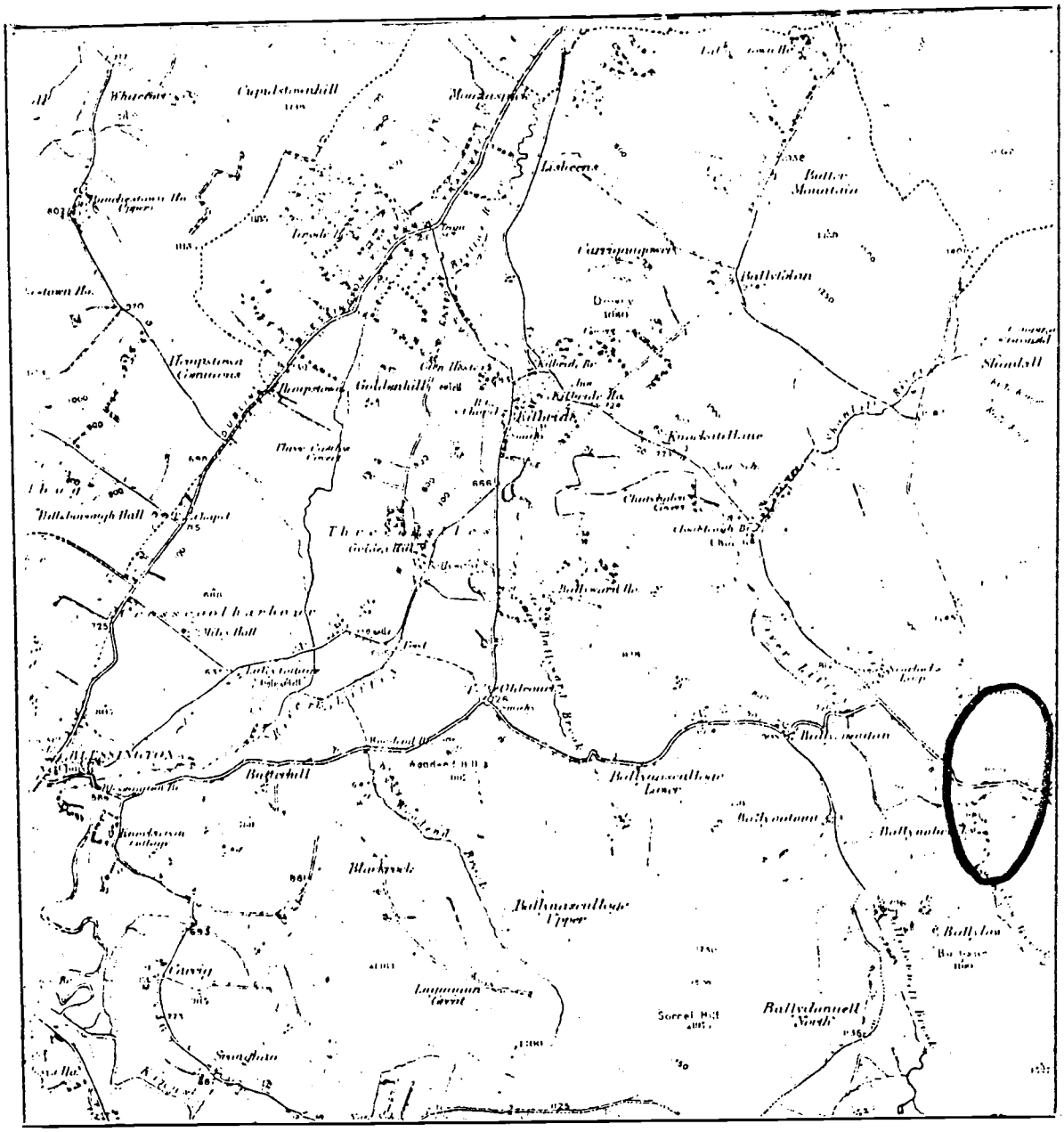
The vegetation is typically calcicole and rich in species and the following occur : Ragwort (Senecio jacobea), Crested Dogs-tail (Cynosurus cristatus), Primrose (Primula vulgaris), Creeping Buttercup (Ranunculus repens), Ribwort Plantain (Plantago lanceolata), Creeping Thistle (Cirsium arvense) and Common Violet (Viola riviniana).

Accompanying these are a wide variety of other species. Worthy of particular note, as they are indicative of base-rich conditions are, Yellow-wort (Blackstonia perfoliata), Autumn Felwort (Gentianella amarella) and Salad Burnet (Poterium sanguisorba). A rare plant species also occurs.

Evaluation

This site is a good example of calciole grassland, rich in many of the species that typically occur in such situations. A rare plant also occurs in the area and adds to its interest.

ATHDOWN MORAINE



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":120; 6":Wicklow 6.

ATHDOWN MORAINE

Area	c. 175 ha.
Grid Reference	O. 070,140
Scientific Interest	Geological
Rating	International Importance

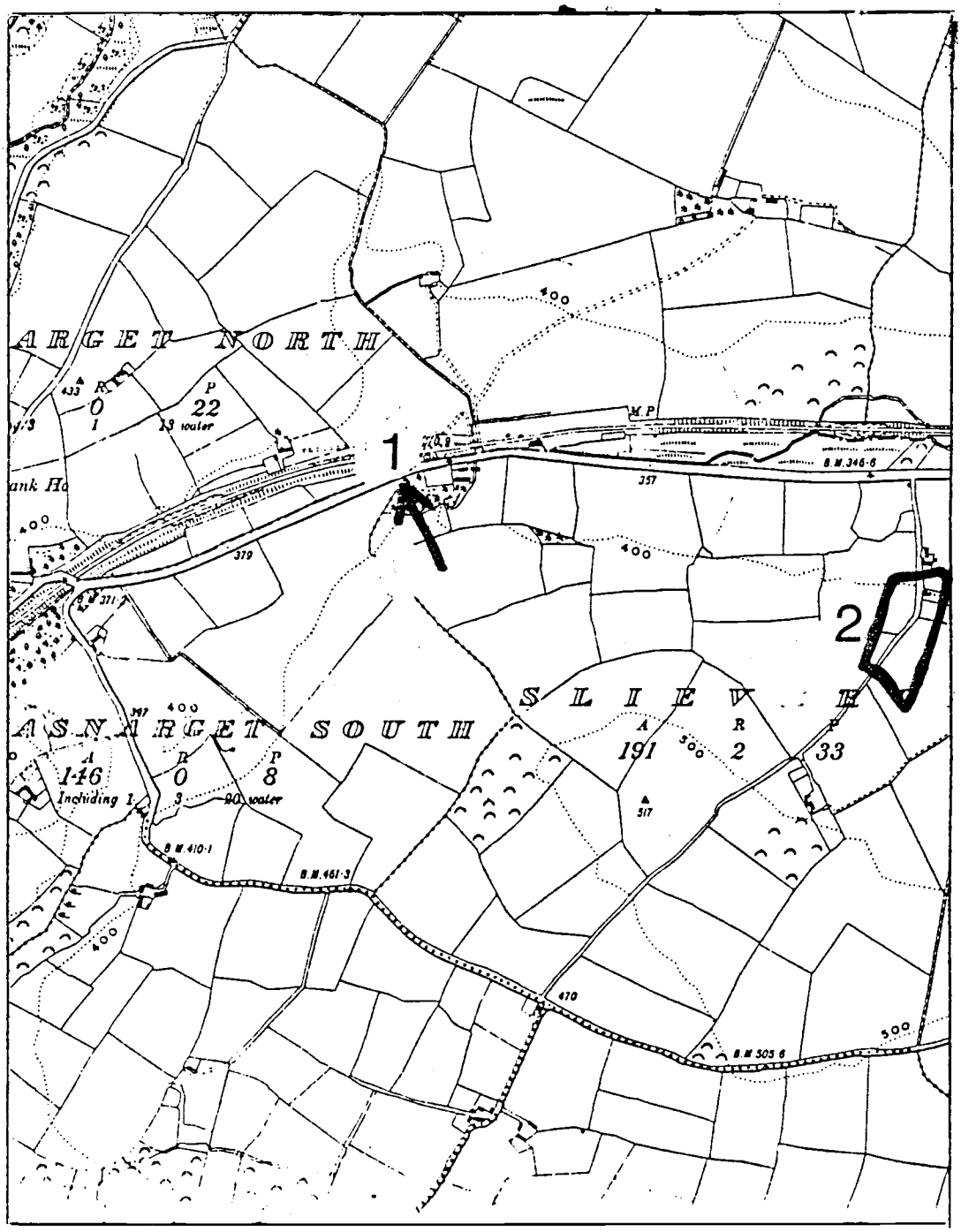
The site is a moraine across the Liffey valley.

Evaluation

Here it can be seen that the meltwater gravels associated with the moraine descend below the old level of glacial Lake Blessington, showing that the maximum of the mountain glaciers must have followed the maximum of the main ice sheet. This site is thus of international importance.

SLIEVEROE (1)

RATHDRUM RAILWAY CUTTING (2)



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":130; 6":Wicklow 30.

SLIEVEROE

Area	< 1.0 ha.
Grid Reference	T. 211, 888
Scientific Interest	Geological
Rating	International Importance

Along this lane are exposed shelly faunal facies in Caradocian volcanic ash. Fossils have been collected from an exposure by the lane and from trenches cut into its untarred surface.

Evaluation

This locality is of historic importance, having first been described by McCoy in 1846 and subsequently by Jukes and Haughton (1859) and by Dean in 1963.

It is of prime importance as the type locality for two trilobite species Calymene forcipata and Platylichas laxatus. It is also an important site for geological research.

Further details can be found in :

McCoy, F., 1846. A synopsis of the Silurian Fossils in Ireland. Univ. Press Dublin.

Jukes, J.B. and J.H. Haughton, 1859. The Lower Palaeozoic Rocks of the S.E. of Ireland and their associated igneous rocks. Trans. Roy. Ir. Acad. : 23 : 564-621.

Dean, W.T., 1963. The Ordovician Trilobite fauna of S. Shropshire III. Bull Brit. Mus. (NAT. HIST) Geology, Vol. 7, No. 8, London.

RATHDRUM RAILWAY CUTTING

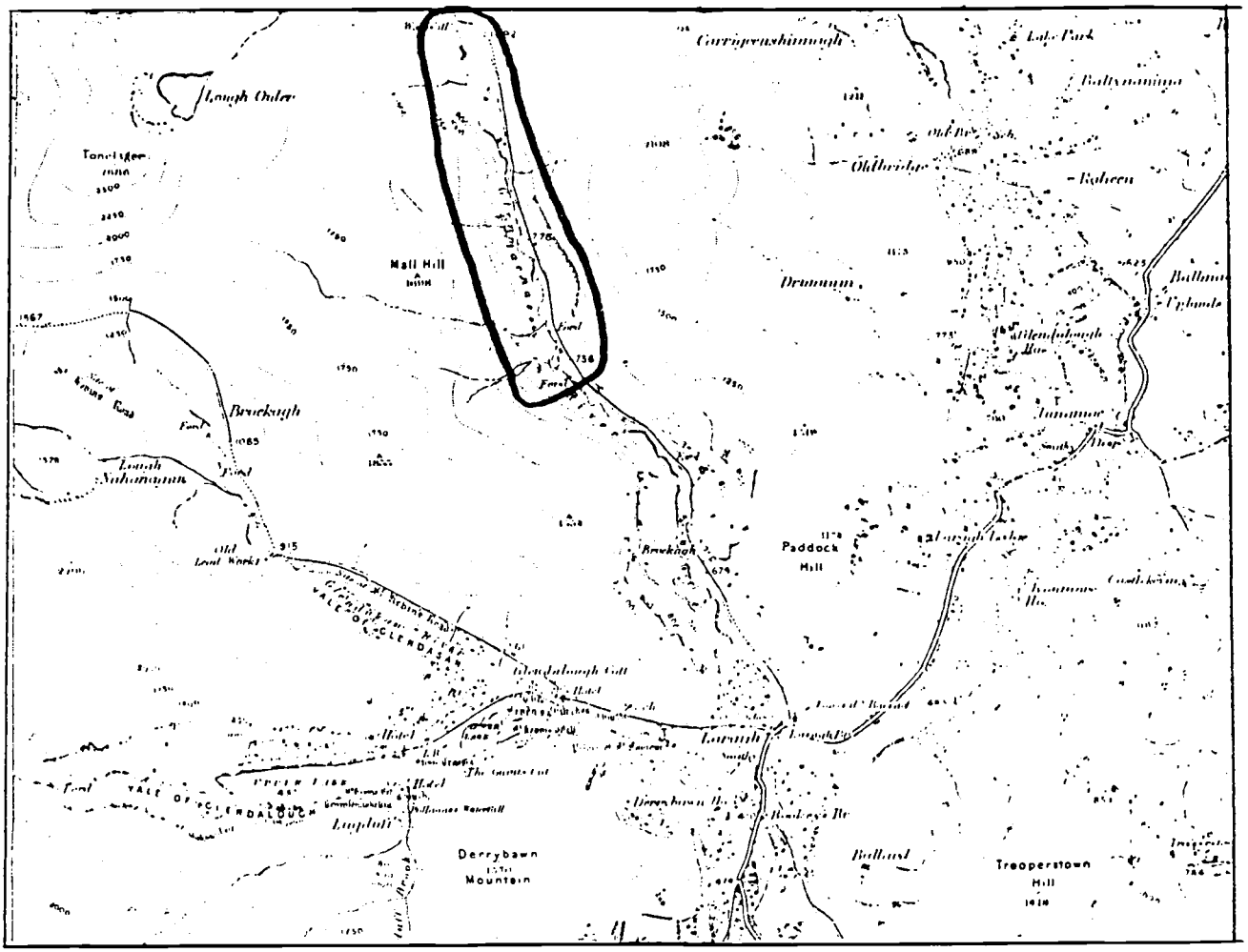
Area	Extent requires investigation
Grid Reference	T. 205, 894
Scientific Interest	Geological
Rating	National Importance

This site is a railway cutting exposing the base of the Caradoc volcanic sequence. The rocks contain graptolites and the cutting has been much studied and is also the site of research at present.

Evaluation

The bedrock contains graptolites of considerable taxonomic importance discussed in Egan, F.W. and Harvy, A. 1899. Report of the Geological Survey for 1898, p.58.

GLENMACNASS



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":130; 6":Wicklow 17.

GLENMACNASS

Area	c. 250 ha.
Grid Reference	O. 110, 020
Scientific Interest	Geological
Rating	National Importance

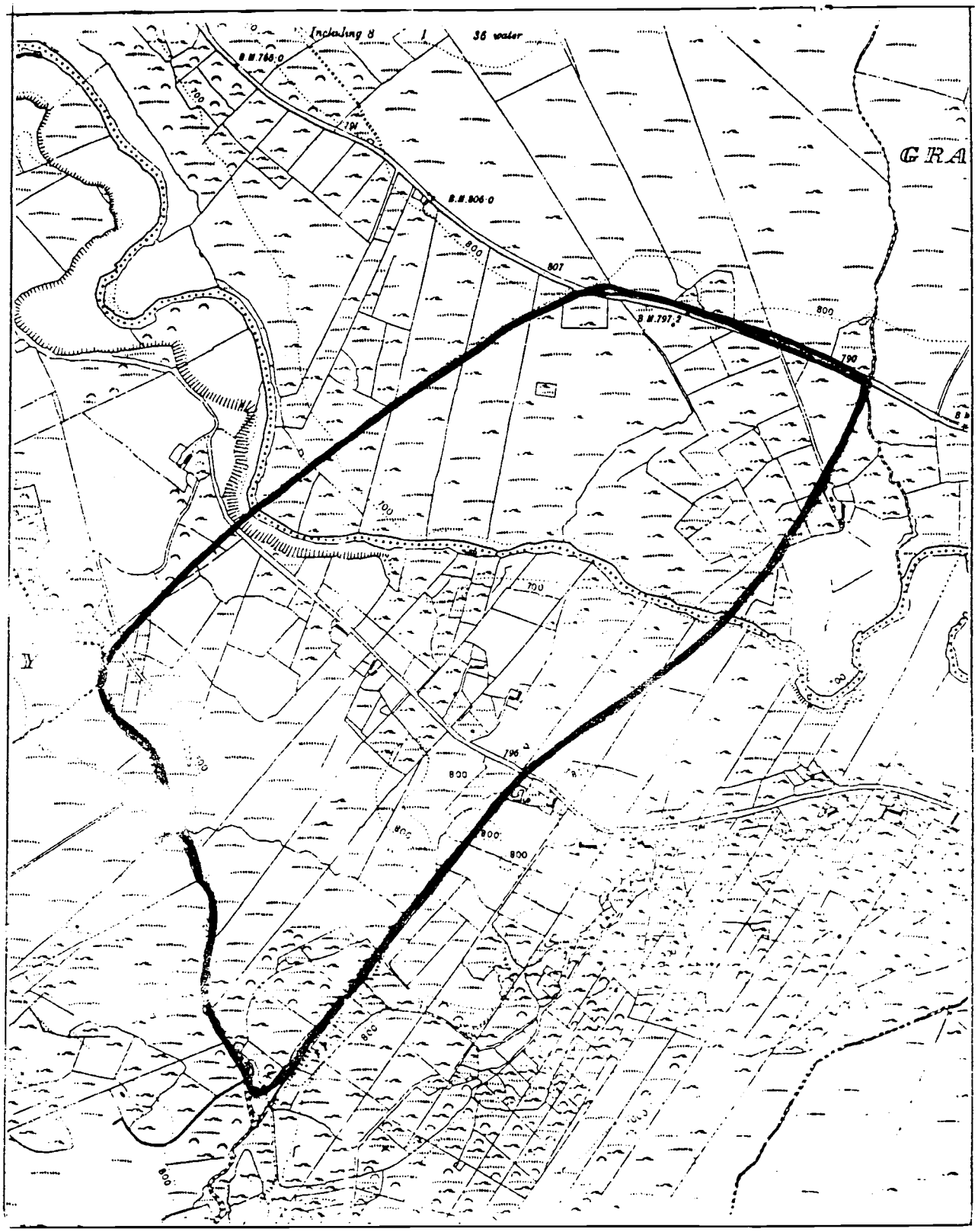
This site is the head of an over-deepened, glaciated valley with a waterfall marking the junction between the schist and the granite.

Below the waterfall the highest farm in the valley is situated on moraines that were fed by ice moving out from the west side of the valley in the last glacial episode.

Evaluation

The site clearly shows the junction between the metamorphic and igneous rocks. The moraines are also of great geological interest.

UPPER LOCKSTOWN DELTA



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":120. 129; 6":Wicklow 16.

UPPER LOCKSTOWN DELTA

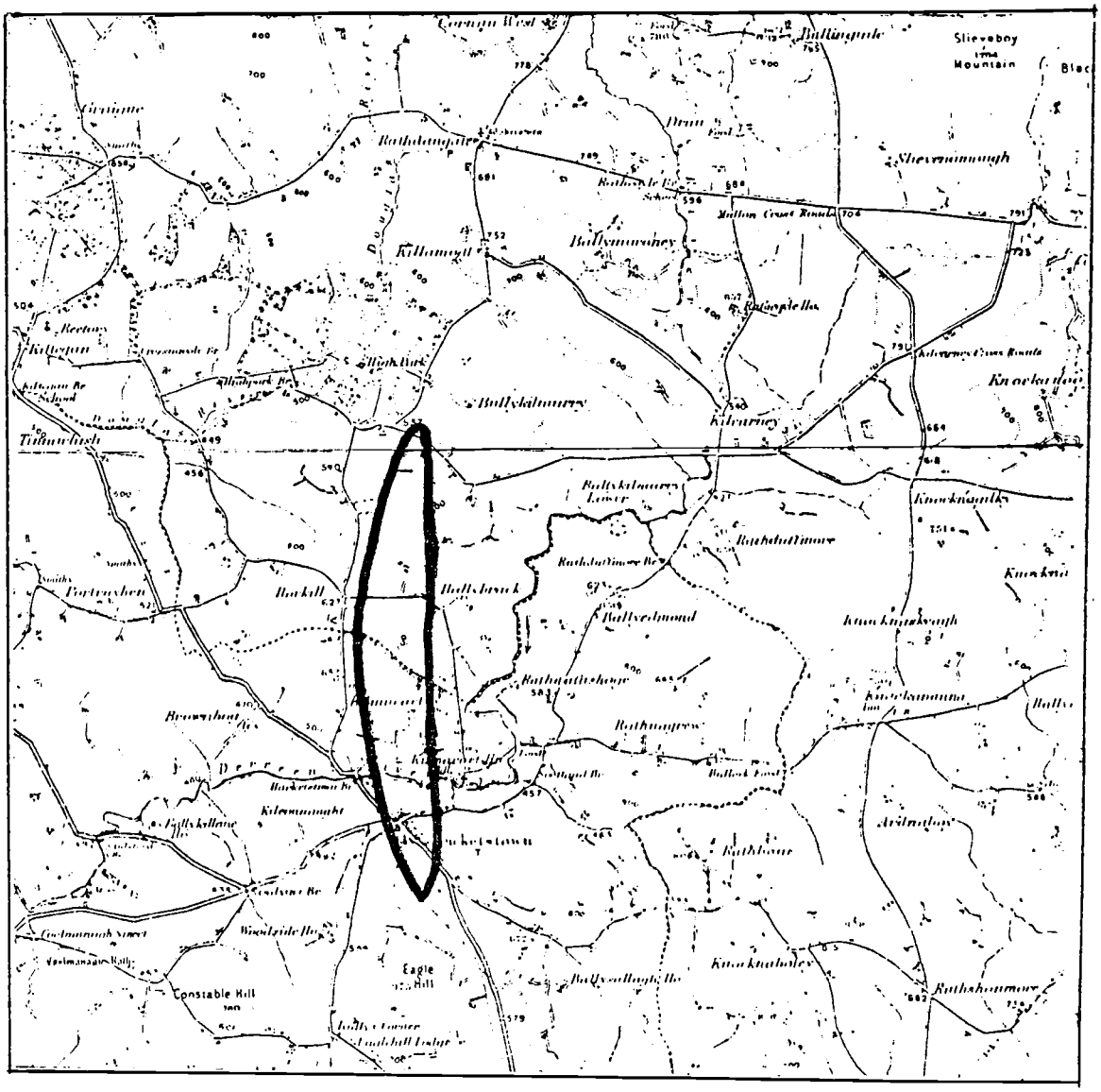
Area	c. 90 ha.
Grid Reference	N. 980,020
Scientific Interest	Geological
Rating	National Importance

The site is a glacial delta in the valley of the King's River.

Evaluation

The phenomenon is the last surviving glacial meltwater delta near Dublin and is essential to the establishment of the chronology of the region.

RATHDANGAN END MORAINE



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16. 19; 1":129. 138; 6":Wicklow 33.

RATHDANGAN END MORAINE

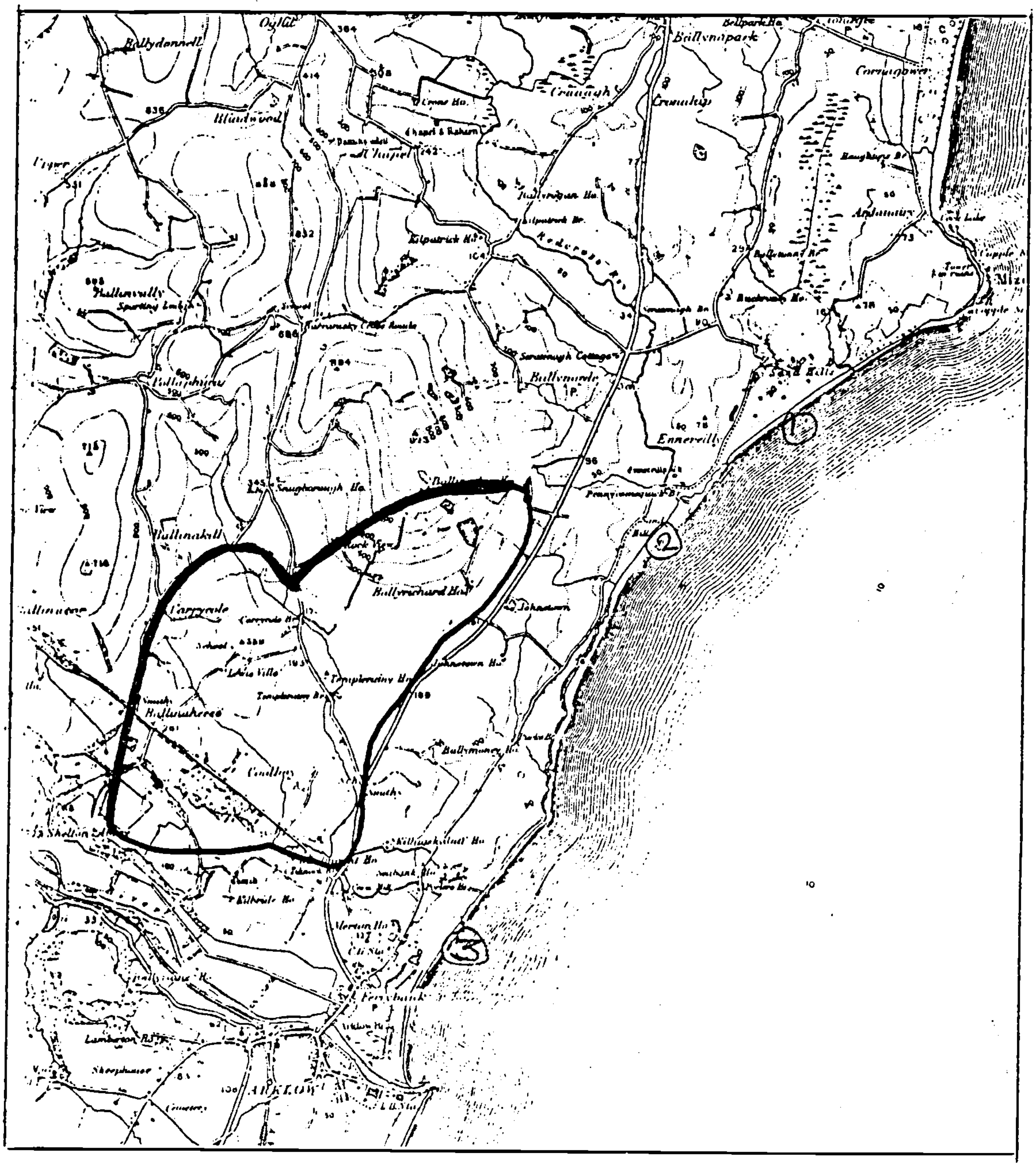
Area	c. 190 ha.
Grid Reference	S. 970, 860
Scientific Interest	Geological
Rating	National Importance

The site is a glacial moraine consisting of a sandy outwash fan with a clear ice contact on the west side. The moraine contains no granular limestone but a feature of it is calcium carbonate dissolved by acid ground water - it is pitted with kettle-holes.

Evaluation

The site is a clear indication of the eastern limit of the last midland ice sheet and is thus of great importance.

TEMPLERAINEY END MORAINE AND PINGOES



<u>Scale</u> : 1 cm = 635 m (0.4 mile)

<u>Sheets</u> : ½":19; 1":139; 6":Wicklow 40. 41.

TEMPLERAINEY END MORAINE AND PINGOES

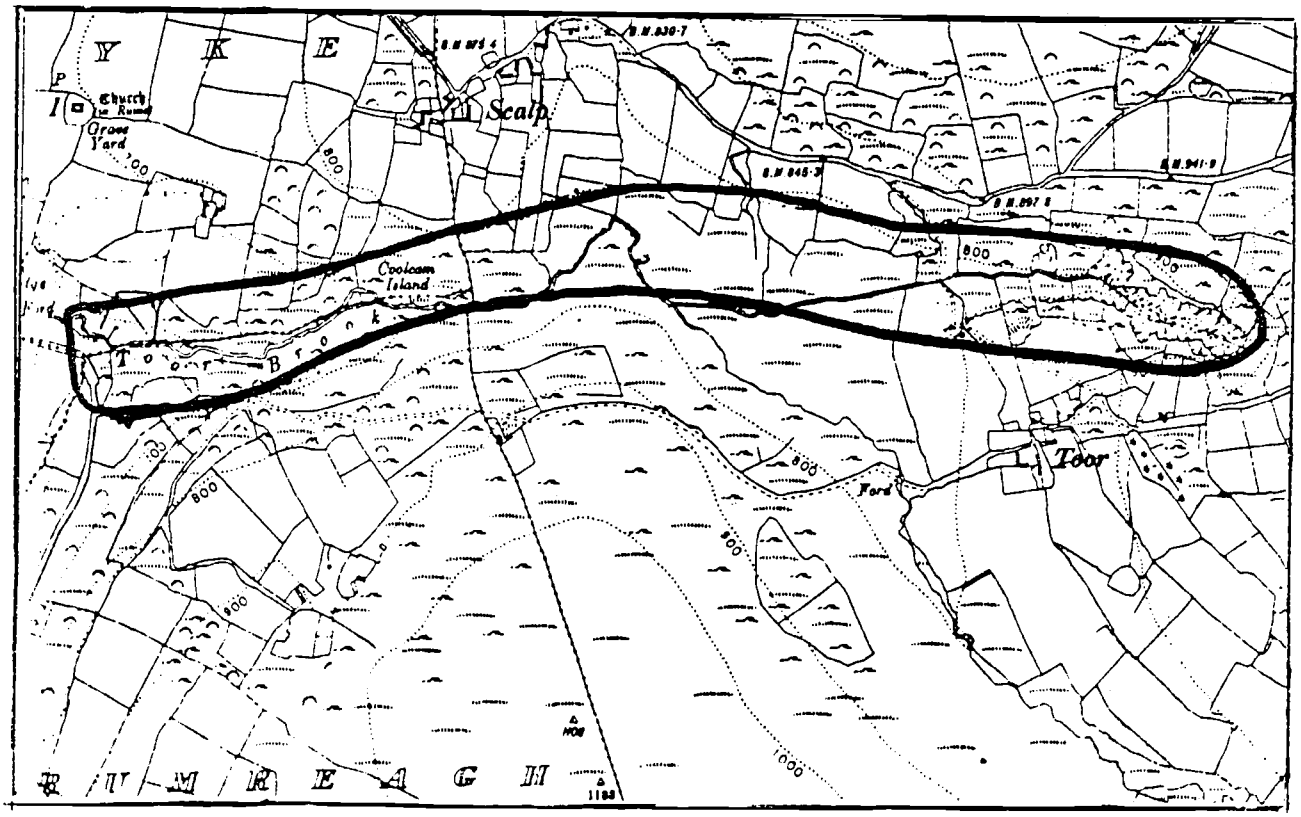
Area	c. 750 ha.
Grid Reference	T. 250,770
Scientific Interest	Geological
Rating	National Importance

The site consists of an area of drift lying on both sides of the Arklow - Redcross Road, within the triangle containing Lewisville.

Evaluation

The site marks the margin of the last glacial advance from the Irish Sea. Well formed pingoes lie on an older drift area.

TOOR CHANNEL



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":120; 6":Wicklow 15.

TOOR CHANNEL (Jackdaw's Glen)

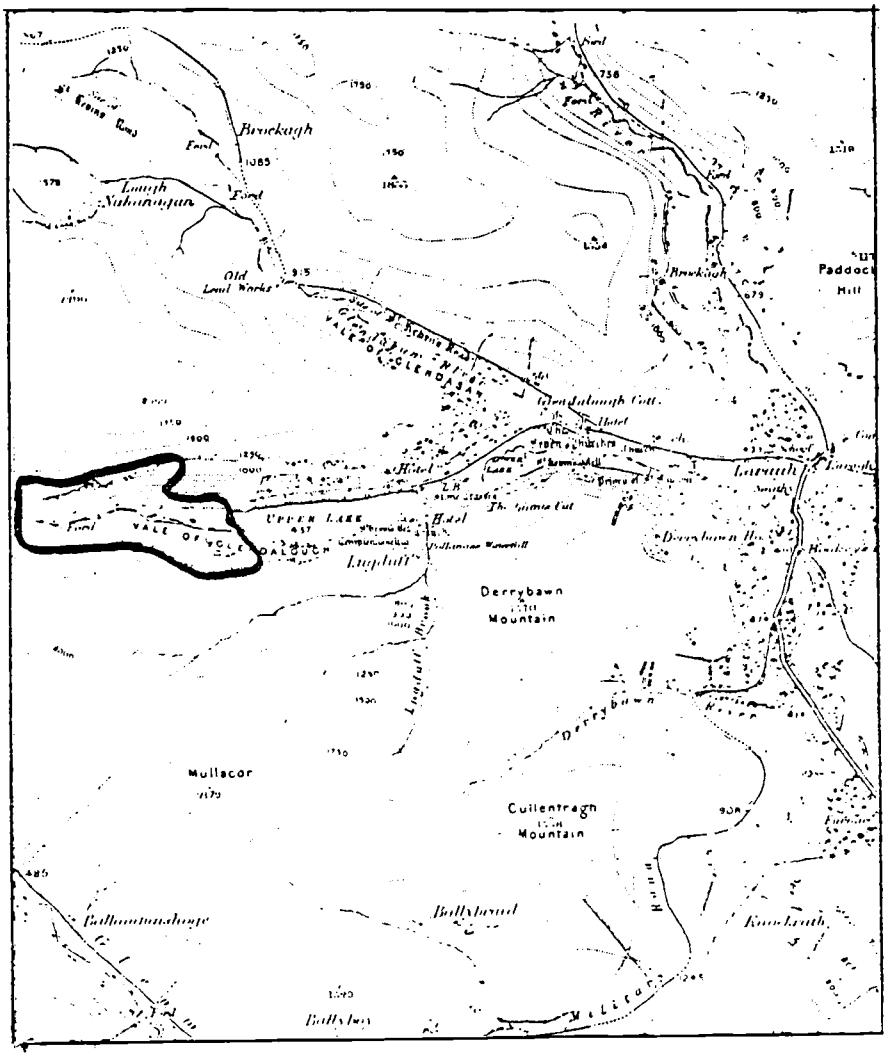
Area	21 ha.
Grid Reference	N. 950, 030
Scientific Interest	Geological
Rating	National Importance

The site is a dry valley which, at 300 M.O.D., was the highest outlet of the lake once dammed between the margin of the Midland ice sheet and the hills. This channel carried drainage from the enlarged predecessor of the Poulaphouca reservoir held by ice dams at Brittas, Blessington and Poulaphouca.

Evaluation

This site is of great geological interest because it was the highest outlet of "Lake Blessington".

GLENDALOUGH MINES



Scale : 1 cm = 635 m (0.4 mile)

Sheets : $\frac{1}{2}$":16; 1":130; 6":Wicklow 23.

GLENDALOUGH MINES

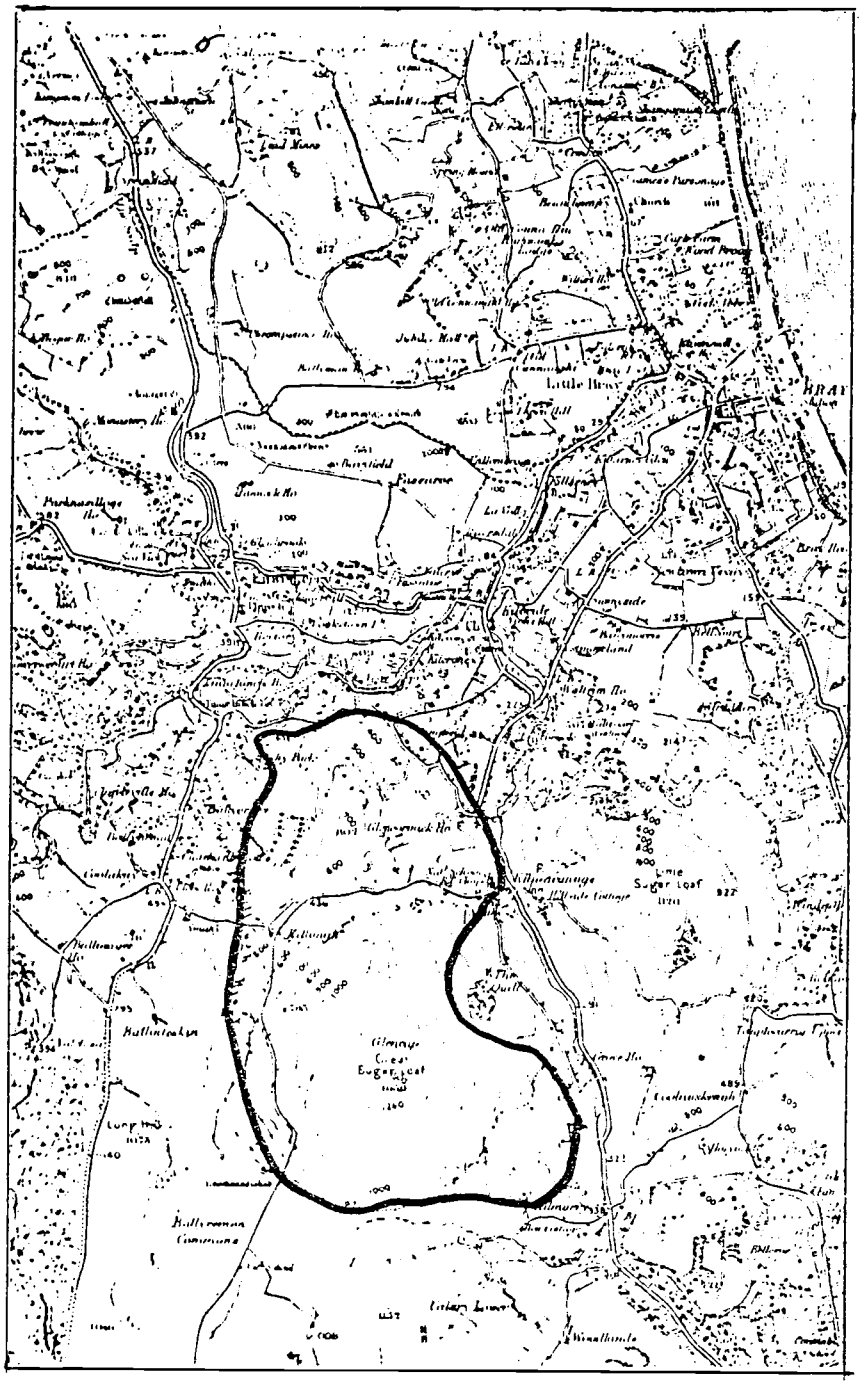
Area	c. 175 ha.
Grid Reference	T. 090, 960
Scientific Interest	Geological
Rating	Regional Importance

The mines are situated at the head of Glendalough Valley - just above the Upper Lake. The mine shafts occur to the north of the river along the granite/schist contact.

Evaluation

The mines, buildings and tipheads are typical of the Wicklow lead mines. The tip heads contain small quantities of galena, sphalerite, chalcopyrite, malachite and other minerals. The mine area is a suitable demonstration area for educational purposes.

GREAT SUGARLOAF



Scale : 1 cm = 635 m (0.4 mile)

Sheets : ½":16; 1":121; 6":Wicklow 7.

GREAT SUGARLOAF

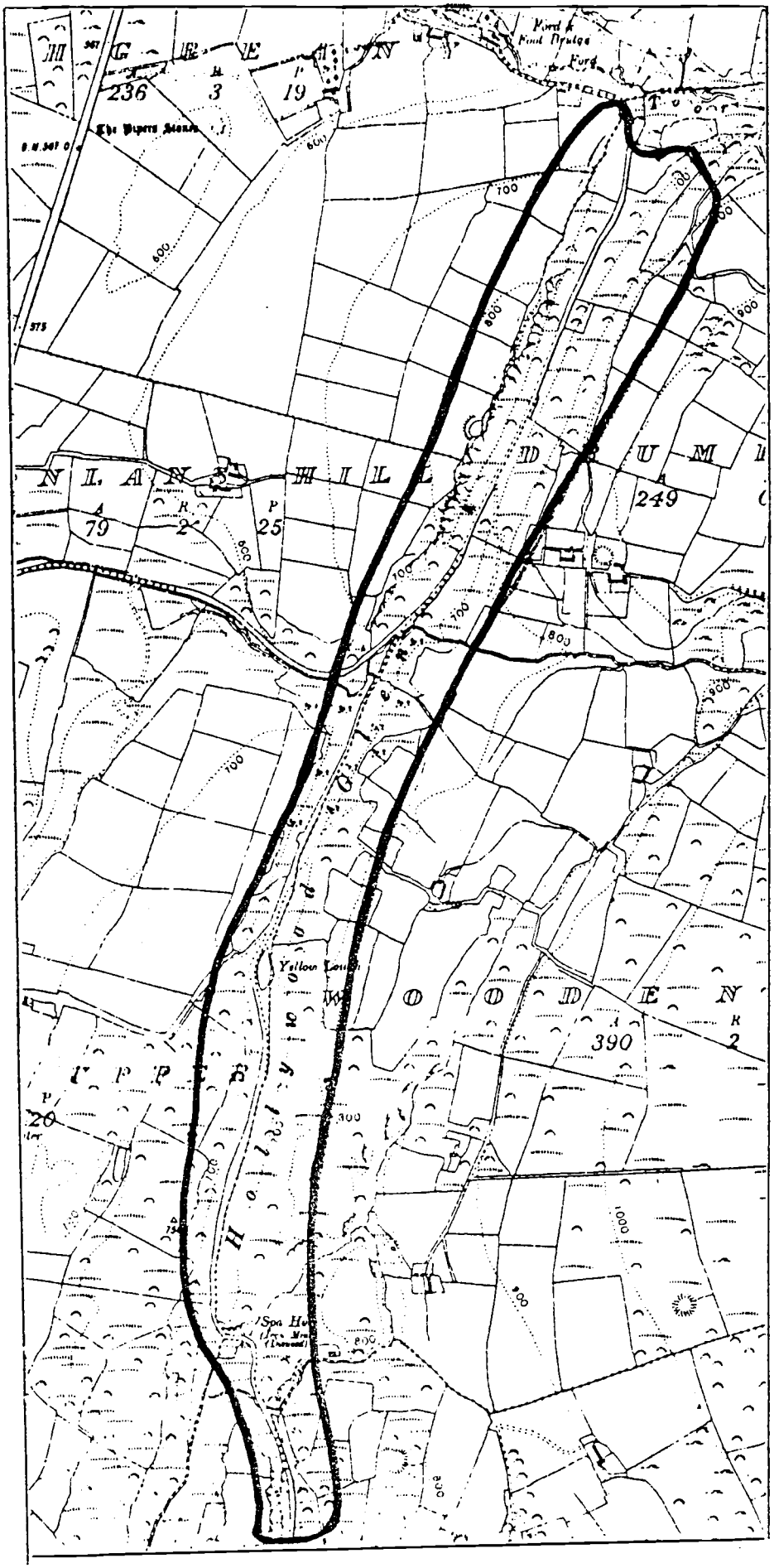
Area	c. 750 ha.
Grid Reference	O. 240, 130
Scientific Interest	Geological
Rating	Regional Importance

The site is a steep mountain modified by ice erosion.

Evaluation

The Great Sugar Loaf was considerably modified by ice erosion. It stood as a nunatak which was scoured by the Ivernian, Midland and Mountain ice sheets. Its profile thus contrasts with those of Bray head and Howth - both over-ridden by ice and flat on top. The sides of the nunatak are marked by glacial action. There are also bench marks and the Quill valley is a marginal drainage channel.

HOLLYWOOD GLEN



Scale : 1 cm = 105 m (115 yards)

Sheets 1" 16 1":120 129: 6"-Wicklow 15

HOLLYWOOD GLEN

Area	c. 50 ha.
Grid Reference	N. 930, 015
Scientific Interest	Geological
Rating	Regional Importance

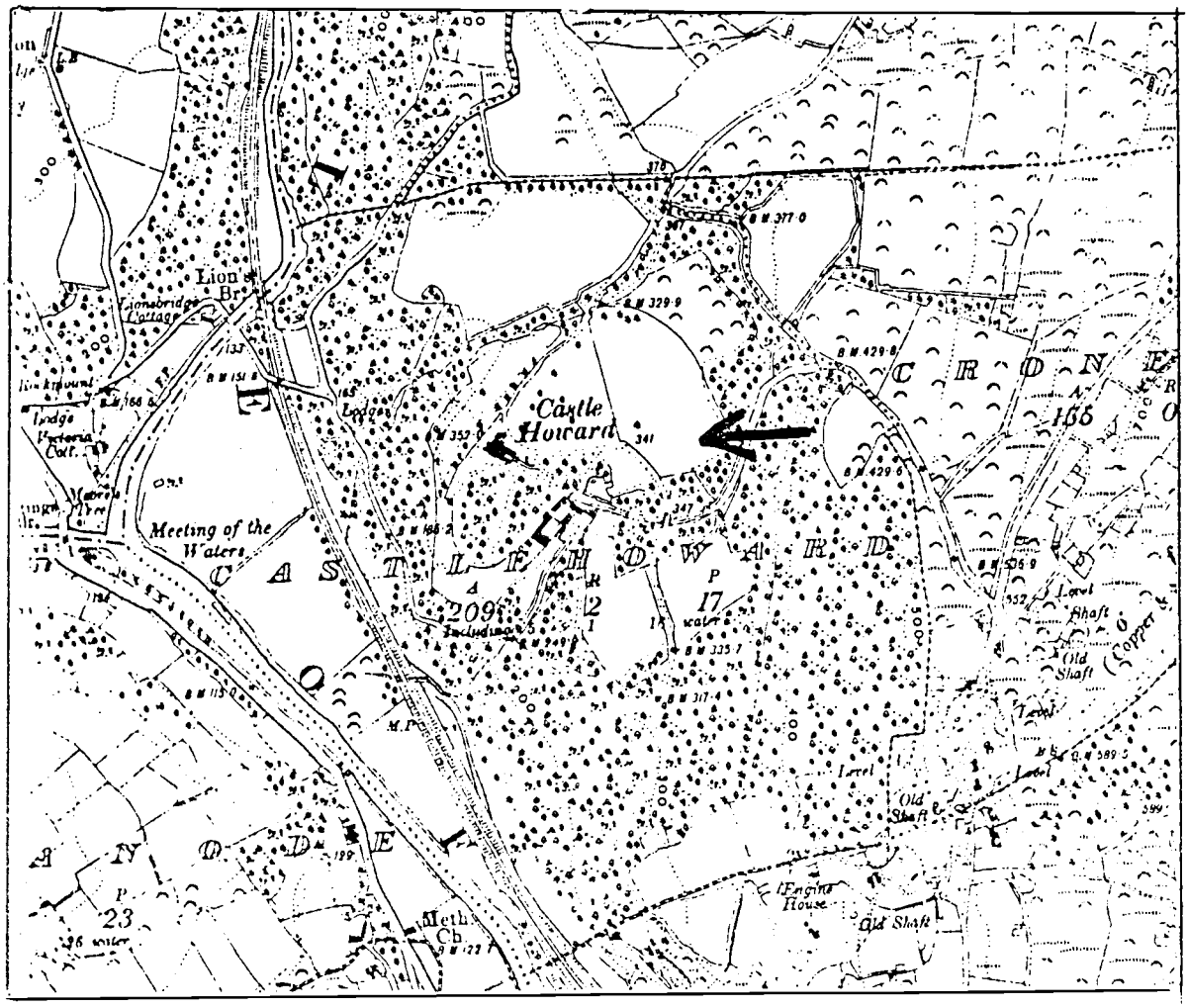
This site is a complex of dry, steep-sided channels, which are orientated in a north-south direction. It is a good example of a glacial meltwater channel cut in rock.

It was formed sub-marginally beneath the ice by drainage from the ice-dammed Lake Blessington, which was impounded at 360 metres against the western flank of the Wicklow range during the Midlandian glaciation.

Evaluation

This area is of interest geologically and is discussed by Farrington; A (1957) Glacial Lake Blessington. Irish Geog. 3. : 216-222.

THE MOTTE STONE



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":19; 1":139; 6":Wicklow 35.

THE MOTTE STONE

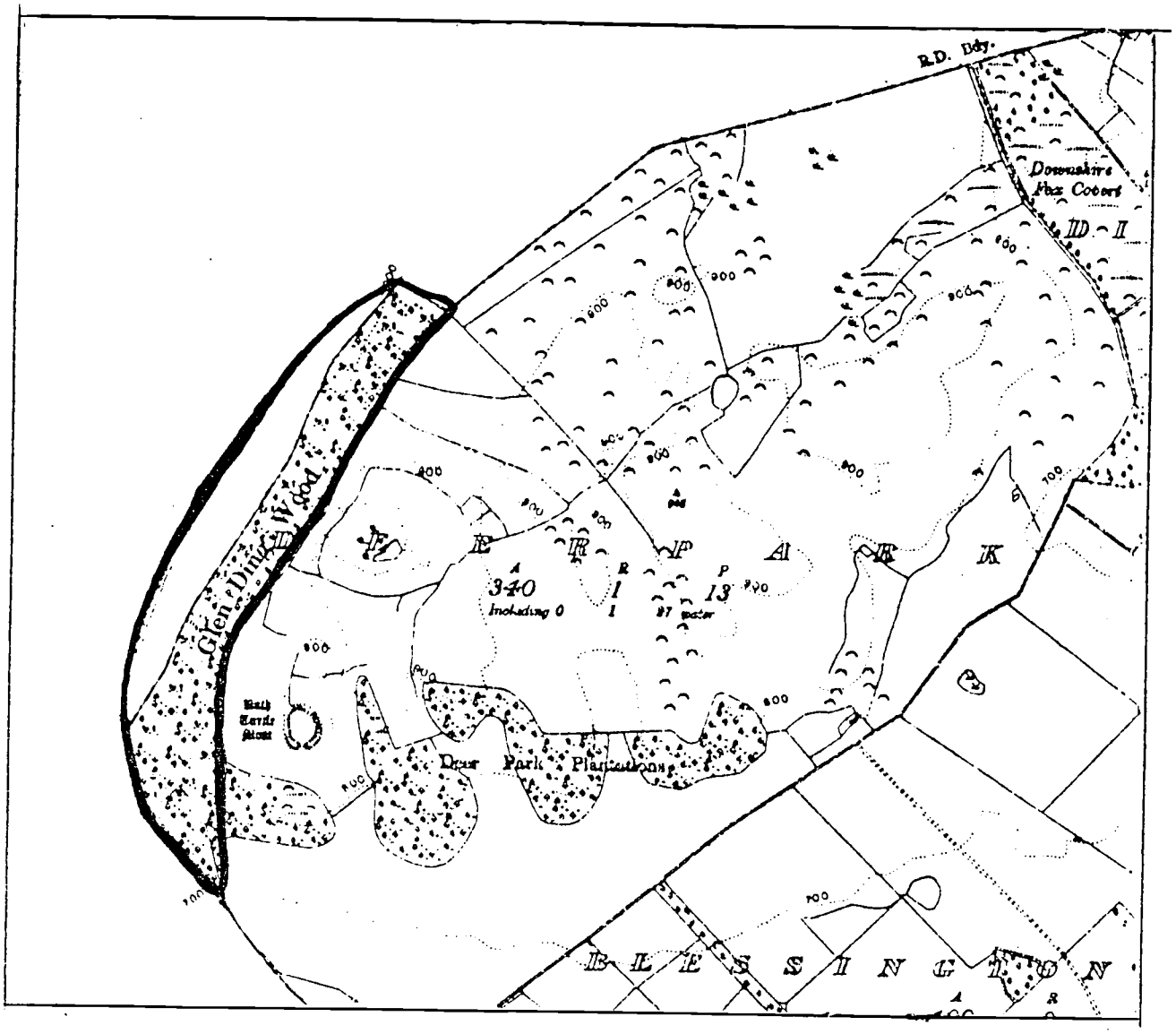
Area	< 1.0 ha.
Grid Reference	T. 200, 830
Scientific Interest	Geological
Rating	Regional Importance

This is a rocky piece of ground containing a large perched erratic.

Evaluation

The erratic, which was carried by ice of the Brittas glaciation from Glenmalur, is important as an indicator of past ice flows.

GLEN DING



Scale : 1 cm = 105 m (115 yards)

Sheets : ½":16; 1":120; 6":Wicklow 5.

GLEN DING

Area	11 ha. in Co. Wicklow
Grid Reference	N 163 155
Scientific Interest	Geological
Rating	Local Importance

This site is a dry, steep-sided, glacial valley on the boundary with County Kildare. The valley runs north east - south west.

This valley also had connections with "Lake Blessington" during the Midlandian glaciation and was an ice overflow channel into the lake.

Evaluation

The site is of interest geologically and it has been discussed by Farrington, A. (1957) Glacial Lake Blessington. Irish Geog. 3 216-222.

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