

BOTANICAL SOCIETY OF THE BRITISH ISLES

# WELSH REGION BULLETIN

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*Cardiff, January, 1972*

ANNUAL GENERAL MEETING, ABERYSTWYTH, 1971.

Secretary's Report.

The Ninth Annual General Meeting of the Welsh Region was held on September 18th. in the Botany Department, U.C.W. by kind permission of Professor Wareing. The Chairman was Mr. T.A. Warren Davis.

During the afternoon, members were given two interesting and informative talks. The first, by Miss Ann Conolly of the Department of Botany, University of Leicester, dealt with various aspects of the Flora of Castles and Abbeys. In a delightful, illustrated account, Miss Conolly provided insight into the discontinuous distribution shown by several plants associated with historic buildings in Wales, and discussed their dispersal mechanisms.

Mr. D.A. Wells, of the Lowland Grassland and Grass Heath Section at Monkswood, spoke next. He gave an interesting explanation, illustrated by colour transparencies, of the origins of several types of grasslands, emphasising the diversity and interest of the older examples of such habitats. Methods of classification and assessment were also mentioned.

The considerable flow of questions which ensued from both talks, testified to the enthusiastic appreciation of the audience. Much future fieldwork will surely have been stimulated.

The Chairman spoke next, mentioning some of the recent decisions of Council and in particular, its agreement that our constitution be altered to allow greater flexibility in arrangements for the A.G.M. The proposal that the constitution be amended to read, "That the A.G.M. be held in the current year" was passed by members.

The Secretary reported on the activities of the region in 1971. He expressed the thanks of the Welsh Regional Committee to those members who had been involved in arranging and leading the three field meetings, in Montgomery Radnorshire, and the Lleyn Peninsula. All the meetings had been very successful and much appreciated by the considerable number of members who had attended them.

ANNUAL GENERAL MEETING 1972, PROGRAMME.

The A.G.M. is being held earlier than usual, so that it can be combined with a particularly interesting field excursion at Mochras, in Merionethshire, on July 16th, to be led by Mr. P.M. Benoit. The formal proceedings will be held at Dolmelynlllyn Hall Hotel, Ganllwyd, Nr. Dolgellau during the preceeding Saturday afternoon and evening.

Saturday July 15th (at Dolmelynlllyn Hall Hotel).

- 15.30 Meeting of Welsh Region Committee.
- 16.30 Tea and assembly of entries for Photographic Competition.
- 17.00 A.G.M.
- 18.00 Judging of Photographic Competition.  
Entries on view.
- 19.00 Dinner (Table d'Hote).
- 20.00 Discussion, led by Mr. P.M. Benoit, on the following day's field meeting and, in particular, the taxonomy and ecology of Epipactis and Erodium spp.

Sunday July 16th.

Field meeting led by Mr. Benoit, to visit dune and marsh habitats around Mochras. Meet at Llanbedr, 10. a.m. (Packed lunch, Wellingtons).

A very limited amount of overnight accommodation (nearly all double rooms) has been temporarily reserved at the Dolmelynlllyn Hall Hotel, Ganllwyd, Nr. Dolgellau (venue of the A.G.M.) for the night of Saturday 15th July. Members who wish to avail themselves of this accommodation and those who require dinner only, should return the enclosed form to the Secretary, not later than Feb. 10th.

Other accommodation may be found at hotels in Barmouth, Dolgellau or Harlech, but early booking is again advisable.

RARE PLANT RECORDING AND CONSERVATION IN GREAT  
BRITAIN

F. H. Perring

Biological Records Centre, Monks Wood Experimental  
Station, (Nature Conservancy), Huntingdon.

Between 1954 and 1960 in the course of the preparation of the Atlas of the British Flora (Perring and Walters 1962) the 400 rarest species in the Flora which occurred in twenty or fewer 'vice-counties' were selected for special treatment. These are the species labelled A in the Atlas. For each of these species the main literature and herbarium sources were abstracted by the secretariat and transformed into punched cards, one for each locality. From these cards tabulations were prepared which showed the most recent data at which the species had been found at each locality. The tabulations were sent to experts who were asked to comment on the records and, where possible, supply more recent dates and additional records. After digesting their comments the maps were prepared.

More than a decade has passed since most of these maps were prepared: a decade in which changes in our environment have been more rapid than ever before. In order that we should understand the effect of these changes on our rare plant species I believe we should survey their populations at least every ten years. For this reason we began a Rare Species Survey at the Biological Records Centre in 1968.

We were able to use the Atlas as an objective basis for the definition of rarity. We chose initially to look at the 278 species which occur in 15 or fewer 10Km squares in Great Britain. We sent out tabulations of species by Counties to the Recorders of the Botanical Society of the British Isles, who sent us back the latest information about the species. From these returns we were able to assess the number of squares and localities for which the species were known in historical times, in the period between 1930 and 1950, and from 1960 onwards. The results are given in Table I.

One of our most attractive weeds of farmland is the Cow-wheat, Melampyrum arvense, but it is now on the verge of extinction, hanging on in a few hedgerows where it is always under threat from burning or clearance. Once reported from nearly 50 localities, it is now known from only 5.

If losses like these are to be halted a comprehensive plan of action has to be prepared and put into action. Some progress has already been made and more is proposed. This paper reviews the present situation.

#### ACTION BY BIOLOGICAL RECORDS CENTRE

The first action which is being taken is to find out as much as possible about each site of each rare species. The Biological Records Centre of the Nature Conservancy is asking amateur and professional botanists who visit any of the sites to complete a simple form on which they record the exact locality, making a sketch map indicating the limits of the population, and where possible, counting the numbers of plants. They are asked also for brief ecological notes and, most important, what protection, if any, is already being given to the site. At the Biological Records Centre the data will be used to acquire a national picture of the state of each species and to decide for each rare species a "threat number" which is based on five criteria:

1. The absolute size of the population(s) in Great Britain
2. The rate of decline
3. The attractiveness of the species
4. The accessibility
5. The present conservation status of its site(s)

Even when the conservation organisations are successful and control over a site has been acquired, access may have to be limited either because constant visits may disclose the site of an attractive species to the unscrupulous, or because it occurs in a fragile habitat which could be destroyed by too much trampling by the very wellwishers most keen to protect it.

It is surely better, particularly in rapidly developing regions, that the local conservation organisations should know the exact localities of the rare species in their area so that they can keep their planning authorities fully informed: the dangers from house building, road widening, pipe-laying, drainage schemes, etc. are much greater than attacks by a few unscrupulous naturalists. Nevertheless action would certainly not be complete unless attention were paid to this aspect of rare species conservation.

#### NATIONAL ACTION

- a) Legislation. There is no general law against picking or uprooting wild flowers in Great Britain though in most counties bye-laws exist which make it an offence to dig up plants in places to which the public has access. These bye-laws are largely forgotten, are totally ineffective and in any case are too blunt a weapon to deal with the problem of particular species in particular places. For some years the Wild Plant Protection Working Party, drawing its members from the Society for the Promotion of Nature Reserves, the Botanical Society of the British Isles and the Council for Nature, has been working on a bill which would make the picking or uprooting of certain rare species illegal. The "Threat Number" will help to determine which species should be included, though it would be hoped that, should the bill become law, it would give the Minister concerned powers to alter the list on advice from a panel, whose judgment would be based on frequent resurveys carried out by the B.S.B.I.
- b) Persuasion. An Act is needed to give teeth to the other actions which must be taken to bring about a change in attitude to collecting - a change which has been brought about in the bird world in Britain, in the

Counties. Brecon, Cambridgeshire and the Isle of Ely, Hertfordshire, Huntingdonshire and Northamptonshire Education Authorities have published lists. These guides usually contain two lists: one of about 250 plants which could be collected with safety, and a second list of decorative and beautiful flowers, often rare or local, which should on no account be picked.

- c) Propagation. It is generally agreed by botanists that adequate material of rare species for classical taxonomic studies already exists in our national herbaria: it is the cytogeneticists, plant biochemists, population analysts and so on who make the biggest demands for living material from the wild. One of the clauses of the Botanical Society's Code of Conduct, referred to above, suggested that members should raise rare species from seed or propagate them from cuttings wherever possible. If this suggestion is to become effective centres of seeds and cuttings must be established and the scientific public must be able to find out easily what they contain.

The natural guardians of living plant material are the Botanic Gardens, and the Botanical Society has already begun discussions with several of the larger ones to decide how the problem is to be tackled. In every case the suggestion of co-operation has been warmly welcomed by the Gardens.

1. Living Plants. It is hoped that particular gardens will be responsible for maintaining living plants of known provenance of particular species and that a register of these will be maintained by the B.S.B.I. All those wishing to work on any species in the list of those not to be collected would be asked to obtain material for study from the appropriate Botanic Garden and not from the field.
2. Seeds. The Royal Botanic Gardens at Kew has, over the last 2 years, developed a seed bank with extensive low temperature storage conditions. Agreement has been reached that the Garden will maintain stocks of seed of rare British species. It is hoped to use

Growing concern about uncontrolled introductions into the environment and particularly into Nature Reserves stimulated the Conservation Liaison Committee of the S.P.N.R. to publish a booklet (S.P.N.R. 1970) outlining criteria for introductions: three of the seven criteria referred to rare species. It is suggested that introduction is reasonable where a rare species has become extinct within a reserve area within the recent past and the habitat is still suitable or could be modified to become so. Introductions may also be made where a species occurs in a habitat contiguous to or in the immediate vicinity of a reserve but happens, by chance, to be absent from the reserve itself. Species might also be moved to the safety of a nearby reserve if its site is threatened in an unprotected area. In addition it is recognised that it may be desirable occasionally to introduce rare species into areas outside their known geographical range for serious scientific experiment - but on the understanding that the material can be removed if necessary at the termination of the experiment

#### CONCLUSION

Rare plant species are often relicts surviving in restricted ecological niches. The opportunities for these species to spread to other, suitable habitats are minimal. Thus a site lost now is usually a site lost for ever. The challenge to the conservation movement is enormous: in addition to the flowering plants and ferns other groups of plants like the bryophytes and lichens are equally threatened and their rare species are equally in need of protection. The challenge is also immediate and extremely urgent: losses are occurring every year. Rare species conservation is a complex subject involving Recording, Research, Management of Reserves, Legislation, Education and Cultivation. But this complexity must not daunt us. There can be no excuse for inactivity because, to echo another campaign, if we leave the rare species alone they'll go away.



## Meadows and Pastures and some aspects of their Biological Conservation.

D. A. Wells.

Nature Conservancy, Monks Wood Experimental Station.

### Introduction

Up to the 1900's and even to as late as 1940 in certain areas, the terms meadow and pasture had precise and important meanings to the farmer. These grasslands formed the basic unit of agriculture in Britain. Both were essential for livestock production; the pastures provided summer grazing and the meadows were cut for hay and so provided winter fodder. The effects which these two forms of management had on the resulting sward will be considered later.

Meadows and pastures were grouped by Tansley (1919) into neutral grasslands which he defined as "semi natural grasslands whose soil is not markedly alkaline nor very acid, mostly developed on the clays and loams". This definition immediately points to one of the dominating factors in determining species composition of the sward, namely soil. The others are : water, geographical location and management.

### Soil

Unlike dry calcareous grasslands formed directly on the parent rock e.g. chalk and limestones, most neutral grasslands occur on material derived either by glaciation or by river action. The usually strong association between calcareous grasslands and the underlying rock formation is thus much less in evidence in neutral grasslands. Variation in the physical constitution of soils is, moreover, much greater in derived soils and accounts for some of the floristic differences between these grasslands, for drainage and its attendant factors such as aeration will vary and affect botanical composition.

of these base rich grasslands, like Fritillaria meleagris, Orchis morio and Colchicum autumnale are also characteristic of hay cutting. Where tall herb communities occur in the north and west these species are "replaced" by Trollius europaeus, Geranium sylvaticum and Crepis paludosa. Welsh grasslands have a particular interest in a study of the biogeography of meadows. The dales meadows of the north of England are characterised by Cirsium heterophyllum and the species mentioned above, but this species, although not unknown in Welsh meadows is not characteristic of them. Platanthera chlorantha on the other hand is characteristic of certain Welsh meadows but is rare in meadows elsewhere. The genus Dactylorhiza has two species, D. praetermissa and D. purpurella which are well known as showing a southern and northern distribution respectively. A few grasslands in Wales are known to contain both species.

### Management

The two major forms of management are grazing and cutting. Grazing produces a patchwork, both in communities and in structure. Plant communities are formed as a result of the interaction between; palatability to the animal; resistance to grazing, and ability to colonise a sward opened up by grazing. Agrostis spp. and Festuca spp. are more palatable than Deschampsia cespitosa and equally, they are more resistant to grazing than Arrhenatherum elatius. Therefore, continued grazing of a sward containing these species will eventually eliminate A. elatius leaving a sward of Agrostis/Festuca interspersed with tussocks of D. cespitosa.

Whereas grazing is a continuous, selective cutting process which removes very little from the nutrient cycle, hay making removes most of the aerial portion of the plant at a given time and therefore favours those herbs which mature early and whose seed is dispersed before or during hay making to germinate in the relatively open sward following a hay cut.

### Biological characteristics

Meadows and pastures which have not been agriculturally improved can show a rich and varied flora. Several small (1 - 5 acres) meadows have over 100 species of angiosperms growing in the grasslands, and it is often the