Centre for Agricultural Strategy

Volume I

The future of upland Britain

Edited by R B Tranter

CAS Paper 2 · November 1978

40 Some future problems involved in the conservation of upland vegetation

T PRITCHARD

INTRODUCTION

First, one must consider why it is important to conserve the upland vegetation of Britain. It is obvious that the hills provide food, notably in the form of beef, lamb and mutton, and thereby also provide an income for farmers. Further, they are prime areas for leisure and recreational activities and, each year, give pleasure to millions of people; nowadays they also carry a considerable area of productive forestry plantations. However, nature conservation is another important aspect of land use in the uplands. This is because their patterns of soils, vegetation, flora and fauna are not reproduced exactly anywhere else in the world and thus are worthy of protection for research and education.

THE SIGNIFICANCE OF UPLAND VEGETATION TO NATURE CONSERVATION

British uplands are strongly oceanic in character, ie they are affected by the influence of the sea which results in heavy precipitation, high atmospheric humidity and windiness. The other important factor, common to most uplands, is the cold climate. The extreme oceanicity of our mountains when compared with those of continental Europe is expressed mainly in the hygrophilous component in the vegetation which also shows a marked altitudinal zonation. As one travels west, there is a higher degree of oceanicity and an increase in hygrophilous and peat-forming vegetation. As one travels north, there is another climatic gradient – a decrease in temperature. In combination, these two gradients are reflected in a downward altitudinal shift in limits of the vegetation zones.

Not only are there regional differences there are also local changes mostly resulting from topography, especially aspect and altitude. Thus, on a single mountain there are differences from place to place in slope, temperature, insolation, windspeed, rain, snow-fall and cloud cover. Coupled with the extreme geological diversity that characterises much of Britain, this produces a mosaic of distinctive ecosystems.

THE INFLUENCE OF MAN

Superimposed upon, and often obliterating, the original pattern of upland vegetation as determined by climatic, topographic and edaphic factors, are the changes produced by the influence of man. Most of the British mountains are now managed for sheep and, in the north, for Red Grouse and Red Deer. Water catchment management, afforestation and military training have also increased, and now affect substantial areas. The overall result has been the appearance of large tracts of sub-montane grasslands, spreading in some places (such as Snowdonia) even into the truly montane zones. Therefore, almost all the hill vegetation, except ungrazed cliff ledges and a few fragments of other habitats, is in a man-modified form. Many of the uplands of Wales, England and southern Scotland have been impoverished, in a botanical sense, as a result of grazing by various combinations of sheep, goats and cattle over the years. Furthermore, because the soil cover is thin and there is evidence of over-grazing in some areas, there is a danger nowadays of more impoverishment of fauna and flora through erosion. The many pairs of human feet that yearly tread the mountain pathways are exposing bare soil and rock, which then suffer the impact of high rainfall, frost and other climatic factors.

Nature reserves such as Snowdon (which receives some 500 000 people on its summit each year) and Cwm Idwal in North Wales demonstrate vividly the nature and scale of human erosion and its ecological effect.

THE CONSERVATION OF SITES

Within the uplands there are, of course, areas of particular nature conservation interest. This may derive from the presence of distinctive natural features, or a combination of features, or the fact that a site exhibits in microcosm all the characteristics of a much wider area. For example, a site may be a refuge for a rare arctic-alpine plant such as *saxifraga caespitosa;* or it may have an interesting combination of geology, soils, flora and fauna; or, like parts of Snowdon, it may have a range of montane and sub-montane habitats typical of those found throughout upland North Wales. Where the level of interest is sufficiently high, especially when some form of actual or potential threat to the integrity of the site is known, it is necessary to consider taking steps to safeguard such areas.

This may be done by buying, leasing or otherwise securing a site as a nature reserve. In Wales, for example, there are twelve National Nature Reserves (out of a Welsh total of 31) having montane, sub-montane and related habitats.

The nature reserves are managed to safeguard, or even to enhance their special features. This is an open-ended process that will have to continue into the indefinite future; it is a primary role for the Nature Conservancy Council (NCC) in the National Nature Reserves. Inter-agency action can sometimes be taken; for example, the NCC and the National Trust are collaborating over the management of tracts of the Carneddau mountains in Gwynedd.

NCC's role as an adviser, and sometimes a partner, is in fact extending over the management of land in the control of sympathetic official and voluntary bodies. NCC's grant-issuing powers are important in this respect. It may, for example, give grants (under Section 15 of the Countryside Act, 1968) to owners who undertake to look after their land for nature conservation purposes. Grants are also available (under Section 3 of the Nature Conservancy Council Act, 1973) to any person or group undertaking any action that NCC is itself empowered to take; Section 3 grants totalling £42 175 were paid out in the financial year 1976-77.

NCC is empowered (under Section 23 of the National Parks and Access to the Countryside Act, 1949) to give another kind of protection to certain areas. If of sufficient merit, a Site of Special Scientific Interest can be notified. Thereafter, Local Authorities are obliged to consult NCC before granting planning permission for any development likely to affect the site. Notification is, of course, passed to the land-owner and occupier when a site is given this status, if possible before the official declaration.

METHODOLOGY IN THE MANAGEMENT OF UPLAND SITES

The word 'management' in this context means the way in which a site is looked after in order to maintain or enhance its nature conservation interest. Nature reserves are managed according to their individual requirements and the resources available to meet them. Factors taken into consideration include the capacity of a site to absorb pressures and to resist disturbance; its size; and its ability to provide facilities for research and education without suffering unacceptable damage, etc. NCC in Wales is at present investigating, with the Institute of Terrestrial Ecology and other organisations, methods of data-handling with the object of producing a new format for the production of management plans for National Nature Reserves. The system that is adopted should ideally be compatible with others; thus, consultations are being held with the Welsh Office, National Museum of Wales, MAFF, Welsh National Water Development Authority, the Experimental Cartography Unit of the Natural Environment Research Council and other organisations.

CONSERVATION OF THE WIDER UPLAND ENVIRONMENT

Nature conservation is not a primary objective in the management of the uplands as a whole. Nature reserves of all kinds probably account for less than 1% of the total area; but the remaining 99% is not ignored by conservationists. On the contrary, considerations that govern the management of reserves and other cherished areas are now being applied more widely.

The giving of advice to others is one of the most positive ways in which NCC can help to promote nature conservation. The experience it has gained in the management of nature reserves proves invaluable in these circumstances. Various statutory and private organisations use NCC's advisory services. For example, NCC are engaged in advising local authorities about structure and local plans. A recent exercise by the Snowdonia National Park Authority, involving the integration of forestry, agriculture, water management, recreation and nature conservation, illustrates how scientific and other information required from conservationists contributes towards the formulation of multiple-use schemes.

Education is vital as the premise is accepted that nature conservation can succeed only with widespread popular support and understanding. NCC has a statutory duty to disseminate knowledge about conservation, and is involved in a variety of educational projects. Nevertheless, at present it is in the provision of advice that NCC is most active.

CONSERVATION AND RESEARCH IN THE UPLANDS

Basically, three types of research are required, namely surveying and monitoring; studies of ecological processes; and experimentation, especially concerning the manipulation of ecosystems. These categories emerge from the functions of NCC as laid down in the 1973 Act; that is, they assist in the protection of sites, the provision of advice and the dissemination of knowledge. They are aimed at answering the following questions about the uplands:

(i) What is the present condition of particular features in the uplands (ie resource assessment)?
(ii) How has this condition arisen and how is it likely to change under the influence of natural or man-induced factors?
(iii) Which existing conditions or predicted changes should be modified in the interests of upland conservation (thus involving sociological and economic, as well as ecological considerations)?
(iv) How can these changes be achieved in practice?

Questions (i), (ii) and (iv) are subject to factual answers, but question (iii) involves value judgement and cannot be answered by research alone. Problems also arise from the vast range of scales involved, from the preservation of single

species of plants to the management of entire ecosystems; from the fact that certain problems of nature conservation are awkward subjects for research; and from the way in which some of the issues like the siting of new roads or other major public facilities, arise rapidly without warning and require answers urgently, making proper scientific survey difficult to undertake. It is likely that the bulk of NCC's scientific effort in the uplands over the next 3 to 5 years will be devoted to survey work, so as to provide the essential base-lines of information.

CONCLUSIONS

The uplands of Britain are, in nature conservation terms, entering into an era of unprecedented pressures arising from the demands of agriculture, forestry, water conservation, and of recreation, leisure and tourism, as well as education out-of-doors and research. The need for the conservation of nature is greater than the sum of the present capabilities of NCC and other conservation bodies acting on their own. Other organisations, statutory and non-statutory, and the owners and occupiers of land should be persuaded to adopt stronger attitudes in favour of nature conservation. This is very important in the uplands where much scope still occurs for modifying land management to provide for limited development of ecological situations which once formed a widespread feature of the landscape of Britain. Even a gentle shift of emphasis would bring substantial benefits through new opportunity for ecological investigations of relevance to agriculture and forestry, and greater environmental variation which is viewed by a growing number of people as an improvement in the quality of our countryside.