SOME THOUGHTS ON WOODLANDS AND THEIR WILDLIFE

Alexander J. Kerr, BAC (Forestry) Nature Conservancy

Islands have long held a fascination for naturalists. Darwin was one of the first to draw attention to both the problems and the opportunities they present. It is only in the last two decades, however, that ecologists have shown that the general principles based on 'islands' (in a geographical sense) are applicable to isolated examples of any particular habitat, i.e. islands in a conceptual sense. As Darwin's theories prompted an upsurge in museum studies, so these new theories are resulting in increased fieldwork. This activity is no pursuit of science for its own sake, however. The information obtained can be applied to the very practical problems of deciding the minimum size of a nature reserve or the amount of habitat to set aside for the effective conservation of nature in our modern 'seas' of forestry and agriculture.

Woodlands in Scotland are just such a case in point. That is, woods comprised predominantly of native tree species. A review of the pinewood situation was commissioned by the Nature Conservancy Council (NCC) in 1971 and a report produced by staff of the Institute of Terrestrial Ecology (ITE). The great forest of Caledon has been reduced to less than 0.2 per cent of the land surface area of Scotland. There are of course many pine plantations to be seen, but these are often of foreign strains. Only about 4 per cent of the Pine stands in Britain are of native stock. Remember that we are referring to the habitat in which much of our characteristic highland wildlife evolved. Despite the limited area still available, such woodlands contain many features of great interest in a European context. A comparable analysis of deciduous woodland in Scotland has also been commissioned by the NCC and carried out by ITE. This showed that by 1978 such woodland had been reduced to less than 0.5 per cent of the land surface of Scotland and that the extent of the resource had been reduced by 58 per cent in the period since 1947. Dealing only with oakwood,

the census figures produced by the Forestry Commission in 1949 and then in 1965 reveal that the area was reduced by 50 per cent, leaving the equivalent of less that 0.01 per cent of the land. For both of these major woodland types there are of course still major archipelagos — but the stark fact remains that our native woodlands are disappearing fast . . . and with them much of our woodland wildlife.

It is probably only the ornithologist who sets much store by the number of species that he records, be it for a visit, a locality or his 'life list'. Other naturalists tend not to indulge, partly at least because the task would be so much more demanding. A good woodland studied for many years might have a list of about 150 bird species. Of some two and a half thousand flowering plants regarded as native, approximately 500, or 20 per cent, occur in woodland.

For bryophytes and lichens, with British lists of the order of 900 and 1300 species respectively, the numbers occurring in woodlands are nearer the 50 per cent mark. When one turns to the less popular groups such as fungi or insects, comparable figures are hard to come by. Charles Elton and his team of researchers at Wytham Wood near Oxford have identified nearly 4,000 different insects. Monks Wood Natural Nature Reserve near Huntingdon has also been intensively studied. The number of species recorded so far is 370 flowering plants, 460 lepidoptera and over 1000 coleoptera. From these figures it should be clear that whatever importance we attach to woodlands through our limited familiarity with one or two major taxonomic groups, there is a far more vast range of organisms of which we know little. Many of these play key roles in the functioning of the woodland as an ecosystem.

There is one aspect of our heritage of woodland wildlife which is frequently overlooked. Since Scotland is part of the western seaboard of Europe, many aspects of its wildlife are important in a European context. For example, the vernal carpets of wild hyacinth (bluebell) that give so much aesthetic pleasure are also a source of wonder and curiosity to our European naturalists. In this connection one cannot stress enough that the cryptogams and invertebrates are of great international significance. What we regard as the 'norm'

is in fact an extreme in European terms, so we have an international obligation to halt the loss of woodland habitats and their associated species. The extent of association between the species in woodland is not one that is particularly clearly set out. An analysis of insect species which are entirely dependent on particular tree species for food was made by Southwood. The figures obtained were: oak 284, willow 266, birch 229, hawthorn 149, alder 90 and Scots pine 91. These values relate only to insects using the foliage and do not include boring insects or those feeding on flowers or fruit. One quotes such work in order to convey an impression of the importance that one species in one taxonomic group can have for a large number of species in another group. No doubt the figures for fungi would be equally impressive.

Having registered something of the number of species involved and having stressed the importance of many of the less popular groups, let me now return to the relevance of 'island theory'. A clear mathematical relationship has been established between the size of an island and the number of species which occur there. In its simplest form the equation is S equals CA^z where S stands for the number of species, C is a constant giving the number of species when A equals 1, A is the area of the island and ^{z} is the slope of the regression line relating species and area. The value of the constant varies greatly from one taxonomic group to another and also between different geographical locations. On the other hand ^{z} is fairly constant, usually being between 0.24 and 0.34. When the relationship is examined in mainland situations the value of ^{z} falls between 0.12 and 0.17. This is a reflection of the ease of colonisation of sites on a mainland in comparison with those on an island. Unfortunately there seems to have been little interest so far in obtaining information on the woodland situation in Britain. By analogy, smaller, more isolated pockets of woodland are likely to be less species rich than either similar areas in close proximity to large woods or indeed to large woods. This suggests that a conservation strategy should concentrate on the larger remnants and the larger archipelagos of native woodlands which remain. However, it also points to the importance of maintaining a spread of suitable habitat as an aid to

dispersal.

The woodland near Balnakailly Bay at the north end of Bute is the only portion for which the Nature Conservancy have enough information to assess its quality satisfactorily. On the basis of visits by Bob McKechnie in 1958, Dr. Eric Bignal in 1977 and Miss Anne Carstairs in 1979, we have a list of 156 species of flowering plants and ferns, 18 bryophytes and three birds. Plants of particular note include *Dryopteris aemula, Equisetum sylvaticum, Hymenophyllum tunbrigense, Polystichum lobatum, Cladium mariscus, Thelypteris dryopteris* and *Thelypteris phegopteris.* I would be very surprised if readers could not add to our information. However, it is sufficient to demonstrate that the woodland is of adequate standard to be considered for Site of Special Scientific Interest status and this proposal will be considered in a full revision of sites in Argyll and Bute District. On the basis of a fairly brief visit to Barmore Wood by Loch Fad, I would suspect that it, too, is of interest but much more survey is required.

Woodlands tend to be where they are for no better reason than 'they have always been there'. So far as the remnants of native woodland are concerned, several factors combine to suggest that the foregoing statement will not remain true for much longer. First, there would appear to be limited markets for their produce. Secondly, most are not being managed for any crop. Thirdly, financial incentives are available for converting them to other crop types. Whilst their value for nature conservation and amenity is generally recognised, very little funding is available for either purpose. So long as present attitudes and fiscal incentives are unchanged, only a fraction of existing areas will be saved. The message for Bute is very clear. Value what you have and take active steps now to safeguard its future. Naturalists can no longer depend on the goodwill of others to preserve their study areas.

THE ROLE OF THE AMATEUR NATURALIST

Alexander J. Kerr, BAC (Forestry) Nature Conservancy

Quite rightly, one can wonder why the naturalist is to be assumed to have a role. After all, few participants in leisure pursuits see themselves as having anything so grandiose. Recreation is for relaxation and enjoyment. Are we then cast in the same mould? Is our pursuit of natural history solely a method of escaping the pressure of modern society? Each individual must answer these questions for himself, but I dare in the ensuing paragraphs to influence your response. For me, nature was another of those subjects in which my father was all-knowing — and therefore a source of potential embarrassment and discomfort. Through having to learn how to identify trees in order to collect suitable firewood at Scout camp, I came in contact with people who obviously enjoyed studying nature for its own sake. As one thing leads to another, so that small step led eventually to a degree in Forestry. Let there be no doubt— I thoroughly enjoy nature study and I consciously use it as a form of escapism, but . . .

It seems to me that in bygone days a naturalist was involved in more than enjoying himself. Such was the state of knowledge that it was open to almost anyone with a keen eye, a ready notebook and a modicum of intelligence to provide observations and ideas that might advance knowledge. There is a myth that this is no longer true and a companion myth that all that needs to be known has already been fathomed. If you subscribe to either of these views, it's time to blow the dust from your notebook and the cobwebs from your mind. Nature is dynamic. So should you be. Unfortunately, I am not sufficiently familiar with Bute to substantiate my views with examples from the island. There can be no doubt, however, that the problems encountered in the course of my duties as Regional Officer of the Nature Conservancy Council are a fair cross-section of the activities which could be taken up by most amateur naturalists.

Rarities always generate interest and they are always