Din Moss

H.J.B. Birks

Highlights

The sediments from the raised bog at Din Moss provide a detailed pollen record, supported by radiocarbon dating, of vegetational history and environmental change in south-east Scotland during the Holocene. This record is particularly important in showing the timings of arrival and expansion of different woodland types in the area.

Introduction

Din Moss [NT 805 314] is located 8 km southwest of Coldstream, at an elevation of 170 m OD, near the Scotland–England border. The site is a raised bog developed at the south-west corner of Hoselaw Loch. It is important for its Holocene pollen record, in particular for reconstructing the vegetational dynamics of the Holocene. It provides one of the few well-dated records from south-east Scotland (Hibbert and Switsur, 1976).

Description

At Din Moss there is a total thickness of 4.6 m of sediment consisting of 0.6 m of fine detritus muds, overlain by 1.4 m of fen peat and 2.6 m of *Sphagnum–Eriophorum* peat (Figure 17.10). A series of 18 radiocarbon dates was obtained from the profile (Hibbert and Switsur, 1976) (Figure 17.10).

The base of the sequence has a date of 12,250 BP (Q–1080), indicating a Lateglacial age. This part of the profile has not, however, been investigated in detail palynologically. The Holocene part has been studied in considerable detail. Radiocarbon dates, often two or three for each horizon, are available for the first appearance and expansion of *Corylus, Quercus* and *Alnus,* and the decline of *Ulmus.* Several other dates are also available, permitting the reconstruction of a reliable age–depth curve from which the age of other changes in pollen frequences can be interpolated with confidence. The profile only extends to about 4500 BP, possibly because of recent peat cutting.

Interpretation

The sequence indicates that during the closing parts of the Lateglacial, *Juniperus* and *Betula* quickly expanded. In contrast to other sites in eastern Scotland and north-east England, *Corylus* expanded as early as 9800 BP (Birks, 1989). *Ulmus* arrived and spread at about 8800 BP, as it did between 8500 and 9000 BP in much of northern England and southern Scotland (Birks, 1989). *Quercus,* although possibly present in low amounts from about 9100 BP, did not expand until about 8400 BP. As elsewhere in southern Scotland (except Galloway) (Birks, 1989), pine does not appear to have been important around Din Moss at any time in the Holocene. *Alnus* was present from 7000 BP but did not expand until after 6500 BP (Bennett and Birks, 1990). There is a well-marked *Ulmus* pollen decline, dated to 5400 BP, associated with the first occurrences of cereal-type and *Plantago lanceolata* pollen.

The dating of major pollen-assemblage changes in the Holocene and the study of the temporal and spatial patterns of important palaeobotanical events within Britain are critical aspects of Holocene palaeoecological research. Such studies permit the reconstruction of the directions, routes, rates and timings of the spread of forest trees (Birks, 1989), the spatial patterns of pollen assemblages at selected points in time (Birks *et al.,* 1975), and the spatial patterns in past vegetation (Bennett, 1989). They also permit the testing of the geochrono-metric validity of pollen-zone boundaries (Smith and Pilcher, 1973). Such studies require well-dated, detailed, pollen sequences from carefully selected regional sites in different parts of Britain. Radiocarbon dates are generally more reliable from ombrotrophic raised-bog peat than from lake sediments, with their associated problems of hard-water errors, inwashing and redeposition. Din Moss is one such bog site and is the only such site studied in detail and well-dated in the south-east lowland fringe of Scotland and

northernmost north-east England (Hibbert and Switsur, 1976).

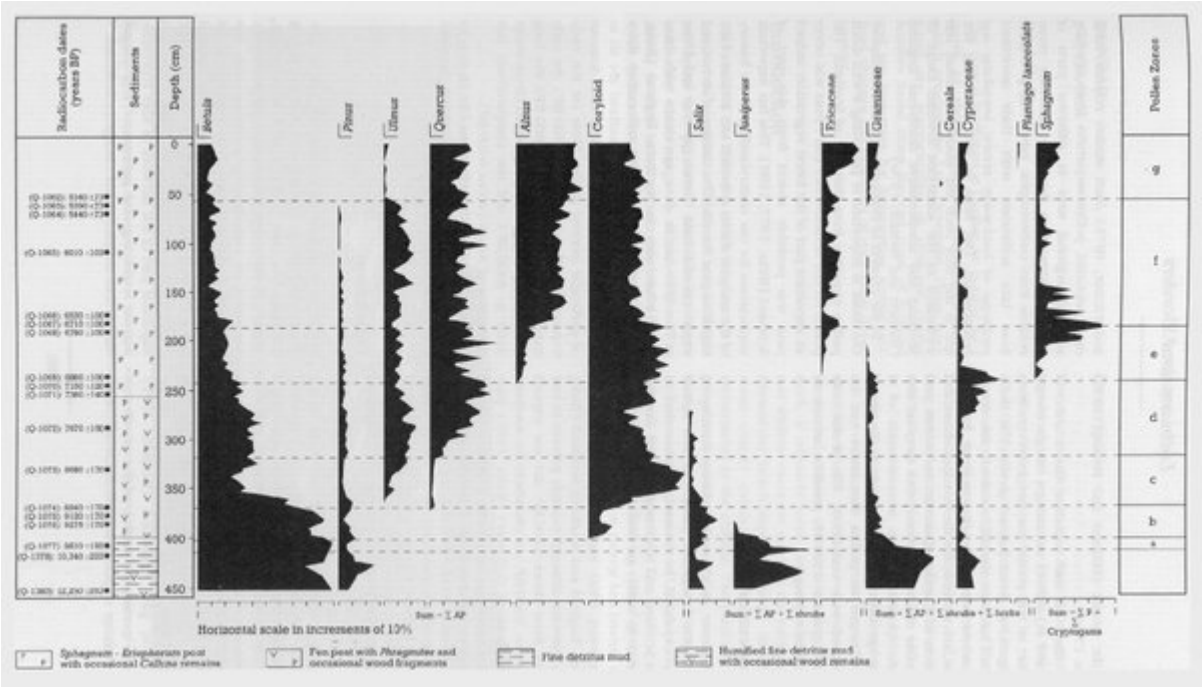
In the context of Holocene vegetational history Din Moss is important in providing a well-dated pollen sequence from this part of Scotland. The pollen record demonstrates that *Pinus* was never an important part of the forest vegetation: indeed pine was probably absent from this part of Scotland (Birks, 1977, 1989). This has important implications for our understanding of the history of the endemic *Pinus sylvestris* var. *scotica* of the Highland pine forests. The timings of arrival and expansion of *Betula, Ulmus, Quercus* and *Alnus* at Din Moss are in close agreement with dates from other sites in northern England (Birks, 1989). The nearest sites with radiocarbon dates for these events in southern Scotland are all in the west (Birks, 1989). At a British scale, features of particular interest at Din Moss are the early expansion of *Betula* (about 10,300 BP), the early expansion of *Corylus* (about 9800 BP), the long and protracted expansion of *Quercus* (from about 9100 to 8400 BP), and the comparatively late expansion of *Alnus* (about 6400 BP).

In the light of all these features, Din Moss is an important Holocene site both within Scotland and within Britain as a whole.

Conclusion

Din Moss is an important reference site for the vegetational history of south-east Scotland during the Holocene (last 10,000 years). In particular, analysis of the pollen contained in the sediments, supported by numerous radiocarbon dates, has provided a detailed record of the spread of successive woodland types. In view of its detailed and well-dated pollen record, the only such one available for this area, Din Moss forms an important part of the network of sites representing the wider regional patterns of vegetational history and environmental change in Scotland.

References



(Figure 17.10) Din Moss: relative pollen diagram showing selected taxa as percentages of the pollen sums indicated (from Hibbert and Switsur, 1976).