Higher Moors, St Mary's

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Highlights

This site provides the most complete record of Holocene vegetational history on the Isles of Scilly. Pollen and radiocarbon evidence indicates the existence of Holocene forest prior to clearance associated with the spread of agricultural activity during the Neolithic and Bronze Age.

Introduction

The Isles of Scilly are currently devoid of indigenous woodland, but the extremely mild climate of the islands has encouraged the development of a diverse flora and led to the success of many introduced species, some arboreal and many subtropical in character (Lousley, 1971). There would therefore appear to be no natural physical constraint on the development of indigenous woodland, raising the possibility that the islands were wooded prior to their settlement by humans.

Early descriptions of the occurrence of oak trunks at submerged forest localities first suggested the former existence of woodland around the islands (Scaife, 1986). These finds were supported by numerous records of stumps, mostly of *Quercus,* having been removed from the ground on St Mary's, St Martin's and Tresco, those on the latter island having been recorded by Augustus Smith during the last century (Scaife, 1986).

The first pollen-analytical evidence that the vegetation of St Mary's had formerly been dominated by deciduous woodland was provided by Dimbleby (1977) from analyses of a soil profile at Innisidgen [SV 919 128]. Though it was not possible to date this profile directly, it demonstrated that *Quercus* and *Corylus* had been present in open-canopy woodland with a Gramineae and *Pteridium* ground flora.

Palynological data from soil profiles at a number of archaeological sites have provided clear evidence of post-forest clearance agriculture (Butcher, 1970, 1971, 1972, 1974; Dimbleby *et al.,* 1981; Evans, 1984). These profiles, of various ages postdating the Neolithic, all provide evidence of very open vegetation with some indicating cereal cultivation.

In order to provide a more continuous record of Holocene vegetational change, Scaife (1980, 1981, 1984) investigated the only two remaining areas of peat accumulation on the islands, Higher Moors and Lower Moors on St Mary's. The cores from Higher Moors have yielded pollen and radiocarbon data which provide a reference stratigraphy against which the more isolated soil pollen profiles from archaeological sites can be compared; these data also support the hypothesis of former Holocene deciduous woodland cleared as a result of prehistoric agricultural activity.

Description

Higher Moors is a topogenous mire forming part of Porth Hellick Nature Reserve which extends inland from Porth Hellick [SV 925 107] to Holy Vale [SV 921 115]. The present vegetation consists of a mosaic of wetland species ranging from *Salix caprea* and *S. viminilis* carr associated with the sedge *Carex paniculata,* to mesotrophic sedge and *Phragmites* fen (Scaife, 1984); however, the mire has been extensively disturbed by peat cutting (Lousley, 1971), land drainage and, more recently, by extraction of groundwater for public supply, and these activities have significantly altered the hydrology of the site with resultant impacts on the vegetation (Scaife, 1984). Extensive augering through the length of the mire indicated the thickest peats in the area close to Holy Vale. Here, black highly humified detritus and monocotyledonous peat reaches a maximum thickness of 76 cm, abruptly overlying white bleached sand of very low organic content. Samples for pollen analysis and radiocarbon dating were taken from open sections cut through the peat (Scaife, 1984). Five pollen zones (HM1–5) were recognized by Scaife (1984; (Figure 8.14)).

HM1: 76–70 cm. Arboreal and shrub pollen dominate this zone with *Quercus, Betula, Corylus* and *Salix* dominant, and *Pinus, Ulmus* and *Alnus* subdominant. Herbaceous frequencies are low and mainly represented by Cyperaceae and other mire taxa.

HM2: 70–62 cm. This zone is characterized by a reduction in arboreal pollen and increases in herbaceous taxa. Although *Corylus* and *Salix* remain important, *Betula* and *Quercus* decline, and *Calluna* increases. Herb taxa, chiefly Gramineae and Cyperaceae, dominate the zone..There are significant records of cereals, weeds and ruderals.

HM3: 62–50 cm. Significant increases in *Betula* and later *Quercus* dominate this zone with concomitant decreases in herbaceous taxa.

HM4: 50–4 cm. An abrupt decrease in arboreal and shrub frequencies occurs in this zone coinciding with increases in Gramineae, Cyperaceae and ruderal taxa. Pollen of Umbelliferae, *Pteridium* and ericaceous taxa also increase in this zone.

HM5: 4–0 cm. This zone reflects the uppermost level of the peat profile. It contains slightly higher frequencies of arboreal pollen than HM4 alongside *Pittosporum* and some other introduced exotic taxa.

Four 2 cm-thick samples of the peat were submitted for radiocarbon assay and the uncalibrated results are shown in (Figure 8.14).

Interpretation

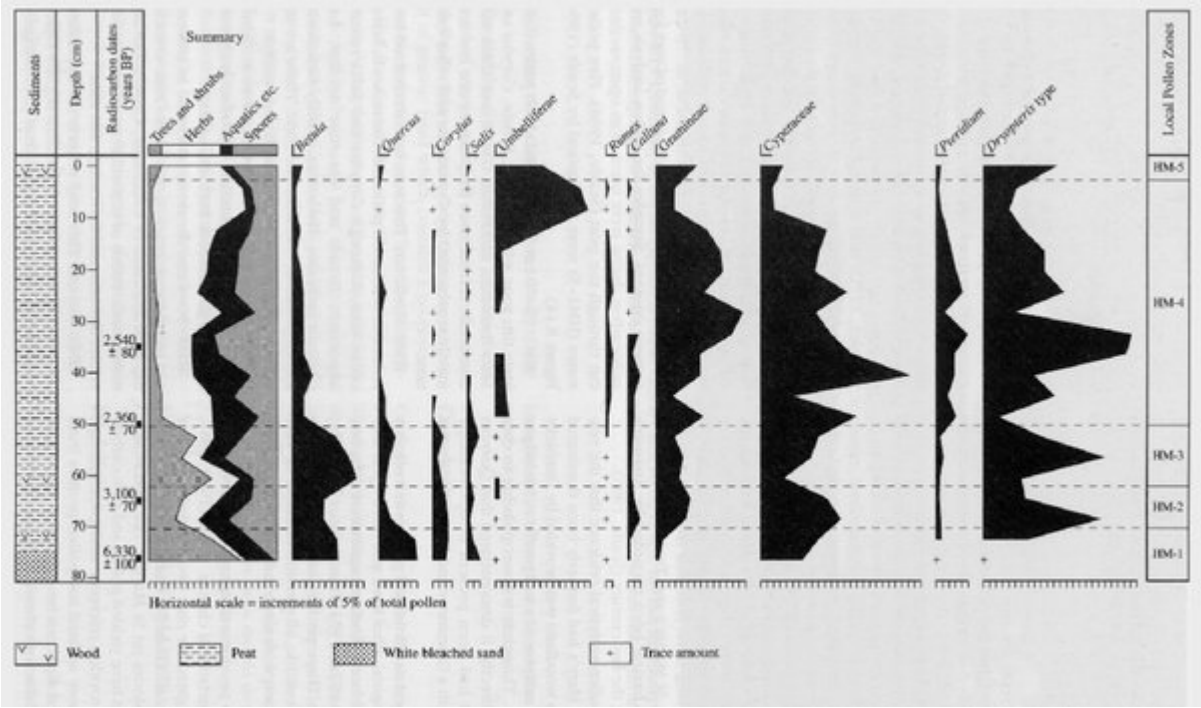
Although there is clearly a problem with the radiocarbon determinations (Figure 8.14), with an inversion towards the top of the profile, Scaife (1984) attributes this to humification effects, and accepts the lowermost date, from the base of the profile at 75 cm, as reliable. This therefore indicates the presence of forest, at least in this part of St Mary's, during the middle Holocene. Scaife (1984) interprets the pollen record as indicating open *Quercus* woodland allowing a *Corylus* under-storey to flower freely. He correlates this forested phase with the undated soil profile from Innisidgen (Dimbleby, 1977) which provided the first pollen evidence for the former presence of woodland during the Holocene on the islands.

A decline in arboreal pollen and increases in herb taxa occur above 68 cm (HM2), including evidence of cereal cultivation, followed above 62 cm (HM3) by forest regeneration with increases in *Betula* and *Corylus.* Problems with the radiocarbon assays in this section of the profile hinder attempts to correlate this evidence of clearance and subsequent forest regeneration with specific archaeological events or periods. However, Scaife (1986) suggests that the clearance phase may be Neolithic with regeneration occurring in the late Neolithic or early Bronze Age. The major phase of forest clearance at 50 cm (HM4) probably dates to the middle Bronze Age and is consistent with the widespread archaeological evidence (Scaife, 1986).

Conclusion

The peat bog at Higher Moors has provided evidence that the Isles of Scilly were at least partly covered by deciduous forest at around 6 ka BP. This indigenous forest was then partly cleared by Neolithic humans, and finally disappeared as a result of ground clearance associated with agricultural activity during the Bronze Age. Higher Moors is the most important site providing evidence of the changing vegetation on Scilly since the end of the last ice age.

References



(Figure 8.14) Selected pollen data and radiocarbon dates for a peat profile at Higher Moors, St Mary's. (Adapted from Scaife, 1984.)