PLANT MACROFOSSILS FROM VURLONG REEN, NEAR CALDICOT, SOUTH WALES

by Astrid E. Caseldine

Introduction

Although the broad stratigraphic sequence of the Severn Estuary is well known, particularly in the intertidal area (Allen and Fulford 1986; Allen 1987b; Allen and Rae 1987), comparatively little detailed analysis of the peats of the Wentlooge Formation, especially of their plant macrofossil content, has taken place. As part of the programme of integrated palaeoenvironmental studies carried out in association with the archaeological investigations of Birmingham University Archaeological Field Unit, selected samples from two peat sequences have been examined for plant macrofossils. Pollen evidence from the same sequences is discussed by Walker and James in the preceding contribution and the beetle evidence by Smith follows.

Discussion

Plant macrofossils are particularly useful at providing detailed information about the local environment, complementing pollen studies which provide a more regional picture. The evidence from the lower samples from the longest sequence (Vurlong Reen I, Figure 24) and from all the samples from the other sequence (Vurlong Reen II) indicates *Alnus glutinosa-Carex paniculata* woodland, reflected in the frequent fruits and cone-scales of *Alnus glutinosa* and nutlets of the tussock-forming sedge *Carex paniculata.* Other species represented, which are indicative of such an environment, are *Urtica dioica*, *Eupatorium cannabinum*, *Solanum dulcamara* and *Rubus fruticosus* agg. Macroscopic wood charcoal in both sequences provides a little evidence for fire. The plant macrofossil evidence agrees well with the pollen record for alder woodland at this time.

Higher in the sequence from Vurlong Reen I *Phragmites* becomes more frequent and *Betula* fruits suggest the presence of some birch fen woodland. This is followed by a reduction in woody remains and the domination of *Phragmites australis,* indicating a diminution in local woodland and more open reedswamp. Other herbs represented are *Lychnis flos-cuculi* and *Typha,* while the dark slender rhizomes of the marsh fern, *Thelypteris palustris*, are also present. This change in the local vegetation appears to have occurred around 3950±70BP (BETA-63592). Again there is some macrofossil evidence for fire but the charred remains appear to be of reed. In the final two samples from Vurlong Reen I there is some evidence for the presence of base-rich and calcareous waters, notably the presence of *Cladium mariscus*, *Chara* and the moss *Calliergon giganteum.* Equally there is some evidence for acidification from the presence of the pondweed *Potamogeton polygonifolius.* The occurrence of the latter, along with other species such as *Eleocharis palustris/uniglumis* and *Menyanthes trifoliata*, tends to suggest pools of open water. Other fen species represented include *Ranunculus* spp., *Hydrocotyle vulgaris*, and *Mentha arvensis/aquatica.* The evidence for an open local environment with pools of water is in close agreement with the pollen and Coleoptera records. *Potamogeton* is represented in the pollen as well as the macrofossil record, and many Carabidae and *Dryops* spp., indicative of the margin of pools, are present in the Coleoptera record. *Aster tripolium* and Chenopodiaceae macrofossils in the penultimate sample and *Atriplex*

sp. in the final sample provide some evidence for a marine influence, also suggested by Chenopodiaceae pollen. An interpolated date for the lower of the final two plant macrofossil samples from Vurlong Reen I, and hence the possible beginnings of an increasing marine influence, is *c.* 3200BP, which is in line with the radiocarbon date of 3130±70BP (CAR-644) obtained for the estuarine clay transgressive contact at Goldcliff (Smith and Morgan 1989).

In the broader context of the estuary, on the Welsh side the sequences from Vurlong Reen differ from those at Goldcliff (Smith and Morgan 1989) in that raised bog is absent. Similarly, on the English side much of the peat development of the Somerset Levels is dominated by a succession leading through to raised bog, demonstrated by a number of detailed studies (see Caseldine 1984, 1988), though with some areas, such as the Glastonbury area (Housley 1988), where alder carr continued to persist for much of the time.

To summarise, throughout the Neolithic, carr woodland seems to have dominated the local vegetation at Vurlong Reen giving way to a more open environment with, ultimately, pools of open water which persisted throughout the Bronze Age. Clearly there are similarities between the wetland environments on both sides of the Severn Estuary and further investigations in the future will add to our understanding of peat development and vegetation succession and enable the later changes to be more precisely related to sea-level change.

Acknowledgement

I would like to thank Kath Dowse for the sorting and preliminary identification of the samples.

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