

## **BANTHAM HAM SURF CLUB, SOUTH DEVON, 2001, BHSC 01: CHARCOAL FROM 5<sup>th</sup> – 6<sup>th</sup> CENTURY HEARTHES AND BURIED SOIL CONTEXTS**

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August 2002

### **Introduction**

Nine environmental samples were collected from contexts within the dunes on the foreshore at Bantham Ham, from buried soils, dune sand sediments, hearths and a ditch fill. Charcoal occurred, often abundantly, in all the samples. This report includes the analysis of charcoal from 3 hearth features (contexts 541, 556 and 571) and 2 buried soils (contexts 501 and 521), and considers the economic use of wood fuel and the environmental implications.

### **Materials and methods**

The charcoal samples were hand-processed by bucket flotation and collected through a 1mm, 500 and 300 micron sieve nest. The resulting flots and residues were scanned by Julie Jones using low magnification and the charcoal separated from plant macrofossils. Charcoal fragments measuring >2mm in cross-section were considered for species identification. Samples 3960300 (context 501) and 3960311 (context 541) were 25% subsampled.

The charcoal was mostly firm and well preserved but was too fragmented to include intact radial segments of roundwood. Samples were prepared for examination using standard methods (Gale and Cutler 2000). Selected fragments were supported in washed sand and examined using a Nikon Labophot-2 microscope at magnifications up to x400. The anatomical structures were matched to prepared reference slides. When possible, the maturity of the wood was assessed (i.e. heartwood/ sapwood).

### **Results**

The charcoal analysis is summarised in Table 1 and discussed below. Group names are given when anatomical differences between related genera are too slight to allow secure identification to genus level. These include members of the Pomoideae (*Crataegus*, *Malus*, *Pyrus* and *Sorbus*), Leguminosae (*Ulex* and *Cytisus*) and Salicaceae (*Salix* and *Populus*). Similarly, in degraded charcoal some unrelated taxa can be problematical, e.g. *Corylus* and *Alnus*. Where a genus is represented by a single species in the British flora this is named as the most likely origin of the wood, given the provenance and period, but it should be noted that it is rarely possible to name individual species from wood features, and exotic species of trees and shrubs were introduced to Britain from an early period (Godwin 1956; Mitchell 1974). Classification follows that of *Flora Europaea* (Tutin, Heywood *et al* 1964-80).

The anatomical structure of the charcoal was consistent with the following taxa or groups of taxa:

Betulaceae. ?*Alnus glutinosa* (L.) Gaertner, European alder; *Betula* spp., birch

Corylaceae. *Corylus avellana* L., hazel

Fagaceae. *Quercus* spp., oak

Leguminosae. *Cytisus scoparius* (L.) Link, broom or *Ulex* spp., gorse. These taxa are anatomically similar.

Rosaceae. Subfamilies:

Pomoideae which includes *Crataegus* spp., hawthorn; *Malus* sp., apple;

*Pyrus* sp., pear; *Sorbus* spp., rowan, service tree and whitebeam. These taxa are anatomically similar; one or more taxa may be represented in the charcoal.

Prunoideae which includes *P. avium* (L.) L., cherry; *P. padus* L., bird cherry, and *P. spinosa* L., blackthorn. In this instance the broad heterocellular rays suggested *P. spinosa* as the more likely.

Salicaceae. *Salix* spp., willow, or *Populus* spp., poplar. In most respects these taxa are anatomically similar.

### *Buried soils*

Buried soil 501 (lower buried soil) at the base of the profile was particularly charcoal-rich, with many fragments measuring 10<sup>3</sup>mm. The charcoal consisted predominantly of oak (*Quercus* sp.) heartwood and sapwood and hazel (*Corylus avellana*), although birch (*Betula* sp.), blackthorn (*Prunus spinosa*), the hawthorn/ *Sorbus* group (Pomoideae) and gorse (*Ulex* sp.) or broom (*Cytisus* sp.) were also identified. The oak included both fast-grown and slow-grown wood. Charred cereal grain, weed seeds, hazel nutshells, animal bone, eggshell and shellfish were also recorded (see Jones, this vol) implicating the domestic nature of the site at this time.

A second buried soil 521 (upper buried soil) occurred at a level approximately 1.5m higher than context 501. An associated layer also appeared to derive from domestic waste and included charred cereal remains, frequent eggshell, animal bone, shellfish and charcoal. The charcoal was less abundant and more comminuted than in the lower context and included relatively fewer taxa: oak (*Quercus* sp.), blackthorn (*Prunus spinosa*) and hazel (*Corylus avellana*).

### *Hearths*

Charcoal was examined from 3 hearth features: contexts 541, 556 and 571. Hearths 541 and 556 both contained charcoal from a range of trees and shrubs including: predominantly, oak (*Quercus* sp.) but also birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/ *Sorbus* group (Pomoideae) and willow (*Salix* sp.) or poplar (*Populus* sp.) (see Table 1). Charcoal was particularly frequent in context 541, although much of it was too fragmented for identification. The deposits also included charred cereal grain and shellfish, and, in addition, in context 541, hazel nutshell, animal bone and eggshell (see Jones, this vol).

Charcoal from hearth 571 differed from the previous 2 hearths in that only oak (*Quercus* sp.) fuel appeared to have been used. The hearth was also distinct from the hearths 541 and 556 in the almost total absence of domestic debris.

## Discussion

The site was located on the foreshore at Bantham Ham and included 4 hearth features cut into the dune face. Buried soils and a ditch were also recorded. Charcoal was frequently abundant and well preserved. Five samples were selected for full analysis: hearth contexts 541, 556 and 571; buried soils 501 and 521.

The buried soils were conspicuously rich in waste materials from food preparation, e.g. charred cereal grain, bone, eggshell and shellfish and, by association, it seems likely that the charcoal represents domestic fuel debris. The firewood consisted predominantly of oak (*Quercus* sp.), with wood sufficiently mature to have developed heartwood, and supplemented with birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/ *Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*) and gorse (*Ulex* sp.) or broom (*Cytisus* sp.) (see Table 1). Hazel was very frequent in the lower buried soil 501, which also contained a quantity of hazel nutshell fragments, but the charcoal was too comminuted to indicate the use of coppiced stems.

The charcoal-rich layers from 2 of the 3 hearths (541 and 556) derived from firewood gathered mainly from oak (*Quercus* sp.) but also birch (*Betula* sp.), hazel (*Corylus avellana*), the hawthorn/ *Sorbus* group (Pomoideae), and willow (*Salix* sp.) or poplar (*Populus* sp.). Hearth 541 also contained a rich deposit of hazel, animal bone and eggshell nutshells (see Jones, this vol), inferring domestic use of the hearth.

In contrast, the almost total absence of domestic debris in hearth 571 combined with evidence of the exclusive use of oak (*Quercus* sp.) fuel, suggests that this particular hearth may have had a more specialised use. Since oak wood or charcoal provides a long-lasting high-energy fuel, industrial activities may be implicated. But without supporting evidence of such it is difficult to speculate on what this might have been.

The use of at least 4 hearths suggests that the site was used on a number of occasions – perhaps over a prolonged period of time. The unusual siting of the hearths on the foreshore, possibly some distance from a source of fuel, could imply that the proximity of the sea was significant – possibly as a landing point for maritime trade, or for local industries such as salterns or smoking sea food. Food preparation evidently played a large part in the occupation of the site.

### *Environmental evidence*

The site at Bantham Ham was located on sand dunes on the foreshore close to the estuary or mouth of the river Avon. Local soils are typically acidic. The taxa identified from the charcoal deposits included oak (*Quercus* sp.), hazel (*Corylus avellana*), the hawthorn/ *Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*), gorse (*Ulex* sp.) or broom (*Cytisus* sp.) and willow (*Salix* sp.) or poplar (*Populus* sp.). With the possible exception of gorse, none of the named taxa would have been able to survive on the dunes themselves and fuel must, therefore, have been gathered from woodland species growing further inland or in sheltered areas around the estuary. The dominance of oak in the charcoal samples suggests that the landscape at Bantham Ham was probably typical of many areas in Devon, where dense oak woodlands have supplied the bulk of fuel

requirements until recent centuries (Marren 1992). These woodlands probably included hazel and birch. Open areas and marginal woodland would have been colonised by shrubbier species such as hawthorn, blackthorn, gorse or broom and also hazel. The presence of hazel scrub is inferred by the abundance of nutshells in the deposits – since hazel requires sunlit areas for fruiting to occur.

Trees and shrubs growing in coastal sites are usually adversely affected by exposure to harsh conditions and salt-laden winds. Growth becomes stunted and slow. Most of the charcoal was too fragmented to assess either an origin from coppiced (managed) woodland or the slow-growth anticipated for a coastal site. Context 501, however, included oak wood which appeared to have been obtained from both fast-grown and slow-grown trees, suggesting that some wood was gathered from trees growing in more sheltered or optimal conditions.

### **Conclusion**

The analysis of charcoal from buried soils (contexts 501 and 521) and hearths (contexts 541, 556 and 571), sited on the foreshore at Bantham Ham, indicated the use of fuel gathered predominantly from oak (*Quercus* sp.) but also hazel (*Corylus avellana*), the hawthorn/ *Sorbus* group (Pomoideae), blackthorn (*Prunus spinosa*), willow (*Salix* sp.) or poplar (*Populus* sp.) and gorse (*Ulex* sp.) or broom (*Cytisus* sp.). The high incidence of waste from food materials such as charred cereal, eggshell, animal bone and shellfish suggested that, in the majority of contexts, the charcoal resulted from domestic fuel residues. The selective use of oak in hearth 571, and the virtual absence of food waste, suggested that this hearth may have had a separate, although undefined, purpose.

Deciduous oak woodland probably dominated the local environment with scrubby species (hazel, blackthorn, hawthorn and gorse) in more open aspects. There was insufficient evidence to assess the use of coppiced stems or managed woodland.

### **References**

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