The Palaeoethnobotany of Pteridium aquilinum (L.) Kuhn (Bracken): Myriad past and present uses from documentary evidence and the archaeobotanical record

Introduction

Pteridium aquilinum (bracken) is one of the most widespread of all plant species, found in every continent except Antarctica (Marrs and Watt 2006). In Britain it is particularly abundant in upland areas in the north and west of the country. A perennial plant, it surges the winter as underground rhizomes. The rhizomes are highly damaging to buried archaeology (Figure 1) while above ground fronds obscure archaeological features and outcompete other vegetation (Pokerman et al. 1995). Bracken control methods fall into two main categories: 1) Physical removal by cutting, pulling, flailing, crushing and/or grazing; 2) Chemical spraying with asulam or glyphosate.

Follow-up treatments and re-seeding with grasses are also required (GEARS 2008).

The spread of bracken over the last couple of centuries is believed to result from economic changes and a decline in traditional farming methods, in particular the change from cattle to sheep rearing on marginal areas coupled with the cessation of the harvesting of bracken as a useful and valuable resource (Figure 2). The recognition that bracken contains chemicals with carcinogenic, cytotoxic, mutagenic and teratogenic properties, with the quantities of toxins greatest in young emerging fronds, has further limited its use (Marrs and Watt 2006, 130).

Once harvesting is discontinued and if no control methods are applied, bracken is able to grow unchecked. In addition the accumulation of dead fronds underneath the plants serves in another other vegetation and protects the rhizome and young fronds from frost damage, removing another check on its spread.

Archaeobotanical evidence from southern England

There are over 80 records of bracken in archaeological assemblages from southern England. The earliest evidence comes from the South Stowe Neolithic long barrow, near Avebury, Wiltshire (Abbett et al. 1979). The buried soil sealed beneath the barrow contained charred fern fronds and abundant bracken spores along with animal bone and flint debris within a cultivation horizon. As the monument is sealed on clay drift it is unlikely that bracken was growing in situ. This suggests that both burnt bracken (ash) and unburnt bracken were used as fertilisers on the cultivation plot with the unburnt bracken forming a component of re-deposited occupation debris. Similarly, bracken pinnules, preserved both by burning and mineral-replacement, were recovered from the Middle to Late Bronze Age extensive midden deposit at Pottermarsh, Wiltshire (Carruthers 2000; Straker 2000). This material is likely to derive from disposal of animal bedding or fodder onto the midden, though bracken may have grown on the midden itself and been preserved in situ.

From the Iron Age onwards small amounts of bracken have been recorded in a wide variety of features and in different contexts of sites. In most cases these records probably relate the disposal of septic animal or human bedding, thatch or floor coverings. Charred bracken pinnules were present within pits associated with the Early Iron Age settlement at Netleton Copse, Hants, and within the ditch fills of the Late Iron Age/Barrow bank site at the same location (Campbell 2000). At West Hill, Uley, Gloucestershire, a Roman religious complex, the disposal of stable waste is suggested by the recovery of mineral-replaced bracken pinnules and goat droppings from a late iron pit (Girling and Straker 1993). A few fresh plant fragments preserved by waterlogging were found in association with numerous Ulex sp. (gorse) shoots in a middle Roman warehouse within a rural settlement at Thornlea, Nunnery, Surrey (Robinson 2012). The insect assemblage from the same deposit was composed of old, decaying material from a building rather than foul waste, so this material could represent unused bedding that had deteriorated in storage.

The use of bracken as a component in dub is suggested by the identification of a pannule fragment in material from an early Roman site at Nettlebank, East Sussex (Ashbee 1976). The use of bracken in thatch is demonstrated by the recovery of bracken within thatch of gorse forming a solid thatch roof at Stanton St John, Oxfordshire, dating to the medieval period with modest ash blackened thatch (Leats 1999, 16, figures 26, 2h).

Charred rhizomes used either as food or fuel were present within Iron Age/ Roman fire-ash and refuse from Wonkey Hole cove, Somerton (Ratt 1991). Additional evidence for the use of bracken as fuel comes from medieval Direct Dark at Townecliff (Campbell 2006). Charred bracken along with Galega vulgaris (legumes) and gorse remains were found together with...

Traditional uses of bracken

The traditional uses of bracken in the medieval to post-medieval period are outlined in Table 1. It is mainly used for bedding and was an important thatching material until the 16th/17th century when date and other stone roofing materials became more readily available (Winchester 2006). The decline in the use of bracken for thatching however was offset by an increase in the demand for bracken ash, principally for glass making but also in soap manufacture and as a bleaching agent (Winchester 2006; Rymer 1976). Another important use of bracken was as a packing and insulating material, although the quantities used are difficult to establish from documentary records. Green brown bracken fronds were used in particular to pack soft fruit and for packing meat. Mattock 1999). Mature fronds (green) thatch

<table>
<thead>
<tr>
<th>Part/condition</th>
<th>Use</th>
<th>Harvest method/month</th>
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<tbody>
<tr>
<td>Leaf</td>
<td>bedding</td>
<td>Digging - season not specified</td>
</tr>
<tr>
<td>Face</td>
<td>packing material including roofing slate</td>
<td>Mown from end of September</td>
</tr>
<tr>
<td>Stalk</td>
<td>packing material for use of their photographs and to Peter Popkin for his help sourcing a picture of Istanbul fish market.</td>
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Table 1: Traditional uses of bracken. (source: Dartmoor Archaeology & Bracken project 1999 http://www.acearch.org.uk/brackenreports.htm).