

THE PRODUCTIVE POTENTIAL OF ANCIENT OAK-COPPICE WOODLAND IN BRITAIN

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THE COPPICE RESOURCE

As interest grows across the world in the potential of NTFPs, and the importance of understanding the diversity of production from forests, a similar concern is now being shown for areas of oak coppice woodland in Britain. Of about 2 million hectares total woodland area, the 1979 – 83 UK census of woodland trees (Locke, 1987), classified 12,000ha of woodlands as being coppice with standards, and 26,000ha as mixed coppice. Clearly coppice is a significant component of the UK's woodland resource. However, these figures do not refer to actively worked coppice, which is extremely limited in extent (Rackham, 1967). For example, most oak woods of South West England and Wales classed as scrub or high forest in the UK Census are of coppice origin, but the extent of worked oak coppice in all regions of the UK is said to be less than 300ha (Evans, 1984). Many coppice woodlands have not been managed for 50-100 years (BTCV, 1988). At about this age, depending on site and species involved, stools can become too old to regenerate and coppicing ceases to be a viable option. This leaves the following management options:-

- No management (effectively abandoning)
- Clearfell and replant
- Storing to high forest
- A combination of felling, storing and underplanting.

Small to medium dimension timber from traditional coppice is an existing resource and therefore without high establishment costs. Commonly regarded as profitless and insignificant this resource has been largely overlooked, although it is acknowledged that it can provide some regular income and also enhance amenity value.

The following case studies are based on extensive interviews with practitioners and managers of coppice woodland in two areas of Britain;- Devon in the south-west and Cumbria in the north-west.

The Neglected Coppice Resource in Devon

Since Roman occupation native species have been managed on a coppice or coppice with standards basis (Rackham, 1980). In Devon this has provided wood and timber, historically important raw materials in the ship and boat building industry on the coasts, and pit props for mining. There was little coal available in the area, hence charcoal was the main source of fuel for local industry. During the 18th and 19th centuries and the period of accelerated industrial growth, there was a massive over exploitation of oak coppice: ring barking 20-30 acres at a time and converting wood on site to charcoal helped shape the current form of Devon's ancient woodlands. By the mid 19th century, this practice had almost ceased, and with changes in technology

and a reduced dependence on wood products, intensive woodland management also decreased.

Coppicing continued on a smaller scale into the 20th century, providing mainly materials for mines and oak bark for tanning. Much of the accessible woodland was felled during the first and second world wars. Post war initiatives to increase the nation's timber reserve led to the replacement of much of the ancient coppice woodlands with conifer plantations. Clearance of ancient oak woodlands to provide sites for conifer afforestation ended in 1985-86, with an announcement in Parliament of a new government policy in support of broadleaved woodlands.

CURRENT MANAGEMENT OPTIONS FOR COPPICE WOODLAND

According to the objectives of different organisations which own these woodland areas, different management options have been taken. In most cases, woodland owners have taken the option of 'doing nothing'. The opportunity cost of working poor quality woodlands is high, particularly in areas where prices for low quality timber are depressed. However, there are some advantages in this option, particularly in those cases where the woodland is over 200 years old and is therefore beginning to take on some of the characteristics of a natural forest, with all the associated benefits of increased floral and faunal diversity. Although there can be significant reductions in diversity where invasive species are allowed to become rampant, or where over-shading leads to extinction of shade intolerant species.

Storing Coppice

Thinning coppice stools or 'singling' to retain one main stem is a well known practice, and one still in use in many Indian forests. The advantages of this option lies in the medium term production of higher quality timber with more assured and profitable markets. However, some woodland managers have indicated problems with this method, due to an increased risk of windblow of the exposed selected stems.

Re-Coppice

This is achieved by felling neglected, semi-stored stools completely, removing weed species and encouraging regeneration mainly from old stools, with some replanting or layering to restore an optimum density or specific species composition. Some standards may be retained (see Garfitt, 1988). The advantages of following this option lie in the maintenance of the woodland in its traditional form and structure. It maintains a close link with the original ancient wildwood in a semi-natural distribution of trees, shrubs and herbaceous plants, as well as fungi and soils (Peterken, 1981).

The major problem identifiable with a return to coppice management is that it means adopting a system of traditional management which will produce a **low value product in 30 years time**. Landscape considerations are another restriction, since the public frequently object to large patches of clear-fell. In small woods of less than 5ha small and uneconomic areas have to be cut to maintain a range of ages.

Oak coppice which has been derelict for over 100 years may have developed its own special range of bryophytes, and the canopy conditions required by these are lost in felling and do not return in a short coppice cycle.

Coppice Products from the Lake District

From the survey of options for neglected coppice woodland in Devon, it became apparent that to bring these areas under sustained management systems, it will be necessary to identify profitable markets for coppice products. In an area of coppice woodland in north west England, just such a market has been identified – charcoal production.

The Lake District charcoal project was undertaken by a former local government official and farmer. Charcoal is produced in the woodland using portable kilns, which are relatively inexpensive to purchase and easy to move. The major benefit of producing charcoal *in situ* results from 6:1 average ratio (by weight) of air dry wood to charcoal, making it cheaper to transport the charcoal than the wood with which to make it. The particular success of this enterprise is largely the result of an effective marketing and publicity campaign.

The Impact on Coppice

Approximately 300-350 tonnes/year of air dried wood are required to produce 50 tonnes of charcoal. Neglected coppice has been producing biomass for much longer than in-cycle coppice and can yield this from as little 15 to 20 acres of woodland. From a well managed wood with a regular thinning cycle the annual yield might be 1 tonne per acre of charcoal producing material. A total of 300 acres of managed coppice would be required to keep one person in fulltime employment.

There are few producers of domestic charcoal in the UK. Successful producers tend to operate on a small, local scale, providing good quality charcoal for cooking purposes, via a rapid, reliable delivery service, in the quantities desired by the customer.

Other Coppice Products

Apart from the example of charcoal, other coppice products include oak bark for tanning, rustic poles and furniture; hurdles; tent pegs; thatching spars; fencing stakes; and flower and vegetable stakes. Due to increasing consumer consciousness of green issues, demand exceeds supply.

Two tanneries in Britain still use oak bark to produce high quality leather. However, some woodland managers consider these markets to be of minor importance because the labour cost involved in peeling bark compares poorly with the price of imported material. However, when one of the tanners was asked about supplies of British bark, they said their demand exceeded current supply of bark. Traditionally bark from young trees (i.e. less than 40 years old, ideally oak coppice) was used because the inner bark has much higher tannin concentrations than the outer layers (Edlin, 1973).

The reduction in the availability of ideal coppice material has led to much difficulty for tanners in obtaining appropriate material from Britain.

CONCLUSIONS

This study has approached the management problem of neglected coppice woodland through a series of innovative approaches, primarily drawing on the local knowledge of managers of coppice woodland and producers of coppice products. It has shown that there is opportunity for introduction of other land use, sustainability, productivity, adoptability by local people and equatability.

The sustainability of coppice management is questionable and ancient sites have often been referred to as being 'tired' or suffering 'oak sickness'. This results from the more frequent and continuous removal of biomass from coppice than from high forest and reduced availability of soil nutrients where repeated compaction of the clay colloid complex occurs during harvesting. However, Dickerson (1976) showed that most soils recover from the effects of compaction within 14-20 years, half the rotation age for oak coppice.

The proposals for charcoal burning and other value addition are not easily adoptable by farmers. Though coppice is normally felled during winter, for some farmers a period when labour is available, charcoal must be made during the rest of the year which does not necessarily fit in with the farming year. However, there is potential for those individuals who are interested in developing this form of local rural enterprise.

Such forms of management for products to fit specific niches in the market are not ideally suited to large scale enterprise but rather fit small-scale, low input ventures which would be of greater benefit to rural communities.

Overall this study has shown that creative management of small-scale woodland for productive enterprise is possible, provided that careful marketing is carried out together with rigorous silvicultural treatment.

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