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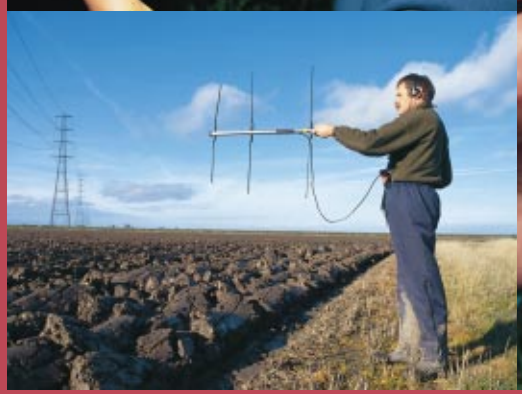
Wood-Pasture and Parkland Habitat Action Plan

Third Advisory Group Annual Meeting, 31 October 2002

English Nature Research Reports



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Third Advisory Group Annual Meeting, 31 October 2002

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Preface

The third advisory group meeting for the Wood-pasture and Parkland Habitat Action Plan was held in Windsor in October 2002. This report summarises the presentations and discussion. Reports of the previous two meetings are contained in:

KIRBY, K. & REID, C., 2000. Wood pasture and parkland habitat action plan: progress report 2000. Peterborough: *English Nature Research Reports,* No. 396.

WATSON, R., 2002. Wood pasture and parkland habitat action plan: progress report 2001. Peterborough: *English Nature Research Reports,* No. 459.

We thank those who took part and apologise for any inaccuracies in the account. The fourth advisory group meeting will be held in July 2004 in Glen Finglas, Scotland, to counterbalance the rather English perspective of this meeting.

Acknowledgements

Our thanks to all the contributors but particularly to Ted Green and Bill Cathcart at Windsor Group Park who hosted us.

Contents

1. Introduction

Keith Kirby (Chair), English Nature

This year is a Biodiversity Action Plan (BAP) reporting year. There has been considerable progress since the plan was launched in 1998. In reflection of that, the agenda focuses on broad areas around the BAP, illustrated with real examples. Appendix 1 provides an update of progress on the plans. Further contributions are welcome. While most of the report deals with work by other partners in the HAP, English Nature has not been idle. As well as much work on various SSSIs across the country, several small research projects have been commissioned to explore the nature of 'old growth' in the UK, the European significance of our veteran tree resource (reported in section 6), a review of the Specialist Survey Method for veteran trees, and an exploration of the relevance of Frans Vera's ideas for woodland and parkland conservation in England (see below). Reports on these will be available in the next couple of months.

Now available:

KIRBY, K.J., 2003). What might a British forest-landscape driven by large herbivores look like? Peterborough: *English Nature Research Reports*, No. 530. Peterborough: English Nature.

WATKINS, C., LAVERS, C. & HOWARD, R., 2003. Veteran tree management and dendrochronology. Birklands & Bilhaugh cSAC, Nottinghamshire. Peterborough*: English Nature Research Reports*, No. 489.

2. BAP Reporting: Its purpose and your contribution

Peter Brotherton, English Nature

2.1 Why report?

The purpose of reporting is partly to do with our own peace of mind; it allows us to assess what we are doing for wildlife. It is also important for securing funding. However, as the world around us changes, it gives us an opportunity for reflection and internal assessment.

2.2 Why monitor and report together?

We need to assess the overall progress of more than 850 organisations, which is a challenge to manage, to say the least. It is important not to duplicate effort, to identify gaps in delivery, prioritise better, and spend resources efficiently. Reporting enables us to learn from each other's experiences. We can identify overarching issues and bring them to the attention of the government, whether they are structural, financial or political. Finally, monitoring and reporting together allows us to recognise and celebrate the contributions of all involved.

One problem with trying to get organisations to report on their progress is that people on the ground don't see the change from reporting, which makes them feel disillusioned. However, that is about to change!

In 1999, 75% of reports were more than 6 months old, and 18% had not been published at all. In 2002, there will be county-level reports and for the first time, Local BAPs will be involved. A much more structured approach has been developed.

2.3 2002 reporting

Lead partners were asked to report on the following aspects their habitat:

1. Status of Habitat/species (approximations were tagged).
2. Trends in biological stated.
3. Status of knowledge – do we know enough?
4. Progress on targets (quantified where possible).
5. Current factors causing loss or decline.
6. Constraints to achieving targets (and propose a solution).
7. Steering Group members.
8. Other implementation organisations.
9. Linkages to LBAPs.
10. Key successes.

Local Biodiversity Plan Coordinators were asked to report on the following:

1. Species and Habitat coverage (both national and local positions)
2. Organisations involved
3. LBAP interactions with lead partners
4. Habitat successes (up to five)

5. Species successes (Up to five)
6. Other successes (up to five)
7. Problems.

The reports are available for everyone to view on
www.ukbap.org.uk

At the time of the meeting there was information on 53 LBAPs on wood pasture and parkland; they are hyperlinked, to give more information. As yet the individual plans are not online, but contact details are available.

2.4 What do we do with all this information?

The test of the success of the system is whether it is used: if this information is useful to you, you'll use it and add to it. If it isn't, you won't. This year is the first attempt to summarise the information. This is the first stage in the Biodiversity Action Reporting System (BARS)

During discussion the question of definitions for habitat creation and restoration was raised: Richard Smithers agreed to set up a sub-group to explore these issues.

3. Area Targets: Current Resource, Restoration and Expansion

Ultimately the Habitat Action Plans stand or fall by whether the sites are being enhanced, extended or restored. Powerstock Common provides an example of at least two of these.

3.1 Restoring Powerstock Common

Neil Sanderson, Consultant

Dorset Wildlife Trust have to produce a management plan of Powerstock Common as part of an application for Countryside Stewardship as a Historic Landscape. The grant aid allowed DWT to commission the management plan from me as an independent consultant.

3.1.1 The Reserve

The reserve is part of Powerstock Common and Wytherston Farm SSSI, and included in West Dorset Alderwoods SAC. Although Powerstock Common SSSI was included in the SAC, English Nature was aware that the main features, alluvial forests, *Molinia* meadows and marsh fritillary, were not in favourable condition across the SSSI and that much restoration and increased monitoring was required.

Powerstock Common Nature Reserve covers 115 ha. The climate is significantly cooler and wetter than the south and east of Dorset and more oceanic than the north and east of the county. It has a climate similar to the foothills of Exmoor and Dartmoor.

The Upper Greensands forms summit of the high ridge producing acid freely drained soils with mildly acidic springs at the base of the outcrop. Below are base rich clays (Gault Clay and Fullers Earth) with areas of complex landslip debris. Intermediate slopes include unusual surface water gley soils with acidic topsoils over calcareous clay sub-soils along with more base-rich seepages. The lower slopes support base-rich cracking-clay soils developed in the Fuller Earth, including raw clay soils on the railway cutting.

3.1.2 The situation

The Powerstock Common Reserve is part of a much wider network of important sites in central west Dorset clustered around the former Powerstock Forest. The Common is to varying degrees ecologically connected to these sites. Management on the Common will both influence and be influenced by management and habitats on these other sites.

Powerstock especially offers opportunities for more extensive but possibly difficult treatments. This biodiversity hotspot takes its character from the juxtaposition of different soil conditions noted above. It harbours notable concentrations of vascular plants of humid and wet acid soils, epiphytic lichens characteristic of old growth woodlands and invertebrates including a highly endangered meta-population of Marsh Fritillary.

3.1.3 Historic landscape

Powerstock and Wytherston include ancient woodland on the reserve. Wicker Fields and Stones Common/Parsonage Common is a vast common with pasture woodlands that were mostly enclosed in 17th century, although patches remained open until 19th century. Poorstock Common is part of a series of commons on steeper landslip areas, which remained common until the 19th century.

Traditionally, grazing on Powerstock Common was allowed between 13th May and 13th February. The tithe maps indicates 0.58 Livestock Units/ha/year The pasture woodland was probably reduced to a thin scatter of coppice stools and stubs in late 18th century, but with extensive regeneration in early 19th century. Enclosure occurred in 1893. The Common infilled naturally and was used as shooting estate.

3.1.4 Habitats

The north of the common was cleared and replanted with Sitka spruce, Norway spruce, larch and beech in 1971 and 1972 by the Forestry Commission. The surviving undisturbed stands have had a very unusual structure, giving a unique character to these stands. It was bought and leased by DWT between 1981 and 1986.

Management of the reserve was initially cautious as understanding was built up. Latterly there has been a difference in emphasis about the role of grazing on the reserve. A system of grazing in highly controlled small paddocks had developed which lead to a profusion of internal fences. The use of careful controlled, periodically intensive grazing, rather than extensive light grazing was not favouring special features such as the Marsh Fritillary and lead to the assumption that extending grazing further would lead to more internal fences in wilder areas of the reserve.

Clearance of the conifers and scrub to grassland on the 17th century enclosures to the east was a success in restoring grasslands but the system of small paddocks on low productivity communities meant periodic overgrazing, some valuable areas were left ungrazed and ground levelling was needed to allow mowing as an alternative to grazing.

Recently grazing was started to extend west in to the old common and ancient woodland. Here very different aims have been applied over time. Initially there was the removal of conifers and creation of coppice with standards. This was a failure due to lack of surviving coppice and heavy deer grazing. Increasingly the view has developed that extensive grazing and pasture woodland would be the best option.

The current grazing is carried out by DWT using their own organic Galloways by staff from the Kingcombe reserve.

3.1.5 Flora and fauna

- A total of 95 Dorset Notable and 2 Dorset Rare species have been recorded, a very high total, although seven have not been seen since 1980.
- Bryophyte diversity has declined since the 1960s with loss of acid grassland and mire.

- Epiphytic lichens include 20 ancient woodland indicators, although two have not been seen recently, along with 2 Nationally Rare, 13 Nationally Scarce, 3 Dorset Rare and 30 Dorset Notable species; a very high total for a developing old growth stand.

Notable and rare invertebrates are predominantly woodland edge, wet grassland, ponds and calcicolous grassland species. Declines of woodland edge species and open ground specialists, especially butterfly, are apparent. Vertebrates include Great Crested Newt and Bechsteins Bat, as well as high deer populations and wild boar.

3.1.6 Habitats or species of international importance

The range of semi-natural habitats, including alluvial forests with alder and ash (NVC W7 and W5) and *Molinia* meadows on calcareous, peat or clay-silt laden soils (NVC M24), in close juxtaposition on the reserve is remarkable. In addition the transitions provide additional habitats, especially for invertebrates. Over time this habitat mosaic has been very fluid and different habitats have waxed and waned. This feature is a positive one and fixed habitat boundaries should be avoided, but there is a matter of balance between habitats, which must be related to the individual importance of the habitats.

Key features of international importance, which are highly sensitive to grazing, are the Rhos pasture (*Molinia*), and the associated Marsh Fritillary. This requires an extensification of grazing to allow well-structured habitat to be maintained and also to create as large an area as possible of suitable habitat. This will require the extension of habitat beyond the reserve in the long term.

3.1.7 Other habitats of national importance

The reserve also contains Atlantic lowland mixed woodland (Carpinion) and Calcicolous grassland and ephemeral ponds (Hydrocotulo-baldellion). The fluid nature of the habitat mosaic within the reserve historically, combined with extensive conifer planting of the 1960s and 1970s, allows considerable scope for habitat restoration within the site.

The reserve's position within the ecological fabric of the area, its historic background and the duty of the Trust to consider innovative approaches, pointed towards considerable extension of grazing across the reserve producing and maintaining pasture woodland habitat. The data provided by the plan has allowed the Trust to commit itself fully to this .

3.1.8 Management

The main compartments for grazing are Wicker Fields (28 ha), Powerstock Common (46 ha) and Lower Powerstock (15 ha). This both massively reduces the amount of intrusive internal fencing and massively increases the area under grazing. In the west, as well as open trees grasslands and mires in the main area cleared of conifers, areas of fringing more-closed pasture woodland will be restored. The broad management objectives are to achieve as much as possible of the management of the site via extensive grazing, with as limited intervention as possible.

At Wicker Fields, most of the work is done; the main requirement for this compartment was a secure ring fence and the removal of internal paddocking. Here management of the stock

would be within workload of existing staff. There is however some need for scrub clearance to open up grasslands, restore lost scrub edge habitat on the cutting and dig more ponds.

Powerstock and Lower Powerstock Common still have large areas of poor to moderate quality conifer on soft wet clays. Removing these is a major issue, extending the extraction track (also allowing access for stock management) and the removal of conifers is expensive. Current low timber prices mean that clearing the remaining conifers and an extraction road could cost around £30 000.

A ring fence approach was suggested allowing extensive grazing and avoiding internal fencing. The additional land in difficult terrain will require much more staff time for checking animals and an additional staff member is probably required.

Defra's support for this application is a big step; we are keen to extend the historic landscape plans to areas with more emphasis on gradually evolved landscapes to balance the current emphasis on the designed landscape. If the conifer clearance can be covered as a special project then the grazing areas payments will cover the employment of an agricultural placement student.

3.1.9 Issues

Defining Pasture Woodland: is it the actual structure/biota/history or simply opportunity that puts Powerstock Common into this BAP?

How does pasture woodland relate to other BAPs?

Will or has the BAP aided the restoration of the common?

Who pays for the removal of conifers to open habitats, forestry or agriculture?

On the practical side, the removal of past conifer planting has allowed the restoration of valuable open communities here; would this be possible if it were still broadleaves and if not, why not?

4. Policy and Legislation

The Agri-environment 'field' is changing almost by the month. However, the work done last year as part of a review of such schemes in England provides a useful baseline for any future work.

4.1 Review of agri-environment schemes (AES)

Steve Clifton, English Nature

There was a general acknowledgment that in England Defra's Countryside Stewardship (CSS) and Forestry Commission's Woodland Grant Scheme (WGS) were the principal agri-environment schemes to consider, with geographically-focussed support from Environmentally Sensitive Areas (ESA) and English Nature's Wildlife Enhancement Scheme (WES) for SSSIs in England.

The sub-group that considered them were:

Rebecca Isted (neé Watson) (JNCC)
Richard Smithers (Woodland Trust)
Helen Stace (English Nature Three Counties Team)
Fred Currie (Forestry Commission)
Ian Johnstone (DEFRA Rural Development Service)
Steve Clifton (English Nature East Midlands Team)

Q1: What are our desired outcomes for wood-pastures and parklands ?

- The success of Agri-Environment Schemes (AES) should be measured by their contribution to the delivery of HAP targets; maintaining site condition, restoring site condition, expansion of resource.

- There will be an acknowledgement of wood pastures/parklands within the wider unenclosed countryside at a landscape level and this will be reflected by AES.

- AES need to consider the sustainability of benefits acquired through AES and address the need for long-term planning/commitments to maintaining these features.

Q2: How well do current schemes work and could they be improved?

- They require additional budgetary resources to enable greater and wider funding of benefits, and require greater incentives in the form of competitive payment rates to attract uptake from key stakeholders.

- Specific options under CSS cover parklands well and should continue to be the principal source of AE support for such features. Prescriptions on field margins and orchards should however be improved to reflect old trees and invertebrate interest. A much greater link on wood-pastures from WGS is required which will then require greater flexibility from Forestry Commission to adapt support to the more dynamic systems typical of wood pasture-based features (greater focus on old trees, decaying-wood, grazing).

- Greater regional weighting of scoring is needed to focus delivery of national targets.
- There is a need to link higher payments with more qualitative conditions, such as setting levels of decaying-wood (avoiding over-tidiness in certain areas), regulating grazing levels (to avoid over- or under-grazing) and ensuring compliance with Agricultural Codes of Good Practice. It was felt there was a need for a national menu of minimum quality standards tailored to each AES, coupled with the ability to have local flexibility on specific prescriptions for specific outcomes, eg managing for a species.

An over-arching concept of national mandatory standards of sustainable land management should be a basic requirement central to agricultural policy.

Q3: What are the management needs of wood-pastures/parklands in relation to agri-environment schemes

- There is a need to link management of wood-pasture and parkland to a definition of ecological condition – further development of attributes is required.
- More regard should be paid to established veteran tree principles within AES should be established (drawing on the publications of the Veteran Tree Initiative) and used to develop minimum standards for funding options.

Q4: What is the future role of agri-environment schemes?

- There is a need to improve the link to HAP targets when DEFRA/FC reporting are on delivery of AES.
- The current short-term roles of AES are to maintain/enhance/buffer existing remnants of wood-pasture & parklands. Effectively they are interim measures to accommodate landscape/wildlife conservation within a largely un-restrained agricultural environment. With demands for CAP reform and greater resources into environmental benefits as opposed to production, this may change. There will still be an important future role for Agri-Environment Schemes as a higher tier of management standards, to 'reward' those with responsibilities towards stewardship and enhancement of special landscape/wildlife/cultural features.

Q5: Are agri-environment schemes suitable for the achievement of favourable condition on wood-pasture/parkland SSSIs ?

- SSSIs represent the finest and most important remnants of wood pasture & parkland and require specialist, high quality advice and work. English Nature should continue to take lead role in advising on SSSI management and achievement of favourable condition. There is a Government PSA target in England of 95% of SSSI area favourable or improving by 2010 which is applicable across all government departments and agencies.
- English Nature may need to continue to fund wildlife-related work associated with special interest of wood pasture & parkland, but in conjunction with CSS/WGS. However, with greater financial incentives, owners may find it confusing and inefficient to be eligible for three separate AES. Given its objectives, an incentive-

based CSS would seem to be the most appropriate AES for most parklands, with wood-pastures the focus of a broader WGS.

Q6: what are the wider benefits or conflicts with wood-pasture/parklands ?

- To avoid potential conflicts with other HAPs, such as lowland heath, there is a need for a wider view from all HAP Groups in their specialist advice on the concept of wood-pasture.
- There was a clear endorsement of site 'management planning' to cater for these potential site-based conflicts and it is important that AES continue to promote their production prior to grant-aid.
- There is a need for an element of longer-term planning within AES, especially with habitat such as wood pasture & parkland. AES on wood-pasture & parkland tend to be short-term schemes with longer-term objectives and are vulnerable to changes in outlook when/if ownership changes hands. Consideration should be given to longer-term agreements perhaps of 20 years, with the suggestion of building-in a 10year aftercare condition to protect public investment of funds. Forest Estate Plans are a useful example.

4.1.1 Proposed measures for new DEFRA Entry level Scheme (ELS) (now being piloted)

A 'broad and shallow' tier of a revised agri-environment scheme, has been devised that will eventually be widely available, giving payments for good environmental management of fields and their boundaries, which make up the fabric of our countryside.

It aims to strike a balance between efficient farming to produce food and fibre, and allowing our wild animals and plants to survive and flourish in the wider countryside. The payments under the ELS will help farmers achieve this balance.

In addition to increasing wildlife within fields, this scheme will indirectly help wildlife living in adjacent semi-natural habitats (like broadleaved woodland, heathland and wetlands), which have become isolated and disconnected by intensively managed farmland.

It will be:

- Low-cost reflecting low tier
- Simple and practical
- Auditable and scientifically justifiable
- Widely applicable across the range of farming systems
- Not overly prescriptive

4.1.2 What's in it for wood pasture and parklands?

Proposed compulsory measures for all farming systems

- Environmental audit or whole farm management planning – biodiversity, historic environment, landscape assessment
- Identification and retention of all existing areas of semi-natural habitat, such as grassland, scrub, traditional orchards, heath, wetland.
- Identification and retention of ancient trees, mainly 'in field' and boundary trees

Proposed optional measures to protect and manage boundaries, trees and woodland

- Protect 'in-field' trees – VTI standard for veteran tree – 1.5m DBH or 4.7m girth 'farmer-friendly'
- Manage hedgerows
- Allow woodland margin hedges to expand
- Use of buffer strips along field edges – 2 – 6 metres

Items for upland systems

- Maintain mixed stocking on the farm
- No agrochemical use on unenclosed rough grazing land
- Bracken management to limit its encroachment

5. Site safeguard and management

There is much interest in the restoration of large-scale grazing to wood-pastures. The experience of work in Epping Forest illustrates some of the issues involved.

5.1 Cattle grazing in Epping Forest

Jeremy Dagley, Corporation of London

5.1.1 Importance of grazing

As one of the largest remaining examples of pasture woodland habitat in Europe, Epping Forest's historical, cultural and wildlife importance is inextricably linked to grazing. However, the number of grazing animals on the Forest has declined drastically during the 20th Century and in 1997, for the first time, no commoners' cattle were present on the Forest, breaking a tradition of many centuries. It is a high priority objective of the Management Plan, therefore, to restore grazing to the Forest, particularly to the larger grassland and heathland areas.

Grazing is the optimal management for the Forest's grass and heathland habitats for the following reasons:

- The grasslands and heaths owe their existence and diversity to grazing.
- Grazing ensures that the Forest remains open for public access and presents to the visitor attractive and wildlife rich plains and heaths.
- Mowing alone reduces grassland flower diversity and encourages coarse grasses
- Some Forest plants like Spiny Rest-harrow, Petty Whin, and Pepper Saxifrage are adapted to grazing but can be damaged and decline under a mowing regime.
- Anthills, widespread throughout the Forest, cannot be mown.
- Mowing on grasslands and heathlands can reduce their insect diversity which in the Forest is often of equal or greater importance than the floristic diversity.
- Grazing by cattle can provide a varied sward height for different plants and insects and creates bare ground for seedling establishment.
- Grazing can be controlled much more finely than a mowing regime (there are more variables to change in a grazing regime to achieve the desired effect).
- Grazing allows for gradations between completely open habitats and the areas with trees and would recreate the important wood-pasture system
- Scrub-grass mosaics, important for birds and insects, are much more easily managed by grazing and can be much more dynamic than with mowing which tends to fix the islands of scrub in position.
- Mowing is creating an ever bigger problem of 'green waste' disposal and some grasslands require 2 cuts a year to prevent coarse grasses dominating.

5.1.2 Grazing longhorn cattle in Epping Forest

Grazing has been progressed cautiously, to ensure its success from a public access and conservation perspective and in order to engender an atmosphere of broad public acceptance and support. The public has been reassured of the potential for grazing to aid access. To achieve grazing necessitated livestock fencing in order to keep stock where they are required to be, to aid Forest conservation and sustain access. Where proposed, stock fencing has been placed along Forest boundaries with neighbouring land or roads for as much of the length as possible. In addition, wherever feasible, stock fences have been placed within the scrub and tree line to obscure them from view.

The plan has successfully re-introduced 13 Longhorn cattle to Fernhills in 2002 and the extension of the Long Running grazing area in 2003 with a further 33 cattle after a full evaluation of the small-scale experiment.

6. International

There has long been recognition that the UK has an outstanding biodiversity resource in terms of its veteran trees, but there is increasing recognition that there are more on the continent than have previously been thought. English Nature commissioned ATF to carry out a short review of the subject.

6.1 The European significance of Britain's veteran trees

Mike Smith and Bob Bunce

This project is a preliminary attempt to put the UK veteran tree resource into a European context. It attempted to compare populations within the biogeographic regions of Britain with comparable parts of mainland Europe.

Opinions differ as to what constitutes a veteran tree. In order to provide a consistent basis for recording a series of habitat features and tree diameters was used. This may have led to the inclusion of trees that other more subjective assessments would exclude.

An investigation into existing material proved unsuccessful at assessing populations of veteran trees and so estimates were based on stratified random samples across the area of search

The project only had the scope for limited sampling. Veteran tree numbers and their distribution were investigated across 31 sites, 8 in the UK, 23 on the continent. At each site three 1-kilometre squares sere searched and trees recorded that were either above minimum size diameters (75-150cm depending on the species) or showed at least three 'veteran tree characteristics' (rot holes, hollowing, dead wood etc). The location and surrounding land-use type were noted.409 veteran trees were surveyed in detail out of a total of 3,867 recorded that showed some 'veteran' characteristics.

The densities of trees found in squares of different biogeographic regions were used to extrapolate up to the total numbers of trees across the countryside. Bearing in mind the small sample on which it is based, the following estimates were made:

- The estimated total population of veteran trees within the area of search is somewhere between 17 and 29 million. Estimates of the largest size classes of all veteran trees are between 1.3 and 2.8 million.
- The estimated population of all veteran oaks is between 12 and 19 million and for the largest size classes between 600,000 and 1.5 million.
- The continental European area of search has the greater proportion (84-90%) of the population of all trees with some veteran characteristics, based on the criteria set out in the methodology. The UK however has a greater proportion (63-65%) of the larger size classes of veteran trees.
- The continental European area of search has the greater proportion (91-94%) of the estimated population of oak with veteran characteristics, based on the criteria set out in the methodology. The UK, however, has a greater proportion (75-79%) of the larger size classes of veteran oaks.

71% of the trees recorded in Continental European area of search were found within boundary features (avenues, banks, hedges, road and tracksides and along wood edges) with 9% found in woodland and only 2% within wood pastures.

60% of veteran trees in the UK were found in wood pastures (albeit these were from just two sites) and only 31% are found as part of boundary features.

These estimates must be treated with caution, but they are currently the only quantitative information available on the number and distribution of veteran trees across Europe. It would be desirable to extend the survey, both by investigating more sites and across the remainder of the European biogeographic zones.

Available soon:

SMITH, M. & BUNCE, R.G.H., 2003. A preliminary assessment of the distribution and abundance of veteran trees in north-west Europe. Peterborough: *English Nature Research Reports*, No. 534.

7. Research

One of the fascinations of veteran trees is the way they can link us to the past. They are quite literally 'living history' as well as turning up in historical documents.

7.1 The distribution of the oak and the ash in early Medieval England

Della Hooke, University of Birmingham

The listing of all trees recorded in pre-Conquest charter boundary clauses, Domesday and pre-Domesday place-names, together with tree species referred to in early medieval literary sources, grew out of a project carried out for the University of Glasgow's Anglo-Saxon Plant-Name Survey for which I had agreed to collect all references to the thorn-tree, the commonest tree recorded in charter boundary clauses (Hooke, in press). The thorn, including blackthorn and hawthorn species, has a distribution in charters and place-names unlike most other tree species, being strongly associated with settlement and cultivation; all these species were used by the early medieval period in hedgerows but were also able to rapidly colonise abandoned agricultural land.

Few trees living today are, of course, likely to date from the early medieval period, the exception being some ancient churchyard yews, especially in the Border country where several pre-date the churches themselves (as at Much Marcle, Herefordshire) and a number are associated with Romano-British burials or post-Roman memorial stones (eg Claverley, Shropshire; Llanerfyl, Powys). Estimates are made that some, like the yew standing beside the church at Norbury, Shropshire, are much more ancient still. At Welshbury hill-fort in the Forest of Dean, it has been claimed that the limes there are derived from a rootstock older than the fort itself and this has saved them from clearance by English Heritage. Some pollarded oaks may also be ancient but it questionable whether they have lived for 1,000 years.

7.1.1 Trees in early medieval sources

The distribution of trees in early medieval sources is not always quite as straightforward as might be expected. There can be problems with the identification of some species and the virtual absence of others from the documentary record.

The sweet chestnut, *Castanea sativa*, is not reliably found in the pollen record but has been found in a Roman context and while nuts and husks might be from imported fruit this is unlikely for the wood and charcoal found on Roman sites in southern England. There is only one dubious reference in charters but on the eastern margins of Dean the tithe of chestnuts granted to Flaxley Abbey came from a chestnut wood close to an earlier Roman villa. However, the absence from the early medieval documentary record does suggest that this tree was relatively rare in the landscape in general.

There is no direct reference to the black poplar, *Populus nigra*, and place-name scholars have argued about the interpretation of the *popul* of a Micklemersh, Hampshire, charter boundary clause where it occurs as *populfinige* (the latter word cannot be translated either); *popylle* is

glossed with 'cockle tares' but Biggam (in press) claims that the reference is to a 'pebble' something or other, despite the clear references in medieval documents to the *popeler/popular* as a large poplar (Rackham 1986). There are no known references to the hornbeam, *Carpinus betulus*, a native tree, but an unidentified *eleb⌈am* occurs in the charters of southern England (Hampshire, Isle of Wight and Berkshire), while the *cwicb⌈am* seems most likely to have been the rowan, *Sorbus aucuparia*. Apart from these, the distribution is very much as one might expect, although with a few surprises.

The box, *Buxus sempervirens*, is not common and is confined in charters to the chalk soils of Hampshire, Berkshire and Hertfordshire with a slightly wider distribution in early place-names but still found on calcareous soils. The beech, *Fagus sylvatica*, initially omitted from Rackham's lists (Rackham 1980, 1990), but nevertheless present in charters and place-names, is also almost restricted to southern England; it is commonest in the Hampshire charters (sometimes it is difficult to distinguish the word 'beech' from other similar terms referring to minor streams and ridges but there are several clear references to the beech, Old English *b⌈c, b⌈ce*, as in the *read lefan becan*, 'the red-leaved beech', of Meon, Hampshire). The wild service-tree, *Sorbus torminalis*, is rare in the documentary context, but occurs on charter boundaries in Worcestershire and Berkshire.

An interesting problem is presented by the distribution of the common elder (Figure 1), a tree like the hawthorn commonest in farmed landscapes and, in particular, in landscapes where cultivation was retreating. The abandonment of former cornland in the post-Roman period may be one factor in its concentration in southern England although one needs to look more closely at the exact locations in which it is recorded. Equally puzzling are the references to so many elder stumps – maybe the tree was being managed in some way or maybe it was simply being chopped down as a nuisance - but early eleventh-century Christian edicts picked out the elder as *the* tree associated with devilry and witchcraft (Hooke, in progress).

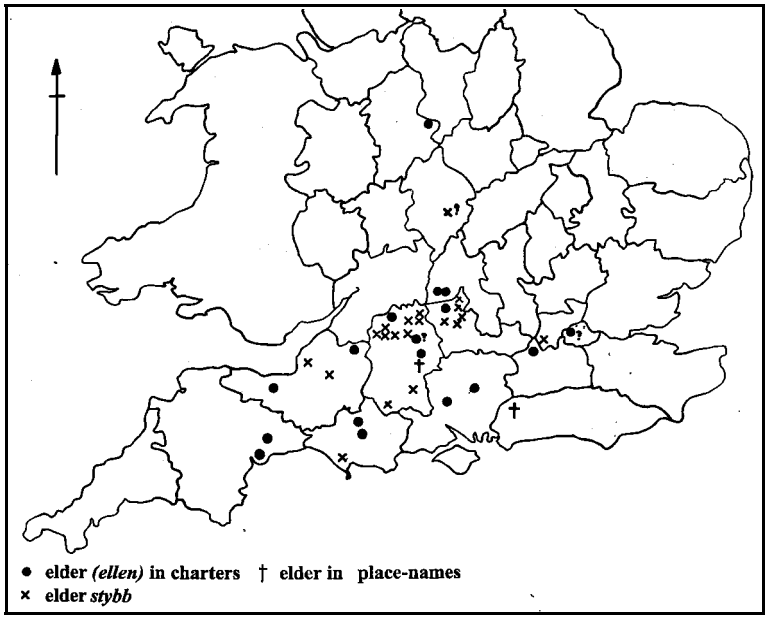

Figure 1
The distribution of elder in early place-names and charters

The lime or linden, here *Tilia cordata*, shows concentrations in its regional distribution, as in north-east Worcestershire and elsewhere in that county – such as in the Malvern area or on the margins of Wyre, all areas of seasonal pasture. In the Weald, too, close to the borders of Kent and Sussex, it occurs in association with the Wealden dens, also areas of seasonal

pasture, as at Lindridge, Lindhurst and Lindfield. In the New Forest of Hampshire, Lyndhurst and Linford in Ringwood are recorded. All of these are areas of wood-pasture in which, according to Rackham (1990, pp. 150, 174), limes were likely to decline in number in an irreversible trend (although they are still present within the northern Worcestershire woodlands and in the Hampshire locations today).

However *the* trees of wood-pasture were undoubtedly the oak and the ash.

7.1.2 Wood-pasture and tree species

An Old English term *l/ah*, commonly found today as a place-name ending '-ley', is the term most likely to refer in early medieval England to wood-pasture, an interpretation recently confirmed by a study in the Netherlands. This is a strange term – often clearly used in the names of actual woods yet it is derived from an OHGerman *l/h*, meaning 'light'. The name given to the Weald, that best-known area of seasonal pasture, was *Andredesleah*. The implication has to be, as Rackham and Vera (2000) have claimed, that much of the woodland of early medieval England, and in earlier periods, was open woodland, grazed first be wild herbivores and later by domestic stock – the type probably best seen today in parts of the New Forest.

There is a distinct correlation between the distribution of the oak and the ash, the trees most distinctive in wood-pasture, the *l/ah* place-name, the hunting areas of Anglo-Saxon England and the area of Norman forest.

The distribution of these species in the sources noted above shows a marked concentration in Worcestershire & Hampshire (Figure 2), both counties almost entirely forested in medieval times. Charters do not survive for the whole area but place-names are ubiquitous and these distributions are therefore significant. Oaks in charter boundary-clauses may be described as fair, elegant, tall, slender, broad, great or forked, or, alternatively, as crooked, bent-down or diseased, one as rough-barked, another smooth; as green or black – the later perhaps a dead or stag-headed tree; one is described as 'red-leaved'; some were named as 'boundary' oaks. The ash appears to have attracted fewer descriptive adjectives but could be described as old, ivy-covered, tall or broad; both on occasions were referred to as 'holy' whatever this may signify. Whereas most of the oaks were isolated specimens, more of the ashes were associated with topographical locations such as valleys, woods, springs, streams and rivers, as if frequent in such locations.

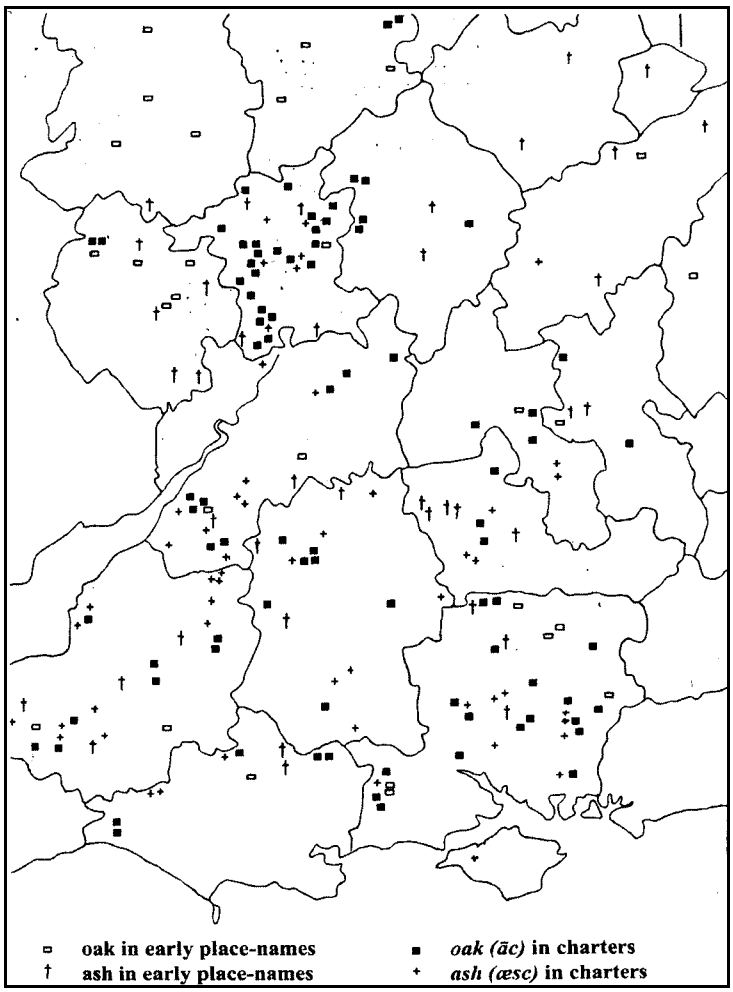

Figure 2
The distribution of oak and ash in early place-names and charters

These tree distributions can be set against the distribution of *l⁀ah* place-name (Figure 3). Wood-pasture was not only a major resource in the economy of many regions but played a significant role in the demarcation of territories, probably as early as the Iron Age: many Border hill-forts are thought to have been sited to control this most important of resources and in the early medieval Hwiccan kingdom in the west midlands one can identify links from intensively cultivated regions to the seasonal pastures (Hooke 1985, pp. 77-88, figs 20, 21, 22; 1998a, pp. 142-4); these defined the folk regions which were subsumed into the seventh-century kingdoms. In some regions, like the Warwickshire Arden, it is possible to identify patterns of parallel droveways linking the cultivated regions to the seasonal wood-pastures that may well go back into the prehistoric period (Hooke 1998a).

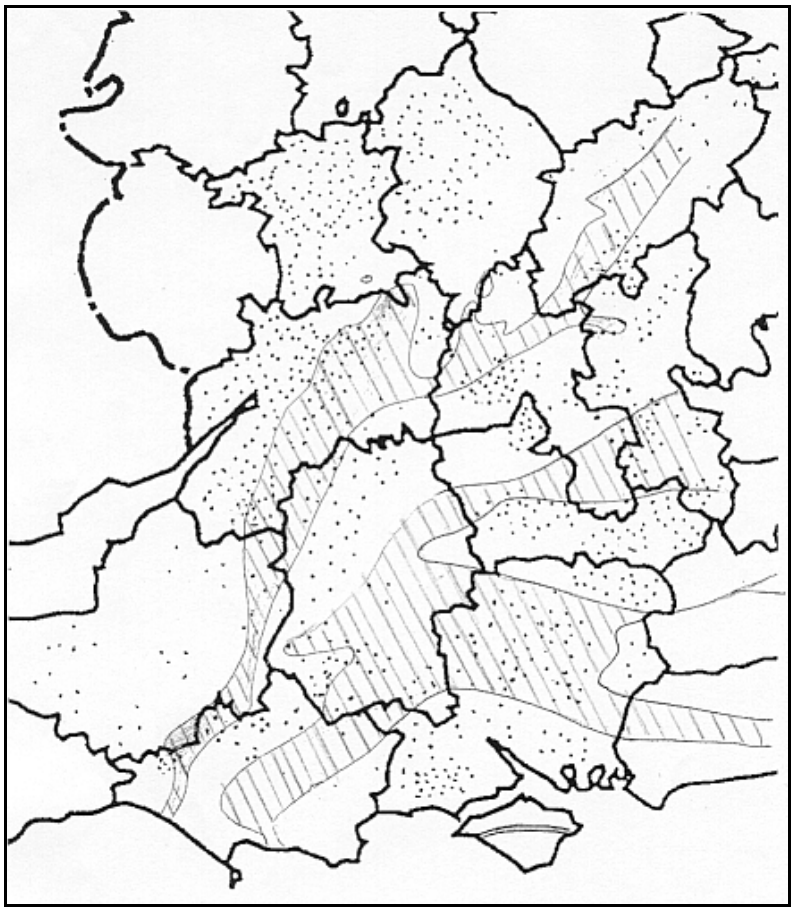

Figure 3
The distribution of *leah* in early place-names and charters. The chalk and limestone escarpments are shown hachured.

In Worcestershire, in a region known as *Weogorenaleah*, the wood-pasture of the *Weogoren* tribe whose territory was focused upon Worcester, one can see *l⁄ah* place-names located around the margins of the densest woodland (Hooke 1981; Figure 4a). More remote areas had fewer settlements within them and, hence, place-names of any kind, and may be represented by blank areas on the map (as in the Windsor forest region in Berkshire). However, the *haga* enclosures associated with the management of deer indicate these hunting areas beyond the *l⁄ah* zone. In Worcestershire, these are concentrated in the more remote border region to the west of the Severn (*ibid.*). The oaks of *Weogorenaleah* acted as boundary markers in the pre-Conquest charter boundary clauses but some, as the laws and charters confirm, were more valued for the acorns they provided as feed for pigs, the shelter they provided to stock, and for their timber. Eventually the Anglo-Saxon areas of hunting were to be turned officially into royal forests which were subsequently extended to cover most of the county – leaving out only the heavily cultivated vale of Evesham in the south-east outside forest law.
Other counties can be analysed in the same way. Hampshire was another county with most of its area in medieval times subject to forest law – here *haga* boundaries run for miles in the north of the county (Hooke 1998a; Hooke 1998b). Again, comparisons can be made between the distribution of the *l⁄ah* term, the references to the oak and the ash, the incidence of *haga* features and the Norman forest areas (Figure 4b). In Wiltshire, the central chalk areas appear blank – without *l⁄ah*, forest (apart from the Groveley Forest), or much in the way of oak and ash references (Figure 4c).

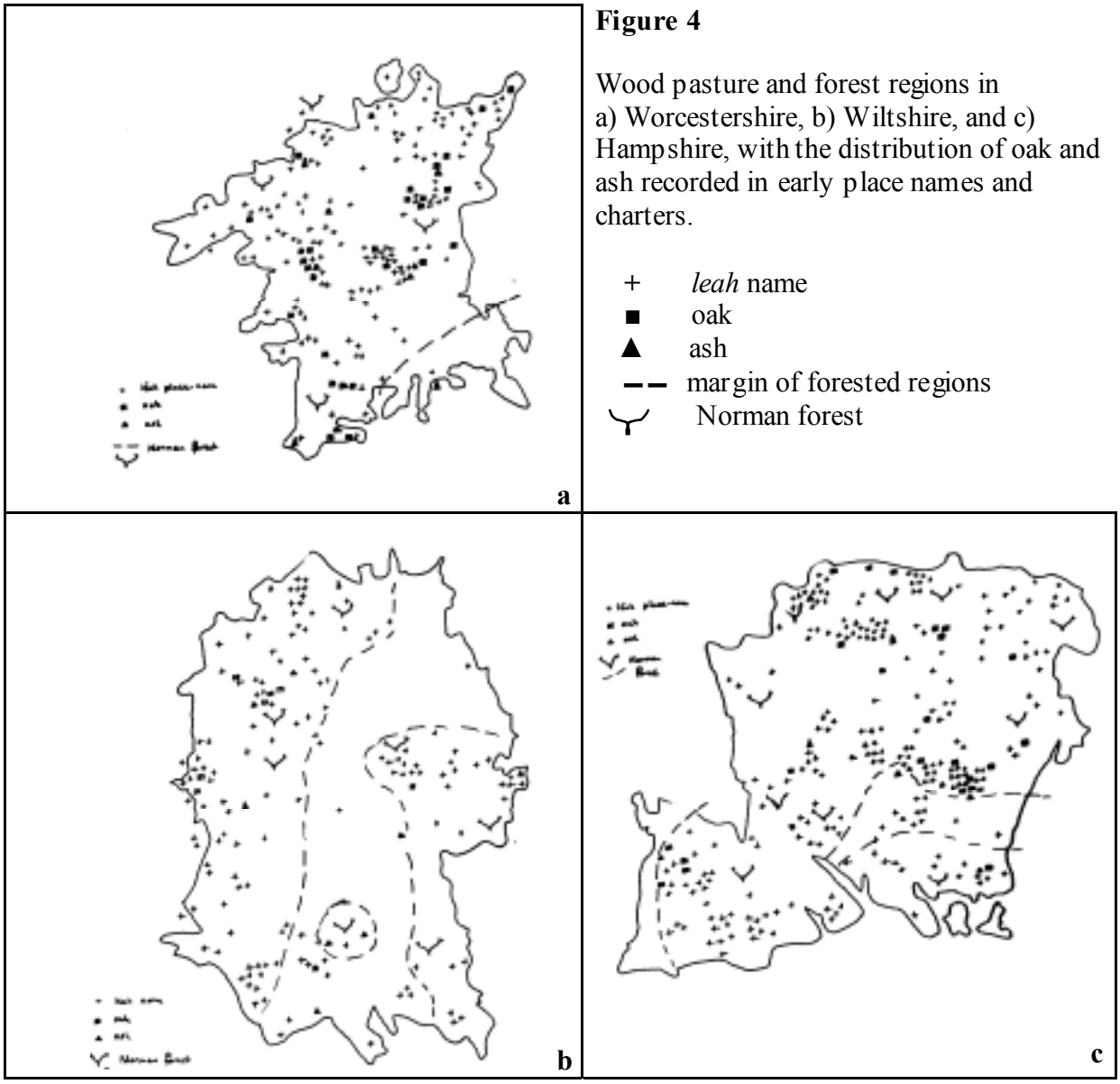

Figure 4

Wood pasture and forest regions in a) Worcestershire, b) Wiltshire, and c) Hampshire, with the distribution of oak and ash recorded in early place names and charters.

\+ *leah* name
■ oak
▲ ash
– – margin of forested regions
Norman forest

7.1.3 Veteran trees

Many of the veteran trees seen today survive either on the boundaries of the forests or within the medieval deer-parks that were often enclosed by royal license around the forest edges, pollarded to produce timber out of reach of cattle and deer.

Malvern Forest, later a private Chase, was disafforested in 1664 and has pollarded ashes and oaks, like the oak-tree at Dripshill near the eastern boundary of the forest. The famous Mawley Oak, on the margins of the Wyre Forest, possibly a marker oak, obviously underwent massive trauma earlier this year. Some of the most interesting are found within deerparks, such as the ancient pollards in Whitcliffe Park, one of the Berkeley Castle deer-parks. Some veteran trees, indeed, bear witness to former parks not found in the documentary record, like the ash on the pale of a small Dorset park in Sydling St Nicholas, or hint at emparkment earlier than that known from later landscape park features, as at Cothelstone, Somerset.

It is particularly interesting to see how wood-pasture, and its derivative, the medieval park, with all its associations, has been such a major influence upon the landscape for so long, perpetuating a very important aspect of the character of the historical landscape over the centuries. The fact that so many veteran trees are still unrecorded in such situations demonstrates the importance of undertaking competent ecological and historical surveys of all known and suspected parklands and areas of former forests, especially when management agreements are being drawn up under Defra's Countryside Stewardship and ESA agreements.

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8. Databases and recording

What have we got in the way of ancient trees and where are they? A variety of different initiatives are underway to address these issues.

8.1 Parkland database

Keith Kirby, English Nature

8.1.1 Wood Pasture Information System (LPWIS)

The wood-pasture & parkland information system is now complete along with a web based reporting facility. A pilot project has been undertaken to recruit data and test the database and its reporting facilities. This included datasets from the Ancient Tree Forum - Major concentrations of Ancient Trees and from the Saproxylic Site Register.

The next phase of the project is to extend the data recruitment beyond the pilot area and develop the functionality of the database to ensure that it is fully compatible with developments of the Recorder Database on which it is based.

Contact Rebecca Isted, at English Nature, for more information. A trial version can be viewed at www.wapis.org.uk

8.2 Ancient tree database

Jill Butler, Woodland Trust

The Ancient Tree register has 98 trees over 3 m in diameter, although there may be many more scattered through the countryside that are not registered.

Scotland has recently revised its records and has over 200 records. However, the problem with paper records is that they go out of date so quickly. A map with dots on it, at a low resolution, is not meaningful in any way, as it is not possible to relocate the individual trees. However, web and GIS technology can overcome these problems. With an on-line GIS map of the UK, all ancient trees could be mapped accurately. This could then be used to increase awareness, lobby for protection of these trees, locate important concentrations and monitor threats and losses of these trees in the wider landscape.

There is still the problem of how to fill in the gaps and draw in knowledge not yet recorded. This map could be interactive with the public, however; attached to each record would be where the tree is, its size and species, simple identifying information.

8.2.1 Cost

The collation of existing surveys, development and deployment of the database and website would be about £300 000. Recruiting records and verifying and populating database, perhaps by utilising tree wardens, would cost about £600 000. A National PR campaign to raise awareness and involve people would cost about £320 000. The project will run for 5 years.

It may also be possible to attach a photographic image to each record, which would be both fun to see on line, and also a useful record of the state of health of each tree.

The next stage is to gather momentum for the project. Perhaps the Scottish approach of advertising to phone in to a hotline people's favourite tree could draw the knowledge in.

8.3 Defining age in trees: a discussion paper

Neville Fay, Treeworks consultancy

At the meeting of the Advisory Group of the lowland wood-pasture and parkland Habitat Action Plan, in 2001 there was a request for a paper to explore definitions of 'ancient tree'. This was prompted by a need to clarify criteria for identification when surveying and to assist in the communication process with the ultimate intention of improving the management of ancient trees.

The definition of age in trees is not a simple matter, while the recognition of a 'veteran' or 'ancient tree' is extremely important for the process of surveying, protection and management. The Specialist Survey Method (Fay. & de Berker 1997) assigns a range of attributes for the surveyor to use when identifying a veteran tree. These do not include tree size. However many surveys do use size as a defining characteristic. Various surveys for example have used between 1.0m and 1.5m diameter at 1.3m (or 1.5m) trunk height for oak as a qualifying veteran characteristic. The sampling methodology for veteran trees in northwest Europe uses size categories to determine veteran status (75 cm: field maple, rowan, yew, birch, Holm oak, cork oak and Pyrenean oak; 100 cm: other oaks, ash, Scots pine, alder; 150 cm: sycamore. lime, horse chestnut, elm species, poplar species, beech, willows, other pines and exotics such as Eucalyptus), (Smith 2002). A recent National Trust definition for a survey of ancient trees used one third of the diameter of the 'Champion Tree' for the species recorded in the Tree Register of the British Isles.

Other attributes referred to in the Specialist Survey Method (the SSM) that contribute to recognition of veteran or ancient status in trees include: hollowing, holes, rot sites, attached and fallen dead wood, water pockets (tree pools), bark fluxes (sap runs), tears and scars and the presence of epiphytes and other dead wood colonisers. During the consultation stage of formulating the SMM, a set of five 'Indicators of Veteran Status' was suggested (Fay & de Berker 1997 unpublished). It was argued that three of the five indicators might identify the tree as 'veteran'. These included *large girth for species* (over 4.5m for native forest high canopy trees, 1.5m for middle canopy and 1.2m for lowest canopy understorey); *pollard state* (not managed for past 3 decades); *trunk hollowing* (of over 30% of diameter); large areas of mature *bark loss associated with rot* (not resulting from obvious recent wounding). This was countered with the argument that many trees that might qualify would be excluded. While some trees might correctly be identified by this method, it is possible that mature or early mature fast growing specimens that had suffered extensive wounding might falsely qualify and also that size can be very misleading.

This raised the question whether the artificial wounding of trees is an acceptable basis for a definition. If a car drives into a roadside semi-mature lime tree and rot becomes established in the trunk, does this imply that the tree has become 'veteran' or fast-tracked to 'ancient' status? How does a tree become a 'wildlife' or 'habitat' tree and how meaningful are the terms 'veteran' and 'ancient' to describe the concepts used?

8.3.1 The problems of definition

The term 'veteran tree' began to be widely used following the four-year English Nature-led partnership of the Veteran Trees Initiative, which aimed to raise awareness, ensure best practice and harmonise survey methodology. Naturally, the ability to recognise a 'veteran tree' is crucial to sharing common ideas on the subject. Throughout the life of the project, there was considerable debate about the criteria for defining the 'veteran' state and appropriate descriptive terms for recognising veteran features.

The definition of a veteran tree, developed by the ATF, is a tree "that is of interest biologically, aesthetically or culturally because of its age, size or condition" (Sissitka 1996, Read, 1999).

An alternative definition is offered by Lonsdale (1999), as a tree that is "an old and valued specimen, which may have survived beyond the typical age range for the species". This latter definition takes into consideration that different tree species have different life expectancies and the point at which they enter old age will vary between species.

White (1998) reflects on patterns of growth, in his system for age estimation, referring to a stage in the ageing process when the current annual increment (CAI) is spread increasingly thinly and the cross-sectional area of annual rings begins to decline in comparison to the cross-sectional area of the trunk. It is argued that when this state persists the tree has entered the ancient stage.

In general, the terms 'old', 'veteran' and 'ancient' tend to be used interchangeably in the literature without any significant distinction. However these terms and concepts are a constant subject of discussion. The term 'old' tends to refer to the chronological age of the tree (even though the time of germination may not be known).

'Veteran' might describe a tree that has been through hard times and is a survivor. In other words, it is a tree that may have had an accelerated passage through the ageing process through abiotically induced, physiological stress and wounding. It is a term that has borrowed from the human experience of war, where soldiers may mature rapidly under duress and through physical suffering.

The term 'ancient' implies inherent stature and relates to a tree that has passed more gradually through the various stages of the ageing process. The ancient stage has been divided into three further phases (Read 2000): 'early ancient' with the onset of crown retrenchment, 'late ancient' where annual rings become discontinuous and 'senescent' with the onset of terminal decline.

The ability of trees, following natural collapse, to layer and go through cycles of rejuvenation (Fortanier & Jonkers, 1976), offers evidence that some tree species may have a tendency to immortality and therefore the means to carry diverse assemblages of flora and fauna over millennia. It is worth noting that there are examples of trees that to date appear never to reach the senescent stage, such as the Fortingall yew (Morton, 1998) and the Tortwoth chestnut (Pakenham, 1996), which further confuses the picture.

An improved understanding of the ageing process in trees (including the way that different associate species colonise and influences growth and wood condition) might help with communicating about difficult concepts. Ultimately it is hoped that this might also inform management approaches that for example are designed to imitate natural processes to support improved longevity (and biodiversity).

Despite these problems of definition there does appear to be sufficient understanding of these terms for most practical purposes. Trees may be considered old by virtue of their chronological age, their appearance and the level of damage and dysfunction expressed in their form. The reason for the ambiguity lies in the nature of the subject matter.

8.3.2 Interpreting tree form

Johann Goethe (Capra, 1996), linked the developmental process and life history of individual plants in the concept of plant morphology. Goethe admired nature's 'dynamic order' and considered that the form of the plant was an expression of (or 'memory') of its entire development and life history and claimed that by reading the morphology of plants the observer gained insight into the internal physiological processes (Arber, 1950).

Veteran trees are organisms that have a high level of complexity and carry a record of their past in their growth patterns that have responded to wounding (Shigo & Marx, 1977) and mechanical stresses (Mattheck, 1991) over long periods of time. These resulting deformations are expressions of their 'body language' (Mattheck, 1995). One way for the observer to decode the signs carried from the past is through an understanding and interpretation of tree form.

The connection between the effects of the physical environment on tree structure and the ageing process has been applied as a diagnostic procedure to identify and interpret variations from the standard progression in order to indicate physiological disturbances in the state of the tree (Raimbault, 1995). He applies a model of the tree (from seed to senescence) that identifies a standard morphological progression.

Raimbault refers to the concept of 'plant memory'. He divides the lifespan of the tree from seed to death into ten stages. The first stages, *(stages 1 to* 5), follow the development from seedling to early maturity where increasing ramification and complexity occur in the branch and twig structure. During these stages, apical dominance is exerted. The root system also ramifies, producing a tiered formation, developing at different levels to optimise its capacity to serve the above ground crown exploration.

During the next period of development *(stages 6 to* 8), the crown is increasingly rounded with some loss of peripheral vitality, gradual loss of under-branch (abaxial) growth and the initiation of reiteration. Some branch loss occurs with associated dysfunction of conductive tissue. As the inner crown begins to express new growth with vascular channels to the root system, the outer crown begins to die back (basifugal mortality). During stage 8, incipient root death occurs with increased fungal colonisation leading to internal trunk decay from below.

In the later stages *(stages 9 and 1*0), the living crown condenses and lows. The translocation of resources between root system and canopy is deployed to lower regions of the trunk and crown. Further outer-crown mortality occurs while foliar function is maintained through

generation of new shoots from dormant or adventitious buds on the trunk and main branch system. At the latter stage, the bark circumference becomes discontinuous as vascular dysfunction progresses on the main trunk. However, the longevity of the tree now depends largely on mechanical stability of the crown and root anchorage and the effectiveness of the vascular columns on the trunk, directly plumbed to the root system, that serve independent and multiple mini-trees within the body of the parent tree. Where cambial columns provide discreet but complete units in the face of the disintegration of the parent tree, the parts that remain have the capacity to rejuvenate and progress through a cycle of some or all of stages 1 to 10. While trees may be categorised in terms of age class from juvenile to mature and senescent, as described above, the ageing process of the tree is in fact far more complex. However, it is worth persisting with the various models provided, so that the arborist has an improved ability to interpret and make judgements about the morphology of trees.

A method for exploring the ageing process is outlined by Fortanier and Jonkers (1976), who categorise three primary types of ageing. These are chronological ageing, ontogenetical ageing and physiological ageing and are summarised below.

Chronological ageing is the duration since germination and may refer to the entire tree or a part of the tree. It is described solely in temporal terms. *Ontogenetical ageing* refers to the genetic potential of the individual tree. This is described in terms of development phases from germination to senescence. This view of ageing is influenced primarily by the activity of the meristematic tissue. *Physiological ageing* reflects primarily the senescence that is induced in the tree or part of the tree through abiotic and other stresses. This way of understanding ageing in trees is important as it focuses attention on the cambial layer, thus introducing a link between the influence of external events on physiological function, growth of anatomical structures and tree morphology.

Ontogenetic ageing has been further divided into four developmental phases (Del Tredici, 2000). These are the 'seedling phase', from germination to the end of the first season; 'juvenile phase' is from the second season to sexual maturity (which equates to Raimbault's stages 2 to 4/5). The 'adult phase' is 'major part of the trees life span' (equating to Raimbault's stages 5 to 8), and the 'senescent phase', which is identified with deterioration and disease. This latter phase equates to Raimbault's 9^{th} and 10^{th} stages. As has been noted above, the survival of the tree depends on the circumstances and availability of resources favourable to support and stimulate tissue that has remained dormant. Del Tredici argues that in the physiological ageing process, rejuvenation is controlled by differentiated tissue (comparable with the concept of veteranisation referred to above). However, ontogenetic rejuvenation is controlled by meristematic tissue (comparable with the processes leading to 'ancient' status). Del Tredici explores the nature of rejuvenation, which is the link between the physiological and ontogenetical aspects of ageing and demonstrates that the ageing process may not apply uniformly to the tree organism as a whole. So that rejuvenation may be occurring at localised points and organs of the tree at different rates. Therefore implications of this knowledge are significant for tree management for longevity.

8.3.3 The pitfalls of interpreting morphology

When reiterative growth 'breaks free' from the rest of the system and the surviving residual column of the tree has the potential to pass through another cycle, the tree may then succeed in transferring the colonised assemblages of fungi, flora and fauna from the parent. These 'phoenix' stems then carry the paradox of being both parent and progeny.

While Raimbault's model appears to terminate at the senescent stage of the tree, it is in fact unclear whether, for him, this is the end for the tree or merely a stage in a new cycle. However, Raimbault succinctly identifies that the diagnostic use of his system is a tool for clarification of management options with regard to longevity. As such, this currently unappreciated approach has considerable potential for the management of trees and, to date has been largely unexplored.

Goethe, apart from a few followers, fell out of fashion at the turn of the 20th century, however there are aspects of his philosophy that are once again receiving attention. His method of observation and engagement with natural history has some resonance with the thinking and experience of quantum mechanics, modern evolutionary theorists and observers of veteran trees.

The field of biomechanics (Mattheck, 1991; Mattheck & Breloer, 1995) frequently touch upon the form of the tree, while focusing on the tree's response to mechanical stress through adaptive growth. Significantly, whilst this is underpinned by the application of mathematical models and of diagnostic devices, Mattheck refers to Raimbault's morphological model (Mattheck & Bethge, 1998), describing reiterative growth following the loss of 'monarchic organisation' of stems and branches (ie loss of apical dominance) in the tree (where, the subjugated 'submissive vassals' (the emergent side branches) vie with one another to achieve dominance.

Many arborists who have participated in ATF site visits, have been perplexed by the apparent contradictions of seeing trees that are evidently young or pre-mature and which are in fact found to be vegetative regeneration from ancient parent trees. In other words, such 'young' trees may be hundreds or thousands of years old, having survived in ancient wood-pasture and pasture woodland sites in the face of extreme pressures.

The interpretation of 'defects', 'viability', and even the 'value' of trees, may vary according to our cultural heritage and be influenced by economic considerations of utility and function. Definitions may attempt to be scientific and objective but are often influenced by context (see approaches to defining 'Old Growth' and 'Wood pasture') and may therefore be culture bound. A society based on an economy of rapid turnover of consumer goods may lead to inappropriate management budgets for trees with long life expectancies. Prognosis and management proposals for old trees under stress (and their rejuvenated successors) may depend on the time scale that is brought to the understanding of life expectancy. Short-term management plans are likely to have a significant adverse baring on the future viability of old tree populations. Management plans for old trees populations seldom extend to 100 years, yet such periods are often short when considering the life expectancy of old trees. When Werner Heisenberg presented his 'Uncertainty Principle' (McFadden, 2000), this concept led to the idea that at the most basic level of physical reality; the units of existence are not subatomic particles but phenomena. These limits of subatomic scientific certainty pose the paradoxical conclusion that 'electron plus measuring device collapses into a single classical reality' (Zukav, 1999). There may be allied problems of perception and definition in concepts relating to ageing in trees.

The paper is based on an article in the Arboricultural Journal (October 2002) and a lecture given to the International Society of Arboriculture, Seattle (2002).

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8.4 Hericum, stipitate hydnoid and bolete survey of the New Forest

Naomi Ewald

The New Forest is a rich area for fungi and there is also a fungus-recording group. The BAP process identified a list of species where there was an associated lack of knowledge. Because of the presence of the fungus recording group, concern for these species generated research into them.

8.4.1 The project

The project was to run a systematic survey of historical sites, picking any site apparently suitable for the fungi within the New Forest SAC, to gather information to improve knowledge on their ecology. Photographic records were taken to monitor baseline change of management. The information is being used to advise the Forestry Commission and other managers on management that is beneficial or detrimental to these fungi.

8.4.2 Hericums

Three species were selected for study, *Hericum erinaceum, H. coralloides* and *H. cirrhatum*. They grow on live or standing dead beech trees. They were found on 29 sites in discrete areas of woodland. This has given rise to a PhD to study the fruiting behaviour and to discover how they colonise new sites.

8.4.3 Stipitate Hypnoid species (six species selected for study)

These grow close to oak, especially found on ditch and bank systems. There were 41 sites with records. The species selected were *Hydnellum concrescens, Hydnellum spongiosipes, Phellodon confluens, Phellodon melaleucus, Phellodon niger* and *Sarcodon scabrosus*

8.4.4 Boletes (3 species)

These species are being surveyed this year. The species are *Boletus regius, Boletus satanus* and *Boletus pseudoregius*. They are all British and European Red Data listed species, and the New Forest is thought to be a local stronghold.

How this fits into the Hampshire Wildlife Trust's work

The Hampshire Wildlife has an aim to influence land managers to ensure the survival of these species as a viable population into the future. It meets this aim via surveys and investigations, being consulted with regard to management plans, managing its own pasture woodland and advising on management of pasture woodland in Hampshire

9. English Heritage report

Jennifer White, English Heritage

Wood pastures and parkland are valued highly for cultural and historical reasons as well as for biodiversity ones. Thee are close links between the two types of conservation.

9.1.1 Extent and distribution

- The upgrading of individual entries into English Heritage's Register of Parks and Gardens of Special Historic Interest in England continues.
- New sites have been added to the Register. There are now 1400+ sites. The Register includes:

  6 National Nature Reserves
  93 SSSIs
  34 Sites of Nature Conservation Importance
  24 County Wildlife Sites
  18 ancient semi-natural woodland sites

- The MAGIC GIS system was launched summer 2002. The database includes registered historic parks and gardens. See www.magic.co.uk

9.1.2 Policy and legislation

- DCMS and DTLR published *The Historic Environment: a Force for our Future* in December 2001. The policy statement highlights the importance of historic landscapes and makes specific recommendations on historic parks and gardens such as the value of agreements and plans for managing these sites, and the need for management and maintenance skills development.
- English Heritage has been involved in advising the Urban Green Spaces Taskforce and working groups; the revised version of PPG 17 which now includes open spaces; and the Government's cross-cutting review on improving public space (which now includes green spaces).
- PPG15 Planning and the historic Environment
- PPG16 Archaeology

9.1.3 Site safeguard and management

- English Heritage manages 409 historic properties including some parklands. Annual tree surveys are carried out.
- English Heritage is upgrading its ecological database to Recorder 2000 with the longer term to make it available electronically to regional staff.
- English Heritage landscape architects continue to advise on planning applications related to Grade I and Grade II registered historic parks and gardens.

- English Heritage grant aids both the Garden History Society and the Association of Gardens Trusts. The Garden History Society advises on many planning applications, and particularly Grade II registered parks and gardens.
- English Heritage continues to provide HLF with initial expert advice and project monitoring services for parkland projects.
- English Heritage supported the National Trust acquisition of Tytensfield.
- English Heritage is working with English Nature on the Site Management Statement for Kenwood, which is both a Grade I registered historic park and garden and an SSSI.

9.1.4 Advisory

- English Heritage provided advice on English Nature's draft for the HLF guidance notes for the HAP.
- Joint English Heritage and English Nature guidance on conservation management of cemeteries was published as a draft on the web in April 2002. The guidance, *Paradise Preserved* includes advice on the parkland aesthetics of period cemetery landscape design and mature trees.
- *Conservation management plans for restoring historic parks and gardens. Guidance for owners and managers on plans and commissioning consultants* was issued as a consultation draft in November 2001.
- English Heritage is working in partnership with English Nature and FACT (Forum for the Application of Conservation Techniques) to research the scrub management and to publish an advisory manual.
- English Heritage has helped HLF with its new guidance on conservation management plans.
- English Heritage continues to explore the development of a "garden and designed landscapes at risk assessment" method to help inform targets and priorities in grant schemes.
- English Heritage is sponsoring the National Trust, Royal Horticultural Society and the UK Climate Impact Programme to research the impact of climate change on gardens and parks (see www.ukcip.org.uk) to be published 19th November 2002, and has commissioned research from UCL Centre for Sustainable Heritage to undertake a complementary and broader scoping study on the web:

  http://www.ucl.ac.uk/sustainableheritage/research/projects.htm

- English Heritage held a seminar for local government officers on historic parks on 15 November 2001.
- English Heritage staff training events included (a) Veteran Trees Workshop with the Veteran Trees Initiative; European nature conservation legislation briefing with English Nature; (c) a 2.5 day staff training event to study the conservation management of historic parks and gardens in NE England. English Heritage's professional staff groups offer a regular forum to discuss historic park and garden casework.

English Heritage web site www.english-heritage.org.uk

10. Conclusions

There has been considerable progress but a number of areas stand out for further work.

- There continue to be definitional problems over targets but also concepts such as an ‘ancient tree’.
- Closer links need to be made with Local BAPs via the website (www.ukbap.org.uk) to check the 53 listed under Wood Pasture and Parkland.
- There will be further changes to incentives and how wood-pasture can be related to agriculture and forestry schemes,. ELS, development of the future CAP reform etc.
- Ancient Trees outside of woods and wood pastures need to be borne in mind.
- Restoration of grazing/ role of grazing at a landscape scale is being talked of much more.
- We could do more on the international dimension to develop links and networks across Europe.
- We still have not made enough links to the cultural/historical of wood pastures.
- There is an ongoing need to improve on special species.

Annex 1 Action plan progress

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
4.1.1	Estimate of current extent, distribution and condition of wood-pasture.	• National data-base (2002) (various) • County/local based surveys (2000 ongoing, but key counties covered by 2005).	Surveys, restoration work, new creation are likely to be organised locally; in some cases on a site-by-site basis. The key requirements initially seem to be a way of recording where and what is going on, with a more targeted programme to fill gaps from 2003 onward.	National Trust property survey Lowland wood-pasture information system project Continued work on the national database. Staffordshire Wildlife Trust Survey Report SNH survey of wood-pasture sites, Scotland "County" surveys of veteran trees: Norfolk, Herts, Suffolk ATF Veteran Tree Database
4.1.2	An active programme of restoration work over at least 2,500 ha (2010).	• Register of restoration work (2001).		
4.1.3	500 ha of expansion of new wood-pasture initiated (2002).	• Register of new work (2002).		
Policy and legislation				
5.1.1	VTs given sympathetic treatment under TPO system.	• Part of 1994 review implemented 1999. • Revisit key remaining aspects (TPOs) 2001/2002 (link with 5.1.2, 5.1.3). • Lobby for parliamentary time as necessary (2002).	Further changes to TPOs will need the support of DETR for new legislation. Hard evidence is needed that veteran trees are being lost under the current rules *and* that a change of rules would reduce this loss.	Opportunities may come up in the forthcoming planning green paper. Country agencies to check CROW Act may allow some movement on liability, but otherwise no progress.
5.1.2	VTs given special treatment under felling licences.	• Review felling licence practice (2002/3). • Lobby for change as needed (2003).	Similar position to above, except that Forestry Commission need to be involved.	
5.1.3	VTs given special treatment with respect to public liability/safety issues.	• Review in light of outcome of CROW bill (2001/2). • Lobby for change as needed (2002).	The CROW bill may reduce the burden of liability on land-owners generally or at least provide precedent for doing so.	This needs to be explored
5.1.4	HSD Annex I category for wood-pastures etc.	• In abeyance as no opportunity to alter Annex at present.		

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
5.1.5	Support for VTs and wood pasture in incentive schemes.	• Work on Stewardship (2000/01). • Develop other sources of funds eg HLF (2001/02). • Review of gaps in other schemes (2001/02).	Increase in the monies available for Stewardship have changed the financial landscape - hence need to review. HLF may prove a useful additional source, but preparatory work needed.	Inputs to various agri-environment reviews HLF guidance notes. The HAP group has produced a submission for the agri-environment scheme review 2002. Trees/woodland PPG **not** likely to happen. Scottish "stewardship" scheme.
5.1.6	CAP support for extensive pastoralism including wood pasture.	• Review change to area based payments (2001/2). • Input to mid-term review (2002/3).	Not clear that there is much scope for wood-pasture in here; watching brief within other work on CAP.	
5.1.7	Guidance about wood-pasture and VTs in PPGs and other planning documents.	• Trees and woodland circular (2000/01). • PPG9.	Significant opportunities to modify these over the next year; discussions in England being organised via working groups of the England Forestry Forum. Position in Scotland Wales and NI?	Opportunities may come up in the forthcoming planning green paper. Country agencies to check
5.1.8	Simplified procedures for fencing on commons.	• Review policy and practice (2001/02). • Seek to implement recommendations (2002 onward). (Link to 5.2.5)	Mixed results from recent attempts to get fencing for conservation grazing on commons.	Some success on individual commons.
Site safeguard and management				
5.2.1	Adequate SSSI coverage of habitat/species assemblages.	• Review of current coverage (2000/02), • Identify gaps (2001/02). • Programme for filling 2002 onward.	Ongoing work on review of SSSI series by the agencies.	Options for notifying veteran trees sites are being explored. Croft Castle going forward Extension to Sherwood SSSI criteria for veteran tree sites being worked on.
5.2.2	SAC list sites designated (2004).			Latest tranche of sites has been submitted. CSAC list largely complete (limited wood pasture sites)
5.2.3	Increased funding for buying/managing sites.	• Possible HLF bid (2000/01). • Review other sources (2001/02).	Work should not be funding-led, but there is a need to be aware of what different sources can offer.	

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
5.2.4	Long-term integrated plans for key sites.	• Model formats/procedures developed (2001/02). • Register of uptake 2002 onward (link to 4.1.2, 4.1.3).	The proposed register of sites where work is going on will form a basis for then developing model plans.	
5.2.5	Re-establishment of grazing and new tree establishment.	• Guidance on best practice on grazing restoration (2001/02). (Link to 5.1.8).	Link to work of the Grazing Animals Project (GAP) and build on National Trust survey (2000/01)	Results from the National Trust survey expected in 2002. GAP has published the Breed profile handbook and animal welfare guide. Grazing sites: Felbrigg Park (NT); Windsor (Crown Estate); Penn Wood (WT); Savernake (FC); Epping (Corp. London); Burnham Beeches; Southwick Wood (FC)
5.2.6	Restoration of former wood-pasture on arable/plantation sites.	• Guidance on restoration best practice (2001/02) (link to 4.1.2, 4.1.3).	Use experience of work at Felbrigg, Burnham Beeches, etc.	Moccas Stewardship?; Castle Hill, Yorks (FC); New Forest (FC); Cadora (WT); Eridge Park Stewardship?; Windsor; Some examples in the National Forest via Tender Scheme.
5.2.7	Expansion of wood-pasture in targeted areas.	• Guidance on target areas (2001/02). (Link to 4.1.3, 5.2.6).	Use data-base and key species distributions to identify priority areas.	Cotswold Stewardship?
5.2.8	Integration of HAP with relevant species plans.	• Review of links to SAPs (2001/02). • Guidance on incorporating relevant species needs (2001 onward).	Work on key species going on via Species Recovery Programme (particularly on saproxylics).	Report published: Biodiversity: Linking the Habitat Action Plan for Wood Pasture and Parkland with the requirements of priority and other parkland Species Keith Alexander's saproxylic report; CABI work on saproxylics; PhD on fragmentation & beetles; Oak polypore report.
5.2.9	Translocation of key species where appropriate.	• Review of relevance of translocation (2002/03). • Programmes for translocation (2005 onward).	Not clear whether this really is an appropriate activity.	
Advisory				

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
5.3.1	Handbooks on best management practice.	• Reprint VTI booklets as needed (2001/02). • Review need for new guidance 2003/4 (see also 5.1.8, 5.2.4, 5.2.5, 5.2.6).	Major distribution of VTI publications taking place at present.	Discussions started with ATF on the possible need for a second edition ATF demonstration days
5.3.2	Clear guidance on best practice *viz a viz* safety.	• Distribute/reprint VTI Safety Guidance (2000 onward). • Produce revised guidance notes 2003/4.		NACCONEX course and publication ATF website "Old Growth" definition project
5.3.3	Training available on best practice with respect to wood-pasture management for site owners, managers, advisory staff.	• Promotion of VTI and other literature to courses, colleges etc (2000 onward). • Ongoing programme of field based demonstration days. • Review uptake and progress (2002/3).	ATF taking forward demonstration day programme.	ATF programme continuing
International				
5.4.1	Estimates of European habitat extent and distribution.	• Build networks (2000 onward). • Review extent/distribution (2002/03). • Conference on management and conservation (2004/05).	Considerable links already exist at personal levels; build on these and fora such as international saproxylic conference in 2002; training course held by C.o.L in 2001.	Networking, European conferences/visits International saproxlic conference NACONEX ATF Swedish tour Project to assess the European significance of veteran tree resource let to ATF (Dec 2001)
5.5.1	List of sites, sources and evaluation, linked to NBN (2002).	• National database (2002). • County-based surveys (2000 ongoing; key counties covered by 2005). (Also included in 4.1.1).	Phase 1 of data-base build nearing completion; phase two to be started.	Database build is nearly complete, the web reporting tools are currently being tested. Inclusion of wood-pasture in NBN trials ATF Veteran tree database
5.5.2	Standardised recording and condition assessment procedures available and being used.	• Develop generalised condition assessment for wood pasture (2000/01) (see also 4.1.1). • Promote recording and condition assessment (2001/02). • Collate results and report (2002/03).	Condition assessment being developed for woodland SSSIs; work on extension to wood-pastures and parkland needed.	Wood-pasture "module" to be added to the guidance (Feb / Mar 2002) Review of Veteran Tree Specialist Survey method

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
5.5.3	Surveys of "underworked" sites by 2005.	• Identify priorities for surveys (2001 onward). • Survey programme for targeted sites (2002/05).	Use information from data-base, county surveys etc.	
5.5.4	VT recording results from SSSIs & Wildlife sites fed into NBN.	(Link to 5.5.2).		
5.5.5	Results from surveillance and monitoring fed into BAP reporting process.	• Input to 2002 report (2002/03). • Input to 2005 report (2005/06).	Part of BAP bureaucracy	Input made to targets review Wood Pasture and Parkland meeting
5.5.6	Expanded national research programme on wood-pasture and related topics.	• Develop a port-folio of c15 potential MSc/Ph.D projects on key topics and circulate this to relevant institutions (2001/02).		
Communications and publicity				
5.6.1	Increased awareness of importance and vulnerability of resource.	• Regular series of articles, news releases (2-3 a year). (2000 onward). (Possible outlets: QJF, Tree News, English Nature magazine, F&BT, Timber Grower, Arboricultural Journal, Biodiversity News, Broadleaf, IEEM Bulletin, BES Bulletin, Heartwood). • Establishment of web-page (2000/01). (Links to 5.3.1, 5.3.2, 5.3.3, 5.2.5, 5.2.6). • Establish contact with relevant LBAP groups (2000/01).	See ENACT Vol 8(3) Autumn 2000, as an example.	Articles appeared in *inter alia* Tree news, English Heritage magazine, National Trust Magazine, Scottish Woodland History Bulletin and Scottish Forestry NACCONEX program workshop on Tools for preserving woodland biodiversity, followed by publication of same name.

Target No	Output/outcome	Projects	Comments	Progress 2000 – 2002
5.6.2	Increased awareness of VTs and their appropriate management.	• (Effectively covered by 5.6.1, 5.3.2, 5.1.3, 5.3.3).		NACCONEX program workshop on Tools for preserving woodland biodiversity, followed by publication of same name. Articles/ publications in Tree News, English Heritage Magazine, NT magazine, ENACT, Scottish Woodland History Bulletin, Scottish Forestry, ICF Bulletin, Landscape.

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