

Managing Ancient & Native Woodland

ENGLAND PRACTICE GUIDE

CONSULTATION DRAFT



Forestry Commission
England

ACKNOWLEDGEMENTS

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introduction

Ancient and native woodlands are one of our oldest land uses and are remarkably diverse ecosystems. They are highly valued for the wealth of wildlife they contain, the contribution they make to the English landscape and their fascinating cultural histories. Importantly, they are a source of timber and other sustainable products and are used for a wide range of recreational and educational activities. Together with other woodlands and semi-natural habitats, they have a fundamental role in sustaining the essentials of life, be it water, oxygen or carbon. The economic importance of the environmental services they provide, such as flood alleviation and carbon sequestration, is increasingly being recognised.

Much ancient and native woodland is currently unmanaged. Careful use and active management, for example for hardwood timber production, will usually increase environmental, social and economic value. However, woodlands are complex habitats, and insensitive management can reduce their value and destroy irreplaceable features. There may also be situations where non-intervention or very limited intervention is the best way of achieving a desired outcome. This Practice Guide outlines the types of management which will ensure the protection and enhancement of the diverse values of ancient and native woodland and the many benefits they provide.

purpose of the guide

The purpose of this guide is to help practitioners translate the principles in Keepers of Time, the Government's Policy on Ancient and Native Woodland (See Box 1) into practical action on the ground. It is therefore intended that this guide is read in conjunction with the Policy.

It is aimed at those practitioners with experience of managing woodland and does not therefore include detailed background context and rationale. For those less familiar with the subject, publications providing further information are listed in Appendix 1.



**Box 1. Policy principles and strategic objectives from Keepers of Time;
a Statement of Policy for England's Ancient and Native Woodland**

policy

The existing area of ancient woodland should be maintained and there should be a net increase in the area of native woodland

Ancient and native woodland and trees should make an increasing contribution to our 'quality of life'

Ancient and native woodland should be exemplars of sustainable development, and provide opportunities for enterprise and employment

The 'ecological condition' of ancient and native woodland should be improved and maintained

Rare, threatened or 'priority' species associated with ancient and native woodland should be conserved and enhanced

The cultural heritage associated with ancient woodland and veteran trees should be protected and conserved

The landscape context of woodland should be improved



strategic objectives

- ◆ Take steps to avoid losses of ancient woodland and of ancient and veteran trees.
- ◆ Sustain the total extent of other native woodland (ensuring that gains exceed any losses).

- ◆ Increase opportunities for the public to visit and walk in ancient or native woodland.
- ◆ Improve the quality of recreational experience in those woods which are open to public access.
- ◆ Improve understanding and enjoyment of trees and woodland, especially their heritage and wildlife.
- ◆ Enhance the contribution of native woodland and ancient trees to urban environments and rural landscapes.

- ◆ Increase recognition and use of the 'environmental services' which native woodland can provide (e.g. flood alleviation and pollution mitigation).
- ◆ Promote the production of renewable energy, hardwood timber and other products from existing woodland.
- ◆ Foster enterprises and employment associated with ancient and native woodland.

- ◆ Increase our knowledge of both woodland condition and threats, particularly climate change.
- ◆ Address all major threats and widespread reasons for decline.
- ◆ Take action to manage 'problem species' particularly non-native and invasive ones.
- ◆ Increase awareness amongst owners of the value of their woodland, and any threats to it.
- ◆ Support work on the ground to improve condition, particularly of designated sites, and to restore ancient woods replanted with non native species.
- ◆ Monitor changes in abundance and diversity, and research the underlying causes.

- ◆ Increase our understanding of the needs of priority species (i.e. rare, threatened or 'listed').
- ◆ Provide guidance on good practice for woodland managers.
- ◆ Support work on the ground to increase populations and/or ranges.
- ◆ Monitor changes in abundance and diversity and research the underlying causes.

- ◆ Improve our knowledge and awareness of woodland heritage.
- ◆ Promote good working practices to ensure valuable features are identified and conserved.
- ◆ Ensure that any woodland creation is in keeping with the distinctive local landscape and its history.
- ◆ Provide opportunities for public appreciation of woodland history.

- ◆ Create new native woodland to extend, link or complement existing woodland and other habitats.
- ◆ Create semi-natural habitats in locations where they will benefit species which use both woodland and non-woodland habitats.
- ◆ Reduce or buffer the impacts of intensive land uses and development which adjoin ancient or native woodland.
- ◆ Work towards creating landscapes that are 'ecologically functional'.

scope of the guide

This guide covers management issues relating exclusively to ancient or native woodland in England, including some guidance on wood pasture and veteran trees (see Appendix 3 for definitions). More general guidance, applicable to all woodland types, is not included here. It is intended to be used as a one-stop-shop by summarising the content of the most important existing guidance and filling some important gaps. Existing guidance is still relevant, but where there are minor differences and updates, this guide takes precedence. Where appropriate, additional advice may be issued regionally to clarify how the guidelines should be applied locally.



There are three UK level publications which practitioners might find it useful to use in conjunction with this guide:

- ◆ The UK Forestry Standard (UKFS) and associated UK Guidelines
- ◆ The UK Woodland Assurance Standard (UKWAS)
- ◆ The eight Forestry Practice Guides on the management of semi-natural woodland

The UK Forestry Standard and Guidelines define the Government approach to sustainable forest management and set out both standards of practice and further advice. Although they are broader in their scope than this guide, they will be useful in helping practitioners deliver the desired outcomes in this practice guide.

The UK Woodland Assurance Standard (UKWAS) is a voluntary certification standard which sets out the requirements which woodland practitioners and forest certification bodies can use to certify woodland management in the United Kingdom. It is important to note that the compulsory elements of UKWAS, the 'requirements', are often more exacting than the Outcomes specified in this guide. Where UKWAS requirements go further than the Outcomes in this guide, users are referred to the relevant section of the UKWAS guide. Practitioners do not need to be certified under UKWAS to fully comply with this guide.

The eight Forest Practice Guides provide much more detailed information about the different types of woodland, their history, ecology and silviculture. It is essential that managers are aware of the distinctive features of each type of woodland, and appreciate both the historical and natural processes that have shaped such woodland.



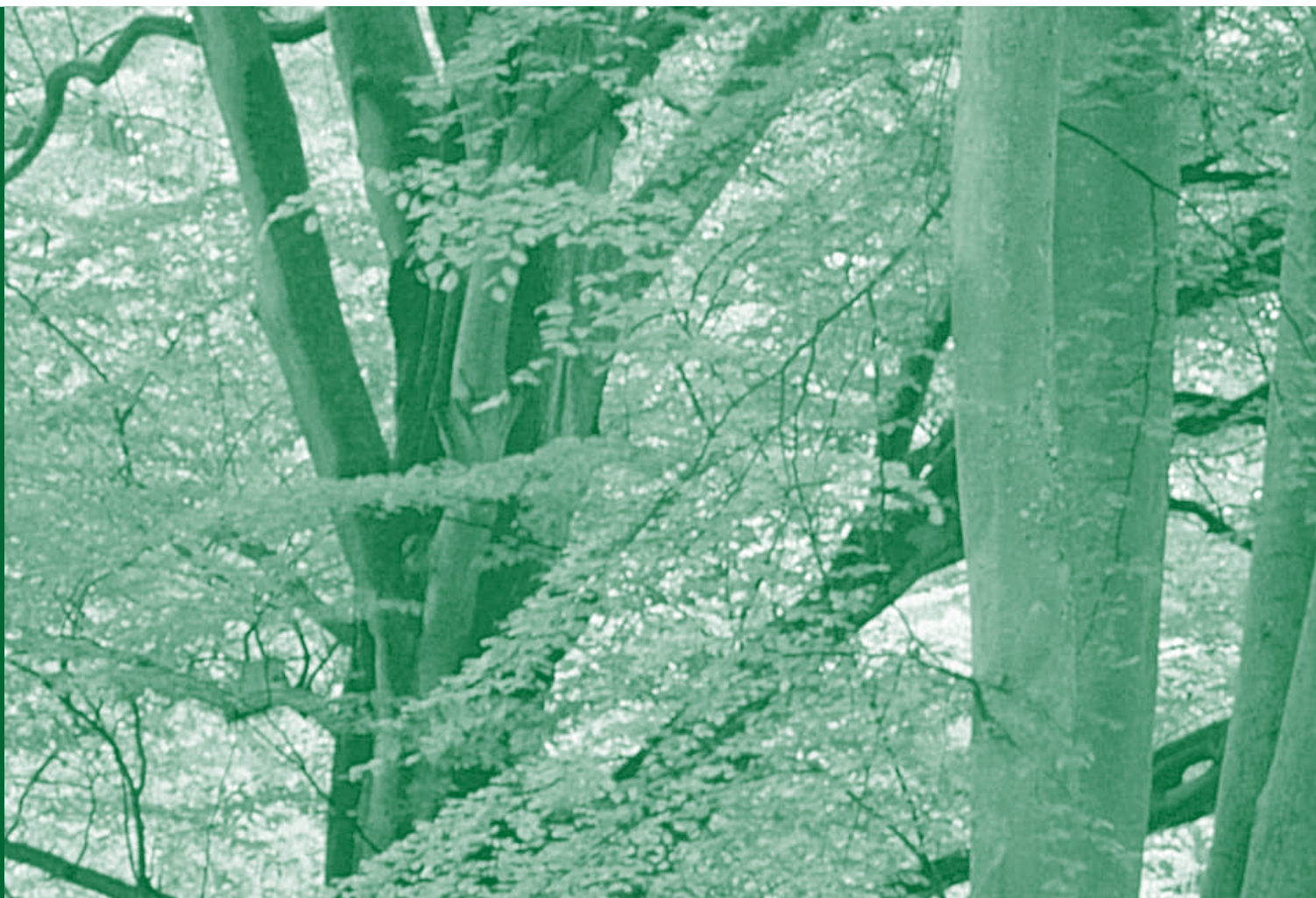
structure of the guide

The guide is divided into chapters, dealing in turn with each of the major areas of woodland management a practitioner generally needs to consider. Each chapter follows a standard structure containing the following headings:

Outcomes: these summarise the conditions woodland management should be seeking to achieve. These outcomes are the essential element of the practice guide in that every woodland where Government support is provided should be managed in a manner which is consistent with them. It is important to note however, that in some management situations, not every outcome may be relevant.

Guidelines for achieving outcomes: these sections list the more obvious and well proven ways of achieving the stated outcomes. Although there is a presumption that managers will comply with them, they are essentially guidance as there may be alternative ways to achieve a given outcome. Practitioners are free to propose management which differs from the approaches described in the checklists. However, such alternative approaches should be compatible with the policies and objectives of the ancient and native woodland policy (see Box 1).

For clarity, in some chapters guidelines relating specifically to Plantations on Ancient Woodland Sites (PAWS) and wood pasture are listed under sub-headings.



The following questions will help determine whether or not proposed approaches are likely to be acceptable:

Will the proposed management conserve the environmental and cultural features and values of the wood, particularly those which are irreplaceable?

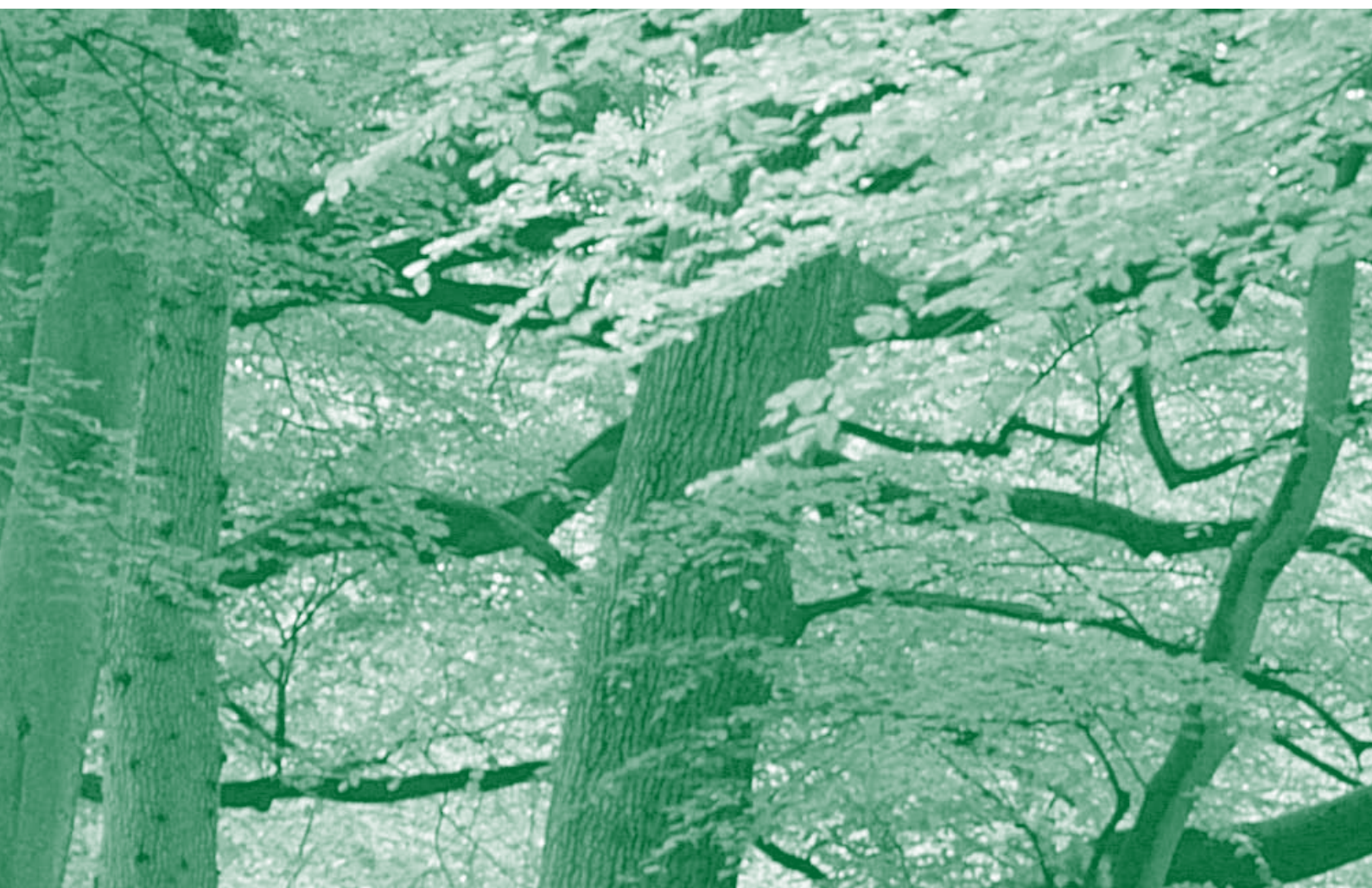
Does the proposed management, within reason, address all the threats (see Box 2) and factors that are likely to be causing a decline in value?

Are existing public benefits from the wood, in terms of quality of life and the local economy, being sustained?

Are any major opportunities to enhance such public benefits, generate sustainable products and provide services being foregone without good reason?

Is the management proposed for this wood appropriate when considered at the scale of the whole landscape?

Will the potential of the wood to meet the needs of future generations be improved?



Box 2. Threats to ancient and native woodland



The guidance and principles outlined in this document are in part designed to address the factors which are currently causing a decline in the cultural and biodiversity value of native woodland. The principal threats and reasons for decline are summarised below. Note that a combination of factors is often the cause, and principal threats vary between regions.

Fragmentation

Many ancient and native woodlands are very small and have become increasingly isolated from other woodlands and semi-natural habitats. Almost half of the ancient woodlands on the ancient woodland inventory in England are between 2 – 5 hectares in size. These factors limit the ability of woodland to maintain characteristic species, limit genetic adaptability and increase vulnerability to disturbance. The small size also means they have a high edge to area ratio and hence are vulnerable to impacts from surrounding land use or adjoining development. The long term ecological viability of native woodlands will depend on them becoming 'ecologically functional' i.e. where the wildlife communities characteristic of the woodland habitat are on a stable footing. This is best achieved by buffering and expanding existing sites, creating a wider network of complementary semi-natural habitats and reducing the intensity of land use in the intervening 'matrix'.

Climate change

Linked to effects of fragmentation is the predicted impact of climate change. Climate change may mean that conditions in many woodlands will become increasingly unsuitable for certain species. Furthermore, many species typical of ancient woodland are poor dispersers, which limits their ability to move through the landscape and thereby adapt to shifts in climatic zones. The fragmented nature of England's wooded landscapes and the relatively intensive intervening land use will further exacerbate the effects of climate change.

Browsing by deer

Excessive browsing by deer can prevent natural regeneration, impoverish ground flora and ultimately threaten the long term survival of woodland. Populations appear to be at an all-time high, and the rapid spread of non-native muntjac deer in particular is causing widespread concern. Ancient woodland is particularly vulnerable following certain management operations (e.g. thinning, coppicing, selective felling, ride widening) where browse resistant plants can out-compete a more diverse and valuable woodland flora.

Inappropriate grazing levels

Overgrazing by domestic livestock affects woodland structure, soils, directly modifies plant and animal communities and can even threaten the long-term survival of woodland. This is a particular problem in the uplands. Conversely, insufficient or absence of grazing is an issue on wood pasture sites which may require specific grazing regimes to maintain their ecological and heritage value.

Decline in woodland management

Traditional practices such as coppicing ceased in most ancient woodland in the late 19th and early 20th century. Since then, two periods of war time timber harvesting led to dramatic and rapid changes in many woods; leaving canopies very open and with very few mature trees. Subsequent replanting eventually led to canopy closure. In recent years poor timber markets have led to a gradual decline in woodland management. This lack of active management not only means reduced production of sustainable products and income, it can also lead to declines in biodiversity and the potential of woodlands to be used as recreational resources. The more uniform and 'shady' conditions arising from this neglect can lead to a decline in ground flora diversity. This is particularly serious where communities are adapted to management systems and conditions which have been sustained over many centuries. Lack of management can also mean that other threats, such as invasive plants and browsing animals are not controlled.



Inappropriate management activity

This is particularly relevant to ancient woodland where insensitive management operations can cause irreversible losses to biodiversity and/or cultural features. Damage to important ancient woodland components can also arise from well intentioned management operations such as timber harvesting in wet conditions.

Invasive non-native and problem species

In both ancient and native woodland, introduced and/or invasive plant species can have profound impacts on both biodiversity and cultural heritage features. More obvious examples include conifers and non-native broadleaves planted on ancient woodland sites and invasive plants such as *Rhododendron ponticum* all of which can modify soils and cause significant losses in ground flora and associated fauna. Several species of deer qualify as invasive non-native species, and these are a particular concern. The grey squirrel is another non-native animal which is a threat to native woodland. It seriously damages trees, has ousted the native red squirrel across most of its range and could be adversely affecting the breeding success of woodland birds.

Disease

Introduced tree and shrub disease has the potential to alter the structure and ecology of native woodland in both the short and long term, particularly if the majority of a population of one or more species is affected (e.g. Dutch elm disease, or alder die-back).

Surrounding land uses

Intensively managed agricultural or developed land can impact on the wildlife of adjacent native woodland and lead to changes in soils and species composition, particularly along woodland margins and where diffuse pollution is a problem. The illicit incorporation of woods into gardens and dumping of garden and other waste can also be a particular problem where houses immediately adjoin woodlands in urban and suburban areas.

Diffuse pollution

There has been a significant rise in nutrient levels in soils and groundwater in recent decades from agricultural fertilisers and wider atmospheric pollution. This is likely to have an adverse impact on woodland flora, as such conditions favour common 'weedy' species over more distinctive ancient woodland plants.

Loss

Although there has been an implicit presumption against loss of ancient woodland to development or to agriculture, it is still sometimes lost or severely modified through conversion to other land uses and long term neglect.

Recreational pressure

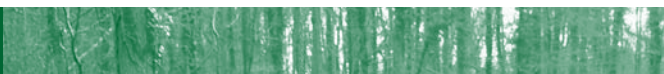
Generally speaking, woodlands can accommodate substantial recreational usage. However, balancing the needs of people with the needs of wildlife may be an issue in certain woodlands, for example, where there is heavy usage for dog walking. Intensive use, or high impact outdoor sports can also cause excessive disturbance, particularly for ground nesting species. Intensive pheasant rearing, and other high impact sporting activities, can also damage the ground flora or cause significant imbalances in the woodland ecosystem.

woodland assessment & monitoring

Outcomes

1. The woodland has been assessed to ensure that all important and obvious features and components, both ecological and cultural, have been considered and included in the management planning process.
2. The level of detail collected during assessments is appropriate to the relative size, value, scale and intensity of the operations proposed for the woodland.
3. Most assessments have been carried out by the woodland manager, but expert advice has been taken where necessary.
4. The landscape context of the woodland has been taken into account.
5. The assessment includes an evaluation of current trends, threats and management impacts.
6. Basic, repeatable monitoring information is being gathered at appropriate intervals, and is being analysed to ensure management is delivering the desired outcomes.





1. Assessments should ideally provide at least the following basic information:
 - i. woodland status i.e. continuity, age, origin, nativeness
 - ii. threats and trends: what will the wood be like if left without intervention for 10 – 20 years?
 - iii. opportunities for production of utilisable timber, renewable energy resources or other woodland products
 - iv. opportunities for the enhancement of key biodiversity and cultural heritage components
 - v. woodland vegetation community types. Best evaluated using a classification system such as National Vegetation Classification or similar, though simple target notes might be suitable in many situations
 - vi. any rare, threatened, protected and Biodiversity Action Plan (BAP) priority species
 - vii. key cultural and historic features, including archaeological features, woodbanks, pollards and coppice, woodland industry features and former field systems
 - viii. other non-woodland habitats and communities including rides, glades, wet flushes, ponds and watercourses
 - ix. the landscape context of the woodland; i.e. surrounding land uses, the nature of nearby woodland, interactions with other nearby habitats and the wider landscape setting
2. Ensure long term changes in biodiversity or general woodland condition are monitored and recorded to assess the relative success of management operations (see Appendix 5 for further detail on condition monitoring). As a minimum standard such monitoring should involve qualitative observations (e.g. observations on site condition in relation to stated outcomes, photography from known points) on the effects of management.
3. More detailed assessments are usually only required where:
 - i. preliminary site inspections or basic surveys have identified potentially important or unusual features and more information is needed to guide management decisions
 - ii. large scale operations (e.g. harvesting, forest road construction) are planned which may have a significant impact on, for example, biodiversity or historic features but there is insufficient information to ensure operational impacts are minimised
4. Assessment information is best expressed through annotated maps accompanied by simple descriptions.
5. Assessment of PAWS needs to be sufficiently detailed to identify those areas or components of value under the greatest threat from further loss.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 2 on management planning including sections on productive potential and implementation and revision of plan, specifically sections 2.2.4, 2.3.1, 2.3.2, 2.3.3, 2.3.4 and 2.3.5 of the Standard.

management planning



Outcomes

1. There is appropriate management planning in place or in preparation, which is based on adequate information, considers all key components of value, threats, constraints, opportunities and legal obligations and is within the context of the landscape.
2. Managers have identified desired outcomes which management operations intend to achieve.
3. Managers have considered the potential for timber production and other utilisable woodland products and are clear about objectives and management prescriptions which ensure such renewable resources are being optimised.
4. Managers have taken into account the views of appropriate stakeholders and have had operations approved by the relevant authorities where necessary.
5. Reasonable measures designed to stop illegal or unauthorised uses of the woodland which might jeopardise achievement of the desired outcomes have been considered.
6. Plans are reviewed regularly depending on the pace and scale of changes effected by management.

Guidelines for achieving outcomes

1. The management planning process should be used to resolve and prioritise any conflicting objectives before any work commences.
2. Assessment and evaluation should usually precede and inform management plan preparation.
3. Management plans should consider the interactions between the woodland, its adjacent habitats and land uses and the wider landscape.
4. Management plans are generally more usable if they follow a simple structure (for an example structure see Appendix 6) and use annotated maps to present as much key information as possible.
5. In most cases, particularly where they are linked to grant-aid or felling licences, management should be agreed through a consultative process which involves all relevant stakeholders.
6. If management planning is incomplete then operations should be limited to those which are low impact, 'safe' or very limited in scale.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 2 on documentation and Chapter 3 on woodland design including the section on assessment of environmental impacts. Specifically sections 2.1.2, 2.1.3, 3.1.3 of the Standard.

woodland structure

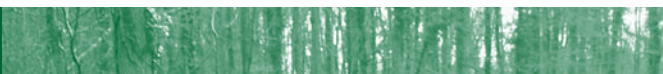
Outcomes

These outcomes refer to the conditions that are desirable in larger woods, or across wider landscapes. It may not be realistic or necessary to achieve the structural or species diversity in each individual wood.

1. The age structure is diverse with open space (temporary and permanent), early growth, understorey maturing woodland and old-growth habitat (or over-mature stages) all well represented.
2. Throughout the wood the amount of standing and fallen deadwood is increasing.
3. 'Future' veteran trees have been identified and are being conserved.
4. The rate of change caused by thinning and felling is at a pace and scale which maintains or enhances the cultural, environmental, social and economic value (including productive potential) of the site.



Guidelines for achieving outcomes




1. Initial management should focus on removing or reducing any immediate threats to key biodiversity and cultural components e.g. reducing dense shade or re-opening rides.
2. Where timber production is identified as an objective, best silvicultural practices should be followed to increase the quality and value of the product, where these don't compromise other outcomes.
3. Harvesting operations should comply with all relevant guidelines (see Appendix 1, 4.0) including the UK Forestry Standard. Whole tree harvesting should not be used where it is likely to have significant detrimental impacts on long-term fertility, biodiversity and cultural heritage components.
4. Appropriate low impact silvicultural systems (e.g. group selection, shelterwood or underplanting, small coupe felling, coppice/coppice with standards, or single tree selection systems) are usually the best option for enhancing biodiversity and diversifying structure. However, on larger sites, and particularly those with a robust woodland community, larger coupe felling may be an option providing it is at an appropriate scale and rate.
5. The key guidelines in relation to coupe size on ancient woodland, including PAWS, are that they should be:
 - i. appropriate for the protection of surviving ancient woodland components e.g. avoid thinning heavily or clearfelling around valuable components which depend on canopy cover for their survival
 - ii. appropriate to the scale of the forest or woodland e.g. larger coupes or more rapid change may be more acceptable in larger forests or in well wooded landscapes where communities are in a robust state
6. The understorey (including any standing deadwood) is a key component of ancient woodland and should not be lost or depleted as a result of harvesting operations. If cut during thinning or felling operations, subsequent protection from browsing may be needed.
7. Where coppicing and pollarding are the traditional practices and have been sustained into recent times, then it can be very valuable to sustain the cycles. Coppicing is particularly important where BAP priority species depend on such practices. Any threats posed by grazing and browsing animals should be addressed before commencing coppicing work.
8. Natural events should be incorporated into management where they are delivering the desired outcomes e.g. pockets of windthrow can become valuable deadwood habitat.
9. In stands that are, and are likely to remain, essentially even-aged, opportunities should still be taken to diversify the structure in particular locations e.g. along ridesides and edges, around veteran trees or historic features.
10. Existing veteran trees should be retained and 'future veterans' and 'old growth' features encouraged by retaining specific trees to mature and decline naturally. The management of individual veteran trees is often complex, each tree may need to be treated as an individual case. In general, felling should only be done on safety grounds, and only then as a last resort.
11. In larger woods, specific areas should be retained well beyond conventional 'maturity' (minimum intervention or long term retention areas) and allowed to develop into 'old growth' features.
12. When carrying out operations, particularly harvesting with machines, working methods should be planned and carried out in ways or at a time of year that prevents avoidable damage.
A balance may need to be struck between short-term disturbance and long term improvement, but irrevocable damage must be avoided. Good practice guidance must be followed where sites contain European protected species.



13. Key surviving biodiversity and cultural features should be identified and afforded protection during management operations. These might include veteran trees, old stumps, patches of ancient woodland ground flora, priority species, archaeological remains, watercourses and riparian zones, wetland areas, rocky outcrops etc.
14. Soil profiles in ancient woodland are often relatively undisturbed and care should be taken not to permanently damage their structure, hydrology and moisture regimes or their ability to store carbon during management operations.
15. If it is possible where land adjoining woodland is subject to intensive agricultural management, buffer the woodland with semi-natural and other vegetation (e.g. rough grass/scrub mosaics) along field margins.
16. Heavy thinning and large-coupe felling on PAWS and ASNW should be used with extreme care to ensure this does not lead to a depletion of biodiversity and heritage components through excessively rapid change e.g. by encouraging the invasion of competitive, light-demanding 'weedy' ground flora.

Planted ancient woodland sites

17. On densely-stocked PAWS, thinning will usually be the first priority, with the primary objectives of reducing dense shade and enhancing surviving ancient woodland components. Two or three light thinnings will usually be the ideal start to restoring a densely stocked and heavily shaded PAWS.
18. There are some situations where an exemption to the general presumption of gradual restoration is desirable to meet management objectives:
 - i. where there is no survival of ancient woodland features or species under the stand (although it is often difficult to confirm this until the response to an initial 'exploratory' thinning has been assessed)
 - ii. where the features and communities associated with ancient woodland are in a robust state and will rapidly recover from any intervention
 - iii. where site factors and ecology of the woodland mean there is a good chance of rapid natural regeneration e.g. dry acid sites in the lowlands, ash on heavy clays with developed understoreys
19. There are some other situations where the need to take a gradual approach in order to sustain woodland conditions may be outweighed by other factors:
 - i. where there is an urgent need to remove invasive, freely regenerating species e.g. western hemlock
 - ii. where there is a specific and urgent need to create temporary open ground, early successional or thicket stage habitat in order to conserve species which depend on such habitats
 - iii. where the risk of undesired windthrow following the opening up of smaller gaps in the canopy is very high (although in non-productive stands some windthrow can be acceptable or even desirable). In these conditions an initial thinning may still be needed to make the ancient woodland species more robust
20. On PAWS where extraction of timber is not practicable, restoration can still be achieved through thinning to waste or ringbarking. However, care should be taken not to generate large volumes of brash in a short space of time which might smother the woodland floor. The risks associated with creating such an unstable and unsafe stand should also be carefully assessed and managed.



21. On PAWS where there is a combination of surviving ancient woodland flora and bare or sparsely vegetated areas, brash is best spread, or piled, within the least vegetated areas. Burning or harvesting of brash should be a last resort option but may be justified where there are large amounts of slow-rotting brash e.g. western hemlock.

22. On PAWS, when 'freeing up' veteran trees from densely shaded stands, care should be taken to gradually release the tree by progressive selective thinning ('halo' thinning). Sudden exposure to open conditions can cause water stress, damage epiphytic species and result in wind damage.

Wood pasture and parkland



23. On wood pasture and parkland the three most important management considerations are maintaining the continuity of old growth features, maintaining important traditional management practices and the need to maintain or reintroduce grazing.

24. Where work is being carried out on a group of veteran trees e.g. in a wood pasture, work may need to be phased to allow associated flora and fauna to move between trees and to reduce risks to regrowth associated with extremes of weather.

25. Stand management in wood pasture and parkland sites is most likely to be most beneficial where it protects and enhances age diversity. Typical operations include:

- i. remedial tree surgery to increase the stability and longevity of individual veteran trees
- ii. pollarding to prematurely 'age' a younger generation
- iii. identifying, protecting and 'managing' trees with potential to become veteran trees of the future
- iv. establishing a new generation through planting or regeneration and suitable protection

26. The biodiversity in wood pastures may be associated with the trees themselves but is also dependent on the management of the grassland. The management of the habitat surrounding the trees (see section below) is therefore at least as important as any management of the trees themselves.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 3 on woodland design including the sections on location and design and silvicultural systems and chapter 4 on operations including the section on harvesting. Specifically see sections 3.3.2 and 6.3.3 of the Standard.

UKWAS also requires that a minimum of 15% of the woodland area is managed with the conservation and enhancement of biodiversity as a major objective, including areas of Long Term Retention and Minimum Intervention (see sections 6.1 and 6.2). UKWAS requirements for PAWS although broadly compatible with this Guide are also more exacting and detailed in some aspects. Practitioners should therefore be aware that more detailed assessment and monitoring together with a more precautionary approach may be needed on PAWS where UKWAS certification is being sought (see section 6.3 of the UKWA Standard).

tree species composition

Outcomes

1. Tree and shrub species native to the site or which have been identified as cultural features are gradually increasing, whilst those not native and/or invasive or undesirable are declining (taking into account future uncertainty over site suitability).
2. In woods which remain dominated by non-native species further loss of biodiversity is avoided through species selection, thinning and other management interventions.
3. There is an adequate diversity of tree species to provide options for future generations, to provide potential for adaptation to climate change, and to ensure habitat for wildlife communities.
4. The genetic diversity of the tree species planted or regenerated has not been diminished, and their ability to change and adapt to environmental change has been conserved.

Guidelines for achieving outcomes

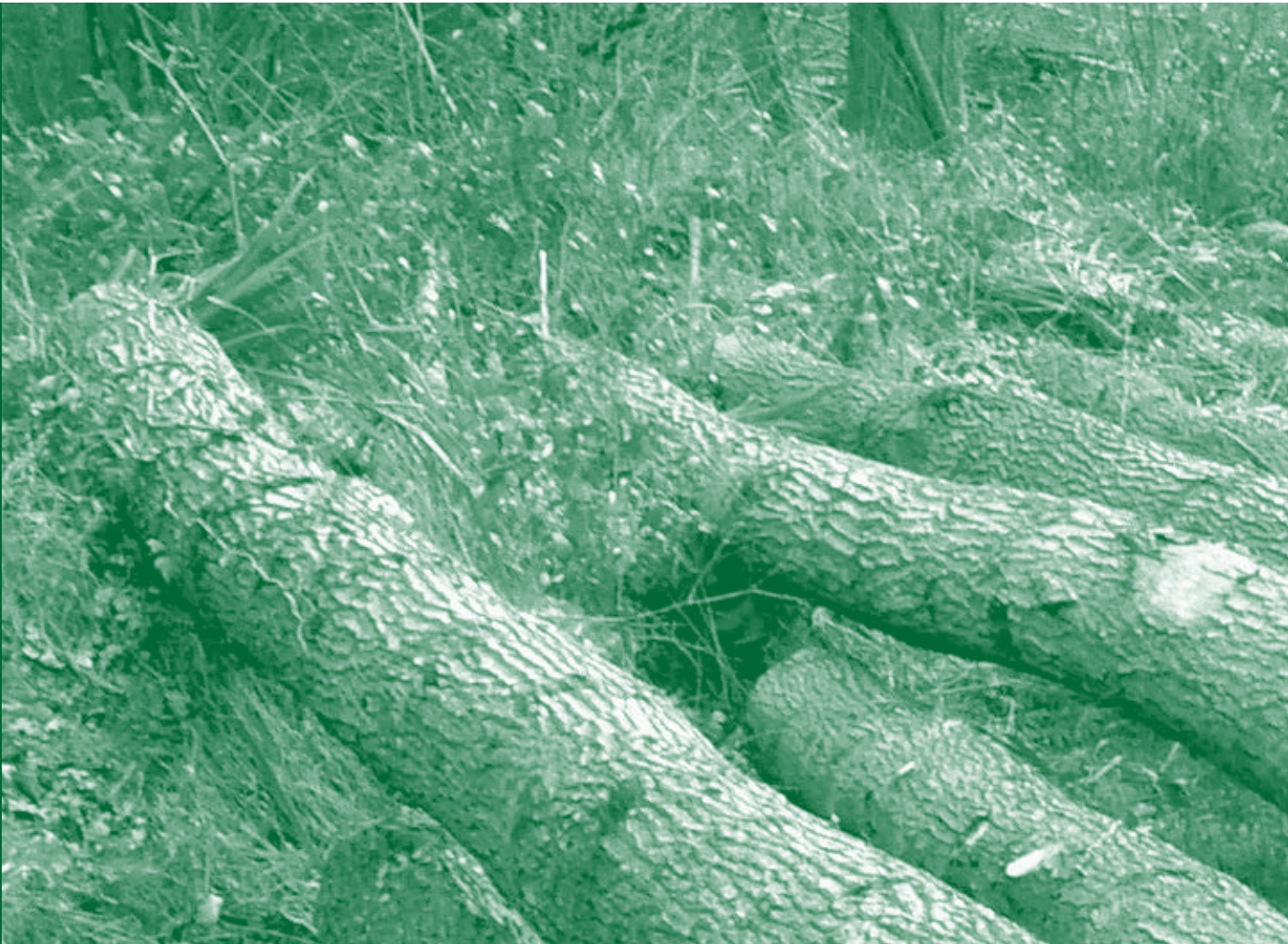
1. Native species (on creation sites and in existing woodlands) should predominate and eventually occupy at least 80% of the canopy. In ASNW or particularly valuable recent semi-natural woodland it is expected that native species will gradually increase so they comprise at least 95%. Do not plant non-native tree or shrub species in existing semi-natural woodland. A mixture of native species should be used when creating new native woodland, except where nature conservation or heritage issues take precedence.
2. Most non-invasive species, including conifers, and other non-natives are acceptable as the remaining percentage cover. 'Near natives' ie those trees found in continental Europe, whose climate space is expected to expand to cover England could also be included.
3. When restocking by planting, the origin of the planting material needs to be carefully planned. A mix of provenances, including local, should be used to widen the genetic base. This is considered to be a valid way to build in adaptability to the future unpredictable effects of climate change. Care should be taken to ensure that the conditions at the site to be planted are broadly compatible with the conditions at the site of the seed origin (i.e the seed is likely to be adapted to that site type).
4. Where timber production is an objective, planting stock derived from improved or selected sources is encouraged providing it is in mixture with local origins and/or natural regeneration.
5. The distribution of species across the site through planting should reflect any substantial variation in soils.
6. Naturally rare native trees or shrubs (e.g. Midland hawthorn, wild service tree, small-leaved lime) should not generally be planted within existing ancient woodland. In exceptional circumstances where planting is appropriate, the seed or cuttings should have been derived from trees on the site. Planting of these species in a new native woodland is however acceptable.

Planted ancient woodland sites

7. On PAWS, dense regeneration of freely regenerating conifers such as western hemlock should be controlled where this directly threatens ancient woodland components.
8. Management, including thinning, should seek to release native species surviving within the stand, and thereby increase the proportion of the woodland occupied by native species.
9. The replanting of conifers on ancient woodland sites where conifers have been removed / felled is usually detrimental to biodiversity and will not be grant aided. Some managers may however still opt to continue growing these crops on PAWS. In these cases, it is desirable that steps are taken to reduce shading, for example replacing densely shading species with lighter canopied or deciduous species. An alternative is to restock with a mixture of conifers and native species, but this will require careful design and sustained management if it is to succeed. As a minimum guideline, the establishment of the subsequent crop should not result in any further loss of biodiversity. Any remaining or naturally regenerating broadleaved trees should be included in the new rotation.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 3 on woodland design including the section on species selection and chapter 6 on conservation and enhancement of biodiversity. Specifically see sections 3.3.2 and 6.3.3 of the standard.

regeneration & restocking

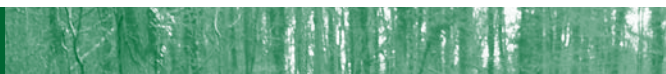


Outcomes

This section should be read in conjunction with the section on species composition.

1. Natural regeneration, colonisation and coppice re-growth predominate, and are only supplemented by planting or seeding where necessary to achieve objectives.
2. Areas being regenerated or created are successfully restocked within an agreed time period, and this is matched to the rate and scale of felling that ensures there is a reasonable continuity of habitat.
3. Grazing and browsing animals are at levels where they are not threatening the potential for natural regeneration, or, where this is proving logistically impracticable, are being excluded through fencing.
4. The stocking densities of different tree species are such that they will achieve the desired outcomes for the site.
5. Opportunities have been taken to enhance the quality of the timber or wood that the stand will produce.





1. A combination of establishment methods will be appropriate. Natural Regeneration and Coppice Regeneration should always be encouraged and protected unless it is suppressing trees planted for specific purposes or there are objectives to retain open space.
2. Planting will normally be necessary where:
 - i. natural regeneration is poor or absent after an agreed period of years – normally between 5 and 10 years
 - ii. enrichment of a native species is needed to meet wood production or biodiversity objectives
 - iii. natural regeneration is likely to be of mainly non-native species
 - iv. where past experience, evidence or specific site factors suggest a very low chance of regeneration eg a lack of seed sources
3. Stocking densities should always reflect site conditions, site history and the objectives for the woodland. Minimum stocking densities should be agreed with the Forestry Commission England at the time of application for a felling licence or grant. Stocking densities for different objectives are given below. These are expressed as established stems per hectare i.e. the area actually felled and being restocked, and will be a mixture of natural seedlings, coppice and planted stems. They will include both canopy trees and shrubs.

Examples

 - i. 2500+ stems/ha for high quality hardwood timber production
 - ii. 1000+ trees/ha for stands where timber would be useful, but quality is not a high priority
 - iii. 500-1000 trees/ha where the aim is simply to regenerate a native tree canopy
 - iv. 200-1500 stools per ha for coppice stands, plus 50-200 standard trees/ha in coppice-with-standards
 - v. 30-100 trees/ha in wood pasture and parkland
4. Spacing can be varied across the site in order to create some variation in woodland structure. A 'naturalistic' planting pattern is visually the most pleasing, but the practicality of subsequent maintenance should be borne in mind. A rigid geometric grid pattern should be avoided on sites which are visually prominent.
5. Scarification or ripping can be a useful technique for encouraging regeneration on some recent native woodlands, but should be avoided on most types of ancient woodland due to the importance of undisturbed soil profiles.
6. The use of fertiliser and manure should be avoided. Pesticide and urea use should be minimised in native woodland and there is a presumption against their use in ancient woodland. Spot applications around planted trees, for up to five years, is appropriate.

¹Forestry Commission Practice Guide Reducing Pesticide Use in Forestry 2004

Planted ancient woodland sites

7. Where an owner or manager decides to replant part of a site with conifer and part with native trees, conifers should be planted in the areas with the lowest survival of ancient woodland components. This only applies when replacing extant conifers.
8. On sites which have been heavily thinned or where large coupes have been felled and where natural regeneration rates are low, it will usually be desirable to encourage rapid re-establishment of woodland cover.

Wood pasture and parkland

9. On grazed wood-pastures within designed landscapes, the establishment of individual trees will usually be by planting with individual protection. There could be many decades between plantings.
10. On wood pasture sites with lower grazing levels, the development of patches of, usually, thorny scrub may provide 'mantle species' through which larger tree species can grow protected from grazing.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 3 on woodland design including the section on species selection and silvicultural systems and chapter 5 on protection and maintenance. Specifically see sections 3.3.2, 3.4.2 and 5.1.1 of the Standard.

open space within woodland



Outcomes

1. Planned open spaces such as rides, tracks and glades are being actively managed for agreed objectives.
2. Internal and external woodland 'edges' are well represented and are being managed in a way which encourages diffuse or 'fuzzy' boundaries rather than abrupt transitions between the woodland and the surrounding countryside.
3. The management of open ground and woodland boundaries is helping to conserve the cultural interest of the woodland.
4. Open space design and management is improving the external and internal visual appeal of the woodland and is providing an attractive, safe and welcoming environment for recreational users.
5. In ancient woodland, significant areas of new, permanent open space have only been created in exceptional circumstances or to reflect past history.





1. Together with old growth, open spaces are often the most biodiverse habitats in woodland and their active management is mostly beneficial. However, the management of a dynamic patchwork of open, successional and closed canopy conditions will usually support far higher levels of woodland biodiversity than more uniform high forest conditions or 'patches' of permanent open space.
2. The most valuable types of open space within woodland include:
 - i. permanent rides and glades e.g. around cultural heritage features, rides, roads and verges
 - ii. permanent open areas consisting of semi-natural habitats eg chalk grassland and heathland
 - iii. partially open areas, which may or may not be grazed e.g. patches of wood pasture and open areas being colonised by scrub
 - iv. permanent open habitats such as ponds, wetlands, watercourses, flushed areas and rocky outcrops where trees cannot establish naturally
 - v. temporary open space created by management activity e.g. felling, coppicing
 - vi. dedicated recreational areas, usually mown or grazed
3. There is a presumption against new, hard development on ancient woodland sites. Possible exceptions might be where development benefits outweigh loss or deterioration in woodland quality e.g. development essential to facilitate management operations or public enjoyment of the woodland. In such cases assessments of the direct and indirect environmental impacts should be carried out. Wherever possible such facilities should be constructed outwith the ancient woodland. If such development has to be within the wood, it must be located where it will do least damage and avoid features of particular value.
4. Non-woodland habitats and open space could comprise a substantial proportion of the total area of a newly created native woodland, particularly in woods with a high recreational usage. If the overall aim is 'woodland' then the aim should be to achieve at least 60% canopy cover; but for wood pasture and parkland future canopy may be only 20%.
5. Linking open ground habitats within recent native woodland into networks of open space, to benefit wildlife, is usually desirable.
6. Some woodland, including recent native woodland, may occur on former ecologically important non-woodland habitats — such as heathland, meadows, peatland or downland. If the surviving relict features and biodiversity value of the previous habitat are clearly greater than the woodland and it is technically feasible to restore it, then reduction or removal of the woodland may be considered. Many other factors will need to be taken into account. Criteria and processes for deciding on such restoration of open habitats are covered in other FC policy documents and publications.

Wood pasture and parkland

7. Re-seeding and ploughing should not take place on wood pasture sites in order to protect grassland vegetation and soil structures.
8. The use of fertiliser, pesticides and veterinary products should be avoided for the protection of both the grassland vegetation and the epiphytes (moss, lichen and other plants) growing on veteran trees.
9. The choice of grazing animal, the season, and the number of stock should be maintained at levels which conserve and enhance the valuable features of the site.
10. Watering and/or supplementary feeding of animals should not be carried out under veteran trees.
11. Important veteran trees which are obviously being damaged by grazing animals should be temporarily or permanently fenced off or protected.
12. Avoid ground compaction under veteran trees e.g. from supplementary feeding of animals or excessive use of routes under trees by vehicles.

UKWAS This guide differs from UKWAS in its approach to open space in new native woodlands in that up to 40% may be allowable depending on the site objectives and/or location of the woodland. The UKWA Standard requirement is that up to 10% open space is allowable (see section 3.3.2) although it does state in the 'guidance' section that "additional open space and/or native shrubs can be provided in place of native broadleaved trees if they are not suited to the site". Practitioners wishing to become certified under UKWAS but wanting open space above 10% should first make a reasoned case to the UKWAS Steering Group and/or certification authority carrying out the audit.

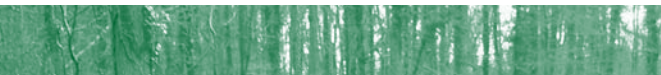
problem species

Outcomes

1. The impacts of invasive and/or recognised problem species have been successfully controlled and are at a level where they are not adversely affecting the woodland.
2. Non-native invasive species of cultural or historic significance have been retained as specimens but are not threatening the landscape, cultural heritage and biodiversity values of the woodland.

Guidelines for achieving outcomes

1. The decision to control problem species should be based on the relative level of threat to woodland biodiversity and other values, and the probability of long term successful control at the level at which the species operates (normally at a landscape level). Collaboration between neighbouring landowners will usually be required.
2. Operations which increase the vulnerability of the woodland (such as coppicing or felling), or actions which favour the spread of invasives (such as thinning) should only be undertaken if the problem species are being addressed.
3. Local control is particularly recommended where grey squirrels are critically threatening the sustainable management of the woodland or in priority conservation areas for red squirrel (see FC Practice Note 4: Controlling grey squirrel damage to woodlands). Appropriate techniques should be used so as to avoid possible impacts on priority species, such as dormice.



4. Complete eradication of invasive non-native plants e.g. Rhododendron and Himalayan Balsam is preferable and usually more cost effective than long-term 'control'. Eradication is strongly recommended for invasive plants that have not yet spread and only occupy a small proportion of a woodland.
5. Some of the non-native plant species have become naturalised, or are heritage features in their own right (e.g. Azaleas and various Rhododendron species on certain sites) and complete eradication may sometimes be undesirable.
6. Where large populations of invasive non-native plants are already present, attempts at eradication is best attempted where collaborative action is feasible and sustainable at a landscape scale.
7. Invasive, non-native plant or animal species should not be introduced into native and ancient woodland.
8. The control of native, competitive plant species (e.g. bracken, bramble) should only be carried out when they are jeopardising the regeneration of the woodland, or adversely affecting a priority or other desirable species.
9. The use of pesticides to control invasive, non-native plant species may sometimes be required and should follow existing guidelines (see FC Practice Guide 15). Care should be taken to minimise impact on non-target species.
10. The first option for controlling some species of deer and other problem species populations at sustainable levels is collaborative action with other woodland owners at a landscape scale e.g. through effective Deer Management Groups.
11. Where deer population control is not feasible at local or landscape level, or where grazing by domestic animals is an issue, fencing should be used to protect vulnerable areas e.g. restocking areas, priority species or wildlife communities. The decision to erect fences and their position should take account of factors such as visual landscape, access tracks and paths, wildlife (especially woodland grouse) and any cultural heritage features. You should also consider the impact of the removal of all grazing or browsing and whether this will result in long-term declines in biodiversity.
12. Pest and disease species are not considered in this Practice Guide but detailed information on many species may be available through the Forestry Commission's Disease Diagnostic and Advisory Service.

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular chapter 3 on woodland design including the section on species selection and chapter 5 on protection and maintenance. Specifically see sections 3.3.4, 5.1.2, 5.1.3 and 5.1.4 of the standard.

priority species



Outcomes

1. The populations of known BAP priority or legally protected species (see Glossary) have stabilised or increased in extent and this is likely to be sustained in the long term.
2. Rare, localised and vulnerable priority or protected species have been mapped, their locations are known by site managers, and they have not been irreversibly damaged during management operations.
3. Site managers are familiar with the good practice guidelines for relevant priority or protected species (see Appendix 1) and are applying these on the ground.

Guidelines for achieving outcomes

1. Protection measures for legally protected species (see Glossary) must be followed. Best practice guidance for managing woods containing European Protected Species (EPS) is available from the Forestry Commission (www.forestry.gov.uk/england-protectedspecies). EPS are those listed in Schedule II of the Conservation (Natural Habitats, &c.) Regulations 1994. Those most associated with woodland are all 17 species of bat, dormouse, great crested newt, otter, sand lizard and smooth snake. Where guidance cannot be followed a licence will be required before works can proceed.
2. Rare, localised and vulnerable priority species should be addressed in the management plan. This might involve use of a decision support tool such as the Forestry Commission's HaRPPS (Habitats and Rare, Priority and Protected Species), or the referencing of species specific guidance³.
3. Managers should take reasonable steps to make themselves aware of the presence of such rare, localised, vulnerable and legally protected species in their woodland, by for example contacting local Biological Record Centres or local Natural History Groups.
4. Active management measures – and mitigation if necessary – should be implemented to ensure such species are adequately protected.
5. Management, including the provision of public access, should be planned to prevent damage or disturbance to any priority species.
6. Management for priority and protected species may sometimes require a commitment to targeted, often intensive management over long timescales, perhaps even indefinitely.

³There are a considerable number of publications relating to the protection and management of rare, threatened, protected and BAP priority species. Some of the key publications are listed in Appendix 1 but help can also be sought from the Forestry Commission and Natural England. Guidance may also be available from voluntary organisations such as the RSPB (birds), the Bat Conservation Trust (bats), county Wildlife Trusts (a range of species) and Plantlife (plants).

recreational, educational & sporting uses

Outcomes

1. Recreational, educational and sporting uses have not compromised the key desired outcomes for the woodland, and in particular there has been no loss of environmental value or cultural heritage features.
2. Game management is in accordance with best practice guidance and has not caused long-term or widespread negative impacts on environmental and cultural heritage features.
3. All apparent or known risks to public health and safety have been mitigated against.



Guidelines for achieving outcomes

1. Ancient and native woodlands, with their often rich biological and cultural heritage are particularly valuable for education and community involvement. Where appropriate, opportunities should be taken to encourage initiatives such as community and stakeholder participation, outdoor classrooms and guided walks and talks^{4,5}.
2. Ancient and native woodlands are also valuable for recreation and opportunities should generally be taken to enhance accessibility and enjoyment for those people visiting woodlands. However, ancient and native woodlands which are of high cultural heritage or biodiversity value are best suited to quiet, informal recreation. Formal recreational facilities (e.g. mountain biking trails) should not usually be developed on sensitive parts of such sites.
3. Where there are high visitor numbers and/or potentially disturbing recreational, educational or sporting activities, 'zoning', path re-routing or appropriate restrictions should be used to protect sensitive areas or species. Potentially disturbing activities include camping, organised events, dog walking, cycling, climbing, horse riding, field studies, fishing, off-road motoring, shooting (see below), paintballing and hiking⁶.
4. Tackling problems such as persistent unauthorised use or vandalism is often only likely to be solved in the longer term through closer engagement with local communities or educational initiatives (see Woodland Trust 'Urban Woodland Management Series' for more guidance and advice)⁷.
5. Woodland management associated with game rearing and shooting can be broadly beneficial through for example, enhancement of woodland fringes, open areas and shrubby cover for protection from predators. In the majority of situations, encouraging such features will be compatible with biodiversity and cultural heritage objectives. However, there are a number of management and mitigation measures⁸ which will minimise damage from game rearing, including:
 - i. new pheasant pens should be sited away from historic features, watercourses, areas rich in ground flora and known rare, threatened or Priority species
 - ii. create large pens to support a stocking density of no more than 700 pheasants per hectare. In ancient woodland, pens should not take up more than one third of the woodland area so birds have room to spread after release
 - iii. herbicides should not be used to control vegetation around pens on ancient woodland sites
 - iv. pens with heavily shading trees (e.g. PAWS) should be thinned to allow light to reach the woodland floor. This prevents pheasants from congregating in patches of sunlight and potentially damaging soils
 - v. birds should be fed via small hoppers in clusters to reduce competition between birds and straying
 - vi. do not introduce straw where there is nature conservation interest. Try not to introduce straw where there is plenty of broadleaved litter which performs the same role. If straw has to be used, herb rich areas should be avoided, residues raked up and removed at the end of winter
 - vii. encourage birds out of the woods by providing edge habitat and associated game crops

⁴See Community Woodland Network website for more information at <http://www.woodland-trust.org.uk/communitywoodlandnetwork/index.htm>

⁵See Forest Education Initiative website for more information at <http://www.foresteducation.org>

⁶Further guidance can be found at <http://www.nationaltrust.org.uk/main/w-recreat01.pdf> (see also Appendix 1)

⁷See <http://www.woodland-trust.org.uk/publications/index.htm>

⁸See publication 'Woodland Conservation and Pheasants' (2003) <http://www.gct.org.uk>

UKWAS Practitioners wishing to be certified under UKWAS should note that the requirements in the UKWA Standard are more exacting than the desired outcomes given above. See in particular section 7.1 on community consultation and 7.2 on public access in the Standard.

woodland creation



Outcomes

This section covers the location of new woodland in the landscape; guidance on the composition and establishment techniques is given in sections on regeneration and species composition.

1. New woods are helping to increase the 'functional linkages' (see Glossary) within the landscape by expanding, buffering and joining up existing woodlands and other semi-natural habitats.
2. New woods complement existing habitats and have not been created in locations where they will lead to a loss of biodiversity at the landscape scale and are not fragmenting non-woodland semi-natural habitats.
3. New woods have been situated and designed in such a way as to complement and enhance the visual character and cultural heritage value of the surrounding landscape.
4. New woods have been designed in a way which is leading to the development of structural diversity.



Guidelines for achieving outcomes

1. New native woodlands should preferably be created where they buffer and extend existing native woodland (particularly ancient woodland) and/or other semi-natural open ground habitats. However, avoid fragmenting other semi-natural habitats.
2. When buffering and extending existing native woodland, the aim should be to increase total core area of semi-natural habitat whilst maintaining examples of existing edge habitat. Minimise the loss of existing good edge habitat by leaving a substantial ride along part of the woodland margin.
3. When designing new native woodlands, incorporate networks of open space linked into adjacent semi-natural open ground habitats, as these are particularly valuable for both biodiversity and access. Consider the implications of invasive species movements in the design of habitat networks, identifying and reinforcing barriers to dispersal at critical locations.
4. The role of narrow 'habitat corridors' such as hedgerows, shelterbelts, watercourses and linear areas of semi-natural habitat for colonisation between woodlands should not be overestimated, as many specialist woodland species cannot utilise these narrow corridors to disperse across the landscape. However, certain species may use linear features to navigate through the landscape e.g. foraging bat and certain invertebrate and bird species.
5. Ancient hedgerows and streamsides can also be important as refuges for specialist woodland species.
6. Landscape character is a key consideration in both the siting of new woodland and the restoration of existing woodland. Landscape character areas (see Glossary) can be used to help inform the location, type and extent of woodland planting that would be appropriate within a given area.
7. Newly created woodlands should be accessible to people where possible and ideally linked into footpath networks in the surrounding countryside.
8. Be aware of the impacts of locating new woodland directly next to sensitive or ecologically valuable sites (e.g. peatbogs, heathland). Impacts can include modifying drainage of sensitive habitats.

Box 3. Re-establishment of woodland on areas of 'recent' loss

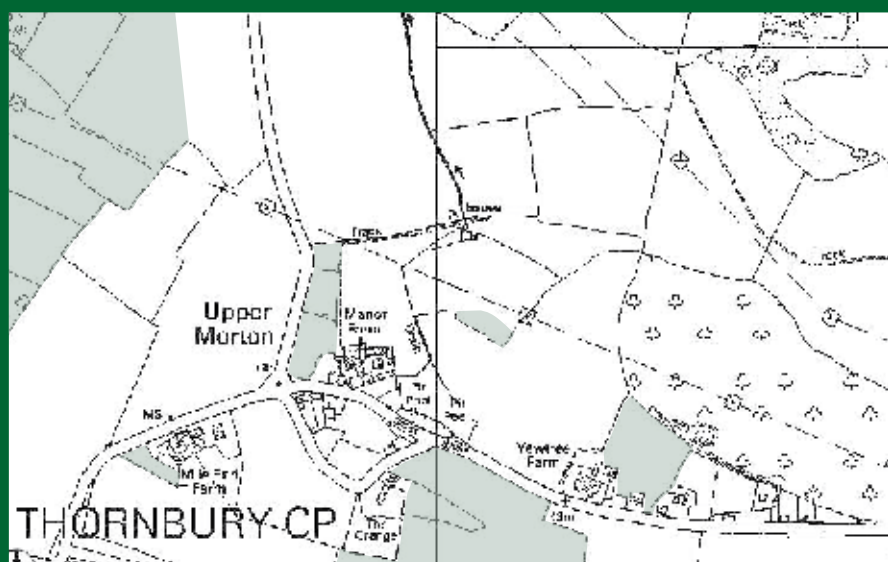


Keepers of Time states that “woodland creation should focus on increasing the area of semi-natural habitats available to wildlife and reducing the negative edge effects of intensive adjacent land use...There is a need to re-establish graded more natural transitions and buffers between woodland perimeters and surrounding land-uses.”

Consequently, it may be beneficial to site new woods on areas of relatively recent loss. You may be able to identify areas of change from OS 1st edition maps - available from www.old-maps.co.uk/indexmappage2.aspx

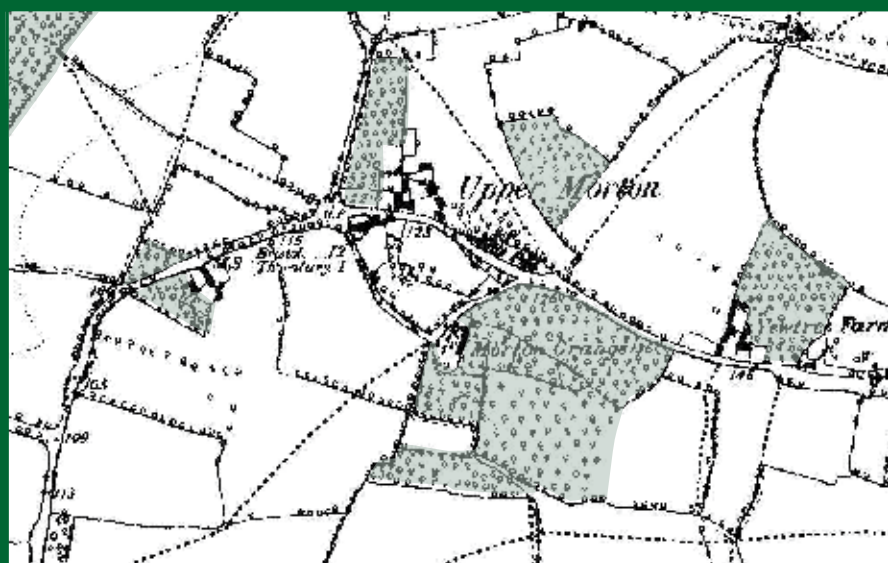
Tree planting must not occur where other habitats or cultural features would be lost.

E.g.



Potential
re-establishment sites

map date - 2007



Lost woodland /
trees

map date - 1889

glossary

Ancient semi-natural woodland (ASNW)

See Appendix 3.

Ancient woodland

A classification for woodland which has been in continuous existence from before AD 1600 in England, Wales and Northern Ireland and from before AD 1750 in Scotland.

Ancient woodland components

The ecological and cultural features associated within ancient woodland sites e.g. native tree canopy, ancient woodland ground flora species, specialist faunal and floral communities, veteran trees, archaeological and other historic features etc.

Ancient Woodland Inventory (AWI)

A provisional inventory containing ancient woodland over two hectares in size compiled in the 1980s and 1990s by the Nature Conservancy Council in England, Scotland and Wales and updated and maintained by its successor organisations in those countries.

BAP – Biodiversity Action Plan**Biodiversity**

The variety of ecosystems and living organisms (species), including genetic variation within species.

Broadleaves

Broadleaved trees - also referred to as 'hardwoods'. In the UK, most have laminar leaves and are deciduous.

Buffer

An area of non-invasive trees or other land use of sufficient width to protect semi-natural woodland from significant invasion by seed from a nearby non-native source or to protect the woodland from pollution from surrounding land use.

Clear felling

Cutting down of an area of woodland (if within larger area of woodland is typically a felling greater than 0.25 hectares). Sometimes a scatter or clumps of trees may be left standing within the felled area.

Conifers

Coniferous trees — also referred to as 'softwoods'. In the UK, conifers all have needles or scale-like leaves and most are evergreen.

Coppice

Management based on regeneration by regrowth from cut stumps (coppice stools). The same stool is used through several cycles of cutting and regrowth.

Coppice with standards

Coppice with a scatter of trees of seedling or coppice origin, grown on a long rotation to produce larger sized timber and to regenerate new seedlings to replace worn out stools.

Core area

The area of a semi-natural habitat not significantly affected by edge effects from intensive land use.

Core species

Species which are predominantly associated with the undisturbed, interiors of woodland and therefore often require some core area for their survival. In England, this term is used in a general sense to refer to those species with a preference for woodland interiors, not those which are completely dependant on large undisturbed interiors, of which England has very few examples.

Coupe

An area of woodland that has been or is planned for clear felling.

Cultural features

Archaeological sites, historic buildings and ruins, heritage landscapes, including ancient woodland.

Early Successional Habitats

Open ground habitats and young woodland regeneration (including coppice regrowth) which is gradually developing towards mature woodland. Woody growth can be cut back/ removed to create perpetual cycles of early successional habitat.

Ecosystem

A community of plants and animals (including humans) interacting with each other and the forces of nature. Balanced or functional ecosystems are stable in the long term (hundreds of years in the case of woodlands and wooded landscapes).

Environmental Assessment (EA)

Procedure to require assessment of potential environmental impacts which may be initiated under Directive of the Council of Europe Council No. 85/337 — SI 1988 No. 1207 (Revised 1998).

Felling licence

Licence issued by the Forestry Commission to permit trees to be felled. With certain exceptions it is illegal to fell trees in Great Britain without prior Forestry Commission approval.

Functional linkages

Land cover/use between woods and other semi-natural habitats which is permeable to the movement of woodland species. This does not necessitate woods or semi-natural habitats being contiguous but could simply entail a reduction in the intensity of intervening land use.

Gene-pool

The collective genetic information contained within a population of sexually reproducing organisms.

Group selection

A method of managing irregular stands in which regeneration is achieved by felling trees in small groups.

Glade

Small area of permanent or temporary open ground forming an integral part of a woodland.

Habitat corridors

Linear features which link larger semi-natural habitats including woodlands e.g. hedgerows, shelterbelts, watercourses.

Habitat networks

Functionally connected networks of semi-natural habitats within the landscape. Woodland may be only one semi-natural habitat in a network comprising other habitats such as heathland, unimproved grassland and wetland.

Invasive Species

Introduced non-native species which spread readily and dominate native species.

Landscape Character Areas

Landscape Character Areas are discrete geographical areas of a particular landscape types and are based on combinations of geology, landform, soils, vegetation, land use, field patterns and human settlement.

Legally Protected Species

Those protected by the EU Birds Directive, EU Habitats and Species Directive, or Wildlife and Countryside Act 1981 (as amended).

Light touch management

Light touch management refers to those situations where large scale operations associated with objectives such as PAWS restoration management or hardwood timber production are not required. Examples of light touch management include maintenance of access routes, protection of cultural heritage features, encouraging deadwood habitat, removal of newly invasive species, protection of soil structures and small scale selective felling and thinning to encourage diverse age structures and facilitate natural processes.

Lower impact silvicultural systems

Silvicultural systems including group selection, shelterwood or underplanting, small coupe felling, coppice or coppice with standards, minimum intervention and single tree selection systems – which are suitable for windfirm conifer forests and most broadleaved woodlands.

Minimum dynamic area

The smallest area with a natural disturbance regime which maintains internal recolonisation sources and hence minimises extinction i.e. the smallest area required for a species to maintain itself independently (although in many situations in England some management intervention may be required to effectively maintain MDA).

Minimum intervention

Management with no systematic felling or planting of trees. Operations normally permitted are fencing, control of exotic plant species and vertebrate pests, maintenance of paths and rides and safety work.

Minimum viable population size

The smallest population of a species required for that species to maintain itself independently (although in many situations in England some management intervention may be required to effectively maintain MVP).

National Vegetation Classification (NVC)

A comprehensive classification system for vegetation communities in the UK used to describe habitats.

Native species

Species which have arrived and inhabited an area naturally, without deliberate assistance by man.

Native woodland

Woodland predominantly made up of tree species that would naturally be found on that site, that is, at least 80% of the canopy comprises species that are suited to that site type and are within the natural range of that species, taking into account uncertainty due to climate change. This definition includes open woodland, pasture woodland and parkland, providing there is, or will shortly be, at least 20% canopy cover. Young woodland where there is currently no canopy qualifies, providing it appears likely to develop into maturing woodland within 10 years. Open space which forms an integral part of a native woodland also qualifies.

Naturalised

A species long introduced to an area, which is capable of completing its life-cycle there without human intervention.

glossary

Niche

The set of habitat conditions that is favourable for the growth and reproduction of a given species.

Old growth

Old growth forest stands are stands in primary or secondary forests (including wood pastures and parkland) that have developed the structures and species normally associated with old primary woodland of that type that have sufficiently accumulated to act as a woodland ecosystem distinct from any younger age class. In simple terms, old growth has been defined in a UK context as woodland with trees over 200 years old where there is continuity of old trees reaching into the past.

Old growth features

Old growth features are those associated with veteran and decaying trees. They include the heartwood of trees, decaying snags, rot holes, sap runs, loose bark, standing, fallen and canopy deadwood, water filled holes in trees and other similar features. Old growth features are particularly important in providing specialist niches for many rare deadwood-specialist invertebrates, lichen communities and cavity dwelling birds and bats.

Other semi-natural woodland (OSNW)

See Appendix 3.

Pesticides

Any substance, preparation or organism prepared or used, among other uses, to protect plants or wood or other plant products from harmful organisms to regulate the growth of plants; to give protection against harmful creatures; or to render such creatures harmless.

Plantations

Woodlands composed of trees of primarily planted origin. In the context of PAWS (see Box 1) 'plantation' most often refers to planted non-native or non site-suited species, whether broadleaf or conifer.

Plantations on ancient woodland sites (PAWS)

See Appendix 3.

Priority habitats

Habitats listed under the UK Biodiversity Action Plan (and local and regional Biodiversity Action Plans) and protected under the Countryside and Rights of Way Act, 2000.

Priority species

Species listed under the UK Biodiversity Action Plan

(and local and regional Biodiversity Action Plans) and protected under Section 74 of the Countryside and Rights of Way Act, 2000.

Protected species

Specially protected species are those covered by Schedules within the Wildlife and Countryside Act 1981, and the Badgers Act etc.

Provenance

Location of trees from which seed or cuttings are collected.

Recent planted native woodland (RPNW)

See Appendix 3.

Regeneration

Renewal of woodland through sowing, planting, or natural regeneration.

Remnants

The baseline of surviving ancient woodland features found in PAWS, for which there is physical or documentary evidence (see also Ancient Woodland Components).

Restocking

Replacing felled areas by sowing seed, planting or natural regeneration.

Restoration (of Planted Ancient Woodland Sites)

Restoration can be difficult to define and it is perhaps unhelpful to place too much emphasis on a single, simple definition. What is clear is that it will not be possible to return PAWS to their exact same state at a given point in history. Restoration needs to focus on nurturing surviving features of value from the former woodland but also to encourage 'naturalness' in the future woodland. Restoration is commonly focused on the removal of conifers from the woodland canopy. Although this is important, it is only part of a package of work required to conserve and enhance the surviving ancient woodland features on a site. A rush to remove conifers can result in excessively rapid ecological change which itself can result in a loss of characteristic species. It may also lead to damage from intensive harvesting operations. Current views on the reduction of non-native tree species is that it is usually best done gradually, and although there is often an urgency to begin restoration there is rarely a rush to 'finish' the process. It is vital that changes in canopy composition go hand in hand with work to address other reasons for decline, such as opening up shaded rides and controlling deer to allow the understorey to recover.

Ride

Permanent unsurfaced access route through woodland.

Semi-natural woodland

Woodland composed of mainly locally native trees and shrubs which derive from natural seedfall or coppice rather than planting.

Shelterwood system

Felling a proportion of trees within an area leaving some trees as a seed source and shelter for natural regeneration. The seed trees may be subsequently removed.

Silviculture

The techniques of tending and regenerating woodlands, and harvesting their physical products.

Single tree selection

A method of managing irregular stands in which individual trees of any size are removed more or less uniformly throughout the stand.

Small coupe felling

A small scale clear-felling system. The system is imprecisely defined but coupes are typically between 0.5ha and 2.0ha in extent, with the larger coupes elongated in shape so the edge effect is still high.

Structural diversity

Degree of variation in the spatial distribution of trees both horizontally (by distribution over area) and vertically (by the combined effect of contribution of growth rates and ages of trees, and presence of other layers of different vegetation).

Thinning

Tree removal, which results in a temporary reduction in basal area, made after canopy closure to promote growth and greater value in the remaining trees.

Thinning to waste

As above but felled trees retained on site and allowed to decay naturally.

The Wildlife and Countryside Act

The Wildlife and Countryside Act 1981 (as amended) is the principle mechanism for the legislative protection of wildlife in Great Britain. It does not extend to Northern Ireland, the Channel Islands or the Isle of Man. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain.

Windthrow

Uprooting of trees by the wind.

appendix 1

further reading

Forestry Commission publications are available on the Internet via www.forestry.gov.uk/publications or from Forestry Commission Publications, PO Box 25, Wetherby, West Yorkshire, LS23 7EW (Tel 0870 121 4180; fax 0870 121 4181; e-mail forestry@twoten.press.net). Woodland Trust publications are available as free downloads from www.woodland-trust.org.uk

Key to abbreviations for Forestry Commission publications

Guidelines – FCGL
Guideline Notes – FCGN
Practice Guides – FCPG
Practice Notes – FCPN
Field Books – FCFB
Bulletins – FCBU
Technical Papers – FCTP
Information Notes – FCIN

1. Policies, strategies and other core publications

Defra/Forestry Commission England (2005) Keepers of Time; a Statement of Policy for England's Ancient and Native Woodland <http://www.forestry.gov.uk/keepersoftime>

Forestry Commission (2004) The UK Forestry Standard: The Government's Approach to Sustainable Forestry (Guidelines series which form part of the UKFS are currently being revised) [http://www.forestry.gov.uk/pdf/fcfc001.pdf/\\$FILE/fcfc001.pdf](http://www.forestry.gov.uk/pdf/fcfc001.pdf/$FILE/fcfc001.pdf)

Defra (2002) Working with the grain of nature: a biodiversity strategy for England <http://www.defra.gov.uk/wildlife-countryside/biodiversity/biostrat/>

Defra (2007) A Strategy for England's Trees, Woods and Forests <http://www.defra.gov.uk/wildlife-conservation/rddteam/forestry.htm>

Biodiversity: the UK Action Plan (Cm2428) HMSO, 1994 www.ukbap.org.uk

Sustainable Forestry: the UK programme (Cm2429) HMSO, 1994

FCBU No. 125 (2002). Climate Change – Impacts on UK Forests.

The Management of Semi-Natural Woodlands series:

FCPG No. 1 (2003) Lowland Acid Beech and Oak Woods

FCPG No. 2 (2003) Lowland Beech-Ash Woods

FCPG No. 3 (2003) Lowland Mixed Broadleaved Woods

FCPG No. 4 (2003) Upland Mixed Ash Woods

FCPG No. 5 (2003) Upland Oakwoods

FCPG No. 6 (2003) Upland Birchwoods

FCPG No. 7 (2003) Native Pinewoods

FCPG No. 8 (2003) Wet Woodlands.

FCPG No. 14 (2003) Restoration of native woodland on ancient woodland sites

Read, H. (2000) Veteran Trees – A Guide to Good Management. English Nature, Peterborough. Free download: www.english-nature.org.uk/pubslink.htm

2/3 Assessment, monitoring and management planning

FCPN No. 1 (1998) Nearest Neighbour Method for Quantifying Wildlife Damage to Woodland

FCPN No. 11 (2001) Practical techniques for surveying and monitoring squirrels

FCBU No.108 (1992) Monitoring vegetation changes in conservation management of forests

FCFB No. 18 (1999) How many deer? A guide to estimating deer population size

English Nature (2002) Objective setting and condition monitoring within woodland Sites of Special Scientific Interest. Report No. 472 <http://www.english-nature.org.uk/pubs/publication/PDF/ENRR472.pdf>

4. Stand Structure

FCPG No. 11 (1997) Whole-Tree Harvesting - A Guide to Good Practice

FCPG No. 14 (2004) Restoration of native woodlands on ancient woodland sites

FCTN No. 2 (2002) Planning controlled burning operations in forestry

FCTN No. 4 (2000) Burning forest residues

FCIN No. 29 (1999) What is Continuous Cover Forestry?

FCIN No. 32 (2000) Plant communities & soil seed-banks in broadleaved – conifer mixtures on ancient woodland sites in lowland Britain

FCIN No. 45 (2002) Monitoring the Transformation of Even-aged Stands to Continuous Cover Management.

FCBU No. 62 (1984) Silviculture of broadleaved woodland

Life in the Deadwood – A guide to managing deadwood in Forestry Commission forests. Forest Enterprise (2002)

[http://www.forestry.gov.uk/website/pdf.nsf/pdf/lifeinthedeadwood.pdf/\\$file/lifeinthedeadwood.pdf](http://www.forestry.gov.uk/website/pdf.nsf/pdf/lifeinthedeadwood.pdf/$file/lifeinthedeadwood.pdf)

Pryor, S., Curtis and Peterken, G.F. (2005) Restoring plantations on ancient woodland sites, Woodland Trust,

Grantham http://www.woodland-trust.org.uk/publications/publicationsmore/Restoration_PAWS_report1.pdf

Woodland Trust (2005) The conservation and restoration of plantations on ancient woodland sites. Woodland Trust, Grantham <http://www.woodland-trust.org.uk/publications/index.htm>

Worldwide Fund for Nature (2004) Deadwood - living forests: the importance of veteran trees and deadwood for biodiversity. WWF, Gland <http://assets.panda.org/downloads/deadwoodwithnotes.pdf>

5. Tree and shrub species composition

FCIN No. 53 (2003) Recent Changes to the Control of Forest Reproductive Material

FCPN No. 8 (1999) Using local stock for planting native trees and shrubs

6. Restocking and woodland establishment

FCGN No. 1 (2000) Forests and Peatland habitats

FCPN No. 3 (1998) The prevention of mammal damage to trees in woodland

FCPG No. 15 (2004) Reducing pesticide use in forestry

FCPG No 16 (2005) Creating new broadleaved woodlands by direct seeding

FCIN No. 35 (2000) Natural regeneration in broadleaved woodlands: deer browsing and the establishment of advance regeneration

FCBU No. 95 (1995) Forest Fertilisation in Britain

FCBU No. 124 (2001) An Ecological Site Classification for Forestry in Great Britain

FCFB No. 8, (1995) The Use of Herbicides in the Forest

FCFB No. 14, (1996) Herbicides for Farm Woodlands and Short Rotation Coppice

The UK Pesticide Guide 2004 - annual publication by British Crop Protection Council and CAB International www.bccpc.org

7. Open space within woodland

FCTP No. 32 (2001) Deforesting and restoring peat bogs: a review

FCBU No. 123 (2000) Managing rides, roadsides and edge habitats in lowland forests

FCIN No. 28 (1999) Use of domestic stock grazing to enhance woodland biodiversity

8. Problem species

FCPN No. 2 (1988) The Prevention of Rabbit Damage to Trees in Woodland

FCPN No. 3 (1988) The Prevention of Mammal Damage to Trees in Woodland

FCPN No. 4 (2003) Controlling Grey Squirrel Damage to Woodlands

FCPN No. 6 (1996) Managing deer in the countryside

FCIN No. 36 (2000) The Impact of Deer on Woodland Biodiversity

FCIN No. 35 (2000) Natural Regeneration in Broadleaved

Woodlands: Deer Browsing and the Establishment of Advance Regeneration

FCIN No. 36 (2000) The impact of deer on woodland biodiversity

The Deer Initiative www.thedeerinitiative.co.uk

A Guide to Writing Deer Management Plans 2004

Deer Management Plan Template 2004

9. Priority and protected species

FCPG No. 9 (1995) Forest Operations and Badger Setts

FCPN No. 5 (2001) Red squirrel conservation

FCBU No. 105 (1994) Roe deer biology and management

Forestry Commission guidance on identifying European Protected Species occurrence in woods, best practice for management and licensing requirements. www.forestry.gov.uk/england-protectedspecies

Forestry Commission, English Nature & Bat Conservation Trust (2005) Woodland management for bats. http://www.bats.org.uk/news_events/documents/WoodlandManagementForBats_web.pdf

Kirby, P. (2001) Habitat management for invertebrates: a practical handbook. JNCC, Peterborough

Symes, N. and Currie, F. (2005) Woodland management for birds – a guide to managing for declining woodland birds in England. RSPB, Sandy

10. Recreational, educational and sporting uses

FCFB No. 5 (1999) Urban forestry practice

FCFB No. 11 (1995) Creating and managing woodlands around towns

English Nature & European Paintball Federation (1993) Paintball games in woodlands: a guide to good environmental practice, English Nature, Peterborough

National Trust (2000) Recreational activities at National Trust properties: guiding principles and good practice. National Trust, London <http://www.nationaltrust.org.uk/main/w-recreat01.pdf>

Game Conservancy Trust (2003) Woodland Conservation and Pheasants. See <http://www.gct.org.uk>

Littlemore, J. and Barlow, C. (2005) Managing public access for wildlife in woodlands. Quarterly Journal of Forestry, 271-285

Woodland Trust (2002 et seq.) Urban Woodland Management Guide Series. Woodland Trust, Grantham

Woodland Trust (2004) Space for People: targeting action for woodland access. Woodland Trust, Grantham

11. Landscape context and woodland creation

FCPG No. 12 (1998) Forest Design Planning - A Guide to Good Practice

FCGL (1991) Community Woodland Design Guidelines

FCIN No. 73 (2005) Evaluating biodiversity in fragmented landscapes: principles

Woodland Trust (2002) Space for Nature: landscape action for woodland biodiversity. Woodland Trust, Grantham

appendix 2

practice guide outcomes

PRACTICE GUIDE OUTCOMES

Woodland Assessment & Monitoring

1. The woodland has been assessed to ensure that all important and obvious features and components have been considered and included in the management planning process.
2. The level of detail collected during assessments is appropriate to the relative size, value, scale and intensity of operations proposed for the woodland.
3. Most assessments have been carried out by the woodland manager, but expert advice has been taken where necessary.
4. The landscape context of the woodland has been taken into account.
5. The assessment includes an evaluation of current trends, threats and management impacts.
6. Basic, repeatable monitoring information is being gathered at appropriate intervals, and is being analysed to ensure management is delivering the desired outcomes.

Management Planning

1. There is appropriate management planning in place or in preparation, which is based on adequate information, considers all key components of value, threats, constraints, opportunities and legal obligations, and is within the context of the landscape.
2. Managers have identified desired outcomes which management operations intend to achieve.
3. Managers have considered the potential for timber production and other utilisable woodland products and are clear about objectives and management prescriptions which ensure such renewable resources are being optimised.
4. Managers have taken into account the views of appropriate stakeholders and have had operations approved by the relevant authorities where necessary.
5. Reasonable measures designed to stop illegal or unauthorised uses of the woodland which might jeopardise achievement of the desired outcomes have been considered.
6. Plans are reviewed regularly depending on the pace and scale of changes effected by management.

Woodland Structure

These outcomes refer to the conditions that are desirable in larger woods, or across wider landscapes. It may not be realistic or necessary to achieve the structural or species diversity in each individual wood.

1. The age structure is diverse with open space (temporary and permanent), early growth, understorey maturing woodland and old-growth habitat (or over-mature stages) all well represented.
2. Throughout the wood the amount of standing and fallen dead wood is increasing.
3. Future veteran trees have been identified and are being conserved.
4. The rate of change caused by thinning and felling is at a pace and scale which maintains or enhances the cultural, environmental, social and economic value (including productive potential) of the site.

Tree Species Composition

1. Tree and shrub species native to the site or which have been identified as cultural features are gradually increasing, whilst those not native and/or invasive or undesirable are declining (taking into account future uncertainty over site suitability).
2. In woods which remain dominated by non-native species further loss of biodiversity is avoided through species selection, thinning and other management interventions.
3. There is an adequate diversity of tree species to provide options for future generations, to provide potential for adaptation to climate change, and to ensure habitat for wildlife communities.
4. The genetic diversity of the tree species planted or regenerated has not been diminished, and their ability to change and adapt to environmental change has been conserved.

Regeneration & Restocking

1. Natural regeneration, colonisation and coppice re-growth predominate, and are only supplemented by planting or seeding where necessary to achieve objectives.
2. Areas being regenerated or created are successfully restocked within an agreed time period, and this is matched to the rate and scale of felling and ensures there is a reasonable continuity of habitat.
3. Grazing and browsing animals are at levels where they are not threatening the potential for natural regeneration, or, where this is proving logistically impracticable, are being excluded through fencing.
4. The stocking densities of different tree species are such that they will achieve the desired outcomes for the site.
5. Opportunities have been taken to enhance the quality of the timber or wood that the stand will produce.

Open Space within Woodland

1. Planned open spaces such as rides, tracks and glades are being actively managed for agreed objectives.
2. Internal and external woodland 'edges' are well represented and are being managed in a way which encourages diffuse or 'fuzzy' boundaries rather than an abrupt transitions between the woodland and the surrounding countryside.
3. The management of open ground and woodland boundaries is helping to conserve the cultural interest of the woodland.
4. Open space design and management is improving the external and internal visual appeal of the woodland and is providing an attractive, safe and welcoming environment for recreational users.
5. In ancient woodland, significant areas of new, permanent open space have only been created in exceptional circumstances, or to reflect past history.

Problem Species

1. The impacts of invasive and/or recognised problem species have been successfully controlled, and are at a level where they are not adversely affecting the woodland.
2. Non-native invasive species of cultural or historic significance have been retained as specimens but are not threatening the landscape, cultural heritage and biodiversity values of the woodland.

Priority Species

1. The populations of known BAP priority or legally protected species (see Glossary) have stabilised or increased in extent and this is likely to be sustained in the long term.
2. Rare, localised and vulnerable priority or protected species have been mapped, their locations are known by site managers, and they have not been irreversibly damaged during management operations.
3. Site managers are familiar with the best practice guidelines for relevant priority or protected species and are applying these on the ground.

Recreational, education & Sporting Uses

1. Recreational, educational and sporting uses have not compromised the key desired outcomes for the woodland, and in particular there has been no loss of environmental value or cultural heritage features.
2. Game management is in accordance with best practice guidance and has not caused long-term or widespread negative impacts on environmental and cultural heritage features.
3. All apparent or known risks to public health and safety have been mitigated against.

Woodland Creation

1. New woods are helping to increase the 'functional linkages' (see Glossary) within the landscape by expanding, buffering and joining up existing woodlands and other semi-natural habitats.
2. New woods complement existing habitats, and have not been created in locations where they will lead to a loss of biodiversity at the landscape scale, and are not fragmenting non-woodland semi-natural habitats.
3. New woods have been situated and designed in such a way as to complement and enhance the visual character and cultural heritage value of the surrounding landscape.
4. New woods have been designed in a way which is leading to the development of structural diversity.

appendix 3

categories of Ancient and Native Woodland

CATEGORIES OF ANCIENT AND NATIVE WOODLAND

Short definitions of the categories of ancient and native woodland are given below (further explanation of terms is also given in the Glossary). Practitioners should note that the boundaries between the categories are not always clear, and individual woodlands may sometimes be difficult to categorise. For this reason, these categories should be interpreted in a flexible and inclusive way. As a general principle, if a woodland broadly fits the definition of native or ancient woodland, and is valuable in terms of its ecology or heritage, then this Practice Guide will apply.

Ancient Woodland

Woodland which is on a site which appears to have been continuously woodland since at least AD1600.

1. **Ancient semi-natural woodland (ASNW)**
Ancient woodland composed of predominantly site native tree species, usually derived from coppice or natural regeneration; the composition may be modified by past management and more recent planting of native species.
2. **Plantation on ancient woodland site (PAWS)**
Ancient woodland site which has been converted to a plantation dominated by non-native broadleaved or conifer species.

Non-ancient or Recent Woodland

1. **Other semi-natural woodland (OSNW)**
Woodland established post AD1600 and composed primarily of native species derived from natural colonisation and regeneration.
2. **Recent planted native woodland (RPNW)**
Woodland which has been planted on previously open ground, and which comprises predominantly native trees and shrubs. Where such woodland has been created within the last decade it is often referred to as 'new native woodland'.

Native Woodland

Woodland where at least 80% of the canopy comprises species that are suited to the site and are within their natural range, taking into account both history and uncertainties over future climate. Native woodland includes both ancient and recent woodland, and those of planted or semi-natural origin. It includes ASNW, OSNW, RPNW and those PAWS which have already been restored to over 80% native broadleaves.

Veteran and ancient trees

A veteran tree is a tree that is of interest biologically, culturally or aesthetically because of its age, size or condition. Further guidance, including tree features and trunk diameters, is given in appendix 4.

Wood pasture and parkland

Are managed by a long-established tradition of grazing, producing a valuable mix of wooded and grazed habitats. Veteran trees are common features and, depending on the degree of canopy cover, other semi-natural habitats, including grassland, heath and scrub may occur in mosaic with woodland. This definition encompasses some historic parks that have reverted, or been actively converted, to complete canopy woodland, but nevertheless retain the communities and historic features associated with their parkland past. Strict definitions are unhelpful and in reality there is a continuum of woodland types ranging from very open pasture, or 'treescapes', to closed canopy grazed woodland.

appendix 4

Veteran Tree definition

A veteran tree is a tree that has a large diameter trunk for its species and shows 3 or more of the growth and decay characteristics listed in Read 2000, section 2.1.1, pp14

Diameter is used as a surrogate for age, (see table below for appropriate sizes) but veterans may also be younger trees that have the same characteristics as old trees due to disease or damage (e.g. lightning strike), truly ancient trees can be differentiated from these by significant (natural) crown dieback and significant hollowing of the trunk. They may also be of a significantly greater size class than those suggested below.

Characteristic features of veteran trees

Read. 2000. Veteran Trees - A guide to good management

- girth large for the tree species concerned;
- major trunk cavities/progressive hollowing;
- naturally forming water pools;
- decay holes;
- physical damage to trunks;
- bark loss/loose bark;
- large quantities of dead wood in the canopy;
- sap runs;
- crevices in the bark, under branches or in the root plate sheltered from direct rainfall;
- fungal fruiting bodies (e.g. from heart rotting species);
- high number of interdependent wildlife species;
- epiphytic plants;
- an 'old' look;
- high aesthetic interest.

In addition a tree may also:

- have a pollard form or show indications of past management;
- have a cultural/historic value;
- be in prominent position in the landscape.

Size guidelines for lowland sites

species	min cm dbh for tree of interest
field maple	75
rowan	75
yew	100
birch	50
hornbeam	75
holly	75
cherry	75
goat willow	75
grey willow	75
oak	120
ash	100
scots pine	100
alder	100
sycamore	150

appendix 5

assessing woodland ecological condition

ASSESSING WOODLAND ECOLOGICAL CONDITION

Whilst a full assessment of woodland condition is not a requirement practitioners might find the following checklist useful which is based on the five key aspects of ecological condition adapted from the standard condition assessment for Sites of Special Scientific Interest. Some of the most important features that are observed in the field are listed as bullets each attribute.

Area

This requires an assessment of the boundaries of the wood or stand to check for losses or changes in land use within the wood.

1. Any loss of woodland since last assessment.

Structure and natural processes

This covers the vertical structure (i.e. the canopy and under-storey layers) and the age structure (including deadwood). It also covers the horizontal structure (i.e. the mosaic of different stand ages and woodland habitats within the wood).

1. Understorey density and vigour.
2. Canopy cover and structure/layers, in relation to the character, history, particular values and objectives of the woodland.
3. Deadwood abundance, type, size and location.
4. Veteran trees, their condition and health.

Regeneration

The abundance and species composition are relevant as well as prediction of likely regeneration success.

1. Evidence of tree and under-storey regeneration, through coppice re-growth and/or seedlings.
2. The proportion of any restocked area being regenerated by planting.
3. The provenance of any trees being replanted.
4. Damage to seedlings and saplings e.g. from browsing or disease.
5. Assessment of whether regeneration is in sufficient density to regenerate the canopy over time.

Species composition

The composition of the canopy and under-storey in relation to the site characteristics and the history of the site.

1. The proportion of native or accepted site-native species in the canopy and under-storey.
2. Is their relative abundance appropriate to that woodland type and site?

Quality indicators

A range of factors are covered under this heading, including non-woodland habitats, notable species and other special features of the individual woodland e.g.

1. Ground flora composition (measured for example by NVC type).
2. Wet flushes and watercourses.
3. Priority or other rare species.

appendix 6

recommended management plan structure

RECOMMENDED MANAGEMENT PLAN STRUCTURE FOR NATIVE WOODLAND

This structure is consistent with the English Woodland Grant Scheme, UK Forestry Standard and UK Woodland Assurance Scheme. The detail and length of any management plan will be related to the size of the wood and the complexity of the objectives.

Background information

1. Location
2. Description of woodland in the landscape
3. History of management

Woodland information

1. Areas and features
2. Woodland resource characteristics (e.g. timber, woodfuel, non-timber forest products)
3. Site description
4. Significant hazards, constraints, trends and threats

Long term vision, management objectives and strategy

1. Evaluation of the important features of the woodland
2. The desired state for the woodland
3. The benefits which it is hoped the woodland will provide
4. The long term overall objectives – including silvicultural system(s) for achieving these

Management prescription/operations

Consultation

Monitoring proposals

Work programmes

1. An outline of the long term work programme
2. Short term work programme

Maps

