

Benthall Edge Wood and Workhouse Coppice

Management Plan

Date:	1st January 2011	to	31st December 2030
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This management plan is a revision and amalgamation of two management plans adopted by the Trust in 2000 and 2002. These cover Benthall Edge Wood, Workhouse Coppice, Patten's Rock Quarry, Bowers Yard Meadow, Bowers Yard Picnic Site and Benthall Riverside. The amalgamation of the two plans has been undertaken to simplify management planning.

The original management plans contain much invaluable information on many aspects of the sites' history, ecology, geology and management and it is not proposed to repeat this in detail here, unless this has a direct bearing on management proposed in this revision.

The management plan covers a 20 year period and will be subject to review every 5 years.

1. BACKGROUND INFORMATION

1.1 Location

Nearest town, village or feature	Ironbridge, Coalbrookdale and Madeley.
Grid reference	SJ 66 03
Total area (ha)	Benthall Edge Wood – 38.28 ha Patten's Rock Quarry – 0.70 ha Bower Yard Field – 0.38 ha Benthall Picnic Site – 0.49 ha Benthall Riverside – 1.86 ha Workhouse Coppice – 5.41 ha
Ownership	Benthall Edge is on a 999 year lease from the Borough of Telford and Wrekin. Workhouse Coppice is on a 50 year lease from the Woodland Trust.
Designations	All of the plan area except Workhouse Coppice and Benthall Riverside is a Site of Special Scientific Interest (SSSI).
Agreements	Woodland Grant Scheme (WGS) contract with the Forestry Commission (Forestry Commission scheme no. 0213000878, 1995-2000) Higher Level Stewardship on Bowers Yard Meadow.
Local Authority	Telford and Wrekin Council and Shropshire County Council.
Parish Councils	The Gorge and Barrow Parish Council.

1.2 Description of the site in the landscape

Benthall Edge is a large area of mature broadleaved woodland situated on steep north and north-west facing slopes and a plateau. The north-west facing slope continues south-

westwards to join National Trust woodland and the privately owned Tick Wood (owned by Edward Dugdale); both woodlands fall within an SSSI. The north-facing slope continues eastward to join with Ladywood. See map 1.

The plan area is almost totally wooded with several different types of broad-leaved woodland within which are several NVC communities. The exceptions include a small area of open limestone grassland in the former quarry at Patten's Rock, a few small pools in old limestone workings in the western area of the plan and an area of river bank north of Bower Yard. The old Severn Valley Railway line and, to the north of this, the River Severn form the north boundary. The cooling towers lie close to the change in slope direction, at the base of the wood.

Workhouse Coppice joins onto Benthall Edge to the south and is situated on the plateau between the Gorge and Broseley. It is dominated by even-aged Oak, with a shrub layer composed largely of Holly and was managed in the past to provide material in the early days of the Industrial Revolution. Evidence of previous mine workings are still evident in the form of bell pits which have resulted from the digging of coal from surface outcrops. There is also an old sandstone quarry in the north east corner of the wood.

There is some historic evidence to show great change in how the woodland has been managed from coppice for charcoal (there are scores of old charcoal pits) through conifer forest, to broadleaved high forest which has naturally regenerated.

SGCT manages all of its 270 hectares of land on a landscape scale, to overall objectives using similar management techniques, such as Continuous Cover Forestry, adapted to the specific needs to each site, based on rigorous scientific assessment.

The site is reasonably well used by walkers and includes part of the Shropshire Way long distance route and Severn Valley Way.

1.3 History of Management

The history of management up to 2000 is discussed in detail in the first management plans for this site, approved in March 2000. Since that time, the Trust has undertaken a wide range of activities. These are summarised in the following tables and maps.

2. SITE INFORMATION

2.1 Areas and features

2.1.1 Designated Areas/Features	On Site	Map 1 Comment
Ironbridge Gorge World Heritage Site	Y	Majority of Benthall Edge within boundary
Site of Special Scientific Interest	Y	Benthall Edge

Ironbridge Conservation Area	Y	North-Eastern Part of woodland within boundary
Scheduled Ancient Monument		
Wildlife Site	Y	
Regionally Important Geological Site	Y	Benthall Edge

2.1.2 Priority 1 habitats and species ¹	On Site	Map 3 Site comment
Ancient semi-natural woodland	Y	W7, W8, W10, W12, W16
Secondary semi-natural woodland	Y	
Woodland shrub	Y	
Mature trees	Y	
Deadwood	Y	
Heathland		
Unimproved neutral grassland	Y	Bowers Yard Meadow
Limestone Grassland	Y	Patten's Rock Quarry
Hedgerow/scrub	Y	Bowers Yard Meadow
Flowering plants	Y	Diverse woodland and meadow flora
Bryophytes	Y	Many species found in Patten's Rock Quarry
Mammals	Y	Bat and Badger records
Invertebrates	Y	Several species of Lepidoptera, Odonata and locally important species.
Birds	Y	Song Thrush, Marsh Tit and Bullfinch
Reptiles and amphibians	Y	Great Crested Newt
Oak	Y	
Small-leaved Lime	Y	Also common and large leaved lime
Wild Service tree	Y	
Spindle	Y	

¹ As determined in the Biological Monitoring and Recording Review (K. Thorne, 2005) – see appendix 1.

Discussion:

Most of the north-west facing slope and, extending round the slope as it becomes north-facing, is W8 (ash – maple – dog’s mercury), both on the scarp face (largely undisturbed) and on the less steep higher ground. Some of the latter has been disturbed by lime quarrying (therefore strictly secondary woodland); this whole area equates with underlying limestone (Wenlock Limestone and Wenlock Shales). W8 is also typical of the east end which has a different geology (Coal Measures) and has been disturbed by clay extraction. In the W8 Ash is dominant, with Sycamore, Oak and Birch also components; although localised, Large-leaved and Small-leaved Lime are strongly associated with W8 here, as is Wild Service-tree (very localised on this site) and there is a significant population of all three species. Beech is localised and gives rise to small areas of near W12 (beech – dog’s mercury). The high content of Oak in W8 is of interest and may be an indication of past planting of this species.

W10 (oak – bracken – bramble) tends to dominate the higher ground on the north-facing slopes and the plateau above (all with underlying Coal Measures and associated more acidic soil), with some localised W7 (alder – ash – yellow pimpernel) and W16 (oak – birch – wavy hair grass) both near small dingles on high ground. Oak and Birch are dominant in W10 with Ash frequent. In W16, Oak and Birch are dominant but Beech is also present. In W7, Alder and Ash are dominant with some Birch.

Sycamore regeneration in the understorey is quite widespread, Ash more localised. Hazel is a component of the understorey in W8 and W10. Holly favours the Oak woodland (W10 and W16). Wych Elm is also a component of the W8 and would once have been a frequent component of the canopy.

There is a diverse woodland ground flora with rare species e.g. Green-flowered Helleborine, Herb Paris, Bird’s Nest Orchid, Early Purple Orchid and Wood Barley often favouring the disturbed limestone area.

The largest quarry in the woodland (Patten’s Rock Quarry) is an open area of limestone grassland managed as such, with rotational cutting of scrub; this quarry was abandoned in 1835. It has significant populations of several orchid species and some of the grassland species are uncommon too. This site has been monitored, particularly for its orchid content, since 1994 and the size of the area increased over the past few years; there is a possibility that grassland orchids have been favoured and woodland ones compromised but this is likely to be temporary.

Other small quarries have become overshadowed pools but support four different amphibian species, including the Great Crested Newt.

The southern woodland boundary has leggy hedgerows and interfaces with farmland.

Workhouse Coppice is an Oak woodland (W10) and Oak dominates the canopy (also some Ash and Birch), i.e. there is a good representation of site-native trees in the canopy.

2.1.3 Landscape and Geology	On Site	Map 3 Comment
Landscape designated areas		
Geological features Regionally Important Geological Site (RIGS)	Y	

Historic landscapes	Y	
Areas of the woodland prominent from roads	Y	
Areas of the woodland prominent from settlements	Y	

Discussion:

Geology is fundamental to the area in terms of its landform, vegetation patterns and its past history of management and exploitation. The chief geological pattern is the division between the Wenlock series of the calcareous Silurian limestone to the west and the acidic clays and sandstones of the Middle Coal Measures to the east.

The location, extent and aspect of Benthall Edge Wood ensure that it has major landscape value. It is highly visible as the principal woodland on the southern valley-side opposite Ironbridge, running from the skyline down to the river along much of the wood's northern edge.

The combination of steep, hanging broadleaved woodland, the riverside settlement at Bower Yard, the arched railway viaduct owned by Telford and Wrekin Council that carried the Severn Valley Railway, the river and the dramatic architecture of the cooling towers all combine to create a distinctive and unusual landscape, right next to the central monument of the world Heritage Site, the Iron Bridge.

Geological instability is a significant issue throughout the Gorge and was a factor in the Trust's selection of Continuous Cover Forestry as its principal silvicultural technique. This position has been endorsed by Telford & Wrekin Council engineers who believe that any significant change in tree cover/woodland management could have an impact on the stability of the slopes. Any changes to the silvicultural regime should be discussed with them.

2.1.4 Public Access and accessibility	On Site	Map 3 Comment
Open access	Y	
Access points	Y	18
Viewing point	Y	
Permissive footpaths / Rights of Way	Y	
Information Boards		
Car parking	Y	Ironbridge main car park
Benches	Y	2
Leaflets and guide books	Y	Walking in the Severn Gorge, SGCT website, Mike Pooley Publication

Discussion:

Benthall Edge Wood is well-served with definitive and non-definitive footpath routes, many of which have historic origins as working routes.

The key definitive paths include the foot-of slope east / west route that runs from Bridge Road in the east through to the cooling towers at the foot of the scarp slope. The upper slope of the western section of Benthall Edge carries a well-used part of the Shropshire Way.

The picnic area east of Bower Yard has been in existence since 1980s. It is used at moderate levels during the main visitor season but suffers from poor surfacing and heavy shading. The paths in and around the picnic area provide key links between the railway line (Severn Valley Way), Bower Yard and the southern base of the Iron Bridge.

The Severn Valley Way, managed by Telford and Wrekin Council, is often used by horses and provides access for wheelchairs users.

2.1.5 Archaeological and Cultural Features	On Site	Map 3 Comment
Scheduled Ancient Monument		
Historical/cultural features	Y	12

Discussion:

The site has significant archaeological and cultural interest throughout, with many links to its former history. The current physical nature of the site has been influenced by past woodland management, and by industry e.g. Limestone quarrying Patten's Rock and charcoal pits throughout the woodland.

With the wide variation of remains and features in and around the wood, from the pre-industrial and industrial periods, Benthall Edge is a rich repository of information about its past use and value in local economic activity.

Extensive conservation works have been carried out to the 1800's Bowers Yard Lime Kiln during Spring 2011.

2.1.6 Community significance	On Site	Map 3 Comment
Adjacent communities		Ironbridge, Broseley

Discussion:

The site has significant value to the near-by local communities, especially Ironbridge. Residents use the network of paths and bridleways for outdoor recreation including dog walking and horse riding. There is also a large potential for use by tourists visiting the

Ironbridge, as it is accessible from the main car park near to the Station Hotel.

2.1.7 Structures and geotechnical features (See map 3)

19	Wooden post and steel pipe roadside barrier
20	Remains of lime kiln and associated crushing plants / storage containers
21	Mine shaft and safety grid
22	Brick arch and timber bridge over incline plane
23	Old quarry and safety fencing
24	Pipe and tile retaining wall
25	Stone gabions
26	Brick and clinker wall
27	Mine shaft and safety fencing
28	Adit and safety fencing
29	Mine shaft and safety grid
30	Old brick arch with safety fencing

2.2 Woodland resource characteristics

The plan area divides into 11 compartments, of which 9 are principally woodland, 1 is limestone grassland and 1 is species rich semi natural grassland. See map 4.

Along with the 2 grassland compartments 6 of the woodland compartments have been designated SSSI status for its geology and woodland value in nature conservation.

2.3 Site description

The entire site is a complex of ancient and secondary semi-natural woodland which has been heavily influenced by its industrial past.

2.4 Significant hazards, constraints and threats

The terrain is exceptionally steep in places, and is underlain by some adits (horizontal tunnels) used to extract clay and coal. Some of these have collapsed forming valleys and some are still unknown.

The public and permissive footpaths that cross the site are heavily used by the public and anyone working on the site must take this into account when planning and implementing work.

Fallow and Muntjac deer are moving through the woods on a regular basis. A survey in 2008 found evidence of high levels of damage in Benthall and Workhouse following Fallow deer browsing. The Trust has installed 5 deer exclosures throughout the woodland in order to promote and survey natural regeneration and restocking operations. See map 5.

Tree safety is an issue, which we address through our regular tree safety programme

A number of structures associated with the area's former history are found on the site and these are marked on Map 3. These are subject to annual, detailed inspections by engineers. Their management is undertaken in response to these inspections and is, therefore, outside the scope of this management plan and Trust staff.

3. LONG TERM VISION, MANAGEMENT OBJECTIVES AND STRATEGY

3.1 Long term vision

The site is to be managed for the benefit of local people and visitors to the Severn Gorge, as well as nature conservation and timber production. To this end, management will ensure that the site:

- Continues to offer high quality public access along paths that are accessible to as wide a range of people as possible within the constraints of the site.
- Retains its landscape character of valley side broadleaved woodland and open grassland.
- Retains enhanced areas/populations of all priority 1 habitats and species.
- Retains all historical and cultural features.
- Continues to be used and enjoyed by local communities.
- Has clearly defined areas to be managed for timber production and are managed appropriately.

Management will be based around low-impact methodologies, including Continuous Cover Forestry as the principal silvicultural technique.

The Trust is committed to management of its land in compliance with the UKWAS standard, as is demonstrated by its adherence to the best practice procedures applied throughout the site. The UK Woodland Assurance Standard is an independent certification standard for verifying sustainable woodland management in the United Kingdom.

3.2 Management Objectives

No	Objective
1	Maintain and enhance all priority 1 habitats and species.
2	Maintain and enhance all public and permissive rights of way.
3	Maintain all features of historical and cultural significance.

4	Conserve and maintain landscape character.
5	Maintain and enhance features that enable the local community to enjoy and use the site.
6	Carry out woodland operations to maximise timber production within designated areas.

3.3 Strategy

The Trust's strategy is based upon an integrated approach to site management, where woodland and grassland management is combined with high quality public access, nature conservation, and conservation for archaeology and landscape.

The site is divided into two principal landscape types, woodland and grassland. Of these, the woodland is managed under Continuous Cover Forestry with the aim being to transform all stands into mixed size and mixed broadleaf species. Locally native species will be favoured in the long-term with a particular focus on reducing the proportions of holly in the understorey, and of increasing the proportions of scarcer native trees and shrubs such as ash, oak, small-leaved lime, large-leaved lime and wild-service.

The grassland areas known as Patten's Rock Quarry and Bowers Yard Meadow will be managed as semi natural grassland aiming to optimise the biodiversity of grassland plants and invertebrates. Work will continue to prevent further encroachment of scrub into the grassland, whilst balancing the ornithological real benefit of such scrub.

Elsewhere, a particular effort will be made to maximise the value of areas of small but significant semi-natural habitats. These include hedgerows and ponds.

4. MANAGEMENT PLAN/WORK PROGRAMME

4.1 Silvicultural systems

4.1.1 Harvesting

Over the next 20-year period, the principal silvicultural system applied by the Trust will be Continuous Cover Forestry. The intention with this approach is to create an intimate mixed age and mixed species woodland.

The plan area is divided into compartments, according to access, geology and NVC communities (see Map 5). The aim of management is to improve the conservation and forestry potential through transforming stands to mixed size and mixed species over several thinning cycles. Each compartment will be sub-divided into smaller blocks to reduce the overall impact of the work. Oak and ash should be favoured during thinning. Standing and fallen deadwood should be retained in-situ where this does not compromise site safety. In addition, in Workhouse Coppice work will take place to thin the understorey of holly.

Timber harvesting will involve the use of low-impact working systems as appropriate.

Throughout these operations, management will be informed by the Trust's ecological data

(see Working Copies), LiDAR and archaeology data, and by the regular Condition Assessment process, as well as taking account of the areas landscape character. Wherever possible on safety grounds, paths and trails will be kept open whenever work is underway and the public kept informed. This will be through notices posted on site, local newsletters and the Trust's website.

4.1.2 Establishment, restocking and regeneration

Where possible, thinned and recently felled areas will be restocked with natural regeneration and will favour oak, ash, birch and any other locally native trees (particularly small-leaved lime, large-leaved lime and wild-service) and woody shrubs to match species to NVC communities. If necessary, natural regeneration will be protected using very small scale deer exclosures. Regeneration of sycamore and beech will be monitored and, if necessary, controlled through the implementation of the Trust's policy on the use of synthetic chemicals.

4.2 Other operations

The Fieldfare Trust will be asked to continue to advise on the Trusts provision of access for those with special needs. Interpretation will be installed and maintained to help encourage tourists into the woods.

4.3 Protection and maintenance

4.3.1 Pest and disease management

The Trust has adopted a deer management strategy (May 2005) and will apply this to this site. It also conducted an extensive deer survey in 2008. The site also supports populations of grey squirrels and this will be kept under continuous review with a control programme implemented if necessary.

4.3.2 Fire plan

Any fire will be dealt with by the Fire Service. No fires have been recorded in the past 20 years. Much of the slope is north facing and damp all year round.

4.3.3 Waste disposal and pollution

The Trust has a policy (adopted May 2005) relating to the use of biodegradable lubricants. As well as continuing to apply this policy, the Trust will aim to use biodegradable products where practical, minimise its use of plastics, tree tubes and planting bags and, where their use is unavoidable, will dispose of them in a responsible manner in line with current best practice.

4.3.4 Protection from unauthorised activities

General littering are to be dealt with via a standing contract with a local contractor, while motorbike, horse and bike riding are addressed on a case-by-case basis.

4.4 Grassland, heathland, and pond management

4.4.1 Grassland management

The site contains two distinct grassland components. These are Patten's Rock Quarry limestone grassland and Bowers Yard grassland.

Work will continue to remove all encroaching scrub in Pattens Rock Quarry and control the amount of scrub in Bowers Yard. Further survey work will take place to monitor the effect of management works.

4.4.3 Pond management

The site contains two ponds of note in the south western corner of the woodland. A survey carried out in 2010 showed that the northern pool had breeding Great Crested Newts, however, none were noted in the southern pool.

Due to the close proximity of each of the pools both will be managed to encourage GCN. Work will take place to reduce shading around both pools through the selective felling/pruning of trees around their edges. Further survey work will take place to monitor the effect of management works.

4.5 Management of key features

4.5.1 Management of designated areas and protected species

All management activities within Benthall Edge SSSI require the consent of Natural England.

4.5.2 Measures to enhance biodiversity

The site contains a number of Priority 1 habitats, species and features of conservation significance and measures will be adopted to enhance their status. In particular, general woodland management operations such as thinning and restocking will favour native trees and shrubs and there will be a general presumption to retain standing and fallen deadwood where this does not contradict site safety objectives. Thinning and re-stocking operations will also be an opportunity to reduce the presence of non-natives such as sycamore and beech, and to reduce the prevalence of holly in the understorey. Throughout the site, a number of mature trees will be retained as future veterans.

4.5.3 Special measures for ASNW and SNW

The general approach to woodland management outlined in 3.3 above will ensure that the semi-natural character of ancient and secondary woodland areas is maintained and enhanced.

4.5.4 Archaeology and sites of cultural interest

Features of archaeological and cultural interest will be safeguarded through the Trust's site alert system.

4.5.5 Public access

The Public Rights of Way and permissive paths present on the site are shown on Map 3. The Trust will continue to keep these clear of encroaching vegetation through regular cutting regimes and will continue to maintain/upgrade infrastructure and signage to ensure that the site is accessible to as wide a range of people as possible. Programmes of work will be developed on the basis of an Accessibility Audit working with the Fieldfare Trust and SGCT's Access to Nature project funded by Big Lottery Fund through Natural England.

4.5.6 Landscape and geology

Benthall Edge is a steep sided, northern facing slope with a plateau area encompassing Workhouse Coppice. The geology is extremely complex including calcareous Silurian limestone, acidic clays and sandstone. (see Geological Map)

4.5.7 Community significance

The local community have played an important role in the management of the site through attending events, learning about management activities, survey techniques and through volunteering including the installation of steps, boardwalks and bridges. The programmes of management proposed in this plan will ensure that the features valued by the local community will be retained and enhanced. In particular, the retention of woodland and grassland areas will retain the site's landscape character, while continuing programmes to maintain and enhance access will ensure that people will be able to access the site for quiet, informal recreation.

4.5.8 Structures and geotechnical features

The management of the structures is addressed through the Structures and Geotechnical Features Action Plan, reviewed annually.

5. CONSULTATION

This plan has been consulted on an ongoing basis through regular contact with the local community and through SGCT's 'Trees of Knowledge' programme. This was through a series of site meetings between 2007 and 2010 to discuss management.

6. MONITORING PLAN SUMMARY

Objective number, issue or UKWAS Requirement	Indicator	Method of assessment	Monitoring period	Responsibility	How will information be used
1, Priority 1 habitats and species	Habitats and populations maintained or enhanced	5-yearly condition assessment; checks on key species as appropriate	See left	Ecological consultant	Feedback into management planning.
2, Public access	Paths clear and well-maintained	Inspection	Twice yearly	Contractor	Feedback into management planning.
4, Landscape character	Character outlined in 2.1.3 maintained	Fixed location photography from external viewpoints	As resources allow	SGCT / Volunteer Programme	Feedback into management planning.
5, Community significance	Community use and enjoyment continues and is enhanced.	Informal feedback on site, during events and through phone calls, Volunteers, Trees of Knowledge	On-going	SGCT	Feedback into management planning.
6, Structures	Structures safe	Visual inspection by engineer / Trust staff	Annual	Contractor	Feedback in to Structures and Geotechnical features management plan.

Management Plans in the Trust's Strategic Planning hierarchy

The Trust has a hierarchy of strategic and operational planning documents at the top is the Trust's **Development Strategy** that sets out the organisation's objectives as whole and guides its relationships with other organisational partners. Below this strategic planning level lies a series of policies and procedures, and operational documents of which the individual site **Management Plans** are one element. The Management Plans interpret on an individual site level what the relevant organisational objectives contained in the Development Strategy might look like, opportunities and resources permitting. Finally below this is the **Annual Work Plan** for the Trust as a whole in which the Trust tries to balance the individual objectives contained in the Management Plans with actual and expected resources available to it on a yearly basis, and wherever possible then deliver them. The specific details and components of actual objective delivery on the ground are the responsibility of the Trust officers to which they are tasked within the Annual Work Plan.

Validity of the Management Plans

The Management Plans are snap shots of a dynamic project planning and delivery process that takes place within the Trust. The Management Plans do not have any 'valid till date'; the level 1 operations which form the backbone of all Trust site management will be delivered as 'core' elements of the Trust's work each year. The level 2 and to a certain extent level 3 operations will be reviewed for continued relevance and practicality of delivery in light of forecasted resource availability each year as the proposed Annual Work Plan and Budget for the Trust is drawn up. Every 5 years level 2 and 3 operations will be reviewed, some may be deleted, others added in light of the strategic direction set by the Development Strategy.

Implementation of the operations listed

Each year relevant operations will be reviewed in light of data received from the Trust's ecological monitoring programmes. Where amendments for example to the on the ground delivery techniques or timings are deemed necessary they will be made at the individual project management level, and if applicable transferred to any relevant contract documentation and Trust site alert systems but not the Management Plan. Unless otherwise stated the objective of site operations is to provide consistency and continuity of management over a long period of time. The primary aim being to maintain dynamic and healthy habitats rather than gearing management solely for a single individual species.

Prioritisation of the operations listed in this Management Plan

The table outlines the three levels of operational objectives:

- 1.** Those that the Trust will continue to deliver;
- 2.** Those that the Trust will prioritise for delivery if resources allow; and
- 3.** Those that the Trust would like to deliver but only if suitable opportunities and resources can be identified.

	Level 1 operational objectives
	Level 2 operational objectives
	Level 3 operational objectives

Management Plan Compartment Number	Timing	Site Name	Operations
Level 1 - The Trust will continue to deliver the following in relation to the Management Plan area:			
Good governance			
All	Annual Review	Management plan area	The aims as detailed in the Trust's Development Strategy (current applicable version at 2011 date of management plan review is 2011 - 2016 Development Strategy).
All	Annual Review	Management plan area	Maintain Forest Stewardship Council Certification as an independent verification that the Trust woodlands are being managed appropriately and effectively to a standard approved nationally and internationally.
Monitoring programme			
1, 2, 3, 5, 6, 8, 9, 10, 11	Every 10 years	Management plan area	Woodland condition surveys.
4, 7	At least every 5 years	Management plan area	Grassland surveys.
All	At least every 5 years	Management plan area	Breeding birds survey.
All	At least every 5 years	Management plan area	Butterfly survey.
All	At least every 5 years	Management plan area	Invertebrate survey.
All	At least every 5 years	Management plan area	Landscape character record (fixed location photography from external and internal viewpoints)
As required	As required	As required	Major project individual Ecological Impact Assessments/ Archaeological Reports
Risk Management Annual Programmes			
4, 5, 6, 9, 10, 11	Annual	Management plan area	SGCT Structures and Geotechnical Inspection Programme Structures contained within this management plan area include Structures 19 through to 30. Structures 20, 21, 22, 24, 25 and 30 are to be monitored by an independent Engineering Team for conditional changes and any necessary works identified and programmed by the Trust for resolution on a risk management basis. Annual inspections from 2003 onwards, details of implemented works contained in structures files. Structures 19, 23, 26, 27, 28 and 29 to be monitored by Trust staff.

1, 2, 3, 5, 6, 8, 9, 10, 11	At least every 3 years	Management plan area	<p>SGCT Tree Safety Inspection Programme</p> <p>All areas adjacent to roadside, property, major access network routes, structures are to be monitored by an independent Arboriculturalist for conditional changes and any necessary works identified and programmed by the Trust for resolution on a risk management basis.</p>
All	Twice a year	Management plan area	<p>SGCT 6 monthly Access Network Inspection Programme</p> <p>The principle access routes on SGCT land are to be walked twice yearly by an SGCT staff. Any conditional changes i.e. issues with footpath infrastructure steps, gateways, bridges, boardwalks, safety fencing, benches, surfacing are identified and programmed by the Trust for resolution on a risk management basis.</p>
Benthall Edge			
Annual Countryside Works Programme:			
1, 2, 3, 5, 6, 9	6 months	Benthall Edge	Reactive repairs under SGCT 6 monthly Access Network Inspection Programme.
1, 2, 3, 5, 6, 9	Annual	Benthall Edge	SGCT annual footpath clearance programme to clear overhanging vegetation and strim encroaching ground flora.
Patten's Rock Quarry			
Annual Countryside Works Programme:			
4	Annual	Patten's Rock Quarry	Annual works to clear encroaching scrub from the grassland, works carried out by SGCT volunteers.
Workhouse Coppice			
Annual Countryside Works Programme:			
8	6 months	Workhouse Coppice	Reactive repairs under SGCT 6 monthly Access Network Inspection Programme.
8	Annual	Workhouse Coppice	SGCT annual footpath clearance programme to clear overhanging vegetation and strim encroaching ground flora.
Bowers Yard Picnic Area			
Annual Countryside Works Programme:			
10	6 months	Bowers Yard Picnic Area	Reactive repairs under SGCT 6 monthly Access Network Inspection Programme.
10	Annual	Bowers Yard Picnic Area	SGCT annual footpath clearance programme to clear overhanging vegetation and strim encroaching ground flora.
Bowers Yard Meadow			
Annual Countryside Works Programme:			
7	Annual	Bowers Yard Meadow	SGCT Annual Hedge and Verge Cutting Programme.
Benthall Riverside			
Annual Countryside Works Programme:			

11	As required	Benthall Riverside	Following floods a footpath inspection will be carried out on the anglers path by SGCT staff.
Level 2 - As a priority over the coming years, the Trust will if resources allow:			
Public Access			
8	As required	Workhouse Coppice	Track cleaning hard standing area (scrape off areas where fallen plant material and mud have built up thick deposits then brush with tractor mounted yard brush).
5	As required	Benthall Edge	Track cleaning hard standing area (scrape off areas where fallen plant material and mud have built up thick deposits then brush with tractor mounted yard brush).
9	2011 - 2012	Benthall Edge	Design and Install Interpretation Panel on the Severn Valley Way describing series of circular walk routes through Benthall Edge.
All	2011 - 2012	Benthall Edge	Provide clear way marking throughout the woodland to coincide with the routes described in the interpretation panel
Landscape			
10	2011 - 2030	Bowers Yard Picnic Site	Create a more open aspect through the selective felling and pruning of trees and scrub to create a more open and welcoming area.
Nature Conservation			
2, 3, 5, 8	2011 - 2015	Workhouse Coppice, Benthall Edge	<p>Encouraging natural regeneration. Monitoring has indicated that high deer numbers are believed to be one significant factor in the rare presence of +1year old native regeneration. 5 deer exclosures have been installed of >0.5 ha, however browsing still occurs through rabbits and small mammals. Work is proposed to remove the DE5 and install small 2m x 2m exclosures around areas of natural regeneration which are completely predator proof. A second significant factor is the lack of light (Helliwell DR & Rowley R, 2011)</p> <p>All deer exclosures will be monitored and naturally regenerated native species identified. The areas will also be monitored for more vigorous competitive weed growth in the form of bramble and bracken and mechanical control initiated if necessary.</p> <p>If natural regeneration is successfully established at an appropriate point in time a small scale thinning of trees both inside and outside the enclosure will take place to ensure sufficient light stimulus is available to the young regenerating trees. This will follow SGCT CCF principles retaining standing and fallen deadwood, and promote veteran tree development principally in the form of Oak seed trees. DE1, DE2 and DE3</p>

			would benefit from the above mentioned thinning during 2011 – 2013.
5, 8	2011 - 2020	Workhouse Coppice, Benthall Edge	<p>Woodland Thinning Works. Timber stock surveys carried out in 2011 demonstrate that the plateau of Benthall Edge and Workhouse Coppice are currently overstocked (See appendix). Thinning works should be carried out to reduce the density of trees in favour of straight stemmed mature oaks. Felled timber should be forwarded off site in the hope of offsetting the forestry costs.</p> <p>Following the works further timber stock surveys should be carried out at 5 year intervals and the results incorporated into the management plan.</p>
4	2011 - 2030	Patten's Rock Quarry	Clear scrub from incline to western side of area to extend grassland up to viewpoint. Carry out surveys and remove any regenerating scrub following the works.
7	2011 - 2030	Bowers Yard Grassland	Scrub Management Works, clear areas of scrub to maintain open grassland.
3	2011 - 2030	Benthall Edge	Pond Management. Carry out pond improvement works at both Benthall Pools including the selective felling and pruning of trees overhanging the southern edge of the pool and clearing out leaf litter and other debris.
Cultural and historical features			
6	2011	Bowers Yard	Design and Install an Interpretation Panel for Bowers Yard Lime Kiln.
6	2011	Bowers Yard	Commission and install a sculptured bench at Bowers Yard Lime Kiln.
Community engagement			

All	Annually	Management plan area	Continue to facilitate via the SGCT ' Trees of Knowledge' forum local engagement and knowledge sharing in relation to operational delivery of Management Plan work programme.
All	2009 - 2014	Management plan area	Outreach to neighbouring community of Ironbridge and Broseley to encourage their involvement in the Trust's land.
All	2009 - 2014	Management plan area	Provide opportunities for practical volunteering activities.
All	2009 - 2014	Management plan area	Provide guided walks to introduce people to the area.
Wider awareness and sharing knowledge			
All	2009 - 2014	Management plan area	Encourage use of sites by local community and educational groups.
Level 3 - If opportunities arise and resources allow the Trust will also consider:			
Public Access			
8	No set date	Workhouse Coppice	Develop a circular route through Workhouse Coppice that is accessible by wheelchair users and provide interpretation.
Landscape			
All	No set date	Management plan area	Work with neighbouring landowners to secure a unified approach to landscape management and 'buffer' habitats to augment the Trust's own landholding.
3	No set date	Path on plateau overlooking power station	Open up viewpoint of power station towers.
Nature Conservation			
7	No set date	Bowers Yard Grassland	Set up a livestock grazing regime with water facilities.
11	No set date	Benthall Riverside	Set up otter monitoring programme and install otter holts.
Cultural and historical features			
Community engagement			
Wider awareness and sharing knowledge			
All	No set date	Management plan area	Expand the Trust's MapInfo Geographical Information System to cover full Ironbridge Gorge landscape.

8. MAPS

List all maps here and append to plan.

Map No/Title	Description
1	Site location: 1 : 19 000 showing location, settlements, roads, SSSIs, World Heritage Site and Conservation Area boundaries, SGCT holdings and Parish and Local Authority boundaries.
2	Unmodified OS map: 1 : 4 000.
3	Features: 1 : 4 000 location of paths, public access points, public parking, viewpoints, archaeological and cultural features.
4	Compartment boundaries: 1 : 4 000 summary of management compartments.
5	Operations: 1 : 4 000 compartments, deer exclosures and area to be managed for timber crop.

9. Bibliography

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- Fieldfare Trust (2006) *Severn Gorge Countryside Trust: countryside accessibility report, including access surveys/audits at Dale Coppice, Lincoln Hill and Workhouse Coppice.*
- Forestry Commission (2003) *The management of semi-natural woodlands: practice guides*
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- Hooke, D (1998) *The historic land use and cultural landscape of the Ironbridge and Coalbrookdale area: a study for the Severn Gorge Countryside Trust.*
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Mayle, B (1999) <i>Practice Guide.</i>	<i>Managing deer in the countryside, Forestry Commission</i>
Peterken, G.F. (1999)	<i>Ecological evaluation of the woodlands in the Severn Gorge.</i>
Price, A & Warnock, S (1998)	<i>Severn Gorge Landscape Assessment.</i>
Thorne, K (2005)	<i>Collation of biological data and a framework for monitoring in the Severn Gorge Countryside Trust sites, volumes 1 and 2.</i>
Thorne, K (2005)	<i>Monitoring of SGCT sites May and June 2005/2007</i>
Severn Gorge Countryside Trust (1999)	<i>Lydebrook Dingle Management Plan.</i>
Severn Gorge Countryside Trust (2000)	<i>Loamhole Dingle, The Wilderness and Sunnyside Management Plan.</i>
Severn Gorge Countryside Trust (2001)	<i>SGCT management plans: summary of plans and opportunities.</i>
Willoughby, I (2004) <i>Practice Guide.</i>	<i>Reducing pesticide use in forestry, Forestry Commission</i>

10. Appendices

- Definition and monitoring of Priority 1 habitats and species.

Priority 1 habitats and species are defined as those that are of conservation concern in the Gorge, and that can be influenced by the Trust's management of its landholding. Examples include unimproved neutral grassland and adder.

The selection of priority 1 habitats and species was undertaken in 2005 by an independent ecological consultant who undertook a review of all of the known sources of biological data held about the Gorge, and included contact with County Recorders, the Wildlife Trust, biological record offices and recording groups.

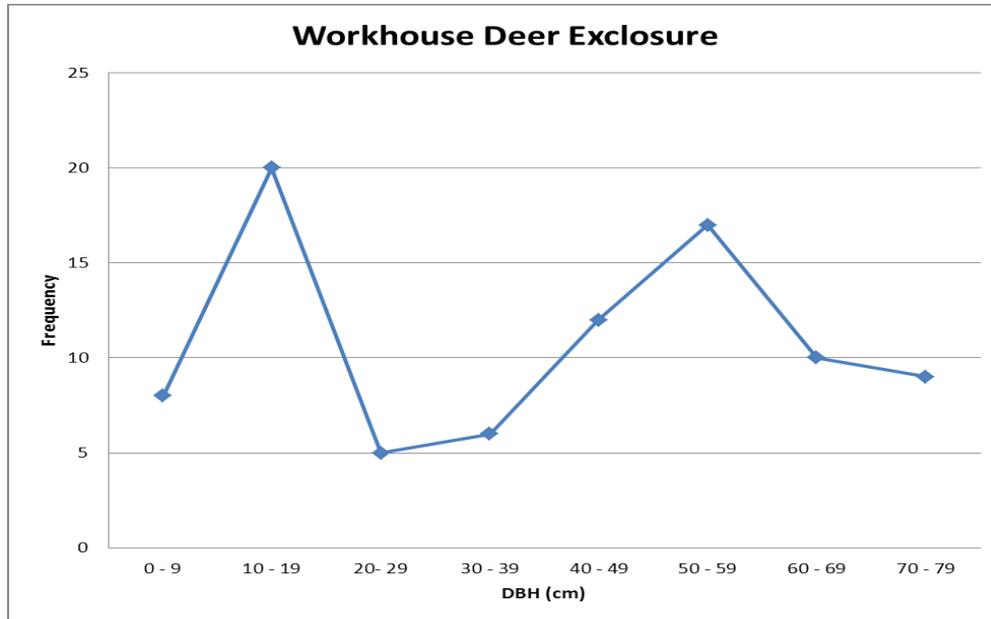
By comparing the data compiled through this review with information on the conservation status of each habitat and species (by reference to BTO data, Red Data Books, Biodiversity Action Plans, etc), and by considering the known management requirements of each of these, it was possible to come to a view not only of which species and habitats are of conservation concern, but also which of these should be a priority because their status can be influenced by the Trust's management. These are the Trust's Priority 1 habitats and species.

Monitoring of these habitats and species is a key component of the Trust's programmes, and follows two basic approaches: the 'condition' of key habitats is monitored on a five-yearly cycle (woodland) and a three-yearly cycle (grassland), while key species are monitored as deemed appropriate.

- Summary of basal area surveys carried out in March 2011.

Workhouse Deer Enclosure

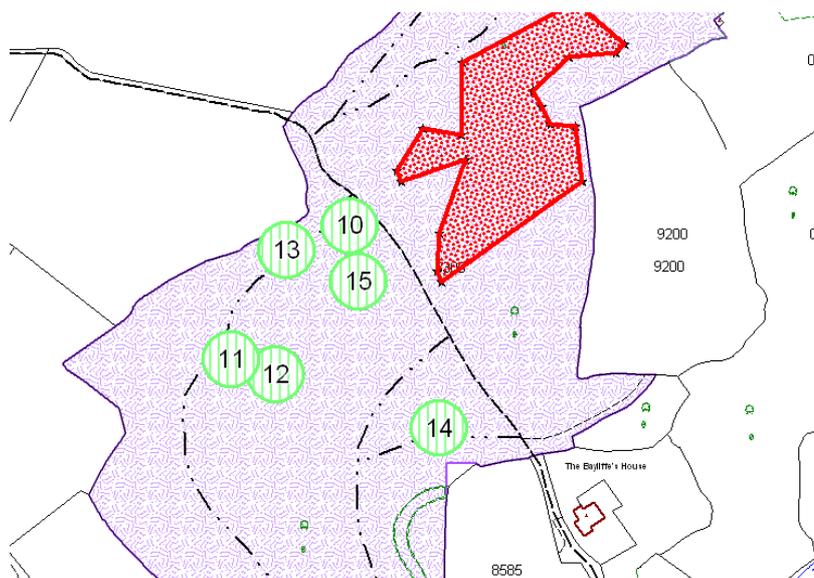
Within the deer enclosure 87 trees were surveyed of which 59 were Oak, 20 were Rowan, 6 were Birch and 2 were Yew; ranging from 4 cm DBH to 79 cm DBH. The graph below gives the distribution of the DBH values.



The deer enclosure measure 0.51 ha and currently has a basal area stock of 14.1 m² equating to 27.7 m² per ha.

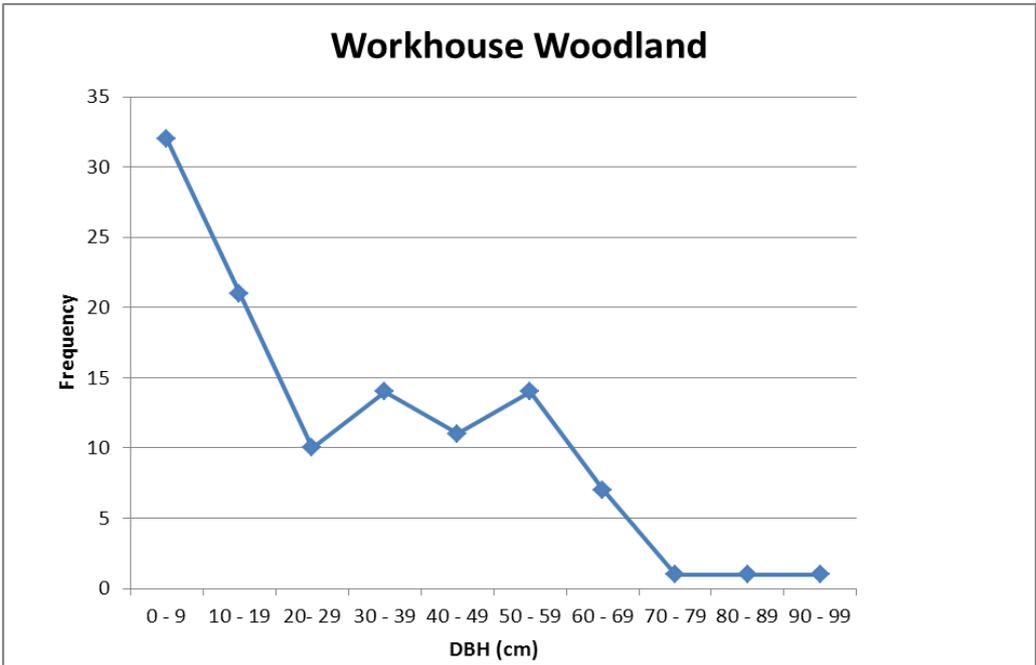
Workhouse Woodland

Within Workhouse Woodland 6 survey plots were carried out with a plot size of 0.05 ha each.



Over all 6 plots 112 trees were survey of which 49 were Oak, 24 were Rowan, 12 were Birch, 10 were Elder, 8 were Hawthorn, 4 were Hazel, 3 were Beech and 2 were Elm; DBH sizes ranging up to 95 cm.

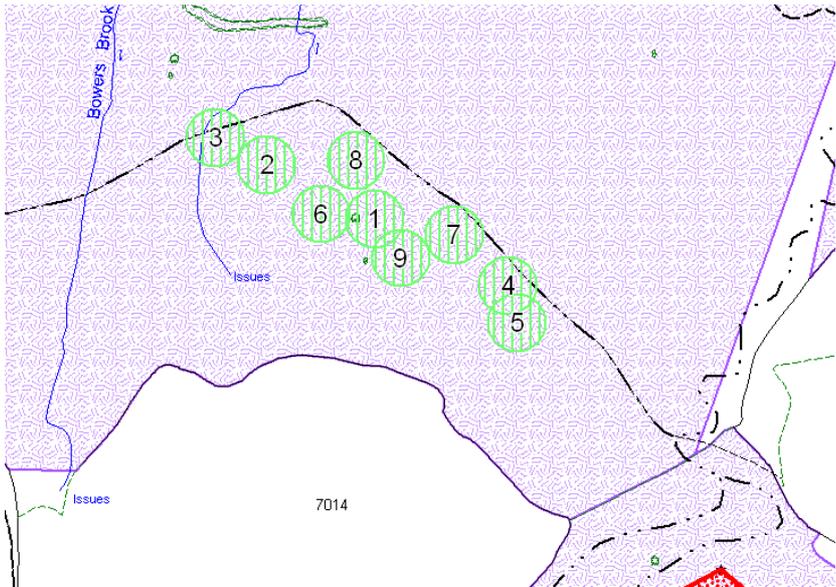
The graph below gives the distribution of the DBH values.



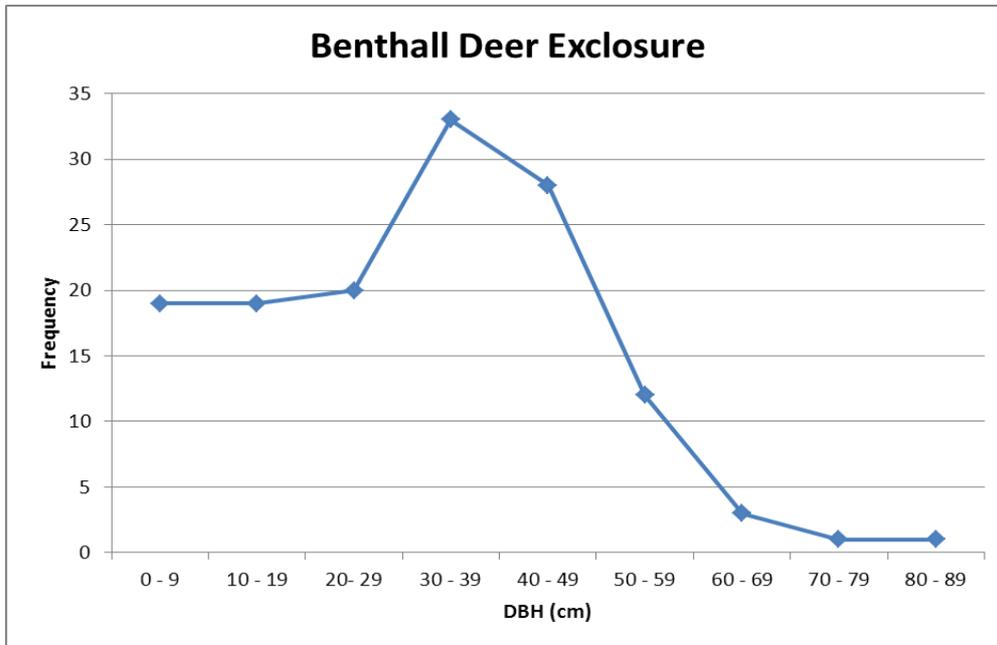
The basal area stocking for the woodland is 37.3 m² per ha.

Benthall Deer Exlosure

Within Benthall Deer Exlosure 9 survey plots were carried out with a plot size of 0.05 ha each.



Over all 9 plots 201 trees were surveyed of which 87 were Oak, 53 were Sycamore, 28 were Birch, 15 were Hazel, 7 were Ash, 4 were Lime, 4 were Yew, 2 were Alder and 1 was Elm; DBH sizes ranging up to 83 cm.



The basal area stocking for the exclosure is 30.4 m² per ha.