



Keil's Den

Management Plan 2017-2022

MANAGEMENT PLAN - CONTENTS PAGE

ITEM	Page No.
Introduction	
Plan review and updating	
Woodland Management Approach	
Summary	
1.0 Site details	
2.0 Site description	
2.1 Summary Description	
2.2 Extended Description	
3.0 Public access information	
3.1 Getting there	
3.2 Access / Walks	
4.0 Long term policy	
5.0 Key Features	
5.1 Informal Public Access	
5.2 Ancient Semi Natural Woodland	
5.3 Planted Ancient Woodland Site	
6.0 Work Programme	
Appendix 1: Compartment descriptions	
Appendix 2: Harvesting operations (20 years)	
Glossary	

MAPS

Access
Conservation Features
Management

THE WOODLAND TRUST

INTRODUCTION

The Trust's corporate aims and management approach guide the management of all the Trust's properties, and are described on Page 4. These determine basic management policies and methods, which apply to all sites unless specifically stated otherwise. Such policies include free public access; keeping local people informed of major proposed work; the retention of old trees and dead wood; and a desire for management to be as unobtrusive as possible. The Trust also has available Policy Statements covering a variety of woodland management issues.

The Trust's management plans are based on the identification of Key Features for the site and setting objectives for their management. A monitoring programme (not included in this plan) ensures that these objectives are met and any necessary management works are carried out.

Any legally confidential or sensitive species information about this site is not included in this version of the plan.

PLAN REVIEW AND UPDATING

The information presented in this Management plan is held in a database which is continuously being amended and updated on our website. Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations. Please either consult The Woodland Trust website www.woodlandtrust.org.uk or contact the Woodland Trust (wopsmail@woodlandtrust.org.uk) to confirm details of the current management programme.

There is a formal review of this plan every 5 years and a summary of monitoring results can be obtained on request.

WOODLAND MANAGEMENT APPROACH

The management of our woods is based on our charitable purposes, and is therefore focused on improving woodland biodiversity and increasing peoples' understanding and enjoyment of woodland. Our strategic aims are to:

- Protect native woods, trees and their wildlife for the future
- Work with others to create more native woodlands and places rich in trees
- Inspire everyone to enjoy and value woods and trees

All our sites have a management plan which is freely accessible via our website www.woodlandtrust.org.uk. Our woods are managed to the UK Woodland Assurance Standard (UKWAS) and are certified with the Forest Stewardship Council® (FSC®) under licence FSC-C009406 and through independent audit.

In addition to the guidelines below we have specific guidance and policies on issues of woodland management which we review and update from time to time.

We recognise that all woods are different and that the management of our sites should also reflect their local landscape and where appropriate support local projects and initiatives. Guidelines like these provide a necessary overarching framework to guide the management of our sites but such management also requires decisions based on local circumstances and our Site Manager's intimate knowledge of each site.

The following guidelines help to direct our woodland management:

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene when there is evidence that it is necessary to maintain or improve biodiversity and to further the development of more resilient woods and landscapes.
2. We establish new native woodland using both natural regeneration and tree planting, but largely the latter, particularly when there are opportunities for involving people.
3. We provide free public access to woods for quiet, informal recreation and our woods are managed to make them accessible, welcoming and safe.
4. The long term vision for our non-native plantations on ancient woodland sites is to restore them to predominantly native species composition and semi-natural structure, a vision that equally applies to our secondary woods.
5. Existing semi-natural open-ground and freshwater habitats are restored and maintained wherever their management can be sustained and new open ground habitats created where appropriate.
6. The heritage and cultural value of sites is taken into account in our management and, in particular, our ancient trees are retained for as long as possible.
7. Woods can offer the potential to generate income both from the sustainable harvesting of wood products and the delivery of other services. We will therefore consider the potential to generate income from our estate to help support our aims.
8. We work with neighbours, local people, organisations and other stakeholders in developing the management of our woods. We recognise the benefits of local community woodland ownership and management. Where appropriate we allow our woods to be used to support local woodland, conservation, education and access initiatives.
9. We use and offer the estate where appropriate, for the purpose of demonstration, evidence gathering and research associated with the conservation, recreational and sustainable management of woodlands. In particular we will develop and maintain a network of long-term monitoring sites across the estate.
- 10 Any activities we undertake will conform to sustainable forest management principles, be appropriate for the site and will be balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

SUMMARY

This public management plan briefly describes the site, specifically mentions information on public access, sets out the long term policy and lists the Key Features which drive management actions. The Key Features are specific to this site - their significance is outlined together with their long (50 year+) and short (5 year) term objectives. The short term objectives are complemented by a detailed Work Programme for the period of this management plan. Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. A short glossary of technical terms is at the end. The Key Features and general woodland condition of this site are subject to a formal monitoring programme which is maintained in a central database. A summary of monitoring results is available on request.

1.0 SITE DETAILS

Site name:	Keil's Den
Location:	Largo
Grid reference:	NO414039, OS 1:50,000 Sheet No. 59
Area:	18.17 hectares (44.90 acres)
Designations:	Ancient Semi Natural Woodland, Tree Preservation Order

2.0 SITE DESCRIPTION

2.1 Summary Description

Ancient gorge woodland blanketed with bluebells, woodrush, dog's mercury and wild garlic. This long and narrow wood provides a good network of paths. A surfaced multi-use path leads from the small parking area in the south to a rest area with benches by the Keil Burn.

2.2 Extended Description

Location, Altitude, Aspect

Keil's Den is a long narrow wooded glen set in an agricultural landscape. The wood is located on the steep slopes of both the west and east banks of the Keil Burn as it runs almost directly north-south. The main entrance to Keil's Den lies 0.5 km north of Lower Largo and the main A915. Both banks of the burn slope very steeply for the majority of their length, although the site includes some flat land on the top of the slopes and low lying floodplain where this exists. The southern end of the burn is at a height of approximately 30m above sea level, rising to a height of over 70m above sea level on the banks in the north of the wood. The OS grid reference for the main entrance, which lies in the south-east of the woodland is NO 413 038.

Physical Geography

The soils are derived from drifts of carboniferous sandstones, shale and limestone's, with rock exposures in the burn bed. This gives rise to brown forest soils that tend to be slightly acid and sandy in some places but with gleying and more basic flushes in others. The MLURI climate data

identifies the area as warm dry lowland which is moderately exposed with fairly mild winters. The Keil Burn itself is approximately 3m wide as it flows through the glen.

Woodland Description

Keil's Den is predominantly gorge ash woodland consisting of both native and introduced species, and clearly has a long history of management. A rich woodland specialist ground flora is present throughout the den part of the woodland, indicating an ancient woodland origin. The species equate most closely to NVC W9/W10.

The main native component is ash, but there is also a significant component of beech and sycamore, the result of 19th century plantings. There are smaller numbers of birch, rowan, cherry and oak, alder, willow, Scots pine and larch. There is also a diversity of shrub species including hawthorn, hazel, holly, elder, elm and blackthorn. Following loss of the mature elm component of the canopy over recent decades, the woodland has an open structure in many areas and is in transition, with ash, beech and sycamore all freely regenerating in patches, despite the presence of roe deer. The structure of the woodland is varied, including mature woodland and developing young trees of various ages. The ground flora is generally representative of ancient woodland, the key components being woodrush, bluebell, dogs mercury and broad-buckler fern, with bracken and grasses encroaching into the more open areas. The ground flora is being threatened by shade in some areas, particularly under clumps of pole-stage beech, where no vegetation grows under the canopy. Many of the mature beech are beginning to decline and form a valuable veteran tree resource and deadwood is abundant. A number of the old and dead trees have also been identified as bat roosts.

Species rich den (gorge) woodlands are characteristic of this part of Fife and provide valuable habitat in an otherwise open agricultural landscape. Woodland generally, and ancient woodland in particular, has a low coverage in Fife and is highly fragmented. The wooded den extends north from the Trust's land along the Keil Burn for another 1km (also Ancient Semi Natural Woodland). The south-easterly spur has a lower floral diversity and is thought to be a planted landscape strip linking the Largo House policies to the den woodland (as are the two other adjacent woodland strips not in Trust ownership).

Other Habitats Description

There are patches of open ground on the woodland edge adjacent to the field edges, with a ground flora of mainly grasses with some bluebell and some more brambly areas. On the eastern bank of the wood, (cpt 1c) there is a larger open area of about 1ha dominated by grasses and bracken and punctuated with shrubby hawthorn thickets. The burn provides an important riparian habitat and on its narrow flood plain there is a complex of open areas of varying wetness, typified by NVC M27 and featuring meadowsweet, bottle sedge, common spotted orchid, marsh hawksbeard and common valerian. The invasive variegated yellow archangel is beginning to spread from the SE entrance, and is also present on neighbouring land near the car park.

Wildlife

The bird life is varied in Keil's Den, including great, long-tailed and blue tits, wagtail, chaffinch, blackbird, great-spotted woodpecker, buzzard, robin and pheasant. The woodland is important for bats due to the number of mature, over-mature and standing dead trees, and a bat survey must be carried out before undertaking any work on such trees. Other mammals include moles, roe deer, rabbits, foxes and badgers.

Site History

Only the northern tip of Keil's Den is shown on the Ancient Woodland Inventory as Ancient Woodland of Semi-Natural Origin. However, the whole woodland is shown on the 1855 1st edition OS map and the rich woodland specialist ground flora throughout the den also indicates that the den part of the woodland is ancient in origin.

The south-eastern spur (in Trust ownership) and two other spurs which extend E/W from the den, are thought to be designed landscape features linking the Largo House policies with the den woodland. The lower diversity of their ground flora also reflects this.

The prevalence of veteran beech and a number of tracks within the wood show that the site has been managed over at least the last 200 years or so. There are no known archaeological features in the wood, although there is a quarry of unknown date near the middle footbridge.

The site was bought by the Woodland Trust in 1992, from the previous private owner at Monzie Castle, Creiff. Seventy five per cent of the money for the purchase was raised by the local community in only two weeks! The work carried out by the Trust since the woodland has been in its ownership has concentrated on public access works and planting of some large open areas. Several mature beech trees next to paths have also been felled when become unsafe (with advanced decay fungi).

The coffin trail runs from Hatton Law over middle bridge and through to Upper Largo cemetery. The path was wide enough for 4 coffin bearers. The route of the path has now changed to edge of fields.

Public Access

The woodland offers extensive public access with 3.61km of paths, most of them claimed public rights of way. The main path follows the boundary round the site at the top of the den, and another path crosses the den in the middle, giving the option of doing a half-circuit. There are six entrances to the wood, through kissing gates or open gaps for pedestrians. Three of these entrances join up with paths across neighbouring fields, and the other three entrances exit onto minor roads. The paths are generally un-surfaced, and can be uneven with roots, steep and narrow in places. There are also muddy patches. Some paths have been surfaced with hard-core and whin dust: at the south-east end of the site a 300m section from the road to the Keil Burn was upgraded by a team from the Robert Gough Centre; the steep path crossing the middle of the site was surfaced in in 2014, along with 2 other steep sections replacing steps, and in 2016 the path north of the road bridge was surfaced as very muddy.

There are two footbridges across Keil Burn: in the middle of the site a timber bridge was built in 1999 (replacing an old bridge); and in 2014 a new bridge was installed at the south end to replace the stepping stones (kindly funded by Miss Ogilvy Shepherd). There is no footbridge where the path crosses the burn at the north of the site, but it is possible to cross over on the road bridge. There is a small informal car park (on private land) at the bend in the road to the north-east of the wood, where there is space for 6 cars. This has been surfaced with hard-core and whin dust in 2012 and is with agreement of our neighbour. There is also space for two cars in front of the gate at the south-east entrance opposite Largo Country Caravan Park.

The attractive nature of the site and the path network attracts an estimated 9000 visits per year. Users are mainly local regular walkers, with smaller numbers of occasional visitors. Access on foot

from Upper Largo and Lower Largo is along a minor road with no pavement. The wood is 1km from the Fife Coast Path to the south.

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

Keil's Den occupies the gorge of the Keil Burn, just north of Lower Largo, Fife.

Keil's Den can be reached by public transport by bus to Lower Largo on the regular service from Leven along the Fife coast route to St Andrews. From the village centre follow the main road (A915) to the east end of the village. Then follow the minor road north (signpost 'Woodland Gardens' by war memorial) for 400m to reach the entrance to the wood on the left opposite the Largo Country Caravan Park.

For car users, there is informal parking for 2 cars in front of this entrance or more parking further up this road, turning left at the crossroads and on the left before the sharp bend in the road (surfaced with hard-core and room for 6 cars).

The nearest rail access is to Markinch, on the outskirts of Glenrothes, where a regular bus service runs to Leven (then by bus as described above).

On the east side of the wood there are 4 entrances off the minor Blindwell road (Q38 & Q40): The southern entrance, opposite Largo Country Caravan Park is via a wheelchair access kissing gate; the other entrances are through gaps - 2 of them direct off minor roads and one from a path across a field.

In the west side of the wood there are 2 gap entrances reached by footpaths across fields off the minor road that leads past Little Pilmuir Farm.

The nearest public toilets are at the beach car park at Temple at the east end of Lower Largo (1.4 km, 0.9 miles). The nearest disabled access toilets are at Leven Promenade (5.5 km, 3.5 miles).

3.2 Access / Walks

The main path follows the rim of the den on both sides, with another path cutting across the den in the middle, which gives a shorter circuit from the north or south. A path also runs at the south east end of this circuit to join in with the road opposite Largo caravan park, and there is a shorter route option both at the north and south of the site. The length of paths total 3.61 km in all. The paths are mostly un-surfaced and some sections can be seasonally muddy. The steeper sections of path have been surfaced. There are 2 footbridges crossing the burn - one to the south of the site and one in the middle. As an alternative to crossing the Keil Burn in the north of the wood, there is a surfaced slope and narrow gaps in the roadside fence to allow crossing of the road bridge (with narrow pavement). From the south-east entrance a hard-core and whin dust surfaced route runs for 300m to a rest area with benches over-looking the Keil Burn.

There are good views into and across the den. Keil's Den has an abundance of woodland plants and has fine displays of bluebells in the spring.

4.0 LONG TERM POLICY

Woodland

The long term vision (100 year plus) is to maintain a diverse, species rich, broadleaved woodland with a high proportion of native species. There will be considerable structural and age class diversity, as well as areas of open ground and wetland. Throughout most of the woodland there will be a secure, vigorous and diverse ground flora characteristic of broadleaved native woodland (NVC W10 & W8). The canopy will be punctuated with occasional mature and over-mature trees and there will be frequent standing and fallen deadwood.

Public Access

The site will provide quiet informal recreation to local users and visitors. The path network will be maintained as well-drained and clear of obstructions and overhanging branches and entrances will be maintained in a welcoming condition.

5.0 KEY FEATURES

The Key Features of the site are identified and described below. They encapsulate what is important about the site. The short and long-term objectives are stated and any management necessary to maintain and improve the Key Feature.

5.1 Informal Public Access

Description

The woodland offers extensive public access with 3.61km of paths, most of them claimed public rights of way. The main path follows the boundary round the site at the top of the den, and another path crosses the den in the middle, giving the option of doing a half-circuit. There are six entrances to the wood, through kissing gates or open gaps for pedestrians. Three of these entrances join up with paths across neighbouring fields, and the other three entrances exit onto minor roads. The paths are generally un-surfaced, and can be uneven with roots, steep and narrow in places. There are also seasonally muddy patches. Some paths have been surfaced with hard-core and whin dust: at the south-east end of the site a 300m section from the road to the Keil Burn was upgraded by a team from the Robert Gough Centre; the steep path crossing the middle of the site was surfaced in 2014, along with 2 other steep sections replacing steps, and in 2016 the path north of the road bridge was surfaced as was very muddy.

There are two footbridges across Keil Burn: in the middle of the site a timber bridge was built in 1999 (replacing an old bridge); and in 2014 a new bridge was installed at the south end to replace the stepping stones (kindly funded by Miss Ogilvy Shepherd). There is no footbridge where the path crosses the burn at the north of the site, but it is possible to cross over on the road bridge (slope up to road through gap and narrow pavement). There is a small informal car park (on private land) at the bend in the road to the north-east of the wood, where there is space for 6 cars. This has been surfaced with hard-core and whin dust in 2012 and is with agreement of our neighbour. There is also space for two cars in front of the gate at the south-east entrance opposite Largo Country Caravan Park.

Significance

The attractive nature of the site and the path network attracts an estimated 9000 visits per year. Users are mainly local regular walkers, with smaller numbers of occasional visitors. Access on foot from Upper Largo and Lower Largo is along a minor road with no pavement. The wood is 1km from the Fife Coast Path to the south.

Opportunities & Constraints

Constraints: Steep slopes, narrow paths, and lack of car parking space.
Opportunity: to create a car park on adjacent land if opportunity arises

Factors Causing Change

Climate change and greater use is causing paths to become muddier.

Long term Objective (50 years+)

The site will provide quiet informal recreation to local users and visitors. The path network will be maintained as well-drained, and clear of obstructions and overhanging branches.

Short term management Objectives for the plan period (5 years)

Paths will be maintained in a safe and usable condition - free from obstacles, encroaching vegetation, excessive muddiness and litter. Access provision will be in keeping with WT access guidelines and site access coding (B).

Regular safety inspections of trees next to paths and estate features (e.g. bridges) will be carried out, along with any work as necessary. Entrances will be maintained with Woodland Trust signs to make them welcoming.

Specific works proposed: paths will be cut as least twice a year; remove the now redundant boardwalk in north and the redundant sleeper bridge near the layby car park; remove steps and boards going down to stream near southern bridge as no longer needed for access to stepping stones and in poor condition (by 2018). Also, when the handrail on path coming from SE entrance becomes rotten, remove it as no longer necessary now path is surfaced and not particularly steep there (next plan period).

Install new bench with view to west near middle western entrance (by 2018).

Cut back beech hedge to improve site lines on entrance opposite caravan park (including nearest beech stem & elder bush), and remove old wire fence behind hedge in 2017.

Create a basic leaflet to provide information on paths for visitors by 2018.

5.2 Ancient Semi Natural Woodland

Description

Keil's Den is predominantly a gorge woodland consisting of both native and introduced species, and clearly has a long history of management. A rich native woodland ground flora is present throughout the Den, indicating an ancient woodland origin. The species equate most closely to NVC W9/W10. The south-easterly spur has a lower floral diversity and is thought to be a planted landscape strip linking the Largo House policies to the den woodland. Many of the mature beech are the result of 19th century plantings.

The main tree component is ash, beech, birch and sycamore. There are smaller numbers of rowan, cherry, elm, oak, alder and willow. There is also a diversity of shrub species including hawthorn, hazel, holly, elder and blackthorn. Following loss of the mature elm component of the canopy over recent decades, the woodland has an open structure in many areas and is in transition, with ash, beech and sycamore all regenerating in patches, despite the presence of roe deer. There is a threat to the woodland specialist ground flora from shading from beech.

The structure of the woodland is varied, including, mature woodland, young trees, open ground punctuated with shrubby thickets, and wetland adjacent to the burn. The ground flora is generally representative of ancient woodland, the key components being woodrush, bluebell, dog's mercury and broad-buckler fern, with bracken and grasses encroaching into the more open areas.

Many of the mature beech are beginning to decline and form a valuable veteran tree/deadwood resource. Course hardwood deadwood is also abundant from the previous loss of elms.

Ash dieback (chalara) is affecting many of the ash trees - which is particularly bad in the northern end which has a larger population of ash trees.

Significance

Only the northern part of Keil's Den is shown on the SNH Ancient Woodland Inventory as Ancient of Semi-Natural Origin. However, the whole woodland is shown on the 1855 1st edition OS map and the rich woodland specialist ground flora throughout the den part of the site also indicates that it is ancient in origin. The wooded den extends north from the Trust's land along the Keil Burn for another 1km (also ASNW). The south-eastern spur (in Trust ownership) and two other spurs which extend E/W from the den, are thought to be designed landscape features linking the Largo House policies with the den woodland. The lower diversity of their ground flora also reflects this.

Species rich den (gorge) woodlands are characteristic of this part of Fife and provide valuable habitat in an otherwise open agricultural landscape. Woodland generally, and ancient woodland in particular, has a low coverage in Fife and is highly fragmented.

Opportunities & Constraints

Constraints: Steep ground and narrow paths prevents vehicular management access in many areas.
Opportunity: To gradually replace the beech canopy with native species to reduce the shading to ground flora.

Factors Causing Change

Loss of old mature beech due to blowing over or safety felling.
Beech regeneration (with little other regeneration of other species) will change the species composition of the next generation.
Chalara (ash dieback disease) killing the ash.
Invasive variegated yellow archangel plant is spreading from entrance opposite caravan park.

Long term Objective (50 years+)

The tree canopy will be almost entirely broadleaved with a high proportion of native species. There will be considerable structural and age class diversity, as well as areas of open ground and wetland. Throughout most of the woodland there will be a secure, vigorous and diverse ground flora characteristic of broadleaved native woodland (NVC W10 & W8). The canopy will be punctuated with occasional mature and over-mature trees and there will be frequent standing and fallen deadwood.

Short term management Objectives for the plan period (5 years)

Gradual restoration of ground flora and move towards native species by: group felling pole-staged beech trees and re-planting with native trees and shrubs, in 3 areas, each no bigger than 0.1ha; and cutting groups of beech regeneration (if more than occasional on DAFOR scale), to reduce the threat to ground flora from shading of the next generation of beech. All mature beech trees will be retained (unless need to fell for safety reasons). (Cpt 1a & 1c by end 2020). THIS HAS BEEN POSTPONED DUE TO ASH DIEBACK FELLING (2019).

Ensure the establishment of young planted trees. Remove tubes when no longer needed (cpt 1a birch & cpt 1b on bank - 0.25ha by 2020). Plant 2 groups of native trees along the western field edge where over mature trees were felled for safety reasons (cpt 1c, 10 - 20 trees by 2019).

Fell all ash suffering from ash dieback disease (chalara) in north of wood where within falling distance of the road and paths, and replant with native trees and shrubs (cpt 1a, approximately 0.5ha by 2019). Other dead ash trees within falling distance of the paths will be felled only when they become a safety issue (this includes the ash trees along path going down to the middle bridge on the west bank). Dead ash trees within the rest of the wood will be left as deadwood.

Stop invasive variegated yellow archangel from spreading into the rest of the wood. Spray plants from woodland edge back to road and monitor results (cpt 1c, 0.02ha, twice annually 2017 - 2020).

Cut two bracken glades near path to encourage a more diverse flora (cpt 1c, 0.05ha, annually).

5.3 Planted Ancient Woodland Site

Description

This area was planted with conifers in the 1950s, with larch and Scots pine. Beech and sycamore are also present with an understorey of elder. A few individual larch trees have blown over in previous years.

The northern area (cpt 1d) was felled and replanted with mixed broadleaves in 1996 and is now classed as restored planted ancient woodland. The southern area (cpt 1e) still has conifers and is classed as planted ancient woodland site. The conifers are light shade casters, so ground flora is present over much of the area comprising of grass, brambles and some bluebells.

There is occasional dead wood.

Significance

Only the northern part of Keil's Den is shown on the SNH Ancient Woodland Inventory as Ancient of Semi-Natural Origin. However, the whole woodland is shown on the 1855 1st edition OS map and the rich woodland specialist ground flora throughout the den part of the site also indicates that it is ancient in origin.

Opportunities & Constraints

Opportunity to gradually revert the conifer area back to native trees.

Constraints are the limited vehicular access and slopes.

Factors Causing Change

wind blow and regeneration of beech and sycamore which cast heavy shade.

Long term Objective (50 years+)

To gradually restore the conifer area back to native broadleaves and Scots pine, but maintaining a presence of larch, with a secure and diverse ground flora characteristic of broadleaved native woodland.

Short term management Objectives for the plan period (5 years)

To lightly thin cpt 1e to let more light to the ground, removing non-native trees and heavy shade casters (cpt 1e by 2018).

To carry out PAWS assessment when the plan is next reviewed (in 2021).

6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By
2018	WMM - Invasive Plant Control	Spraying invasive variegated yellow archangel from opposite caravan park entrance and behind layby car park	30/04/18
2018	WMM - Invasive Plant Control	Spraying invasive variegated yellow archangel from opposite caravan park entrance and behind layby car park - 2nd visit	30/06/18
2018	AW - Visitor Access Maintenance	Path and entrance management (1st cut) including 4km of paths, 6 entrances, 6 benches, 2 footbridges, handrail on path, culvert (cut vegetation where end of pipe is close to path). Cut 2 bracken glades either side of path down to middle bridge (from west side)	30/06/18
2018	AW - Visitor Access Maintenance	Path and entrance management (2nd cut) and 2 bracken glades	30/08/18
2018	AW - Visitor Access Maintenance	Repairs to surfaced path on slope N of new bridge. 5T type 1 & 2T dust compacted with whacker. Access from field.	14/09/18
2018	SL - Tree Safety Emergency Work	Tree safety work after Storm Ali	30/09/18
2018	SL - Tree Safety Works - Zone A	Tree safety work and traffic control	30/09/18
2018	AW - Visitor Access Maintenance	Hedge cut opposite caravan park.	31/10/18
2018	WC - Shelter Supply / Erection	Remove tree tubes and take to registered tip: 250 - 300 x 1.2m tubes (& few 0.6m tubes) on western bank about 50 x 0.6m tubes on eastern bank (birch area)	22/12/18
2019	SL - Tree Safety Works - Zone B	Tree safety work - clear leaning trees as per email	31/01/19
2019	WMM - General Site Management	Repairs to roadside fence north of road bridge	31/01/19
2019	WMM - Invasive Plant Control	Searching for and spraying (with glyphosate pro biactive) any invasive variegated yellow archangel from opposite caravan park entrance and behind car park at bend in road. A pesticide record sheet is required for all pesticides.	30/04/19

2019	PE - Interpretation & Signage	Ladder boards and signage as per BSGQ-13403. Wooden signs x 2 Keil's Den	30/04/19
2019	AW - Visitor Access Maintenance	Path and entrance management (1st cut) including 4km of paths, 6 entrances, 6 benches, 2 footbridges, handrail, culvert (cut vegetation where end of pipe is close to path), cut 2 bracken glades.	30/06/19
2019	SL - Tree Safety Works - Zone B	Clear fallen tree across path opposite caravan park	30/06/19
2019	PE - Interpretation & Signage	Install 2 wooden welcome signs on gates / rails at both car parks (may need backing boards)	31/07/19
2019	AW - Visitor Access Maintenance	Path and entrance management (2nd cut) and 2 bracken glades	30/08/19
2019	WMM - AWS silviculture	Thin conifers and group fell of beech (2020?)	31/10/19
2019	WMM - AWS silviculture	Felling ash with dieback near road and path at northern end, and path to middle bridge (west bank). Including traffic control.	16/11/19
2019	WC - Tree Planting / Seeding	Tree planting in ash fell area & group fells - labour for event	30/11/19
2019	WC - Tree / Seed Supply	Tree planting in ash fell area & group fells & along field edge in 1c- TREES	30/11/19
2019	WC - Shelter Supply / Erection	Tree planting in ash fell area & group fells - TUBES & STAKES	30/11/19
2019	PE - Events - Tree Planting	community tree planting event	30/11/19
2019	AW - Visitor Access Maintenance	Hedge cut opposite caravan park.	30/11/19
2020	WC - Tree Planting / Seeding	Tree planting in ash fell area & group fells - LABOUR for event	12/04/20
2020	WC - Tree / Seed Supply	Tree planting in ash fell area & group fells & along field edge in 1c- TREES	12/04/20
2020	WC - Shelter Supply / Erection	Tree planting in ash fell area & group fells - TUBES & STAKES	12/04/20
2020	PE - Events - Tree Planting	community tree planting event (minibus?)	12/04/20
2020	PE - Interpretation & Signage	Reprint of flyer leaflet 5000 copies.	30/04/20

2020	WMM - Invasive Plant Control	Searching for and spraying (with glyphosate) any invasive variegated yellow archangel from opposite caravan park entrance and behind car park at bend in road. A pesticide record sheet is required for all pesticides.	30/04/20
2020	AW - Visitor Access Maintenance	Path and entrance management (1st cut) including 4km of paths, 6 entrances, 6 benches, 2 footbridges, handrail, culvert (cut vegetation where end of pipe is close to path). Width of cut in bracken areas to be twice max height of vegetation so doesn't fall onto path.	30/06/20
2020	AW - Visitor Access Maintenance	Path and entrance management (2nd cut) and 2 bracken glades	30/08/20
2020	AW - Visitor Access Maintenance	Hedge cut opposite caravan park.	30/11/20
2021	WMM - Invasive Plant Control	Searching for and spraying (with glyphosate pro biactive) any invasive variegated yellow archangel from opposite caravan park entrance and behind car park at bend in road. A pesticide record sheet is required for all pesticides.	30/04/21
2021	WC - Tree Weeding / Fertilising	Weeding newly planted trees with glyphosate	18/05/21
2021	AW - Visitor Access Maintenance	Path and entrance management (1st cut) including 4km of paths, 6 entrances, 6 benches, 2 footbridges, handrail, culvert (cut vegetation where end of pipe is close to path). Width of cut in bracken areas to be twice max height of vegetation so doesn't fall onto path.	30/06/21
2021	AW - Management Access Maintenance	Path maintenance	30/06/21
2021	AW - Visitor Access Maintenance	Path and entrance management (2nd cut) and 2 bracken glades	30/08/21
2021	PE - Interpretation & Signage	Reprint of flyer leaflet 5000 copies.	31/08/21
2021	AW - Visitor Access Maintenance	Hedge cut opposite caravan park.	30/11/21

APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	4.60	Mixed broadleaves	1950	High forest	Gullies/Deep Valleys/Uneven/Rocky ground	Informal Public Access	Ancient Semi Natural Woodland, Tree Preservation Order
<p>This area lies on shallow to moderate west-facing slopes with well-drained slopes, wet flushes and flatter marshy areas near the burn. The woodland has a diverse structure, ranging from dense canopy to open areas of bracken. Ash is the dominant species overall, and is abundant from regeneration to early mature, with occasional mature trees. Mature beech is also frequent and beech regeneration is locally abundant in patches throughout. Sycamore and birch of all ages are occasional. There is frequent alder and goat willow in wetter areas. In the understory are frequent hawthorn and elder and occasional hazel and holly. There is a small area of tubed planting (1997) of goat willow, aspen and alder at the northern end (0.1ha) and crab apple, bird cherry and holly on the western rim (0.1ha). A further small area was planted by Silberline in 2009 with birch. Ground flora consists of abundant bluebell and dog's mercury, and frequent woodrush and broad buckler fern. Ground flora is sparser or non-existent under pole-stage beech. There is a large open area with scattered hawthorn in the centre of the compartment where grasses and bracken dominate, and smaller open areas exist on the woodland edge. Just south of the road bridge is a small wetland complex (NVC M27) of some interest featuring meadowsweet, bottle sedge, common spotted orchid, marsh harks beard and common valerian. Deadwood is frequent.</p>							
1b	1.47	Mixed broadleaves	1997	High forest	Gullies/Deep Valleys/Uneven/Rocky ground	Informal Public Access	Ancient Semi Natural Woodland, Tree Preservation Order
<p>Moderate east-facing slopes run down to flatter ground near the burn. There is 1.0 ha young planting (1997) consisting of oak (40%), ash (20%), rowan (20%), hazel (10%) hawthorn (5%) and blackthorn (5%). A further 0.25ha (400 trees) was planted in 2008 in a bracken glade. The remainder is mostly open ground, but a number of dead trunks lying on the ground suggest that the area was opened up as a result of elms dying and the presence of large numbers of bluebells suggest that the area was previously wooded. Besides bluebells, the ground flora is composed of grasses (in particular creeping soft grass) celandine and a great deal of bracken.</p>							
1c	10.94	Mixed broadleaves	1950	High forest	Gullies/Deep Valleys/Uneven/Rocky ground	Informal Public Access	Ancient Semi Natural Woodland, Tree Preservation Order

Woodland of varied structure consisting of abundant beech, ash and sycamore, of various ages. There is also frequent birch, occasional oak and wild cherry, and rare lime. In the understory there is frequent hawthorn, blackthorn, elder and occasional elm and hazel. Scattered throughout the area are a number of large, mature beech trees (200 years plus). The ground flora varies from sparse or non-existent where pole-stage beech dominates the canopy, to abundant in areas where the canopy cover is less dense, with abundant woodrush and bluebells, frequent dogs mercury and broad buckler fern and occasional wood anemone and honeysuckle. The ground varies from very steep to flat areas on the inside of bends in the burn, where there are some small open areas. Close to the burn these are marshy areas with extensive butterbur but on drier ground there are bluebells under bracken. There are also small open areas on the woodland edge with bluebells and grasses under bracken. At the far southern end some elm coppicing was carried out in 1997 and now forms a shrubby thicket.

The invasive variegated yellow archangel is beginning to spread from the SE entrance.

1d	0.64	Mixed native broadleaves	1996	High forest	Gullies/Deep Valleys/Uneven/Rocky ground	Informal Public Access	Ancient Semi Natural Woodland, Tree Preservation Order
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Young planting (1996) of Scots pine, birch, rowan and holly in an area where conifers were previously felled. The ground flora of the area is of abundant bramble, rosebay willowherb and grasses with occasional woodland specialist flora, including bluebell.

1e	0.54	Scots pine	1950	High forest	No/poor vehicular access within the site	Informal Public Access	Ancient Semi Natural Woodland, Tree Preservation Order
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Mature Scots pine and larch, planted in the 1950s, with an understory of frequent elder, and occasional beech. A few individual larch trees have blown over in previous years. The ground flora is of grass, brambles and some bluebells. There is occasional dead wood.

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2019	1a	Selective Fell	0.50	80	40
2019	1c	Selective Fell	0.10	70	7

GLOSSARY

Ancient Woodland

Ancient woods are defined as those where there has been continuous woodland cover since at least 1600 AD. In Scotland ancient woods are defined strictly as sites shown as semi-natural woodland on the 'Roy' maps (a military survey carried out in 1750 AD, which is the best source of historical map evidence) and as woodland all subsequent maps. However, they have been combined with long-established woods of semi-natural origin (originating from between 1750 and 1860) into a single category of Ancient Semi-Natural Woodland to take account of uncertainties in their identification. Ancient woods include Ancient Semi-Natural Woodland and plantations on Ancient Woodland Sites (see below). May support many species that are only found in ancient woodland.

Ancient Semi - Natural Woodland

Stands in ancient woods defined as those consisting predominantly of native trees and shrubs that have not obviously been planted, which have arisen from natural regeneration or coppice regrowth.

Ancient Woodland Site

Stands in ancient woods that have been converted to plantations, of coniferous, broadleaved or mixed species, usually for timber production, including plantations of native species planted so closely together that any semi-natural elements of the understorey have been suppressed.

Beating Up

Replacing any newly planted trees that have died in the first few years after planting.

Broadleaf

A tree having broad leaves (such as oak) rather than needles found on conifers (such as Scots pine).

Canopy

The uppermost layer of vegetation in a woodland, or the upper foliage and branches of an individual tree.

Clearfell

Felling of all trees within a defined area.

Compartment

Permanent management division of a woodland, usually defined on site by permanent features such as roads. See Sub-compartments.

Conifer

A tree having needles, rather than broadleaves, and typically bearing cones.

Continuous Cover forestry

A term used for managing woods to ensure that there are groups or individual trees of different ages scattered over the whole wood and that some mature tree cover is always maintained. Management is by repeated thinning and no large areas are ever completely felled all at once.

Coppice

Trees which are cut back to ground levels at regular intervals (3-25 years).

Exotic (non-native) Species

Species originating from other countries (or other parts of the UK) that have been introduced by humans, deliberately or accidentally.

Field Layer

Layer of small, non-woody herbaceous plants such as bluebells.

Group Fell

The felling of a small group of trees, often to promote natural regeneration or allow planting.

Long Term Retention

Discrete groups of trees (or in some cases single trees) that are retained significantly past their economic felling age. Operations may still be carried out within them and thinning is often necessary to maintain stability.

Minimum Intervention

Areas where no operations (such as thinning) will take place other than to protect public safety or possibly to control invasive exotic species.

Mixed Woodland

Woodland made up of broadleaved and coniferous trees.

National vegetation classification (NVC)

A classification scheme that allows an area of vegetation to be assigned to the standardised type that best matches the combination of plant species that it contains. All woodlands in the UK can be described as being one of 18 main woodland types (W1 - W18), which principally reflect soil and climatic conditions. For example, Upland Oakwoods are type W11, and normally occur on well drained infertile soils in the cooler and wetter north and west of Britain. Each main type can be subdivided into numerous subtypes. Most real woods contain more than one type or sub-type and inevitably some woods are intermediate in character and can't be properly described by any sub type.

Native Species

Species that arrived in Britain without human assistance.

Natural Regeneration

Naturally grown trees from seeds falling from mature trees. Also regeneration from coppicing and suckering.

Origin & Provenance

The provenance of a tree or seed is the place where seed was collected to grow the tree or plant. The origin is the geographical location within the natural range of a species from where seeds/tree originally derives. Thus an acorn collected from a Turkey oak in Edinburgh would have an Edinburgh provenance and a southern European origin.

Re-Stocking

Re-planting an area of woodland, after it has been felled.

Shrub Layer

Formed by woody plants 1-10m tall.

Silviculture

The growing and care of trees in woodlands.

Stand

Trees of one type or species, grouped together within a woodland.

Sub-Compartment

Temporary management division of a compartment, which may change between management plan periods.

Thinning

The felling of a proportion of individual trees within a given area. The remaining trees grow to fill in the space created.

Tubex or Grow or Tuley Tubes

Tubes placed over newly planted trees or natural regeneration that promote growth and provide protection from animals such as rabbits and deer.

Weeding

The control of vegetation immediately around newly planted trees or natural regeneration to promote tree growth until they become established. Either by hand cutting or with carefully selected weed killers such as glyphosate.

Windblow/Windthrow

Trees or groups of trees blown over (usually uprooted) by strong winds and gales.