WOODLAND
TRUST SCOTLAND

Glen Sherup

Management Plan
2018-2023

MANAGEMENT PLAN - CONTENTS PAGE

ITEM **Page No.**

MAPS

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 Consequently this printed version may quickly become out of date, particularly in relation to the planned work programme and on-going monitoring observations.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:	Glen Sherup, Geordie's Wood, Glen Quey
Location:	Glendevon, by Dollar, Perthshire, Muckhart, Glendevon, by Dollar, Perthshire
Grid reference:	NN946032, OS 1:50,000 Sheet No. 58 NN992021, OS 1:50,000 Sheet No. 58 NN971030, OS 1:50,000 Sheet No. 58
Area:	603.51 hectares (1491.31 acres) 243.50 hectares (601.70 acres) 382.96 hectares (946.31 acres)
Designations:	Great Landscape Value

2.0 SITE DESCRIPTION

2.1 Summary Description

Glen Sherup (along with Glen Quey and Geordie's Wood) is one of three native woodlands that collectively make up a large area of native woodland and open ground known as Glen Devon Woodlands (totalling 1,233.25ha). They lie side by side among the central section of the Ochil Hills and stretch across the border of Clackmannanshire and Perth and Kinross.

2.2 Extended Description

Note: This Management Plan covers three sites (Glen Sherup, Glen Quey and Geordie's Wood). Collectively they are known as Glen Devon Woodlands.

General Description
Glen Devon Woodlands is 1,233 hectares of recently established upland native woodland creation projects in the Ochil Hills. This diverse range of habitats consists of; large tracts of native woodland interspersed within the woodland is a mosaic of sporadic open ground and riparian zones along with large tracts of open hill ground. The property results from acquisitions by the Woodland Trust

Scotland (WTS), between the years 2001 and 2004, of two former sheep farms; Glensherup and Glen Quey. This was followed by the acquisition of large parts of Balliliesk sheep farm (these areas became Geordie's Wood). For ease of management the three woodland creation projects are known as Glen Devon Woodlands.

Location
Glen Devon Woodlands takes its name from the only major glen which cuts north to south through the central Ochil Hills. The Ochil Hills are a long range of steeply sided, round topped hills, stretching 25 miles from Stirling to the Firth of Tay. There are many peaks over 2,000 ft offering splendid views across central Scotland and to the north. The nearest towns are Dollar (3 kilometres to the south west) and Auchterarder (8 kilometres to the north). The nearest larger towns or cities are Perth to the north-east, and Stirling to the south-west. Glen Devon Woodlands lies on the west side of the River Devon, on land rising towards the high central plateau of the Ochil Hills. The A823 road between Dunfermline and Crieff runs through the glen and provides a road link between the various access points to the property. Most of the woodland is situated within the local authority district of Perth & Kinross. Part of Geordie's Wood (south of the Auchlinsky Burn) is located within Clackmannanshire. Glen Devon Woodlands derives its name from one of the few glens in the central part of the Ochil Hills with a north - south route. For many years this was a major traffic route north until the advent of the M90 Edinburgh to Perth motorway through the eastern Ochil Hills. The nearest towns are Dollar, 3 kilometres to the SW and Auchterarder, 8 kilometres to the north. The nearest larger towns or cities are Perth to the north-east, and Stirling to the south-west.

Site History
The three woodland creation projects that make up Glen Devon Woodlands arose directly as a result of the BP funded Scottish Forest Alliance (SFA) project. The prime objective of the SFA was the regeneration and expansion of large tracts of native woodlands in Scotland. Partners included; BP, Forestry Commission Scotland, Woodland Trust Scotland and the Royal Society for the Protection of Birds. The land at Glendevon was acquired over a 4 year period. Prior to acquisition the main activity on the land was sheep farming. Several centuries of intense sheep grazing had denuded the soils and plant life and resulted in a loss of habitat and wildlife diversity. Tree planting commenced in 2001 and was completed in 2008. Native woodland coverage is circa 850 hectares (approximately 70% of the site).

Landscape
The landscape is typical of the central Ochil Hills, with an abrupt southern scarp rising from the plains of Central Scotland, behind this steep abutment lie a series of rounded rolling grassy hills and narrow hidden glens. The most wide ranging views of the property are from neighbouring hill tops. The hills have structurally more in common with the rolling Scottish Border hills than the steeper Grampians to the north. Much of the surrounding Ochil Hills continue to be utilised as open sheep grazing, often interspersed with large blocks of commercial conifers. The local landscape will change significantly as the native woodland continues to develop and there will be a more continuous but varied forest landscape. A fringe of semi - montane scrub, heather and blaeberry is gradually developing on the slopes at higher altitude. Further up this gradually gives way to more open ground. The hilltops are exposed and often experience harsh and prolonged winter weather conditions. As a result, it is expected that exposed hilltops will remain as open ground.

Hydrology
The sites form part of the upland catchments of the River Devon, which flows into the River Forth

between Alloa and Stirling. Minor springs and burns rising on the property feed the main burns such as; Frandy Burn, Glensherup Burn and Glenquey Burn, all flow into the River Devon, which feeds in to Castlehill Reservoir and beyond. Apart from an area of land in Clackmannanshire (part of Geordie's Wood) most of Glen Devon Woodlands lays within the public water supply catchment for most of Fife - a network of 5 reservoirs. Water abstracted for public consumption passes through the Water Treatment Works above the southern end of Castlehill Reservoir. Hence, environmental management of the sites, maintaining water quality and liaising with relevant authorities are important. Glenquey Reservoir is a brown trout fishery, with rights held by the Devon Angling Association. Glensherup and Lower Frandy are stocked trout fisheries – with a trout hatchery on the Frandy Burn. Monitoring of water flows started in late 2005 on two burns within the site as part of a WWF project.

Geology and Soils

The Ochil Hills are part of a Devonian lava extrusion whose appearance is largely due to the Ochil Fault which results in the southern face of the hills forming an escarpment. The plateau is undulating with no prominent peak. Hence, the underlying geology is of volcanic origin, neutral to acid, consisting of basaltic lava with tuffs. Soils vary considerably, with peats, peaty podsol or peaty gleys on the upper slopes and slope "shoulders". Brown soils occur on the mid to lower slopes. Soils are predominantly acid. Prior to restoring to native woodland all the sites underwent a full soil survey as part of a baseline carbon assessment.

Climate

The Ochils have a cool, wet and windy climate. The hills attract more cloud cover and have greater relative humidity than the surrounding lowlands. They receive greater precipitation of rain and snow, and the snow lies longer. On average, the temperature is 0.79 degrees Celsius lower for every 100m of altitude in the Ochils. The growing season is at least seven weeks shorter than in the Forth lowlands. The average rainfall is in the region of 1400mm (55") with approximate January and July average temperatures of 2 and 14 degrees Celsius respectively.

Flora and Fauna

The site vegetation was mapped as a full National Vegetation Classification survey as part of the Environmental Statements for the projects, prior to tree planting. Over much of the ground the vegetation is relatively uniform being dominated by grasses such as Nardus and Molinia, typical of ground with a long history of grazing and possibly burning. There are some areas of degraded wet heathland on upper slopes, with recovering dry heath, mainly on the mid slopes above the River Devon. On some of the brown forest soils of the mid to lower drier slopes, bracken is returning following control at the time of tree planting. In these and associated areas, some of the herb rich acid grassland retains some semi-natural characteristics. Vegetation of most interest is often associated with burns, springs and wet flushes, either due to a history of lower grazing pressure and/or the base rich nature of some of the flushes on the upper slopes. In 2007 the majority of the lower, improved fields behind Muckhart (approximately 24ha), were deep ploughed to invert the improved soil and then direct seeded with a mix of native wild flowers, before being planted through with trees. This process converted what had been improved grassland into species rich wildflower habitat, as part of a nationwide project, Forest of Flowers. Species sown include cornflower, meadow buttercup, yellow rattle, red campion, Ox-eye daisy, birdsfoot trefoil and grasses including slender creeping red fescue.

Roe deer and sheep are widespread in the area. Hence, the sites were individually deer/stock

fenced to ease grazing pressure and allow the young woodland to establish. Red deer and Sika deer, in low numbers, are occasionally spotted.
Foxes are common, and brown hares are seen occasionally (mountain hares are very rare). Vole and mice populations fluctuate. Stoats and weasels are occasionally seen. Otters are regularly spotted around the fringes of the reservoirs and burns and pine martins have recently been recorded in the area. Following planting the vole population increased which has attracted increasing numbers of resident raptors, in particular; short-eared owl, long eared owl, tawny owl and kestrel. Ospreys return annually and are regularly seen fishing the reservoirs and red kites are seen occasionally. Woodland birds have increased significantly (annual recording takes place). A large increase in bird numbers occurs across the sites during the summer months. Moorland birds and waders such as snipe, curlew, lapwing and oystercatcher are common and whinchats are regular summer visitors. Black grouse are frequently seen and heard. Several small lek sites have become established on the higher levels as the semi-montane/woodland fringe habitat continues to improve. Dipper, ducks, wagtails and kingfisher are often seen feeding on the burns, rivers and reservoirs. The rare Blaeberry bumble bee has been found at Glen Sherup. This is distinguished by its bright red-orange abdomen.

Archaeology and Cultural History
It is likely that the Ochil Hills once had considerably more woodland coverage than today - there are historical references to a forest between the 12th and 16th centuries. It is probable that this was a forest in the “traditional” sense of the word – as a royal hunting forest, which often consisted of a range of habitats, from large tracts of open ground through to dense areas of woodland cover. A detailed archaeological survey of the area was carried out in 1988 by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) and more recent WTS commissioned surveys show a number of dykes, banks, buildings and former field systems on the lower slopes, which indicate that in the past there was significantly more farming activity than today. However, for the last 250 years (up until acquisition by the Woodland Trust Scotland) the area was solely used for sheep grazing. The main glens of Glendevon and Glenquey both have a long history as important through routes, for moving livestock and trade goods. The sections of drove roads in Glen Quey and Geordie’s Wood were once part of these old established routes. There is a restored bee-bole in the dyke just south of Glenquey farm house (Bee-boles are recesses built within a dyke, used to shelter beehives), the age is unknown.

Existing Woodland
The new native woodland creation within Glen Devon Woodlands is now generally established. Within these areas are occasional, previously existing, single trees and small clumps of mainly native broadleaved trees with some sycamore, some of which have provided seed for localised regeneration. In addition, there are several mature shelterbelts in strips and blocks - mainly coniferous in nature. The majority of which is focused around the Scottish Water Treatment Works and above the village of Muckhart (both in Geordie’s Wood). Several shelterbelts are shown on maps from 1860. Hence, those belts are recorded on the SNH Ancient Woodland Inventory as Long Established of Plantation Origin (LEPO). Within the south west corner of Geordie’s Wood there is also approximately 2 hectares of sycamore coppice.
Within Glen Quey, alongside Glenquey Burn there is a small area of what appears to be semi-natural woodland and within Glen Sherup is a square block of Sitka spruce.

Neighbouring Land Uses
Principal neighbouring land use is in the form of; sheep farming, commercial coniferous forests and

water management for public supply and for trout fishing. In the main they coexist well together and interaction is often mutually beneficial. Land use in the area is gradually shifting away from sheep farming in favour of; wind farming, commercial forestry, native woodland expansion with an increasing emphasis on improved public access and amenity. Sheep farming continues be important in the area, this is especially so in the central Ochil Hills. A continuing over-arching theme in the area will be the supply and delivery of a high quality water supply fit for public use.

Other Features of the Site
Carbon & Biodiversity Measurement and Research: The site is being regularly assessed for its contribution towards fixing atmospheric carbon and enhancing biodiversity. These assessments are part of SFA research and development projects across the suite of Scottish SFA sites. This research provides furthering understanding in regard to carbon fixation and biodiversity changes in new native woodlands.

Community Involvement:
The site is rural and parts of it are remote. However, as the new native woodland became established and continues to emerge positive and enthusiastic interest from the closest communities, the village of Muckhart, and Glendevon and also the Friends of the Ochils continue to grow. As a result communication and involvement in the site by local people and schools has increased. All this aids our decision making process in regard to long term management. The Muckhart Nature Park Committee is directly involved in discussions regarding Muckhart Nature Park (an area of 3ha of land close to the village that features a number of community-led projects. The nature park includes surfaced paths, a pond with dipping platform, an orchard, sculptures, and a wild flower meadow).

3.0 PUBLIC ACCESS INFORMATION

3.1 Getting there

Glen Devon Woodlands' most westerly point is 4km (2.5 miles) east of Dollar, close to Pool of Muckhart village; and its northern end is 9km (5.6 miles) south of Auchterarder.
By bus:
There are several buses a day to Muckhart on the A91 from the Stirling or Kinross directions. The bus stop is opposite Mona's café in Muckhart. During school terms there is a bus through Glendevon between Auchterarder and Yetts o' Muckhart north and south, mornings and afternoons.

For more information visit travelinescotland.com for; Timetables, Journey Planner and Mobile App or phone Traveline Scotland on 0871 200 22 33.

By train:
The nearest train stations are Alloa, 9km (5.6 miles) from Dollar; and Glen Eagles, 12.9km (8 miles) from Dollar.
For more information visit travelinescotland.com or phone Traveline on 0871 200 22 33.

By car:
The A823 Dunfermline to Crieff road passes through Glendevon and there are a number of suitable points along the road where you can park (highlighted by large Woodland Trust Scotland Welcome signs).
To visit the southern facing slope of Geordie's Wood and Seamab Hill; park in Muckhart, walk to the Church; at the church entrance is the access point to Muckhart Nature Park and Geordie's Wood. To explore other areas of Geordie's Wood the best option is to park at Castlehill Reservoir layby (situated opposite the Woodland Trust Welcome sign) and follow the waymarked signage near to the Welcome sign.

Access to the expansive central area of Glen Devon Woodlands which includes; part of Geordie's Wood and the whole of Glen Quey and Glen Sherup and for large sections of The Reservoir Trail is available at points along the A823. Suitable parking is located at Castlehill Reservoir layby or at the joint Forestry Commission Scotland/Woodland Trust Scotland car park facility opposite Glendevon Caravan Park. Secure rails are provided here for locking bicycles. Both car parks have destination markers; simply watch out for the Woodland Trust Scotland Welcome road sign.

To explore the expanse of Glen Sherup; continue north on the A823 and park just beyond the blue railings at the bellmouth entrance on the Scottish Water access road that leads to the Glendevon Reservoirs and fish farm at Frandy. Note; please do not drive up the private single track roads to the Glenquey and Lower Glendevon Reservoirs.

All Trails are well signposted to aid the visitor.

3.2 Access / Walks

There are two core paths on site - the Reservoirs Trail and the Glen Quey Drove Road between Glendevon to Dollar. The Reservoirs Trail is the longest of the way-marked routes at a distance of 14km (8.7 miles).The Trail traverses through the Glen Devon Woodlands complex and links up with several local reservoirs, which are used to supply drinking water to central and west Fife. Other way-marked routes range from the short circular routes on the lower slopes of Geordie's Wood at Muckhart Loop (3.5km/2.25miles) and the Castlehill Loop (from 2km/1.25miles to 6.4km/4miles) to the slightly longer 9.5km (6 miles) Ben Shee Loop. All walks are colour coded on the leaflet and signposted from the main access points.

In addition, younger visitors and parents can enjoy a short buggy-friendly wildlife trail at Muckhart Nature Park, which also features a small wildlife pond for pond dipping, and seating and a small outdoor learning area.

Also, there are many informal unsurfaced paths to follow, some of which often have muddy sections. The property ranges from gentle low ground with easy, mainly unmarked walks, with occasional picnic benches to high ground, steep in places, with exposed hill tops and splendid views. Many of the smaller burns are not bridged. Path surfaces are for much of the year too soft for horses or bicycles with the exception of the Glen Quey Drove Road which is suitable for both over most of its length.

Current access from the public road is not directly onto Woodland Trust Scotland land. There is suitable car parking available in the area, which is well signposted, along the A823 for large parts of Geordie's Wood, and the whole of Glen Quey and Glen Sherup. For the southern section of Geordie's Wood the best approach is to park up in the village of Muckhart (A91) and after a short walk to the Church you will discover the southern entrance. Interpretation boards and leaflet dispensers are provided at the main entrance points. For panoramic views of the Ochil Hills, a climb up Ben Shee, Innerdownie or Seamab is well worth the effort -note the ground is often wet in places and the weather can change quickly in the hills and glens, so be well prepared, inform someone of your whereabouts before you set off and follow the Scottish Outdoor Access Code.

4.0 LONG TERM POLICY

Long Term Policy for the Site

New Native Woodland
The long term vision for Glen Devon Woodlands is to establish a large, more or less continuous matrix of new native broadleaved woodland and open ground habitats. The long term expectation is that between 800 and 850 hectares or 65-70% of the total land area of 1,233 hectares will have woodland cover of some description. The woodland will be predominately even-aged, with a relatively uniform structure in the short to medium term. In the long term opportunities will occur to diversify age structure and establish areas of uneven-aged woodland. On higher ground it is expected that a ribbon of irregular semi-montane scrub comprising mainly of; willow, birch, rowan, juniper, heather and blaeberry will develop, interspersed with sporadic open ground, which will give way to expansive areas of open ground across the higher levels.
On lower ground the woodland edge and shrub layers will establish a transitional zone to neighbouring open ground and riparian zones.

The overall intention is to develop a predominantly upland birchwood habitat (NVC type W11/W17). Oak will be a component of the woodland, mainly on the lower and more fertile ground. In the higher zones the upland birch habitat will gradually give way to a sub-montane shrubby juniper/birch and wild sorrel (W19) habitat interspersed with sporadic open ground, increasing to large areas of open ground on the highest levels. Areas of wetter peaty soils on the lower/mid slopes will grade into boggy birch/willow woodland containing a significant alder component (W4). Fertile alkaline flushes on the northern slopes will be fringed by ash/alder woodland (W7). Some drier heathy knolls on the lower northern slopes are planted as small areas of Scots pine woodland (W18).

The large tracts of woodland are broken up by a network of open ground habitats, connected, in the main, via watercourses to the lower ground along with other large woodland glades and breaks. The open ground habitats cover a range of vegetation types, including wet and dry heaths, acid grassland, bracken, and floristically rich stream-side vegetation. The expansion of the native woodland sites, via adjacent areas of open ground, is favoured as long as it is balanced with a combination of woodland creation/regeneration/open ground habitat and improved access, and is compliant with an Environmental Statement.
It is expected that the scattered areas of remnant woodland flora present at the time of planting are likely to steadily expand as the woodland canopy develops over time and it is hoped that some of the introduced flora from the Forest of Flowers project may survive up to canopy closure and increase plant biodiversity.

Roe deer are permanently established throughout the developing woodland and browsing levels need to be managed carefully to ensure grazing is retained within an acceptable level. The expansive increase in habitat types is becoming more beneficial to a far wider range of wildlife than before. The extensive areas of new native woodland is seeing the most positive impact on wildlife as woodland bird species and numbers increase and expand year on year. The large areas of open ground and developing sub-montane zones at higher levels provide optimal habitat for upland species such as: black grouse, curlew, pipits, skylarks, etc. Over the next five years the existing deer fencing around the perimeter of each site is to be gradually removed and replaced with a new standard stock fence -a stock fence is essential in restricting sheep access and to ensuring

continued sustainable growth and development of the sites. The perimeter deer fence will be maintained in the short term. A process of gradual conversion/replacement to stock fencing will commence during the period of this plan.

Informal Public Access
Our vision is to maximise the potential of this stunning and expansive mosaic of new woodland and open ground habitat and encourage more visitors, especially families. Through promoting the site widely, engaging with local schools and communities, developing new partnerships, and working with volunteers Glen Devon Woodlands will help improve visitor understanding of the Woodland Trust's wider aims and objectives and develop an increased appreciation of the complexity of the ecosystem.

Visitor numbers and frequent articles on the internet indicate that Glen Devon Woodlands is becoming more well-known and is being enjoyed by a wide range of visitors. The woodland walks are popular, gaining in profile on the internet, and are frequently used. The long distance Reservoir Trail has also developed a keen following. There is a short surfaced all abilities path in Muckhart Nature Park and a couple of lowland routes suitable for horse riders and mountain bikers.

The surrounding hills are predominately open and used for sheep grazing or blanketed in commercial conifers. Glen Devon Woodlands with its vast expanse of developing native broadleaved woodland, superb access arrangements and amazing views affords a relatively unique experience for many visitors to the region.

Provision and upkeep of entrance furniture, signage, interpretation and information boards will continue to be routinely maintained and renewed every 10 years. Paths will be maintained on an annual ongoing basis.

The residents and visitors to the villages of Glendevon, Burnfoot, Muckhart and Dollar along with visitors from the surrounding areas appreciate and value the woodland. It is now established as a place of peaceful outdoor enjoyment and relaxation and as a resource for the local school, the community and other interested groups.

The Muckhart Nature Park Management Group will continue to be involved in the upkeep of Muckhart Nature Park. We will continue to liaise directly with the group and Muckhart Community Council on any future major works planned in the wood. Wider public consultation will also be undertaken whenever the management plan is reviewed.

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 New Native Woodland

Description

All three sites were previously open grazed upland sheep farms. Collectively the sites are known as Glen Devon Woodlands. The sites were purchased and planted during 2001 to 2008 as part of a Scottish Forest Alliance (SFA) collaborative project. The primary objective of the SFA was to increase the amount of native woodland in Scotland by a process of woodland creation and natural regeneration. The first site to be established was Glen Quey; planted in 2001&2 and covering 382.84ha followed by the planting of Glen Sherup in 2003&4 and covering 605ha, and then Geordie's Wood planted in 2005/6/7 covering 245.41ha. Approximately 70% of the total area is planted the rest of the ground was deliberately retained as open ground habitat. All sites are now established although there have been various challenges along the way with; deer, pathogens - such as ash dieback and naturally regenerated Sitka spruce. Apart from the enrichment planting in Geordie's Wood to replace any dead or dying stock, mainly due to ash dieback there are no plans to carry out further planting within the existing sites.

The objective for the Woodland Trust at Glendevon was to establish three; interlinked, large areas of native woodland and open ground habitats and improve access arrangements. The first site to be established was Glen Quey; planted in 2001&2 and covering 382.84ha followed by the planting of Glen Sherup in 2003&4, covering 605ha and then Geordie's Wood planted in 2005/6/7, covering 245.41ha. Approximately 70% of the total area is planted the rest of the ground was deliberately retained as open ground habitat. All sites are now generally established. There have been various challenges along the way with; deer, pathogens - such as ash dieback, and Sitka spruce colonising some areas. Apart form some further enrichment planting which may be required in Geordie's Wood (to replace any dead or dying stock, mainly due to ash dieback), and replanting of the unstable, even aged and non-native conifer blocks with native species no further planting is expected within the three sites.

Throughout the native woodland is a mosaic of open ground habitats. On the high ground the areas of open ground are more expansive, allowing for unrestricted views across the Ochil Hills.

Significance

Within the Ochil Hills only a few fragmented examples of existing native woodland remain e.g. Dollar Glen. The Glen Devon Woodlands project delivered an extensive area of new native woodland within a large landscape on a scale previously unseen. The massive size of the woodlands and diversity of habitats has served to protect and enhance existing species habitats, create new habitats e.g. for woodland birds and create favourable conditions for others e.g. black grouse. The scale and scope of the woodland (over 1,200ha combined) supports many of the upland, moorland, riparian and woodland habitat priorities for Clackmannanshire & Perth & Kinross Councils Biodiversity Action Plans, along with Landscape Design Plans and complies with the Scottish Forestry Strategy (SFA) & UK Woodland Assurance Scheme (UKWAS).
The immensity in size has made a significant contribution towards SFA objectives and established a substantial tract of new native woodland in an area of the Ochil Hills previously lacking in native woodland.

Opportunities & Constraints

Opportunities
The SFA project provided the opportunity to design and create the largest area of new native woodland creation and deliver multiple benefits within the Ochil Hills, an upland zone which has had a long history of heavy grazing by sheep and little remnant native woodland.
Pursue opportunities as they arise for possible acquisition of adjacent land to increase areas of native woodland and open ground habitats and improve public access.
Gradual conversion/removal of sections of the perimeter deer fence to stock fencing over the duration of the plan will provide improved opportunity for movement and expansion of species and habitats between the sites and beyond.
Constraints
Ash die back has badly affected the young ash in Geordie's Wood and the larger pole stage ash in Glen Quey.
On the higher levels constraining factors continue to be environmental aspects such as; altitude, exposure, climate and impoverished soils and deer browsing pressure.
This area is the main source of drinking water for many parts of mid-Fife. Hence, the sites will continue to be managed in such a way so as to ensure water quality is not compromised.
Due to years of constant grazing only scattered remnants of mature native trees remain. As a result natural regeneration from existing seed sources is very limited and isolated.

Factors Causing Change

Pathogen and insect damage-ash dieback-severely affecting young ash in Geordie's Wood and pole stage ash Glen Quey.
Roe deer pose a constant threat to tree growth-especially among the younger trees in Geordie's Wood and the slower growing trees at high levels. As a result, there is an annual requirement for effective deer control.
Deteriorating perimeter deer fencing will allow sheep and roe deer to access the site in greater numbers. Browsing by even a few sheep is indiscriminate and can be very damaging to either the young or slow growing trees.
Sheep incursion from surrounding farms is currently sporadic and most often occurs in Glen Sherup.

Seasonal changes and increased warming have increased the risk of heathland fires occurring.
Natural regeneration of non-native species e.g. Sitka spruce seeding from adjacent areas and competing growth of planted native broadleaved species.

Long term Objective (50 years+)

Establish a resilient mosaic of diverse native broadleaved upland woodland interspersed with open ground which offers a range of habitats for a wide variety of flora and fauna and whilst also providing a range of access options for visitors. Gradual removal of perimeter deer fence and replace with a robust standard stock fence on all 3 sites.

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

• Annual routine path, entrance maintenance operations, across all three sites, will include maintenance of gates, fences and signage as needed. To continue for duration of this management plan.
• Monitor ash dieback annually for duration of this plan.
• Monitor tree growth and development at various altitudes across all three sites bi-annually for duration of plan.
• Continue with annual programme of deer control to keep browsing to an acceptable level.
• The deteriorating deer fence on all three sites requires increasing upkeep and expenditure to remain effective. Assess boundary deer fence on all three sites for durability and effective lifespan (2020).
• Commence an annual on-going programme of conversion or removal and replacement to a standard stock fence to prevent livestock incursions, allow free passage of deer and reduce risk of bird strikes (2020).
• Fell and mulch all Sitka spruce growing among the new native woodland creation area in sub-cpt 3b (2019).
• Ensure the Fire Plan for the whole site is reviewed every two years and amended accordingly (due 2021).

5.2 Connecting People with woods & trees

Description

Glen Devon Woodlands is a large scale woodland creation site, one of the largest Woodland Trust sites in the UK and is made up of three separate areas: Geordie's Wood, Glen Quey and Glen Sherup. Collectively the three sites, known as Glen Devon Woodlands, cover an area of 1,233ha. Planting commenced at Glen Quey in 2001/2. It is a mosaic of habitats set in a remote upland area on the eastern edge of the Ochil Hills. The sites provide a sense of wildness in a remote upland setting and are much appreciated by locals, visitors and the Friends of the Ochils. Scottish Water owns several reservoirs and a pumping station in the area. The sites adjoin state and privately owned forests and upland hill farms.

Glen Devon Woodlands is situated within an upland rural setting with several small villages, numerous scattered farm steadings, clachans, and isolated dwellings and utilities facilities. The site is well positioned and is just over an hour's drive from Edinburgh and just over half an hour's drive of the cities of Perth, Stirling and Dunfermline. In addition, there are numerous villages less than half an hour away.

Each site has multiple access points (Geordie's Wood 6 access points, Glen Quey 7 access points and Glen Sherup 6 access points). There is one surfaced short loop path 0.5km within Muckhart Nature Park (Geordie's Wood) and a wide assortment of unsurfaced way-marked paths traverses all the sites.
The main public access points are;
Geordie's Wood - approached from the south. Park in the village of Pool of Muckhart then walk up to the church. Grid ref' NO 000009. On the left hand side of the entrance to the church there is a sign-posted path, with a Woodland Trust Scotland ladderboard, interpretation board, and leaflet dispenser to guide visitors to the site. There is no designated parking here and limited capacity for parking in the village of Muckhart.
Geordie's Wood – approached from the northeast. Park at Castlehill Reservoir layby (capacity for approximately 12 cars) on the A 823. Grid ref' NN 996032 (situated opposite the large Woodland Trust Scotland Welcome sign). Cross the road and follow the sign posts which direct you to walk up the private road for approximately 600 yards to the main access point, where there is a Woodland Trust Scotland ladderboard, interpretation board and leaflet dispenser.
Glen Quey – access from the east at Glendevon (A823) is by parking at the Tormaukin Hotel, grid ref' NN 992044 (a good place to stop for a drink & lunch!) then walking on the road north for 200m, then crossing over and at the sign posted path to Glen Quey and Burnfoot. Alternatively, Glen Quey woodland can also be accessed via continuing to walk along the private road for approximately 1 mile and following the signs for Glen Quey & the Reservoir Trail.
Glen Sherup –accessed by driving further north for about one mile on the A823. Just after the large Woodland Trust Scotland Welcome sign turn into the Forestry Commission Scotland/Woodland Trust Scotland shared car park (capacity for approximately 20 cars), grid ref' NN 971051, which has picnic benches and bike lock rails. At the Woodland Trust Scotland ladderboard, interpretation board and leaflet dispenser follow the sign posts for the Reservoir Trail and Glen Sherup.
Glen Sherup – Can also be accessed from the more remote northern end at Frandy and the Lower Glendevon Reservoir by travelling further north on the A823 for approximately half a mile and turning off the road at the Scottish Water/Wind Farm sign-posted entrance and parking up near the entrance (space for approximately 4 cars). Grid ref' NN 948052. Then walking to the access point, which is across the burn, where there is a Woodland Trust Scotland ladderboard, information board

and picnic table.

There are several buses a day to Muckhart on the A91 from the Stirling or Kinross directions. The bus stop is opposite the Post Office & café in Muckhart. During school terms there is a bus through Glen Devon between Auchterarder and Yetts o' Muckhart north & south, mornings and afternoons. For more information contact www.travellinescotland.com or call Traveline on 0871 2002233.

There are a variety of way marked routes
- Shorter routes such as Castlehill Lower Loop 2km and Muckhart Loop 3.5km
- Medium routes such as Castlehill Upper Loop 6.5km and Ben Shee Loop 9.5km
- Longest route is the Reservoir Trail a 14kmlinear route that links all three sites.
There is a network of Core paths crossing the sites and two notable Drove Roads. The network of paths link up to long range paths to Dollar, Auchterarder and beyond.

Visitors are often amazed at the size and scale of the Glen Devon Woodlands; this is native woodland creation on a landscape scale, to date over 1.5 million trees have been planted here. More energetic walkers can explore the remote hidden glens and appreciate the fantastic views from atop the surrounding hills, notably Ben Shee, Innerdownie and Seamab. There are several rest points and picnic areas along the way.

Muckhart Nature Park (Part of Geordie's Wood next to Muckhart) is an area with a focus for community led use and events. The Muckhart Nature Park Committee has worked closely with the Woodland Trust in recent years to develop this area, including an orchard and pond.

There is good proximity to local schools. Nearest school is Muckhart Primary (1/4 mile from Geordie's Wood and one mile from Glen Quey and Glen Sherup) who use the site occasionally for a variety of events. Other local schools that have previously engaged with the site are Dollar Primary and Dollar Academy.
Tree planting days and associated events and guided walks were held as the woodland was being planted. More recent engagement with the Muckhart Primary School and Strathdevon Primary School has been via events and activities held on site and continued back at school.
These included;
• An Environmental project: How the Ochils were formed in 2013. Held on site with school children to create demonstrations of volcanic eruptions, soil sampling, rock sorting and a weathering experiment.
• Strathdevon Primary School (Dollar) Discovery Days 2014. A series of days designed to provide outdoor learning and woodland discovery which included children designing symbols of nature. These were then engraved onto picnic seating in a designated picnic area. This was then followed up with a day onsite in 2015 to show the children their finished artwork and enjoy a range of outdoor fun and learning activities.
In addition the site has hosted
• Walking, camping and bush craft events in association with Clackmannanshire Council Youth & Rangers Services as part of their John Muir Discovery Award for young people
• A Flora Locale plant ID course in 2015
• Guided walks across Glen Devon Woodlands as part of the Drovers Tryst Walking Festival in 2016 & 2018
• Annual guided pony trekking for young children between June and September across all three sites in association with Edinburgh University Exmoor Pony Trekking.

• Work with Clackmannanshire Countryside Ranger Service to delivery Outdoor Learning & Clacks Outdoor Woodland Learning group.
A Visitor Management and Access and Audience Development Plan were carried out in 2005 and in 2013 an Interpretation and Audience Report was carried out. There are visitor counters in place at four of the entrances which indicate that site currently attracts approximately 8,000-12,000 visitors per year. Most visitors are local (within a radius of 20 miles) though there are often visitors from further afield e.g. Glasgow and Edinburgh. Most visitors are coming for informal and quiet hill walking and to enjoy nature in a diverse landscape with a sense of openness and wildness. Many are experienced long distance and high level walkers. The sites are regularly visited by walking groups (Ramblers, etc.) throughout the year, and pony trekking in the summer months. There is occasional use by individual horse riders and mountain bikers, and regularly used by specialist bird and wildlife recording groups.

The main barrier to access is convenient parking -especially families with small children. Most paths are unsurfaced and prone to becoming wet and muddy in places after prolonged spells of rain. There are currently several Volunteer Wardens serving the site.

There are other Woodland Trust Scotland properties nearby: Wood Hill Wood, Alva (18 km), Portmoak Moss, Scotlandwell (24km) and Kilmagad Wood, Scotlandwell (24 km). The nearest nature reserves are; Scottish Natural Heritage National Nature Reserve Loch Leven (18km) and RSPB Loch Leven (19km), Lomond Hills Regional Park (25km). The population within a 20 minute drive radius is estimated to be; 327,298 and is made up mainly of families and retirees in a rural setting.

The local hotel (Tormaukin) and pubs and cafes promote the site with WTS boards, leaflets and beer mats and they are promoted in turn on our interpretation boards. Leaflets are also circulated throughout the local area to: guest houses, hotels, libraries, etc.

Significance

Glen Devon Woodlands provide managed public access to a very large area of the Ochil Hills. It provides experience of a range of landscapes and habitats to visitors, and demonstrates woodland creation on a landscape scale. Habitats include native woodland, open grassland, standing water and riparian zones, with expansive views out to hill farms, commercial forestry and wind farms. Higher up the hills native woodland gradually gives way to a semi-montane habitat and ultimately the exposed rounded peaks of the surrounding hills. It is home to short-eared owl, otter, red squirrel, kingfisher and black grouse.

Walking in this expansive and secluded landscape conveys a sense of wildness and freedom. Hill-walkers are able to access the wider Ochil Hills as well as surround towns and villages through existing paths and tracks as well as access to the open hill.

The sites form part of a rich cultural farming history with the Drovers Routes, with evidence of farmsteads and drystane dykes scattered throughout.

The sites provides opportunities for outdoor learning and engaging people with woodlands.

Opportunities & Constraints

Opportunities:
Acquiring of adjacent land for further woodland, access expansion and community engagement through tree planting if suitable opportunities arise.

To explore the possibility of establishing a strategically placed car park in the area to provide suitably convenient parking for family groups with young children to access some of the shorter, less arduous walks.

A dedicated car park also offers potential for holding larger, family orientated, events at the site.

Volunteer roles: To further develop work with Clackmannanshire volunteer groups, and to develop a Walk Leader role.

To raise awareness of with local schools and Forest Schools of the opportunities for Outdoor Learning available at Glen Devon Woodlands.

To support the Walking for Health project.

Constraints:
The current lack of an on-site dedicated Woodland Trust Scotland owned car park which provides better access for family groups to the more remote parts of the site.

Factors Causing Change

Increased use through promotion of the site or expansion of the leisure sector in the area (e.g. expansion of Glendevon lodges) may put increased pressure on the path network.

Climate change may bring wetter conditions that impact on the condition and maintenance of paths.

Long term Objective (50 years+)

Glen Devon Woodlands will continue to provide a safe, welcoming and inspirational experience of native woodland in an upland setting, with well-maintained trails through a variety of landscapes and habitats. Access will continue to be clearly defined, and offer a wide range of access routes for people of all abilities to enjoy a peaceful outdoor experience.

The sites will be enjoyed by a wide range of outdoor user groups for peaceful recreation for individuals through to large groups, volunteer groups and families. Walking, cycling, horse riding and outdoor education will be the primary uses.

The sites will be valued and enjoyed by both local communities and visitors from further afield.

There will be adequate parking provision for the number of visitors at the main access points. Barriers to access will be minimised and the perimeter deer fencing will gradually be removed from all three sites over time. The perimeter stock fencing will remain and be maintained in good order.

A range of diverse seasonal events will be available for groups to enjoy. These will be organised by WTS as well as those organised by the local community, partner organisations and specialist groups.

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

The access network will be maintained to ensure a safe and welcoming condition.
Achieved by:
• Path and entrance management, including mowing, waymarker maintenance, signage maintenance, cutting back of overhanging vegetation (annually until 2023).
• Drainage works carried out, as required, on sections of the path prone to water logging.
• Regular review and replacement, as required, of signage and gates at all entrances and all signage to be fully renewed by 2025.
• Review access into Glen Sherup from Frandy Burn by assessing benefits of installation of a pedestrian bridge crossing point and reroute of path, as necessary, by 2021.
• Site safety inspections and monitoring of trees, site furniture and other features (timing as per Site Risk Assessment).

Barriers to access will be reduced by:
• Reduction of deer fencing to stock fence height around Glen Quey (the first site to be planted). It is expected that the fence line across the high levels will be the first to be reduced and work completed by the end of plan period (2023).

The site profile will be raised by:
• Distribution of an updated (2017) leaflet for visitors through local hotels, pubs and cafes (annually until 2023).
• Seasonal events will be promoted on the ladderboards at the main entrance points and all events will be promoted via the web and local contact groups (ongoing)
• Liaise with the local roads department to erect Brown Tourist directional road signs on main approach roads to Glendevon (A823) and Muckhart (A91) (by 2022).
• Electronic visitor counters to be installed at two main entrance points to improve the accuracy of data from the existing pressure plate counters (2021).
Volunteers will continue to be engaged including volunteer wardens. Additional volunteering opportunities for individuals, groups and corporate enterprises will be considered on an annual basis as opportunities present themselves. A Volunteer Walk Leader role will be created and recruited (by 2020).
The public, government agencies and local communities will be engaged through suitable events and partnerships, including:
• Continued liaison and partnership working with: Muckhart Nature Park Committee, Friends of the Ochils, Ramblers Scotland, Clackmannanshire Countryside Ranger Service, along with ornithological & other specialist wildlife groups.
• Continue to liaise annually with Forestry Commission Scotland regarding access arrangements and management issues and discuss options for enhancing Reservoir Trail during the period of this plan (2023).
• Drovers Tryst walk is planned for 2019.
• Outdoor learning activities, including Outdoor Learning Pack and Green Tree Schools Award will be promoted to local schools (2019 and 2022).

5.3 Secondary Woodland

Description

The secondary woodland consists of a range of established shelter belts and scattered blocks of predominately coniferous woodland occasionally interspersed with sporadic patches of deciduous trees- much of the secondary woodland appears to be of a similar age (approx' PYr 1960) and several blocks are unthinned pure conifer stands composed mainly of Sitka spruce such as those surrounding around the Water Treatment Works in Geordie's Wood and the isolated conifer block (1c) in Glen Sherup.

Due to a lack of adequate and timely thinning and wet, peaty/peaty gley soil conditions many of the stands have become increasingly unstable. Hence, the last few years has seen windthrow increase and pockets of windblow now occur in many of the stands and it is anticipated that windblow will increase in regularity and size in the near future.

Areas of secondary woodland are found in compartments: 1c, 5a, 6a & 7a. The block in cpt 7a is different from the rest as it is made up of even aged pole-stage sycamore coppice regen'; last coppiced circa 1980. It is located in the south western corner of Geordie's Wood.

Ground flora is almost absent under the dense stands of spruce. Under the pole-stage sycamore ground flora is sporadic and sparse. In the more open, mixed species woodland ground flora is frequent and dominated by; coarse grasses, rosebay willow herb, bracken and mixed herbs.

Significance

In the past the woodlands have played an important role in providing areas of livestock shelter from the often harsh winter weather found on the open hill and for screening off the Water Treatment Works.

They have also offered an alternative habitat for a wide variety of flora and fauna and added diversity to the landscape. However, due to a history of limited management many of the blocks are now in decline and becoming more moribund over time and as windblow increases.

Opportunities & Constraints

Opportunities:
Due to the risk of serious windblow and seeding occurring many of the non-native conifer blocks and shelterbelts will require clearfelling in the near future. However, this presents an opportunity to enhance biodiversity in these areas by diversifying species composition and structure and establishing a more resilient mixed woodland habitat.

Constraints:
Unfortunately, much of the secondary woodland has remained unthinned for far too long. Hence, any opportunity to carry out remedial thinning to improve crop stability and diversify species and age structure has long since gone.

The risk of serious windblow occurring is a constant threat in the unthinned and commercially mature conifer areas growing on the wet peaty soils. Leaving the stands as they are will ensure they continue to seed into the surrounding native woodland areas and rapidly establish and will eventually overwhelm many of the native trees and prove costly to remove. The conifer blocks will ,in due course as stability decreases, result in large areas of windblow and any subsequent site clearance and ground preparation prior to planting will prove difficult and expensive.

A combination of deer or livestock browsing and/or heavy vegetative growth post felling may reduce the opportunities for natural regeneration to succeed.

Factors Causing Change

Windblow, pathogens. Such as spread of ash dieback and other tree diseases.
Presence and potential long-term spread of Rhododendron ponticum (currently found in small clumps in sub-cpt 5a and 6a).

Long term Objective (50 years+)

To progressively restructure the predominately non-native coniferous secondary woodland and improve biodiversity by restructuring the woodland blocks with mixed species predominately native broadleaved woodland, which will also include a conifer component of Scots pine and juniper. To deliver improved habitat and species diversity and establish a more resilient woodland representative of the surrounding new native woodland NVC classes: W4, W16, W17 and W18.
To progressively restructure the predominately non-native coniferous secondary woodland and improve biodiversity by restructuring the non-native conifer blocks to mixed species native woodland, which will also include a conifer component of Scots pine and juniper. To deliver improved habitat and species diversity and establish a more resilient woodland representative of the surrounding new native woodland NVC classes: W4, W16, W17 and W18.

Existing mixed semi-mature and mature native species within the areas of secondary woodland will be retained, where possible. The primary focus will be on those areas of secondary woodland which are considered at highest risk of imminent large scale windblow or are seeding directly into the native woodland.

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

Restructuring felling and replanting;
•Phase 1 - the first phase of work will focus on those areas of secondary woodland considered at highest risk of imminent large scale windblow or is directly seeding into the young native broadleaves e.g. the conifers blocks surrounding the Water Treatment Works in Geordie's Wood sub-cpt 5a. And the isolated block of Sitka spruce in Glen Sherup sub-cpt1c. The aim is to carry out the first phase of work (clear felling) on these areas in 2021, followed by site restoration and restructuring work (site preparation and planting with mixed native species) in 2022 to convert these areas to native woodland.
The planted blocks will be annually maintained until the trees are established. Existing semi-mature native trees will be retained, where possible, and the site sufficiently prepared in advance of planting to help establish natural regeneration.
Deadwood (both standing and felled) will be retained throughout the site.
All harvesting will take place outwith the bird nesting season and the entire site will be environmentally assessed prior to felling and surveyed for evidence of red squirrel and bats.
•Phase 2 - Restructuring felling and replanting; the second phase of work, will be in Geordie's Wood sub-cpt 6a. Felling is planned to commence in 2023/24. Followed by site preparation and planting work in 2024/25 and follow the same objectives, environmental assessments and progression as the Phase 1 works, with conversion to native species.

Invasive Non-Native control;
•Geordie's Wood sub-cpt 5a and sub-cpt 6a. (i) Cutting back and stump treatment of larger bushes, and spot spraying of smaller plants (2020/21); (ii) follow-up spraying of any regrowth (annually until 2023).

5.4 Semi Natural Open Ground Habitat

Description

Semi Natural Open Ground is an important component on all three sites at Glen Devon Woodlands. On the hilltops and across higher levels large expanses of open ground habitat have been deliberately left unplanted to favour the upland habitat and associated wildlife and to retain the outstanding views from the high levels.

On the lower slopes of all sites large and small irregular shaped areas of semi natural open ground a spread across the sites. Many of the open ground habitats connect with neighbouring open ground and woodland habitats.

This extensive network of habitat corridors gives wildlife the opportunity for unrestricted movement across a wide range of habitats and sites.

Significance

The scale of the site and the extensive open ground habitats present opportunities to achieve landscape scale improvements in biodiversity and public access. One of the key beneficial factors to wildlife was to restrict livestock grazing, this allowed a variety of habitats to develop and expand. As a result some species have been steadily increasing in number e.g. black grouse, woodland and ground nesting birds.

Improving public access through a diverse range of walks and trails provides visitors with the opportunity to come and enjoy and appreciate this often overlooked area of the Ochil Hills. The open space components enable the woodland to integrate into this extensive landscape to give a semi-natural appearance at large scale.

Opportunities & Constraints

Opportunities; continue to work with neighbours and interested parties to safeguard and where feasible expand and enhance existing open ground areas.

Continue with the cross border deer management agreement with neighbouring landowner (Forestry Commission Scotland) to keep roe deer grazing pressure at an acceptable level.

Pursue opportunities as they arise for possible acquisition of adjacent land to increase areas of native woodland and open ground habitats.

Factors Causing Change

Changes of adjacent land ownership and land use or management objectives on neighbouring ground which had a negative impact upon access or visual aspects or was detrimental to open ground habitats and associated wildlife.

Occasional incursions of livestock and regular browsing by roe deer.

Increased risk of moorland fires and other environmental impacts as a result of climate change.

Long term Objective (50 years+)

To continue to retain, protect and where possible enhance the semi natural open ground habitats within the overall management objectives for Glen Devon Woodlands and to continue to liaise with neighbouring land users and interested parties to achieve this.

Consider available opportunities which support habitat enhancement and long term management.

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

Discuss with Scottish Forestry's regional deer manager the potential for establishing a new 5 year cross boundary shooting agreement between the Trust and SF at Glen Quey. (by the end of 2019).

Consider the potential for increasing collaboration with local landowners regarding roe deer management in the region to minimise deer browsing to native flora and keep browsing levels at an acceptable level (2023).

Continue with the annual programme of site and species survey work and cooperate with 3rd party organisations regarding using Glen Devon Woodlands for research (2023).

6.0 WORK PROGRAMME

Year	Type of Work	Description	Due By

APPENDIX 1: COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Key Features Present	Designations
1a	344.93	Mixed native broadleaves	2003	Wood establishment	Gullies/Deep Valleys/Uneven/Rocky ground, Very steep slope/cliff/quarry/mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	

Sub-compartment 1a is situated within Glen Sherup. Glen Sherup was planted in two phases. Sub-compartment 1a was Phase 1 of the planting and commenced in spring 2003. The planted area amounts to 222 hectares in total and is made up of predominately native upland tree species with occasional small blocks of Scots pine. The remaining ground (122.93ha) is unplanted and concentrated on the high levels, around the woodland fringe and along water courses and paths – it is all managed as open ground habitat. Tree growth was initially challenging, due to plant stress as a result of the exposed conditions and impoverished soil. Hence, several plant pathogens impeded growth on some species. Many of the birch (both species) suffered from birch dieback due to two fungi; Marssonina betulae and Anisogramma virgultorum. As a result, a large amount of beating up was necessary over an extended period, this has contributed to irregular growth rates and somewhat patchy development in places. The slower growing trees tend to be concentrated on the higher levels, in waterlogged areas and exposed faces. Juniper has grown very well and much of the woodland is now advancing towards establishment, though the low height of some of the trees means they are still vulnerable to browsing damage. Woodland types are W11, W17, W18, W19, W4 and W7 and matched to site conditions. The principal tree species is birch (silver and downy), which amounts to 53% of all trees planted. Other species present are oak (sessile and pedunculate) 9%, alder 9%, ash 4%, willow species 5%, rowan 5%, Scots pine 6%, juniper 3%, the balance is made up of mixed shrubs: hazel, hawthorn, blackthorn, elder, guelder rose and dog rose and minor tree species e.g. aspen, gean, crab apple, bird cherry, elm, and holly. Stocking densities are in the range of 800 stems/ha to 2500 stems/ha by woodland type and location. The woodland fringe along the high levels, riparian zones and around the woodland perimeter have a lower stocking density to provide a more open, irregular and feathered woodland fringe structure. The perimeter of Glen Sherup is deer and rabbit fenced. The lower section is to a stockproof standard to restrict incursions by sheep. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually.

The boundary between compartments 1a and 1b is the drystane dyke that bisects the two areas. Vegetation is made up predominantly of acidic upland grass species, principally those species associated with a long history of heavy grazing such as Molinia and Nardus. The localised peaty boggy areas and overgrazing by sheep have degraded the heathland heather vegetation. However, the perimeter deer fence limits grazing hand as a result vegetation has increased. This is a good area for black grouse and several small leks have been recorded. Bracken has re-established itself in places, especially among the drier knolls on the lower slopes.

1b	258.40	Mixed native broadleaves	2004	Wood establishment	Gullies/Deep Valleys/Uneven/ Rocky ground, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	

Sub-compartment 1b was Phase 2 of the planting of Glen Sherup and commenced in spring 2004. The total planting area is 200 hectares, made up of predominately native upland tree species. The remaining ground (58.40ha) is unplanted and concentrated on the high levels, around the woodland edge and along water courses and paths – it is all managed as open ground habitat. The perimeter was deer & rabbit fenced with the lower fence being built to livestock standard to deter incursions from neighbouring sheep. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually.

Tree growth was initially challenging, due to plant stress as a result of the exposed conditions and impoverished soil. Hence, several plant pathogens impeded growth on some species. Many of the birch (both species) suffered from birch dieback due to two fungi; Marssonina betulae and Anisogramma virgultorum. As a result, a large amount of beating up was necessary over an extended period, this has contributed to irregular growth rates and somewhat patchy development in places. The slower growing trees tend to be concentrated on the higher levels, in waterlogged areas and exposed faces. Juniper has grown very well and much of the woodland is advancing towards establishment, though the low height of many of the trees means they are still vulnerable to browsing damage.

Woodland types are W11, W17, W18, W19, W4 and W7 and matched to site conditions. The principal tree species is birch (silver and downy), which amounts to 50% of all trees planted. Other species present are oak (sessile and pedunculate) 16%, alder 4%, ash 5%, hazel 4%, willow species 2%, rowan 4%, aspen 2%, gean 2% juniper 3%, and mixed shrubs; hawthorn, blackthorn, elder, guelder rose, dog rose and juniper- which has grown very well. Other minor tree species represented are: Scots pine, crab apple, bird cherry, elm, and holly. Stocking densities are in the range of 800 stems/ha to 2000 stems/ha by woodland type and location. The woodland fringe along the high levels, riparian zones and around the woodland perimeter has a lower stocking density to provide a more open, irregular and feathered woodland fringe structure. The perimeter of Glen Sherup e.g. the whole of compartment 1 is deer fenced. The boundary between compartments 1a and 1b is the drystane dyke that bisects the two areas. Vegetation is made up predominantly of acidic upland grass species, principally those species associated with a long history of heavy grazing such as Molinia and Nardus. The localised peaty boggy areas and overgrazing by sheep have degraded the heathland heather vegetation. However, the perimeter fence now limits grazing and heather is slowly starting to return around Ben Shee and the north eastern slopes.

This is a good area for black grouse and several small leks have been recorded. Bracken has re-established itself in places, especially among the drier knolls on the lower slopes.

1c	1.00	Sitka spruce	1960	High forest		New Native Woodland, Semi Natural Open Ground Habitat	

Small isolated block of unthinned Sitka spruce PYr circa 1960 with occasional deadwood. The block sits in a relatively sheltered position and the stand appears to be fairly stable, for now. However, it is anticipated that windblow will occur in the near future. Deadwood is occasional.
Ground flora is almost absent beneath the Sitka spruce.

2a	286.84	Mixed native broadleaves	2001	Wood establishment	Gullies/Deep Valleys/Uneven/ Rocky ground, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	

Sub-compartment 2a is located in Glen Quey, which was planted in one phase. Planting commenced at the north east end 2b (Burnfoot) in April 2001. This was then followed by the planting in 2a in the autumn of 2001. The total area is 382.95ha. The actual planted area overall is approximately 305.95ha. The balance - 77ha is managed as open ground habitat.
The perimeter of both sub-compartments 2a and 2b was deer & rabbit fenced with the lower section built to livestock standard to deter incursions from neighbouring sheep. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually.
The drystane dyke running down the hill is the boundary between sub-compartments 2a and 2b.

There is a noticeable difference in growth is when comparing the sheltered low lying northern section in sub-compartment 2b with the trees on the more exposed southern section of sub-compartment 2a, which has, mostly, wetter and more acidic peaty soils.

The primary woodland NVC type across 2a and 2b is birch/oak (W11 and W17), with some ash/alder woodland (W7) on the more fertile flushed areas along the lower burns.
The principle species across sub-compartment 2a are birch (silver and downy) 57%. Other species include; oak (sessile and pedunculate) 17%, alder 3%, ash 4%, rowan 5%, bird cherry 2%, gean 2%, hazel 4%, hawthorn 3%. The remaining 3% is a mixture of; willow, aspen, elm, blackthorn, holly, juniper and dog rose.
Stocking density of planted trees averages 1400 stems/ha, and ranges from 1,100 stems/ha or less on the upper slopes at the south and western end of the site. On the lower, more fertile ground, stocking rises to 2,500 stems/ha.

Vegetation is predominated by coarse grass species associated with a long history of heavy grazing on acid uplands. These are mainly Nardus and Molinia with what was degraded heath on the higher levels and upper peatland areas. The better drained mineral soils along parts of the high levels have a more heathy content whilst the drier soils on the knolls and south facing middle slopes are dominated by; bracken, finer grasses and herbs. Several areas of soft rush dominate around the numerous wet flushes and burns on the more peaty wet soils.

Small pockets of heathland species existed at the time of planting. These were primarily; heather (Calluna vulgaris) and blaeberry (Vaccinium myrtilis) which were mainly restricted to patches on the high levels and upper eastern slopes along Innerdownie.
Fencing out the sheep has reduced grazing pressure and as a result heather and blaeberry has increased over the drier areas, especially on the high levels to the north east of Innerdownie and on the drier slopes above the Drove Road. Since planting and fencing black grouse numbers have steadily increased and there are now several small lek sites established on the higher ground in Glen Quey.

Ash dieback was discovered in the northern end of Glen Quey (sub-cpt 2b) in November 2012. Since then ash dieback has spread throughout the ash in 2b and 2a caused extensive dieback. However, in 2a due the soil is generally more acidic in nature and, as a result, a far lower percentage of ash (4%) was planted. The loss of which, though very unfortunate, will make little impact upon the development of the woodland as a whole.

Willow is starting to regenerate naturally on the banks of the reservoir from existing trees on the water's edge and some sycamore is regenerating from mature trees in the NE corner by the sheep fank.

In places the deer fence does not follow the actual property boundary due to topography e.g. over the main summit ridge and where the fence enters the reservoir near its southern end.
Management access is via the old Drove Road that runs alongside Glenquey Reservoir. There is a permissive right of access through the wood for the owner of the commercial conifer woodland at the far end of Glen Quey.
All other access points are unsurfaced and only suitable for ATVs.

2b	96.11	Mixed native broadleaves	2001	Wood establishment	Gullies/Deep Valleys/Uneven/ Rocky ground, Very steep slope/cliff/quarry/ mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	

Sub-compartment 2b is located in Glen Quey and was planted in 2001. Both 2a and 2b were planted in one phase commencing at the north east end (Burnfoot) of 2b in April 2001. The total area is 382.95ha. The actual planted area is approximately 306.36ha. The balance - 77ha is managed as open ground habitat.
The perimeter of sub-compartment 2a and 2b was deer & rabbit fenced with the lower section built to livestock standard to deter incursions from neighbouring sheep. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually.
The drystane dyke running down the hill is the boundary between sub-compartments 2a and 2b.

Woodland types are W11, W17, and W7 and tree planting was matched to site conditions. The principal species in sub-compartment 2b are birch (silver and downy) 50%. Other species include; oak (sessile and pedunculate) 16%, alder 6%, ash 9%, rowan 5%, bird cherry 2%, gean 2%, hazel 4%, hawthorn 4%. The remaining 2% is made up of; willow, aspen, elm and several mixed shrubs (e.g. blackthorn, holly, juniper and dog rose). The trees on the lower and more sheltered slopes rapidly established. Trees on the upper slopes and high ground were a lot slower to establish and required regular beat ups, due to the poorer soil and more exposed conditions of the upper slopes. Stocking density averages 1400 stems/ha, although this varies across the site, being much lower on the upper slopes and steeper faces, where ground preparation and planting was done by hand screefing.

There is a scattering of natural regeneration, mainly rowan and birch, over the less fertile and heathy areas in the north-eastern part of 2b. The seed comes from the remnant, scattered, population of semi-mature birch and rowan on the mid-slopes. Regeneration is at a similar stage of development as the planted trees.

Vegetation is mainly coarse grasses, principal species being those associated with a long history of heavy grazing such as Molinia and Nardus. Several areas of soft rush dominate around wet flushes and on the more peaty wet soils on the lower slopes. In drier areas bracken clumps dominate e.g. on the south facing middle slopes. Heather and blaeberry has increased on all the drier slopes, especially on the northern promontory overlooking Glendevon and across the higher levels going towards Innerdownie.
There is an old disused curling pond near the north east boundary.

Ash dieback was discovered in the ash in 2b during a random inspection by FCS research staff of the northern end of Glen Quey in November 2012. Since then ash dieback has spread throughout the ash, causing extensive dieback. The area affected is well stocked with what is considered a resilient mixture of other species and as the tree canopy is well established the decision is to allow for natural processes to take their course across the whole of Glen Quey. It is anticipated that this will result in a gradual thinning of the woodland and that other tree species, adjacent to the ash, will take advantage of any newly created gaps in the canopy by crown expansion.

In places the deer fence does not follow the actual property boundary e.g. behind Burnfoot. Management access is via the old Drove Road that runs alongside Glenquey Reservoir. All other access points are unsurfaced and only suitable for ATVs. A neighbour also has a right of vehicular access along the old Drove Road.

3a	97.64	Mixed native broadleaves	2005	Wood establishment	Gullies/Deep Valleys/Uneven/ Rocky ground	New Native Woodland, Semi Natural Open Ground Habitat	

The majority of planting (59.1ha), within the deer fenced area, was undertaken in spring 2005. Several small areas, amounting to 1.4ha, which were outwith the deer fence, were planted in spring 2006 in 1.2m tree shelters. The total planting area was 60.5 hectares. The balance; 37.14ha is retained as open ground habitat. Woodland types are NVC W7, W11 and W17. The primary species are; birch (silver & downy) comprising 43% of all trees, and oak (sessile & pedunculate) comprising 23% of all trees. Additional species are; ash 8%, rowan 3%, alder 3%, hazel 5%, willow species 3%, aspen 2%. The balance is a mixture of; gean, Scots pine, crab apple, bird cherry, elm, holly along with mixed shrubs (hawthorn, blackthorn, juniper, elder, guelder rose, and dog rose). Stocking density averages approximately 1600 trees per hectare across the sub-compartment and the trees are now well established across the site.

There is a row of mature broadleaves, mainly ash, along the "Holloway", which is part of the old Drove Road, and other mature trees along the drystane dyke along the lower section of Rab's Burn. The mature trees are a mixture of; ash, elm, beech and oak.

The vegetation is primarily acid grassland, with some wet heath/tussock Molinia at the northern end. There is a large wet flush on the level ground around Rab's Burn. Here the vegetation is dominated by soft rush. Small clumps of bracken have returned on the drier knolls since annual weed control ceased. Sub-compartment 3a began Phase 1 of the Woodland Creation planting scheme for Geordie’s Wood. The area skirts around the north and eastern lower slopes of the privately owned commercial conifer crop on Auchlinsky Hill from Glenquey Moss and travels across the hill. The southern end of sub-compartment 3a ends at the northern shelterbelt of the WTW (cpt 5a) and the Auchlinsky Burn (cpt 3b) – the burn is also the boundary between the Local Authority areas of Perth & Kinross and Clackmannanshire.
The perimeter was deer & rabbit fenced with the lower fence being built to livestock standard to deter incursions from neighbouring sheep. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually.

Reducing grazing pressure from sheep has meant that many plants have flourished. One infrequently observed species is Spignel (also known as Baldmoney) Meum athamanticum, which was once cultivated in parts of Scotland, the roots were eaten as a root vegetable and the delicate foliage used in a variety of home remedies. It is also known to taint cow’s milk.
A large area of Spignel was found in sub-compartment 3a, during a botanical visit in 2008. The plants are situated on a hillock overlooking Castlehill Reservoir, near Baldmony Knowe.
Mountain Pansy, Viola lutea, was also found 2008 on the drier grassland knolls of 3a.
The area has a long history of agricultural use, and there are a large number of linear earthbank/dyke structures. These were built as livestock enclosures in the past.
Near the northern end of the Holloway the remains of a former small farmstead can be seen, which was known as Upper Auchlinsky.
In 2012 a distinctive picnic bench was installed at each site. The one situated in sub-compartment 3a overlooks Castlehill Reservoir and has engraved images on the legs, taken from drawings inspired by nature and drawn by school children from Strathdevon Primary School, Dollar.

3b	104.01	Mixed native broadleaves	2007	Wood establishment	Gullies/Deep Valleys/Uneven/Rocky ground, Very steep slope/cliff/quarry/mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	Great Landscape Value

This area was Phase 2 of the planting scheme for Geordie's Wood. The main planting was undertaken in spring 2007 (actual planted area; 52.3ha). The balance is made up of open ground habitat (51.71ha) mainly centred on and around Seamab Hill. Much of the area was initially rabbit fenced to livestock standard. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually. The trees are now well established and have grown very strongly on the lower, brown earth, slopes. Woodland types are W7, W11 and W17, matched to site conditions. Principal species across the sub-compartment are birch (silver & downy) comprising 43% of all trees, and oak (sessile & pedunculate) comprising 23% of all trees. Other species are; ash 8%, rowan 3%, alder 3%, hazel 5%, willow species 3%, aspen 2%, the balance is made up of; gean, Scots pine, crab apple, bird cherry, elm, holly and assorted mixed shrubs (hawthorn, blackthorn, juniper, elder, guelder rose, and dog rose). The site has required several beat ups due to plant losses causing low stocking density in several places and to counter the effects of ash dieback. Stocking density now averages approximately 1600 trees per hectare across the sub-compartment.

Vegetation consists of improved grassland on the lower slopes between the WTW and sub-compartment 6a and unimproved grassland over the rest of the area and on and around the slopes of Seamab Hill. There are sporadic clumps of bracken on the drier southern slopes of Seamab Hill, which were managed in the early days post planting. In addition, there are areas of rush-pasture and wet flushes on some of the mid to lower slopes on the north-eastern side of Seamab Hill. Most of the unimproved areas of vegetation are acid grassland.

Prior to tree planting, approximately 12.6ha of Forest of Flowers was established on the lower ground to the east, between the WTW and sub-compartment 6a. This was pre-prepared by inverted deep ploughing and some conventional ploughing and then sown to establish an area of mixed species native wildflowers as part of the Geordie's Wood Forest of Flowers project. This species rich wild flower area was then planted through with trees and for the first few years was very successful and attracted a great variety of insects and birds into the area throughout the summer. Gradually most of the diverse range of wildflowers was eased out by the profusion in growth of rosebay willow herb, grasses and thistle on the neutral/slightly alkaline base rich soil.

Within sub-compartment 3b, between the lower improved grassland and the upper unimproved land is an old windblow/clearfell area on an east facing slope. The shelterbelt traversed the bank from the WTW to the shelterbelt of sub-compartment 6a. The timber was cleared prior to Phase 2 of planting. Harvesting exposed much of the mineral soil and the area has been colonised, to varying degrees, by Sitka spruce from adjacent mature Sitka spruce stands. The Sitka has proved to be an excellent nurse to the planted native broadleaves and given them shelter and helped draw them up. However, the Sitka is now outgrowing the broadleaves and requires respacing/felling.

Ash dieback was discovered among the ash on the slopes of 3b during a random inspection by the

site manager in February 2013. Since then ash dieback has spread throughout the young ash, causing extensive dieback and many deaths. The site has a high component of ash, all of which was planted in single species blocks. Much of the woodland on the upper slopes was still not fully established and gaps were starting to appear as a result. In order to mitigate the effects of ash dieback on the young trees and to lessen the visual effect on the canopy in the future it was decided to inter-plant the single species ash groups with a mixture of other species of native broadleaves in 2014.
Where larger gaps had appeared sessile oak, rowan, cherry and aspen were planted and in smaller gaps more shade tolerant species e.g. hazel, holly, hawthorn, blackthorn, etc were inter-planted. All trees were planted in either 1.2m treeshelters or 0.75mm shrub shelters and annually spot weeded. The inter-planted trees have grown well, whilst the ash continues to succumb to ash dieback.

The area has a long history of agricultural use. As a result there are a large number of mainly earth bank former enclosures across the area from different historical periods. The northern boundary of the sub-compartment is the Auchlinsky Burn, which also forms the boundary between the Local Authority areas of Perth & Kinross and Clackmannanshire. Legal access for management and timber uplift is via the WTW access road and the looped track around the WTW. Legal access does not extend up past the Treatment Works for timber uplift.

3c	16.66	Mixed native broadleaves	2008	Wood establishment		New Native Woodland, Semi Natural Open Ground Habitat	Great Landscape Value

Sub-compartment 3c faces southeast across the low lying fields of Geordie's Wood between the mixed conifer shelterbelt of 6a and Balliliesk Home Farm. The soil is predominately brown earth and prior to planting it was mostly managed as improved grassland.
This was phase 3 of the planting programme for Geordie's Wood. The majority was planted in spring 2008. Numerous managed paths were laid out across each of the three sites at the time of planting, the longest route links the three sites and known as the Reservoir Trail, all the managed paths are maintained annually. Prior to tree planting 11ha was pre-prepared by inverted deep ploughing and some conventional ploughing and then sown to establish an area of mixed species native wildflowers as part of the Forest of Flowers project for Geordie's Wood. This species rich wild flower area was then planted through with trees and for the first few years was very successful and attracted a great variety of insects and birds into the area throughout the summer. Gradually most of the diverse range of wildflowers was eased out by the profusion in growth of rosebay willow herb, grasses and thistle on the neutral/slightly alkaline base rich soil.
Prior to tree planting the area was rabbit and stock proof fenced. The planted area amounts to 10ha and the balance open ground habitat of 1ha. Woodland NVC types are; W7, W11 and W17.
Principal species across the sub-compartment is; birch (silver & downy) 43% and oak (sessile & pedunculate) 23%. In a matrix of other species e.g. ash 8%, rowan 3%, alder 3%, hazel 5%, willow species 3%, aspen 2% and the balance of 10% was made up of; gean, Scots pine, crab apple, bird cherry, elm, holly and assorted shrubs (hawthorn, blackthorn, juniper, elder, guelder rose, and dog rose). Stocking density averaged approximately 1600 trees per hectare across the sub-compartment. Initially, the trees grew well then slowed due to prolific weed growth by grasses and dense beds of rosebay willow herb and thistle – which required annual cutting. The trees are now established and growing well.
Legal access for management purposes is through Balliliesk Steading and across the lower field to the covered reservoir. Or via sub-compartment 3b from the WTW access road.

4a	3.80	Mixed native broadleaves	2008	Wood establishment		New Native Woodland, Semi Natural Open Ground Habitat	Great Landscape Value

This area was previously an enclosed field of intensively grazed, improved pasture. In 2006 the area was established as a nature park. It now has an all abilities looped path and features; a small pond, outdoor seating and an outdoor meeting area, for the benefit of the local community and schools to use and is known as Muckhart Nature Park. The area is owned by the Woodland Trust and co-managed by the Woodland Trust Scotland and Muckhart Nature Park Committee. Tree planting of 1.5ha, predominantly with native species, was carried out between 2008 and 2010. In addition, several specimen trees were also been planted within the site. In 2007 a small area of 0.4ha was prepared, by inverted deep ploughing and conventional ploughing and then sown to establish an area of mixed species native wildflowers as part of the Forest of Flowers project for Geordie's Wood.

A line of mature large beech trees occurs along the western edge of the sub-compartment. In the past water from springs at the top of the field was piped into several old livestock troughs and an under-field drain. Livestock, from Balliliesk Steading have through access to fields to the east and west along the track which runs alongside the dyke at the top of the sub-compartment. This area is important as a gateway to the remainder of the WTS property and the wider Ochil Hills. Legal access for management is through sub-compartment 3c to Balliliesk Steading.

5a	8.00	Mixed conifers	1960	High forest		New Native Woodland, Semi Natural Open Ground Habitat	

Several mature shelter belt screens, of mainly unthinned spruce, surrounding the Water Treatment Works and several, privately owned, nearby dwellings. Predominately under thinned Sitka spruce with some Norway spruce, Larch, Scots pine with occasional mixed broadleaves. The blocks to the north and east were selectively thinned in a two phased operation in January and August 2009. In the winter of 2011 a severe gale occurred which caused significant windblow among the trees in the northern belt and opened up a 0.7ha pocket of windblow within the stand. This was cleared and made safe during December 2011 - January 2012 and the site prepared for planting. It was restocked in April 2013 with mixed native broadleaves; predominately oak - 60% along with 20% native SPC, and assorted small trees and shrubs. A small amount of ground, directly behind the houses, was retained as open ground. Windblow continues to be a constant threat, mainly due to a lack of timely thinning in the past. Hence, tree and stand stability of the mature shelterbelts is a major concern.

Small quantities of Rhododendron ponticum regrowth have been found in the strip north of the road leading towards the Water Treatment Works – previous treated in 2012/13.
Cut stump and spot treatment to commence in 2020 and continue annually until eradicated.

Levels of deadwood are occasional within the standing timber and abundant where pockets of windblow have occurred. Ground flora is almost entirely absent beneath the Sitka spruce and is occasional beneath the Scots pine and larch. Ground flora is dominated by acid loving grassland species.
A legal agreement with Scottish Water allows for use of the WTW access road for timber uplift to alongside the field below the WTW site and for management access. Management access is also permitted along the new haul road, installed approximately 2010, which skirts around the southern end of the WTW. This haul road removes the requirement to travel past the residential cottages with management vehicles. In 2011 0.8ha of rough grassland below the WTW was planted with mixed native broadleaves in 1.2m tree shelters & stakes and received follow up beat up work and annual spot weeding.
Due to the rapid growth of several species tree shelter removal commenced in 2019 by volunteers. Tree shelters were left on all oak and other slower growing trees until fully established to prevent deer browsing/fraying damage to bark.

6a	8.96	Mixed broadleaves	1960	High forest		New Native Woodland, Semi Natural Open Ground Habitat	Great Landscape Value

Mixed species shelterbelts planted in circa 1960 comprising mainly of mature; Sitka spruce, larch and a few Scots pine with occasional semi-mature; sycamore, beech, oak and ash. The larch and spruce areas have suffered some windblow in the past and future stability of the stand is a concern. Small pockets of Rhododendron ponticum regeneration occasionally appear in areas where mature Rhododendron was removed. Cutting and spot treatment to commence 2020 and continue annually until eradicated.
Deadwood is abundant in places, mainly as a result of the sporadic windblow.
Ground flora is generally absent beneath the spruce, frequent beneath the other trees and abundant in the pockets of windblow.

7a	4.31	Sycamore	1980	High forest	Very steep slope/cliff/quarry/mine shafts/sink holes etc	New Native Woodland, Semi Natural Open Ground Habitat	
An area of even aged pole stage sycamore woodland at the south western tip of the site. Ground flora is sparse and dead wood rare.							

Appendix 2: Harvesting operations (20 years)

Forecast Year	Cpt	Operation Type	Work Area (ha)	Estimated vol/ha	Estimated total vol.
2021	5a	Clear Fell	6.00	550	3300
2024	6a	Clear Fell	7.00	357	2500

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.