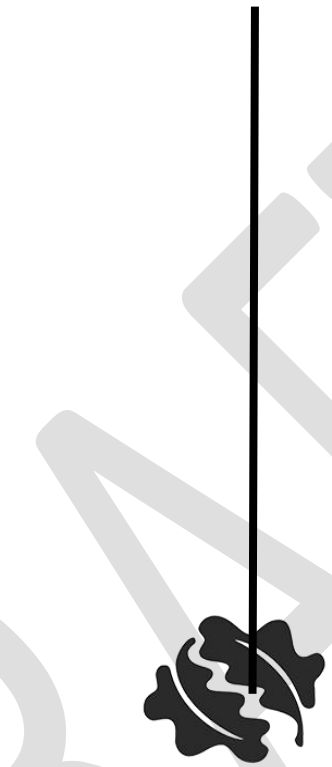
Portmoak Moss
(Plan period – 2026 to 2031)



Management Plan Content Page

Introduction to the Woodland Trust Estate

The Woodland Trust owns and cares for well over 1,250 sites covering almost 30,000 hectares (ha) across the UK. This includes more than 4,000ha of ancient semi-natural woodland and almost 4,000ha of non-native plantations on ancient woodland sites and we have created over 5,000ha of new native woodland. We also manage other valuable habitats such as flower-rich grasslands, heaths, ponds/lakes and moorland.

Our Vision is:

"A UK rich in native woods and trees for people and wildlife."

To realise all the environmental, social and economic benefits woods and trees bring to society, we:

- **Create Woodland** – championing the need to hugely increase the UK's native woodland and trees.
- **Protect Woodland** – fighting to defend native woodland, especially irreplaceable ancient woodland and veteran trees; there should be no loss of ancient woodland
- **Restore Woodland** – ensuring the sensitive restoration of all damaged ancient woodland and the re-creation of native wooded landscapes.

Management of the Woodland Trust Estate

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.

The following principles provide an overarching framework to guide the management of all our sites but we recognise that all woods are different and that their management also needs to reflect their local landscape, history and where appropriate support local projects and initiatives.

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene in our woods when there is evidence that it is necessary to maintain or improve biodiversity, safety and to further the development of more resilient woods and landscapes.

2. We establish new native woodland for all the positive reasons set out in our Conservation Principles, preferably using natural regeneration but often by planting trees, 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. Where possible, we pro-actively engage with people to help them appreciate the value of woods and trees.

4. The long term vision for all our 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 natural and cultural heritage value of sites is taken into account in our management and in particular, our ancient trees are retained for as long as possible.

7. Land and woods can generate income both from the sustainable harvesting of wood products and the delivery of other services. We therefore consider the appropriateness of opportunities 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 encourage our woods to be used for 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. We maintain a network of sites for long-term monitoring and trials leading to reductions in plastics and pesticides.

10. Any activities we undertake are in line with our wider Conservation Principles, conform to sustainable forest management practices, are appropriate for the site and balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

The Public Management Plan

This public management plan describes the site and sets out the long term aims for our management and lists the Key Features which drive our management actions. The Key Features are specific to this site – their significance is outlined together with our long, 50 years and beyond, and our short, the next 5 years, term objectives for the management and enhancement of these features. The short term objectives are complemented by an outline Work Programme for the period of this management plan aimed at delivering our management aims.

Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. Any legally confidential or sensitive species information about this site is not included in this version of the plan.

There is a formal review of this plan every 5 years and we continually monitor our sites to assess the success of our management, therefore this printed version may quickly become out of date, particularly in relation to the planned work programme.

Please either consult The Woodland Trust website

www.woodlandtrust.org.uk

or contact the Woodland Trust

operations@woodlandtrust.org.uk

to confirm details of the current management programme.

A short glossary of technical terms can be found at the end of the plan.

Location and Access

Location maps and directions for how to find and access our woods, including this site, can be found by using the following link to the Woodland Trust web-site which contains information on accessible woodlands across the UK

https://www.woodlandtrust.org.uk/visiting-woods/find-woods/

In Scotland access to our sites is in accordance with the Land Reform Act (of Scotland) 2003 and the Scottish Outdoor Access Code.

In England, Wales and NI, with the exception of designated Public Rights of Ways, all routes across our sites are permissive in nature and where we have specific access provision for horse riders and/or cyclists this will be noted in the management plan.

The Management Plan

1. Site Details

Location:	Scotlandwell Grid reference: NO179014 OS 1:50,000 Sheet No. 58
Area:	43.59 hectares (107.71 acres)
External Designations:	N/A
Internal Designations:	N/A

2. Site Description

Location, Altitude and Aspect
Portmoak Moss is a lowland raised bog, part of the site is forested and part has been restored as open peatland habitat.

It is located approximately 200m south-west of the village of Scotlandwell, in Perth and Kinross and is located on flat ground (approximately 110m in altitude) between Loch Leven and the Lomond Hills. The Moss is visible from the Loch and surrounding roads as well as from the popular walks on the Lomond Hills. The climate for the Portmoak area is recorded as being that typical of fairly warm, moist lowland and foothill. The area is moderately exposed with moderate winters.

Physical Description
The underlying geological formations at Portmoak are mainly fluvial and of yellow and reddish-brown sandstone. This is overlain by glacial deposits of clay, and then course lake muds. The upper profiles are of deep peat. The peat would originally have been in the form of a dome, which is typical of a lowland raised bog. The peat is formed mainly from the semi-decomposed remains of sphagnum moss that has gradually built up since the end of the last ice age. In hydrological terms, such bogs are entirely rain-fed and the peat sustains a raised water table which enables the growth of moisture-loving sphagnum moss.

Over recent centuries the outer part of the peat dome has been cut for fuel, leaving only the centre of the raised area intact, in places surrounded by a sheer face of cut peat 2-3m high. In the centre of the dome the peat depth reaches 6m. Peat depth surveys on the site have shown that most of the site is situated on peat >1m in depth and that all of the site is on deep peat >0.5m depth.

There are numerous drainage channels on both the raised and lower parts, historically dug to drain the site for peat cutting, grazing and forestry. Some of these date from the 1960s forestry planting, but some of the main drains are present on mid-19th century maps. This resulted in a lowering of the water table to the point where sphagnum, which remained in patches, was struggling to survive.

A series of combined works from the mid-2000s onwards as part of the restoration of the core area of the raised bog, have resulted in a rise in the water table over parts of the site.

Site History
The peat deposits at Portmoak originally developed in a wet hollow left after the last ice-age. As peat deposition increased, this eventually became a raised dome.

In the middle ages, the area was part of a much larger uncultivated bog providing peat, turf and pasture to local communities. Peat may also have fuelled local lime kilns and a distillery. Use of the Moss for peat cutting by residents of Scotlandwell and Kinnesswood is well documented from the 17th – 20th century, after which the practise of peat cutting ended.

The earliest mapped woodland on the site dates from the mid-1800s and includes patches of woodland in the south-west and north of the site. These two areas, totalling 5 ha, are recorded in the Ancient Woodland Inventory as being Long Established Woodland of Plantation Origin (LEPO). A 1947 aerial photograph shows only a slight expansion of these areas, along with other scattered trees.

The site was bought by the Forestry Commission in the early 1960s, when it was drained and planted predominately with commercial conifers. It was acquired by the Woodland Trust in 1996, with combined funding from the Heritage Lottery Fund, Scottish Natural Heritage (now NatureScot) and considerable fundraising efforts from the Woodland Trust and local community (who subsequently set up the Portmoak Community Woodland Group). The on-going process of restoring part of the site to a functioning raised bog habitat began in 2000 and covers a core central area of approximately 12 hectares.

Woodland Trust continue to work closely with the Portmoak Community Woodland Group on day-to-day management of the site.

Raised Bog

An on-going series of projects aimed at gradually restoring parts of the core area of the raised bog back to a favourable condition have been carried out since the Woodland Trust took on ownership of the site. Due to its rarity, high biodiversity value and potential for carbon storage, the raised bog habitat is the main focus of nature conservation interest on the site, despite its degraded state due to previous drainage and afforestation. Lowland raised bogs are an EU Annex 1 habitat and a UK Biodiversity Action Plan Priority Habitat.

Woodland Habitat

The woodland consists mainly of un-thinned commercial conifer stands planted between 1960 and 1963. The main planted species are Sitka spruce, Norway spruce and Scots pine, with lodgepole pine, hybrid larch and sycamore. Occasional mature specimens of Scots pine, along with grand and noble fir are also found on site. Some areas of semi-natural birch woodland remain, particularly along the boundary. Poorly drained soils combined with a high water table and lack of thinning of the commercial conifers has resulted in stands which are increasingly unstable and prone to windblow and wind snap.

The broadleaved woodland component consists predominantly of downy birch and willow species in the wet areas, but there are also occasional oak, rowan, silver birch, willow, sycamore and ash on the drier soils.

Some parts of the woodland are classed as Long Established Woodland of Plantation Origin (LEPO), as they appear on a map dated 1856. Little evidence of these early attempts at afforestation now remains, except for the occasional mature Scots pine.

Wildlife

Roe deer and brown hares are frequent visitors to the site. There are red squirrels and occasional grey squirrels seen on the site. A variety of bird species have been recorded on and around the Moss including: green and great spotted woodpecker, sparrowhawk, tawny owl, buzzard, kestrel, woodcock, jay, wood pigeon, tree creeper, siskin, redpoll

along with a wide range of common woodland, garden and farmland species. Numbers swell in the summer months with the arrival of a wide variety of passerines.

The bog currently supports breeding meadow pipit and snipe, with the potential to encourage more breeding waders after further restoration. Woodpeckers use the standing deadwood on the bog.

A wide variety of invertebrates have been recorded; moths (notable species: buff footman, satellite moth), butterflies (notable species: small pearl boarded fritillary, green hairstreak), Odonata (damsel and dragonflies), as well as a wide range of aquatic species, woodland and raised bog specialists. The Woodland Trust and PCWG work with Butterfly Conservation, the British Dragonfly Society and NatureScot recorders in regard to the range of invertebrate species found.

Access

Within the site there is a network of 1872m of surfaced paths. The loop path (1472m) encircles and traverses across the core area of the raised bog, passing through areas of mainly coniferous woodland (Core path PTMK/117). The northern part of the loop forms part of the Michael Bruce Way, a circular route linking the villages of Scotlandwell and Kinnesswood with the Woodland Trust sites of Portmoak Moss and Kilmagad Wood and the Loch Leven Heritage Trail (Core paths PTMK/7, PTMK/103). Several informal unsurfaced paths traverse the site, some of which pass over wide drains via sleeper bridges. The informal routes are often muddy in places.

There are two public entrances to the site. There is a small parking area on the access track to the main entrance where parking is permitted by the landowner. The Moss attracts over 11,000 visits a year.

Community Involvement

There has been considerable local interest in the Moss, starting with fund-raising for the acquisition in 1996 and subsequently through the establishment of the Portmoak Community Woodland Group (PCWG), which is also actively involved with the nearby Woodland Trust Kilmagad Wood. PCWG organises frequent activities, community events, guided walks and helps with the day-to-day management of the bog by organising and running work parties. In addition to PCWG involvement, there has always been wider local consultation over many issues affecting the Moss, including in 2002 a public consultation meeting to discuss the potential restoration of part of the raised bog area. In 2012 a ‘Boginar’ event was held which included relevant specialist speakers to discuss the future management and long-term potential of the raised bog.

3. Long Term Policy

Raised Bog

The long-term policy of the site will be focussed on the restoration of the lowland raised bog, which is the most valuable habitat on the site (in terms of carbon storage and biodiversity). The long-term intention is that ground conditions over the core bog area (NVC type M18 Erica – Sphagnum bog) will be maintained as a raised bog habitat with open wet ground interspersed with spreading open pools. Scattered regeneration of scrub and trees will be minimal and growth will be stunted due to high water levels in the bog. Any regeneration encroaching on the raised bog will continue to be removed by contractors or volunteer work parties.

Woodland Trust intends to work closely with NatureScot Peatland Action in the short and long-term, to continue to restore the raised bog habitat and use their expertise to monitor and plan any necessary interventions.

Woodland

The majority of the woodland on Portmoak Moss has been planted from the 1800s through to the 1960s when the Forestry Commission planted the site with non-native conifers. Today, a site which is entirely deep peat would not be planted with trees as the peatland habitat is far more valuable for biodiversity and carbon sequestration than the woodland.

In the short-term the woodland on Portmoak Moss will be almost entirely felled, to restore it to an open peatland habitat. Our long-term objectives will be focused on ensuring the hydrology of the site supports a functioning raised bog habitat and that after restoration, the site continues to be wet enough that any natural regeneration is stunted.

Some areas of woodland will be retained around the car park area, to provide amenity value. The drains in this area will also be blocked to re-wet these areas, so in the long-term we hope to encourage a wet woodland habitat to establish in these areas.

Connecting People with Woods and Trees

The site will continue to provide informal access, in accordance with the Scottish Outdoor Access Code, for local users as well as visitors accessing the site via the Michael Bruce Way and Loch Leven Heritage Trail. The raised bog will continue to attract visitors with an interest in conservation and species monitoring.

Visitor access to the site will continue to be maintained (either as surfaced path or funding will be sought to install a boardwalk) to provide access across the raised bog habitat. Regular inspections will be undertaken with regard to tree safety and other access features. Remedial work will be carried out as needed.

The Portmoak Community Woodland Group will continue to be actively involved with the on-going management of the site through regular updates at their meetings and work days to undertake various tasks. Wider public consultation will also be undertaken whenever the Management Plan is reviewed.

4. Key Features

4.1 f1 Connecting People with woods & trees

Description
Portmoak Moss is an attractive location, with diverse habitats to offer visitors including a lowland raised bog and woodland areas. As raised bogs are an uncommon habitat in Scotland, the site and the ongoing restoration work provides additional local interest. Access is promoted from an informal parking area at the eastern edge of the site, where there is parking for approximately ten cars (the parking area is not on Woodland Trust land). A dirt track from the B920 heads west at the southern end of Scotlandwell to access the car parking area. Local walkers also access the woodland from the A911 following a small path past the Portmoak Village Hall, through a field into the north side of Portmoak Moss. There is a second official entrance to the Moss from the Michael Bruce Way at the north-west of the site. A stone surfaced path loop (1472m) passes through both woodland and the open bog habitat. The northern part of this loop is part of the Michael Bruce Way, a circular route linking the villages of Scotlandwell and Kinnesswood with the Woodland Trust sites of Portmoak Moss and Kilmagad Wood (core path PTMK/7 and PTMK/117). There are also several informal desire lines throughout the woodland, roughly following the site boundary. Given their location on a raised bog, the paths on site frequently hold standing water during periods of heavy rain. There are two interpretation panels on the raised bog explaining about the habitat and initial bog restoration works. There are Woodland Trust welcome signs and Portmoak Community Woodland Group signs at the two official entrances. The nearest communities to Portmoak Moss are the villages of Scotlandwell and Kinnesswood, and the towns of Kinross (10km away with a population of approximately 5,500) and Glenrothes (10km away with a population of approximately 38,000). It is assumed that most of the people who use the woodland are local people, however the Loch Leven Heritage Trail and Lomond Hills are popular with tourists and visitors from further afield. Most visitors are walkers, but the site is also used by runners, young families and bird watchers, with estimated visitor numbers of around 11,000 visits per year. Nearby Loch Leven also attracts numerous visitors, in particular cyclists, runners and long-distance walkers to the surfaced loop path around the Loch. The loch is designated as a National Nature Reserve (primarily for the birdlife found there) and NatureScot have installed a bird hide on the shores which is popular with families and bird watchers. RSPB manage a nature reserve and visitor centre nearby and Historic Environment Scotland manage the popular Lochleven Castle, accessible in summer by boat. The Portmoak Community Woodland Group (PCWG) run a variety of public and school engagement and work party days at Portmoak Moss and nearby Kilmagad Wood (which is also owned by Woodland Trust). At Portmoak, PCWG run

an annual community Christmas tree event removing spruce regeneration from the bog and a variety of local interest and nature events throughout the year. PCWG volunteers regularly engage with the local Portmoak Primary School (1km away), where volunteers have helped facilitate John Muir Awards and outdoor education events for school pupils. PCWG volunteers have produced two booklets for young people: 'Bogtastic' and 'Treetastic' which provide a fun, interactive and educational resource for young people visiting Portmoak Moss and Kilmagad Wood, printed copies of which are available in leaflet dispensers at entrances to the sites.

There are very basic facilities on site to host groups, with car parking limited at the informal parking area. The village hall and local farm shop have previously been used as an event venue and catering, which are approximately a 10-minute walk away respectively.

Significance

Portmoak Moss is a rare example of a lowland raised bog, of which there are few in Perth and Kinross. The initial 'forest to bog' restoration work and proposed future peatland restoration work on the site could provide a powerful demonstration of peatland conservation in an accessible location, with the opportunity to attract additional visitors including educational visits.

Lying on the edge of the Loch Leven National Nature Reserve, Portmoak Moss provides a key linking path network from the Loch Leven Heritage Trail towards Kilmagad Wood and into the Lomond Hills. It is well-used by nearby communities and from those visiting from further afield. It is well-loved by the local community and the Portmoak Community Woodland Group are an important and powerful voice sharing the ongoing conservation work on the site.

Opportunities & Constraints

Opportunities:

-Proposed bog restoration works give an opportunity to showcase the Moss on a local and national scale.

- Improve informal path network on the site to provide additional routes and links to nearby long-distance access routes. Work with Portmoak Community Woodland Group to plan and develop any changes or upgrades.

- Increase path links and interpretation from Loch Leven Heritage Trail.

- Greater engagement with local schools and to work more closely with the Portmoak Community Woodland Group to facilitate greater community engagement.

- Press and media content from the Portmoak Community Woodland Group's volunteer work and public events.

- Engage with universities or other researchers to facilitate research projects about the raised bog restoration and habitat.

Constraints:

- Our aims to increase water retention on the raised bog may conflict with being able to manage the surfaced loop path, which can already become wet and hold puddles.

- Rising water levels on the raised bog following proposed restoration may affect current access routes and require diversion or the construction of boardwalks.

- Replacing paths with boardwalk is expensive and has higher maintenance costs.

- Water-filled ditches can be hazardous and impede access in some areas.

- There is limited car parking nearby and poor vehicle access onto the site, which is restrictive for larger machinery and for facilitating large volunteer or educational groups.

Factors Causing Change

- Proposed raised bog restoration work may increase visitor numbers to the site.

- Increased water levels will make existing paths wetter.

Long term Objective (50 years+)

The site will provide informal recreation to mainly local users as well as visitors using the Michael Bruce Way. Entrances and signage will be welcoming, encouraging a wide variety of visitors to the Moss. Visitor access will be maintained (as path or boardwalk if necessary) to allow appreciation of the raised bog habitat in addition to the areas of retained native woodland.

Interpretation will outline the restoration process of Portmoak Moss from 'forest to bog' and educational group visits will be facilitated to showcase Portmoak Moss as a successful restoration site. The Woodland Trust will continue to work closely with the Portmoak Community Woodland Group to facilitate community and school engagement events as well as small-scale volunteering opportunities and ongoing management.

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

- Ensure that the site is safe and welcoming for visitors in line with Woodland Trust access guidelines and according to the Scottish Outdoor Access Code. This will be achieved by annual mowing of managed paths, and keeping the loop path free from vegetation/scrub encroachment, obstacles and over-hanging branches. Site furniture and steps will be maintained and replaced as needed, with tree safety work carried out as per the site risk assessment.

- It's difficult to predict exactly how the bog will react to the restoration measures, however some of the paths on the site will likely be wetter after the peatland restoration is complete and many of the informal paths around the site boundary may be inaccessible. The northern part of the surfaced loop (forming the Michael Bruce Way) will likely be less affected by the peatland restoration than the southern part of the surfaced loop through the centre of the raised bog. Following peatland restoration work we will assess the need to upgrade the southern part of the existing surfaced path with a board walk, seeking funding for this if necessary (2027)

- Upgrade interpretation panels on the site after peatland restoration work is complete on the site (2027). Liaise with the Portmoak Community Woodland Group about the design and location of the new panels

- Deliver engagement events or guided walks for the local community, focussed on the bog restoration works (2026/2027).

- Provide on-going engagement and support to the Portmoak Community Woodland Group throughout the plan period to develop and promote the Moss through facilitating a range of community events and learning opportunities for local schools.

- Throughout the plan period continue to facilitate student visits and research projects about the Moss (in particular through the established partnership with University of St Andrews).

4.2 f3 Semi Natural Open Ground Habitat

Description

Portmoak Moss is the remnant core of a lowland raised peat bog, surrounded (prior to initial restoration work) by a sheer face of cut peat 2-3m high around the perimeter. There are numerous deep drainage channels on both the raised and lower parts of the site.

The area is currently a mosaic of raised bog habitat consisting of heather, wavy hair grass, mosses (mainly sphagnum species) and bog cotton grass. In areas of standing water there is frequent sphagnum cuspidatum with sphagnum recurvum on pool edges. On drier areas there are frequent tussocks of sphagnum palustre and occasional sphagnum capillifolium and sphagnum fimbriatum. Sphagnum magellanicum has also been reported but is rare. There are also patches of cotton grass and cross-leaved heath. Broad-buckler fern is occasionally present in drier areas. The core area of the raised bog is surrounded with a variety of mature seed-bearing tree species-mainly downy birch, Sitka and Norway spruce, larch and Scots pine, which regenerate in varying numbers on the bog. There is abundant sporadic deadwood scattered across the site.

Restoring the degraded lowland raised bog on the site has been a focus for the site since the Woodland Trust took over ownership of the site. Historic restoration work has taken place over approximately 12 ha of the site and has included:

- 2000: compartment 3a was clearfelled of non-native conifers

- 2004: compartment 3b was clearfelled of non-native conifers and ditches were dammed with plastic piling dams

- 2005: compartment 3c was clearfelled of non-native conifers and additional dams were installed

- 2013: SNH report surveying peat depths, stability and advice for future management

- 2013-14: scrub clearance, spot weeding of cut stumps, stump mulching and the installation of 48 plastic piling dams was carried out thanks to the SNH Green Stimulus Peatland Restoration Fund

- 2015: PCWG secured funding from the Living Lomonds Landscape Partnership to commission a report considering management options for the site and to carry out reprofiling work on two exposed peat faces

- 2016: the Woodland Trust and PCWG jointly funded work to renew the eastern set of steps onto the raised bog and two sections of the steep and exposed perimeter face of the raised bog were reprofiled (compartments 2a and 8a)

- 2021: the western edge of the peat dome was reprofiled and trees close or on the edge of the bog were thinned

Ongoing monitoring of water levels on the bog (from two NatureScot loggers and 26 dipwells monitored by PCWG) show an overall increase in water levels post-restoration works. However, ongoing issues with scrub and tree regeneration across the open raised dome continue. Prolific tree regeneration, alongside the dominance of heather and wavy hair grass, suggest that the bog is still too dry and would benefit from further restoration to improve the hydrology, which will allow for greater sphagnum regeneration and suppress tree and scrub regeneration on the bog.

Significance

Lowland raised bogs capable of regeneration are an EU Annex 1 habitat and a UK BAP priority habitat. The rarity of raised bog as a habitat far outweighs the biodiversity value of the woodland that would need to be felled to restore it. The raised bog habitat contributes to the overall site biodiversity and, if healthy, to carbon sequestration. The total volume of peat on the site is estimated to be 1,441,800m^3 and is estimated to store 57,000 tonnes of carbon.

Restoring the lowland raised bog meets the Woodland Trust Management Principle of protecting and conserving important semi-natural habitats.

Opportunities & Constraints

Opportunities:

-Lowland raised bogs are a rare habitat, in both a national and international context, and provide an important carbon store. Restoration at Portmoak presents an opportunity for Woodland Trust and PCWG to showcase a restoration project in an accessible location.

- To continue to work in partnership with relevant organisations (namely NatureScot Peatland Action) in raising water levels and further restoring the raised bog habitat.

- The restoration process presents an excellent opportunity to engage people in the practical management of the site (through events and interpretation).

- Restoration of the raised bog should considerably benefit the biodiversity of the site as a whole with a predicted increase in bog plants, invertebrate species and ground nesting birds.

Constraints:

- Historic peat cutting and drainage has severely damaged the raised bog habitat.

- Regeneration of birch and (to a lesser extent) mixed conifers in the existing open areas is often prolific and vigorous.

- Restoration of bogs is expensive and will demand external funding for it to be possible at Portmoak Moss.

Factors Causing Change

Climate change will continue to impact the ability of the bog to retain water, in particular during summer (as can be seen from dipwell monitors on the site).

Tree and scrub regeneration will continue to be an issue if the site cannot be adequately re-wetted.

Long term Objective (50 years+)

Almost the entire site will have been restored to a functioning raised bog habitat, where water levels are consistently high enough year-round for sphagnum to regenerate. Water levels will be high enough that the growth of any scrub or tree regeneration in the area will be supressed, making ongoing removal of regeneration a manageable task for contractors or local volunteers.

The Woodland Trust will continue to work with NatureScot and other experts in peatland restoration to continually monitor the site (primarily water levels through dipwells). The Portmoak Community Woodland Group and other local volunteers will continue to play a role in day-to-day management and community engagement.

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

During the period of this plan:

- Submit an application to Peatland Action for Scottish Government funding to undertake a major peatland restoration project on the Moss (submit the application in 2026 to seek project funding for winter 2026/2027). The 'forest to bog' project will cover the entire site:

- Felling almost all the non-native conifers on the site and some of the native woodland areas on the deepest peats. These areas total approximately 25 hectares and will include compartments 2a, 3c, 4a, 5b, 5c, 6a and 6b; alongside the northern part of 5a and most of 8a: Timber will be extracted from the site
- Ground smoothing areas of felled trees by flipping cut tree stumps with a digger and compressing back into the peat, forming a flatter surface for further bog restoration to take place
- Mulching areas (approximately 3 hectares) of regenerating trees on the existing open bog habitat in compartments 3a and 3b
- Creating a network of peat bunds across the surface of the bog throughout felled areas in compartments 2a, 3c, 4a, 5a, 5b, 5c, 6a, 6b and 8a; and in currently open areas in compartments 3a and 3b. Some of these bunds will involve digging 2m below the surface to find and compress any cracks or 'pipes' in the peat where it's previously been damaged by drainage or tree roots. We will also install 'contour' and 'cell' bunds to slow the flow of water off the bog and divide the area into smaller compartments about 5m x 5m which will be easier to hold water

- Installing dams throughout the entire site to block historic drainage ditches. Dams will either be made of peat or timber (where drains are larger). Drains will also be blocked in areas of retained woodland in compartments 1a, 1b and 8a to create wet woodland habitat
- Further reprofiling work on the cut peat edge in the centre of the site and installing more contour bunds around the reprofiled edge

- Continue to remove small tree and scrub regeneration across the open bog habitat by hand where possible. This programme of works will primarily be led by Woodland Trust and supported by Portmoak Community Woodland Group. Woodland Trust will use contractors and run corporate work parties to facilitate the regeneration removal and PCWG will provide opportunities for local volunteering sessions.

- If necessary, cutting and treating stumps of regenerating birch will be done by contractors if hand removal is not possible.

- Volunteers will continue to undertake dragonfly and aquatic invertebrate monitoring on the bog. The Woodland Trust will continue to work in partnership with the British Dragonfly Society.

- PCWG volunteers will continue to regularly monitor dipwells on the raised bog and look to install a handful of new dipwells in areas where there is limited data collection, in particular around the edges of the dome (2026). Woodland Trust will continue to facilitate data downloads of NatureScot's water level monitors on the bog.

4.3 f4 Long Established Woodland of Plantation Origin

Description

Two areas of woodland (compartments 5a and 7a) are shown as Long Established Woodland of Plantation Origin (LEPO 2b) in the NatureScot Ancient Woodland Inventory (AWI). However, the 1856 1st edition OS map shows that some other parts of the site could also be classed as LEPO, including parts of compartments 1a, 2a, 4a and 8a.

The 1856 map shows the woodland areas with straight edges defined by drains (all of which are still present) and are most likely early 19th century attempts to provide drainage and shelter belts to improve grazing quality. The current canopy is defined either by 1960s conifer planting or by semi-natural birch that has regenerated where conifer establishment has failed. There is also the occasional older, mature Scots pine or birch that pre-dates Forestry Commission planting.

The ground flora in these compartments does not vary significantly from that in the rest of the wood, being defined by grasses and broad-buckler fern (approximately NVC W4a) in the more open areas and bare ground under the denser conifers. The older ditches are valuable in that they are likely to be a refuge for remnants of the semi-natural bog vegetation present before drainage and tree planting impacted the site.

Significance

The woodland is on the NatureScot Ancient Woodland Inventory (AWI) as LEPO 2b and has existed since at least 1856, which indicates the potential for a relatively high biodiversity potential in comparison to the rest of the woodland on the site.

Opportunities & Constraints

Opportunities:

- Biodiversity value of the LEPO areas, in particular where they are composed of native woodland, will be considered when discussing necessary tree felling with Peatland Action to restore the raised bog.

- Consider alternative management interventions to felling LEPO areas, such as coppicing trees close to the raised bog area to reduce seed source.

- All LEPO woodland is growing on deep peat therefore has the potential to be restored as raised bog.

Constraints:

- The LEPO is situated on some of the deepest peats on the site.

Factors Causing Change

Some conifers are increasingly susceptible to windblow and wind snap.

Long term Objective (50 years+)

Areas of LEPO woodland growing on the deepest peat will have been felled and restored to a functioning raised bog habitat, increasing the likelihood of the bog restoration works being successful. Some areas of LEPO woodland will be retained or restructured through low-density planting of species less likely to colonise the bog eg. Scots pine, oak and hazel.

We expect some natural bog edge woodland to regenerate, although trees are likely to remain stunted due to the high water levels on the site, post peatland restoration.

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

- 2 hectares of LEPO woodland in compartments 3c, 5a, 5b and 6a will be felled and restored to raised bog as part of the proposed peatland restoration project (2026/2027). It is a mixed woodland area comprised of: Scots pine, birch, larch, Norway spruce, Sitka spruce, Douglas fir and grand fir.

- Coppicing birch trees in compartment 7a will be considered if necessary to reduce the seed load onto the bog (throughout plan).

4.4 f5 Secondary Woodland

Description

The secondary woodland (compartments 2a, 4a, part of 5b, 5c, 6a, part of 6b, 8a) consist mainly of un-thinned mixed commercial conifer stands planted between 1960 and 1963. The main species are Sitka spruce and Scots pine, with some Norway spruce, lodgepole pine, hybrid larch, and the occasional grand and noble fir. Sporadic patches of regenerating downy birch are found throughout. The occasional mature Scots pine can also be found which predates the 1960s planting. Poorly drained deep peat, combined with a lack of thinning and the crops reaching commercial maturity have produced closely-spaced stands which have become very susceptible to windblow. The Sitka and Norway spruce are particularly vulnerable and pockets of windblow are found throughout many areas of the commercial conifers. Standing and lying deadwood is frequent to abundant in the un-thinned conifer areas.

Ground flora is almost absent under the dense stands of spruce, and in more open areas is dominated by common damp woodland species (NVC classes W4 and W16) such as broad buckler fern, wavy hair-grass and mosses, including remnants of various sphagnum species. In the drier areas on the raised peat there are patches of blaeberry and heather in more open woodland and bracken and bramble on woodland edges.

The broadleaved woodland component consists predominantly of wet woodland (W4) and W16/W17 and some W18 type woodland; mainly downy birch with the occasional oak, rowan, willow and sycamore. Many of these are trees that have regenerated in open areas where the conifers did not establish well, there are also scattered mature trees present which predate the conifers. An area in the southeast of the site (compartment 1b) is now established downy birch regeneration following clearance of windblown conifers in 1999. Secondary woodland has also become established in compartment 3c and parts of 8a.

Significance

The woodland provides amenity value to the local community and the habitat supports a small colony of red squirrels and woodland birds.

Opportunities & Constraints

Opportunities:

- To remove remaining areas of conifers on the site and restore it to raised bog habitat.

Constraints:

- Wind damage is a constant potential threat in all un-thinned and commercially mature conifer areas growing on deep peat.

- Restricted management access will make potential harvesting and extraction difficult.

- Protected species using these areas need to be considered ahead of management interventions.

Factors Causing Change

Frequent windblow.

Long term Objective (50 years+)

Areas of existing secondary woodland (which are all growing on deep peat) will have been felled and restored to a functioning raised bog habitat.

As the main focus for the site is the lowland raised bog, the secondary woodland on the site will be retained where it does not compromise the priority peatland habitat (the main existing woodland will be around the car park in compartments 1a and 1b).

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

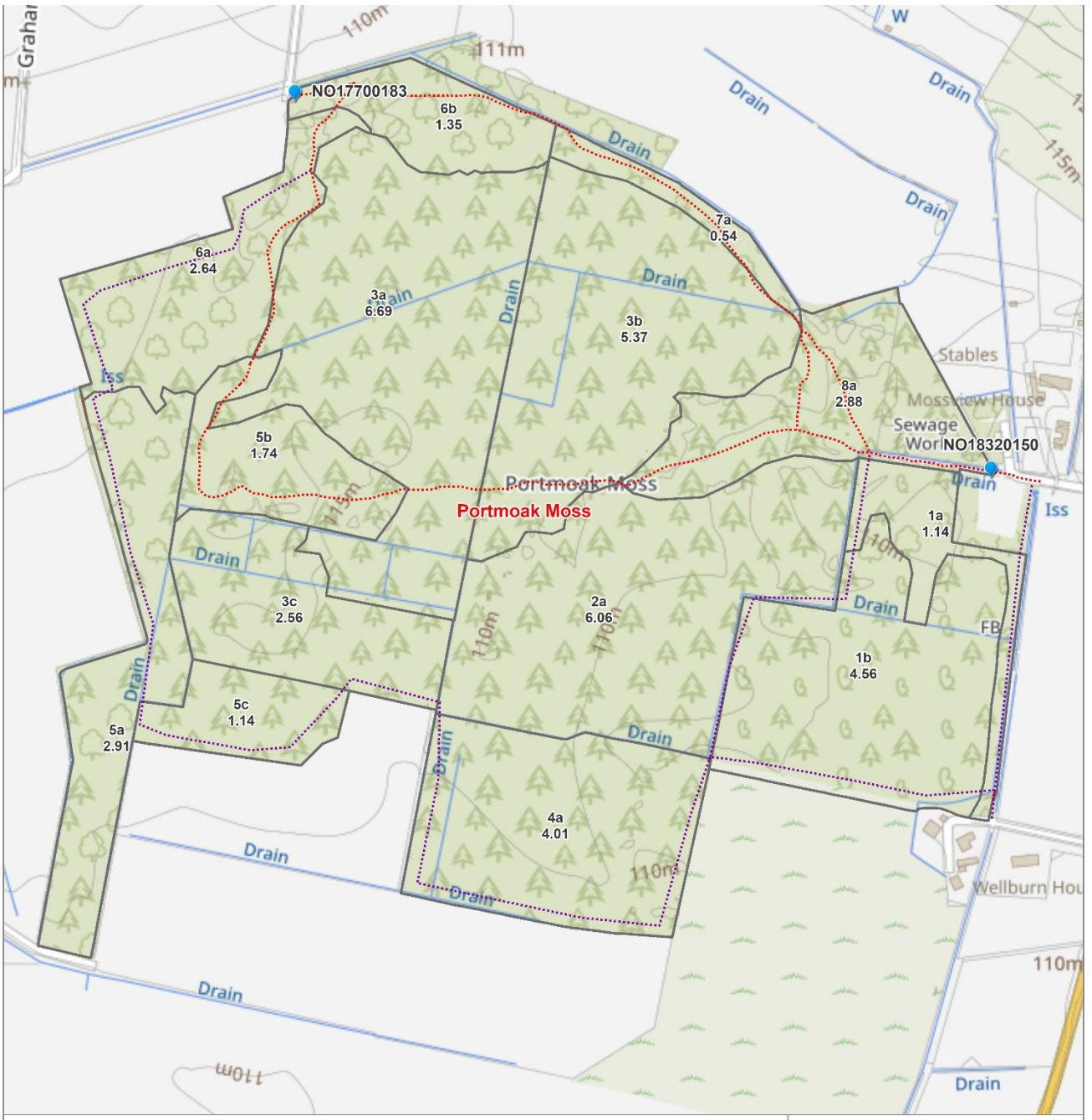
During the plan period:

- Approximately 25 hectares of the secondary woodland will be felled in 2026 to facilitate the restoration of deep peat areas to lowland raised bog. The entirety of compartments 2a, 3c, 4a, 5b, 5c, 6a and 6b; alongside the northern part of 5a and most of 8a will be felled in 2026. These areas will not be replanted, instead ground smoothing and re-wetting works will take place in these areas as part of a Peatland Action application to restore the majority of the site to raised bog (2026/2027).

- Naturally regenerated woodland areas in compartments 1a and 1b will be retained. Drains in these areas will be blocked during peatland restoration, to make these areas wetter and support the core raised bog area (2026/2027).

- PCWG volunteers will continue to monitor every year several small areas of Himalayan balsam in compartments 8a and 1a (along the site boundary). PCWG volunteers will arrange volunteer work days where necessary to remove it in summer before seeding.

Appendix 1 : Compartment Map



Access Points

Access points

Path Network Scottish

Path

Right of Way

SubCompartments

Woodland Trust Site Boundary

Portmoak Moss Compartments

0 60 120 m

Scale: 1:5,000 @A4

Date: 14 November 2025

Author:

WOODLAND TRUST SCOTLAND

Appendix 2 : Compartment Descriptions

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
1a	1.11	Birch (downy/silver)	2000	Min-intervention	Mostly wet ground/exposed site	
Ground conditions: peaty, extremely wet with deep water-filled ditches. The ground was heavily disturbed during conifer clearance in 1999. The predominant species is naturally regenerated downy birch with occasional goat willow, grey willow and rowan, with occasional mature trees and coppice regrowth. NVC type, predominately: W4 Wet Woodland with a narrow strip of W17 oak - birch woodland along the eastern boundary. An obsolete wayleave (powerline) cuts through a part of the sub-compartment. A stacking/turning area for the site lies on the northern edge of this block. A narrow strip of mature oak, pine and spruce forms the eastern boundary of the site. Occasionally a mature conifer blows over, although the strip as a whole has remained firm, providing shelter and an attractive visual screen to the naturally regenerating wet woodland area in 1b. The ground flora beneath the birch consists of abundant mosses and grasses, frequent ferns and mosses, with frequent marsh and dog violet, and common sorrel Ground flora is less prevalent beneath the conifers. There is occasional regeneration of downy birch. There is ample deadwood due to the occasional windblown conifer in the strip on the eastern boundary.						
1b	4.54	Birch (downy/silver)	2000	Min-intervention	Mostly wet ground/exposed site	
Ground conditions: peaty and extremely wet with deep water-filled ditches. The ground was heavily disturbed during conifer clearance in 1999. Naturally regenerated downy birch predominates along with the occasional goat willow, grey willow and rowan. Regeneration is dense throughout most of the site. There is a scattered overstorey of mature downy birch on the western side of the sub-compartment. An obsolete wayleave (powerline) of open ground bisects the sub-compartment-this is an important breeding and feeding area for small pearl boarded fritillary. Regenerated trees around the open ground area were cut back and the edges scalloped and debris mulched in 2014. A new strip of open ground parallel to the existing was created at the same time to improve and expand the habitat. The vegetation community that developed following clearfelling was predominantly NVC M23 Juncus effusus/acutiflorus-Galium palustre rush-pasture, overwhelmingly dominated by Rushes (Juncus effusus) with abundant grasses consisting of: Yorkshire fog (Holcus lanatus), velvet bent (Agrostis canina), wavy hair-grass (Deschampsia flexuosa) and tufted hair-grass (Deschampsia cespitosa). There was also frequent common sorrel (Rumex acetosa). For several years following clearfell rosebay willowherb (Chamaenerion angustifolium) and brambles (Rubus ideaus and Rubus fruticosus) were locally abundant-these species are often associated with disturbed ground and persisted on the site for several years afterwards. The rosebay and bramble have gradually disappeared as light levels change and a dense canopy of natural regenerated trees has become established. As a result of this change mosses are now more abundant across the site. Some grasses, soft rush and common sorrel have continued, whilst marsh and dog violets have increased in abundance-especially in and around areas of light						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
woodland and open ground (the old wayleave). Much of the woodland in this compartment has developed into NVC type W4 Wet Woodland. Deer browsing has not prevented regeneration in this area-although roe deer are frequently seen. Deadwood is currently limited to gradually decaying mature trees, snapped off boughs and the occasional windblown tree.						
2a	5.67	Sitka spruce	1960	High forest		
Sitka spruce 1960 High forest An area of mature unthinned mixed conifers, predominated by Sitka spruce. This compartment is on the lower peat level and is relatively well-drained in places. It is bounded on the west by the reprofiled (2016) peat-face and by the timber extraction route to its north. The major part of the compartment consists of an intimate mix of Sitka spruce and Scots pine. The pine has been completely suppressed by the spruce and is very drawn up and moribund. Hence, many of the pines are standing dead and there is frequent wind snap. This has had the effect of a self-thinning, resulting in the Sitka spruce being well drawn up and of reasonable form. There are a few broadleaves scattered throughout the crop (mainly naturally regenerated mainly downy birch). Towards its eastern edge, the canopy consists of mature Norway spruce and downy birch. The north-eastern lobe of the compartment consists almost entirely of Sitka spruce. Sporadic windthrow has occurred throughout the compartment in recent times and is highly likely to intensify. The combination of: a generally deep peaty soil, a high water table, a lack of thinning and the rotational age of the trees will ensure that crop stability continues to decrease. As a result, the risk of a large scale windblow event occurring will continue to increase. It is important that the crop is clearfelled before this occurs. The standing timber resource is currently estimated at approximately 340 cubic metres/ha. There is little or no ground flora or understorey under the dense canopy. Wood sorrel and several mosses are frequently found. In lighter areas to the west there are occasional grasses and frequent ferns. Spruce seedlings occur throughout, although lack of light prevents their establishment. Aerial and fallen deadwood is abundant due to the large amount of standing and fallen dead pine and pockets of windblow.						
3a	6	Open ground	2005	Non-wood habitat	Mostly wet ground/exposed site, Sensitive habitats/species on or adjacent to site	
Forms a significant part of the core area of the raised bog peat dome. The site was clearfelled of commercial conifers in 2000. Ground vegetation was almost absent following clearfell but soon developed, over time into a mosaic of wavy hair-grass (Deschampsia flexuosa), mosses (mainly sphagnum species), cotton grass (Eriophorum angustifolium), soft rush (Juncus effusus) and heather (Calluna vulgaris). Dense downy birch, Sitka spruce and a few pine began to colonise many areas, particularly at the edges of the cleared area						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
and began to threaten the raised bog open ground habitat- over time much of this has been controlled, prolific seeding from surrounding mature trees continues to offer a threat to the long term. Deadwood is scattered across the site and present in the form of: a few standing dead pines, decaying lop and top from scrub control and numerous conifer stumps from the original clearfell. Since tree clearance a variety of works has been undertaken to help improve the raised bog habitat. These include: damming, tree and scrub clearance and control, surface mulching, drain bunding and infilling and reprofiling of the eastern edge of the exposed steep cut face of the raised bog. The signs are promising, there has been a gradual rise in the water table. Increasing water levels further will help to control seeding scrub. Sphagnum species have shown a strong recovery over parts of the site. In areas of standing water there is frequent sphagnum cuspidatum with sphagnum recurvum on pool edges. On somewhat drier areas there are frequent tussocks of sphagnum palustre and occasional sphagnum capillifolium and sphagnum fimbriatum. Sphagnum magellanicum has also been reported but is rare. Large swathes of drier ground remain scattered throughout. The largest area of which is located in compartment 3b. These areas are dominated by grassland species such as: wavy hair-grass (Deschampsia flexuosa), tufted hair-grass (Deschampsia cespitosia), Yorkshire fog (Holcus lanatus), creeping soft grass (Holcus mollis), and purple moor grass (Molinia caerulea) with occasional heather and broad-buckler fern (Dryopteris dilitata). The on-going programme of works has helped the water level to rise and spread across parts of the site. There is abundant deadwood across the site in the form of several standing dead pines, decaying brash and lop and top and numerous conifer stumps.						
3b	5.37	Open ground	2005	Non-wood habitat	Management factors (eg grazing etc), Mostly wet ground/exposed site, Sensitive habitats/species on or adjacent to site	
Part of the core raised bog peat dome, and bounded by the cut peat-face along its south-western edge. All the commercial conifers (Sitka spruce and lodgepole pine, planted 1960) were removed in 2004. Ground vegetation was almost absent following clearfell but soon developed, over time into a mosaic of wavy hair-grass (Deschampsia flexuosa), mosses (mainly sphagnum species), cotton grass (Eriophorum angustifolium), soft rush (Juncus effusus) and heather (Calluna vulgaris). Dense downy birch, Sitka spruce and a few pine began to colonise many areas, particularly at the edges of the cleared area and began to threaten the raised bog open ground habitat- over time much of this has been controlled, prolific seeding from surrounding mature trees continues to offer a threat to the long term. Deadwood is scattered across the site and present in the form of: a few standing dead pines, decaying lop and top from scrub control and numerous conifer stumps from the original clearfell. Since tree clearance a variety of works has been undertaken to help improve the raised bog habitat. These include: damming, tree and scrub clearance and control, surface mulching, drain bunding and infilling and reprofiling of the eastern edge of the exposed steep cut face of the raised bog. The signs are promising, there has been a rise in the						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
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3c	2.98	Birch (downy/silver)	2005	Min-intervention	Gullies/Deep Valleys/Uneven/Rocky ground, Management factors (eg grazing etc), Mostly wet ground/exposed site, Sensitive habitats/species on or adjacent to site	
Clearfelled in 2005. The area is bounded: on the east by the cut face of the peat; to the south by larch in compartment 5c; to the west by major drainage ditches; to the north-west by the open mature pine woodland of compartment 5b. To the north it marches with the central area of raised bog (sub-compartments 3a and 3b). A narrow belt of larch has been left to the south on the southern edge, along the perimeter of the wood. Although numerous dams were installed in the main drains, the water table did not rise as anticipated. As a result, sphagnum recovery, post felling, has not been as successful as in compartment 3. The majority of sphagnum moss is focused around the main drainage channels-all of which have been dammed. Post felling, the site did however, provided ideal conditions for the natural regeneration of tree species to occur and tree seeding was prolific: dense downy birch, Sitka spruce, pine, larch and willow from the surrounding mature trees successfully colonised the whole site right up to the northern drain boundary and is now extremely well established and have closed canopy. Other trees found on site include: a few over-mature pine in the centre of the area and the mature larch strip to the south. There is abundant deadwood in the form of windblown larch, decaying brash and conifer stumps. The area surrounding the dammed main drains is important for sphagnum and other bog species. Whilst the deep						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
water filled drains within subcompartment 3c provide essential habitat for aquatic invertebrates, especially Odonata species.						
4a	4.03	Sitka spruce	1960	High forest	Management factors (eg grazing etc), Mostly wet ground/exposed site, No/poor vehicular access to the site	
This sub-compartment adjoins the southern edge of sub-compartment 2a and is a dense mixed conifer stand, consisting mainly of an intimate mix of unthinned and drawn up Sitka spruce and lodgepole pine, with occasional pockets of windblow, increasing along the south and eastern boundaries. Within this matrix there are more open groups of downy birch and occasional Scots pine and Norway spruce. Underneath the spruce there is virtually no ground flora. In lighter areas ground flora is frequent to abundant with grasses (mainly Deschampsia flexuosa) and broad-buckler fern (Dryopteris dilitata). There is an abundance of deadwood due to the suppressed lodgepole pine-much of which is standing dead or snapped and fallen. The compartment is partly on the raised peat area, but is surrounded by deep ditches on all four sides, so that it is separated, in a hydrological sense, from the main raised peat area and is drier in parts than sub-compartment 2a. In the west of the compartment the peat surface is disturbed with various hummocks and hollows. A combination of: a wet peaty soil, lack of thinning, and the rotational age of the trees will ensure that crop stability continues to decrease and sporadic windthrow is highly likely to intensify. As a result, the risk of a large scale windblow event occurring will continue to increase. It is important that the crop is clearfelled before this occurs. Management access to this sub compartment is limited and is via sub compartment 2a. The standing timber resource is currently estimated at approximately 340 cubic metres/ha.						
5a	2.87	Birch (downy/silver)	1963	High forest	Management factors (eg grazing etc), Mostly wet ground/exposed site, No/poor vehicular access to the site	
A long narrow compartment forming the western boundary of the woodland. The compartment sits on the edge of the raised bog and is bounded by the cut peat-face to the north east. It is bounded by ditches on all other sides. In the centre of the compartment a belt of hybrid larch stretches west from compartment 5c, but to the north and south of this belt most of the compartment consists of an open mix of semi-mature downy birch and grand fir. Many of the grand fir have died standing although the remainder appear healthy. In the far north of the compartment there is a small block of mature Norway spruce. Under the open birch/fir woodland there is regeneration of birch and the occasional conifer and a ground flora of wavy hair-grass (Deschampsia flexuosa) and broad-buckler fern						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
(Dryopteris dilitata), with strong bracken growth along western edge. Browsing damage is low. There is currently only the occasional windblown tree, although there is frequent deadwood from standing and fallen grand fir. The whole sub-compartment is shown as Long-Established Woodland of Plantation Origin (LEPO) on the NatureScot Ancient Woodland Inventory and is visible as a shelter belt planted between ditches on the 1856 1st edition OS map.						
5b	1.26	Scots pine	1963	High forest	Gullies/Deep Valleys/Uneven/Rocky ground, Management factors (eg grazing etc), No/poor vehicular access to the site, Sensitive habitats/species on or adjacent to site	
A block of mixed woodland of predominately Scots pine on a generally dry area of the raised bog. Bounded to the south west by sub-compartment 5a and to the north-west by the cut peat-face running along the edge of sub compartment 6a and on all other sides by the open ground of the core area of raised bog. The southern part consists of Scots pine and downy birch. To the north there is a small area of unthinned Sitka spruce interspersed with Scots pine -planted in 1963. Beneath the unthinned conifers there is little ground flora, but in the more open pine-birch areas there is frequent heather (Calluna vulgaris) and blaeberry (Vaccinium myrtillus), broad-buckler fern (Dryopteris dilitata) and wavy hair-grass (Deschampsia flexuosa). This approximates to a mosaic of NVC type W16, whilst the pine-birch mix is more familiar in appearance to NVC type W18. Occasional mosses present include Dicranum scoparium, Polytrichum commune and Pleurozium schreberi. Surviving raised bog vegetation includes rare patches of common cotton-sedge (Eriophorum angustifolium) and significant patches of sphagnum species. There is frequent birch regeneration in the more open areas, which does not seem to have suffered undue browsing. There is frequent deadwood in the form of windblown trees.						
5c	1.12	Hybrid larch	1963	High forest	Gullies/Deep Valleys/Uneven/Rocky ground, No/poor vehicular access to the site	
Open woodland (80% canopy) of hybrid larch with occasional downy birch regeneration in parts on the southern boundary of the site. The larch has suffered much windblow in the past. However, it now provides a relatively wind firm edge to the boundary. Ground vegetation consists mainly of grasses and ferns in denser areas and bracken in more open areas. There is abundant deadwood as a result of decaying windblown larch. This area of the site is fairly well-drained due to the deep boundary ditch to its south.						
6a	3.56	Mixed conifers	1963	High forest	Management factors (eg grazing etc), Mostly wet	

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
					ground/exposed site, No/poor vehicular access to the site	
A block of mainly conifer woodland forming the north west boundary of the site. Most of which is on the lower peat level, although a narrow belt of trees sits along the western face of the raised bog. To the south part of the area is bounded by a reprofiled area of the raised bog. The western part of the sub-compartment is shown as woodland on the 1857 1st edition OS map (although not shown as LEPO on the NatureScot Ancient Woodland Inventory). The canopy consists mainly of a mix of mature Scots pine and Sitka spruce in the west (planted 1963) with frequent groups of mature downy birch (particularly along the edges). The rest of the compartment is more mixed with frequent Sitka spruce, Norway spruce, lodgepole pine and downy birch. There is occasional windblow. Most trees appear wind firm on this drier and lower ground. Beneath the birch there is abundant wavy hair-grass (Deschampsia flexuosa) and frequent broad-buckler fern (Dryopteris dilitata), although little tree regeneration. There is little ground flora beneath the conifers. There is occasional dead wood from windblown trees. Minor threat to AW communities from shade, however this is limited by the canopy being opened up from the occasional windblown tree.						
6b	1.37	Birch (downy/silver)	1963	Min-intervention	Mostly wet ground/exposed site, No/poor vehicular access to the site	
A varied compartment on the lower peat level, forming the northern boundary to the wood and containing the most diverse area of mixed broadleaves within the site. The canopy consists mainly of mature and semi-mature downy birch but also includes sycamore, ash and rowan. There is also a small strip of Norway spruce and sycamore along part of the northern boundary. The ground flora consists mainly of grasses and ferns with wild raspberry in more open areas and is typical of NVC classes W4 and W16. There is occasional broadleaved (birch) regeneration where light levels allow and frequent deadwood.						
7a	0.53	Birch (downy/silver)	1963	Min-intervention	Management factors (eg grazing etc), Mostly wet ground/exposed site	
A narrow belt of open broadleaved woodland, on the edge of the core area of the raised bog, which forms the northern boundary of the site. The canopy is mainly mixed aged birch with occasional rowan and grey willow. Birch seedling regeneration from this strip of woodland onto the raised bog has been a nuisance in the past and requires frequent monitoring. The ground flora comprises of: abundant wavy hair-grass (Deschampsia flexuosa) with frequent broad-buckler fern (Dryopteris dilitata) and occasional patches of bramble and bracken. There is occasional dead wood. This sub-compartment is shown as woodland on the 1857 1st edition OS map and is shown as Long Established						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
Woodland of Plantation Origin (LEPO) on the NatureScot Ancient Woodland Inventory.						
8a	2.86	Scots pine	1963	High forest	Gullies/Deep Valleys/Uneven/Rocky ground, Mostly wet ground/exposed site	
Mature conifer woodland (planted 1963) on the lower peat level, bounded on the west by the reprofiled (2016) peat-face, and to the south by the extraction route and stacking area and the site boundary to the north-east. A deep water filled ditch bisects north-south through the eastern side of the sub compartment. The area to the west of the ditch is a mixture of very well grown; commercially mature Sitka and Norway spruce, which was thinned in 1999 and 2004 to improve stability. Several large pockets of windblow have occurred amongst the mature Sitka and Norway spruce since it was last thinned. The windblown area within the spruce will gradually increase in size and spread. The long-term stability of the remaining Sitka and Norway spruce is at risk. The standing timber resource is currently estimated at approximately 340 cubic metres/ha. The area is shown as open woodland on the 1856 1st edition OS map, although it is not shown on the NatureScot Ancient Woodland Inventory. The remainder of the compartment consists mainly of an intimate mix of predominately Scots pine, Sitka spruce and downy birch. The pine is reasonably stable and has self-thinned over time. Patches of mixed aged birch fringe the reprofiled peat-face and there are dense patches of birch regeneration in places. There are also occasional older, more mature, Scots pines that pre-date the FC planting. In the pine/birch areas there is occasional windblow. Under the dense spruce there is much bare ground, but in lighter areas there is frequent broad-bucker fern (Dryopteris dilitata), grasses and common mosses. Dead wood is evident throughout, especially in the pure spruce areas, in the form of windblown and standing dead trees						

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.

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

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