



Forestry and
Land Scotland
Coilltearachd agus
Fearann Alba

Glenisla Land Management Plan 2023 to 2042

We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.



The mark of
responsible forestry



1 Introduction & Summary

1.1 The Site

Lying to the east of the village of Glenisla 15 km north east of Blairgowrie, Glenisla Forest totals 2,082.07 hectares.

The forest includes Glen Finlet, Glen Taitney, Glen Markie, and Glen Damff. Small settlements of Glen Markie and Freuchies border the forest. To the south east is Backwater Reservoir operated by Scottish Water.

Split between two blocks: Glenisla (1640.3ha) and Glen Markie (441.77ha), the plan covers 2,082.07 hectares of which 1,520 hectares is afforested, 200 hectares is integral open ground, 357 hectares is hill ground with approximately five hectares being other land uses.

Afforestation began in 1959 and continued through till 1971. A second phase of planting took in remaining areas on the west of Glen Finlet in the late 1970s with a final phase in the late 1980s leading to the afforestation of some higher elevations on Craigie Law and the western aspect of Creag Reamhar. Restructuring of the plantation started in 1993.

Soils are predominantly brown earths with upland brown earths on valley slopes, ironpans and podzolic soils on the higher plateaus and surface water gleys in valley bottoms. Higher ground towards the north of the block includes areas of peaty gleys with Calluna and Blanket bog.

1.2 Key Issues and Objectives

- Plant Health threat - *Phytophthora ramorum*
- Management of Storm Arwen windblown coupes
- Sustainable Timber Production and harvesting of mature crops
- Maintenance of habitat for European protected species.
- Drinking water quality – Private and Public supplies
- Increase in native broadleaf planting

1.3 Summary of Planned Operations

The primary focus of the first 5 years (2023 – 2027) of the Land Management Plan (LMP) is firstly to address the removal of the windblow coupes following Storm Arwen, and secondly the removal of mature stands of larch trees. The latter action is being undertaken to reduce the risk

of *Phytophthora ramorum*, due to the recent incidences of *P.ramorum* detection within the forest.

Geographically, the harvesting work during this period will focus on felling on the eastern side of Glen Markie and at the southern end of Glen Isla. Road access improvements are incorporated into this plan to facilitate felling and extraction of timber from Glenmarkie, principally via the road which runs adjacent to Backwater Reservoir and exits at the south of this part of the forest.

Phase 2 (2028 – 2032) of the plan will focus on the felling of mature larch to align with the FLS strategy on larch to mitigate and reduce the risk of *P.ramorum*. This strategy promotes a proactive approach to the management of *P.ramorum*, thus reducing the business risk of taking a reactive approach and having to respond at short notice to Statutory Plant Health Notices (SPHNs).

1.4 Certification

Woodland and forestry managed by Forestry and Land Scotland is independently verified against the UK Woodland Assurance Standard which reflects the requirements of both the Forestry Stewardship Council (FSC) and Programme for Endorsement of Forest Certification (PEFC).

1.5 Consultation and Further Information

For further information or to submit comments please contact:

By Email: enquiries.east@forestryandland.gov.scot or

By telephone on 0300 067 6380

Or in person: Inverpark, Dunkeld, PH8 OJR

1.6 The Existing Land Holding

This Land Management Plan covers the following Glens –Finlet, Markie, Taitney and Damff situated on the southern edge of the Cairngorms.

Planting at the site began in 1949 with Scots pine and Larch being the primary species. Progressing into the 1960s and 1970s Sitka spruce became the species of choice. Restructuring of the forest began in 1993.

1.7 Setting and Context

1.7.1. Location

The principal access point to the Glen Isla Block is one kilometre east of Kirkton of Glenisla from the **B951** (NGR NO223604). Alternative access and the primary access to the Glen Markie block is at NO 250 620 accessed via a private road from the B951 at Dykend.

1.7.2. Designations

There are no designated areas within the block however the Cairngorm National Park lies directly to the north of the block. Water from the block ultimately feeds into the River Tay Special Area of Conservation. Western parts of the block are within a Public Drinking Water Catchment.

1.7.3. Environmental Features

The blocks are wholly within a Wild Cat (*Felis silvestris*) Priority Area. Glen Isla is within the range of a number of Schedule 1 European protected species. Other important species including Red squirrel (*Sciurus vulgaris*) also inhabit the block.

1.7.4. Heritage Features

There are no Scheduled Monuments within or adjacent to the blocks. The blocks include and border with a number of historic rectilinear field systems. There is a small number of remnant shielings and historical agricultural remnant buildings within the site.

1.7.5. Fire

There is limited fire risk at Glenisla in the present climate. This risk is likely to increase with higher summer temperatures and change in forest structure. Creating and maintaining light vehicle access with a greater coverage of the block will enable any fires which may ignite to be tackled in a timely manner.

1.7.6. Water and Hydrology

There is hydrological connectivity between the forest and Backwater Reservoir via Glen Taitney Burn, Glen Damff Burn and the eastern slopes of Glen Markie. Glen Isla forest is located within a drinking water catchment.

1.7.7. Utilities

There are a number of private water supplies originating within the block supplying nearby properties. These are mapped on the FLS geospatial database although for privacy are not included on maps within this public document.

The eastern areas of the site drain to the Backwater Reservoir which is located in a Drinking Water Protected Area (DWPA).

The location of each known supply and the associated infrastructure is included on all operational site maps. Forest and Water guidelines will be adhered to in forest and operational planning and measures put in place to protect these supplies. Site specific measures will be included in individual operational plans as appropriate prior to commencement of works.

There are no electricity power lines within the block, however supply lines do serve both Glen Markie and Freuchies, which may impact on management and haulage operations.

1.7.8. Peat

There are areas of peat within the block and these are located towards the northern and north eastern boundary of the Glen Isla block. Peatland restoration of the upper reaches of Glen Finlet will be to enhance carbon sequestration in areas identified as deep peat. Collaborative works with neighbouring landowners where the peat unit extends over adjacent ownership boundaries, has the potential to restore areas of peat at the landscape level. Afforested areas of deep peat will be subject to surveying and assessment to establish both the viability and most effective restoration techniques. The timing of restoration works will be determined by a number of factors including environmental and timber harvesting constraints.

1.7.9. Tree Health and Pathogens

Phytophthora ramorum, which principally affects Larch trees has been identified within Glenisla. A number of trees across northern and easterly locations within the block have shown symptoms and FLS have been served with Statutory Plant Health Notices (SPHN) at two locations. The most recent SPHN was served in September 2022 (NO 237 624) in Glen Markie with a further one served in in Glen Finlet at (NO 231 690) in 2020.

Glenisla is within the Priority Action Zone (PAZ) as identified within the Scottish Forestry *Phytophthora ramorum* Larch Action Plan June 2021. Requirements in this zone are to eradicate local infections through tree felling rapidly after detection.

Further to this, FLS has developed a Larch Strategy published in April 2022 which designates Glenisla forest as being located in the **PAZ more vulnerable zone**. This designation requires a more proactive approach to the removal of Larch at the forest block level, thus requiring the removal of greater volumes of Larch within a set timescale within this LMP. As such, this designation has significant implications and is a leading driver in the development of this plan. The key aim is to manage the removal of all mature Larch over a 10-year period, to mitigate the risk of *Phytophthora ramorum* spreading further afield into the **PAZ less vulnerable zone**. This proactive management of removal of mature Larch, will have to be balanced with the requirements of protecting European protected species and factoring in the rate of change on the age structure of the forest. These competing objectives have been factored in and fully considered in the development of the felling schedule proposed across the plan period.

Dothistroma Needle Blight (DNB) can affect Scots, Corsican and Lodgepole pine. the pathogen responsible is *Dothistroma septosporum*. DNB has been identified within the Glenisla block. Pine stands, where accessible, will be thinned in order to reduce inoculum levels. Where areas of poor condition Lodgepole pine cause no detrimental impact visually in the landscape or obstruct access to other crops, these will be retained through to senescence in order to create deadwood. These reserves will provide habitat protection and connectivity.

2 Plan Objectives

2.1 Pertinent Issues

- Wind damage – Storm Arwen has led to large areas of windblow and destabilised crop, especially within older, mature crops – leading to increased felling activity and a high rate of change. This storm damage will lead to reduction in timber values and increase operational risk for harvesting.
- *Phytophthora ramorum* – Loss of crop value and forced rate of change.
- Dothistroma Needle Blight – senescence and mortality of Lodgepole pine stands and reduction in Scots pine yield.
- Over 50% of the forest is at Maximum Mean Annual Increment (MMAI) and crop stability will reduce.
- European protected species – manage rate of change of forest cover within the block to protect these.
- Access – timing of operations to meet wider objectives and subsequent difficulty with road and climatic conditions
- Water quality – This is important both for drinking water supplies and as a tributary to the River Tay SAC.
- Operational access to Glen Markie is limited – new road infrastructure is required.
- Peatland restoration opportunities – some areas are identified as presently afforested peatland.
- Broadleaf component does not comply with UKFS or UKWAS requirements.
- Landscape especially as seen from the east of the Backwater reservoir and west from the Cateran Trail.
- *D.micans* has been identified in the area and proactive management of spruce is required.

2.2 Key Challenges

- Managing the rate of change especially in light of damage caused by Storm Arwen to balance the needs of wildlife within the forest but also to moderate financial loss and operational hazards from wind damaged or retained crops.
- Creating and maintaining access for scheduled harvesting operations as well as any felling requirements which may come through Statutory Plant Health Notices.
- Future resilience of the forest given changing climate, increasing pests and diseases and growing understanding of the role of forestry in combating both the climate and biodiversity crisis.

2.3 Management Aims

- A Manage the forest to produce high quality timber for local markets with initial focus on felling those coupes damaged by Storm Arwen.
- B Put in place measures to facilitate access to larch and remove areas of larch where harvesting is more complex. Focus on resilience planning for larch coupes and identify those larch coupes which remain but may need to be brought forward for proactive felling.
- C Carbon – opportunity to increase carbon sequestration via peatland restoration. Opportunities to plant trees on existing open ground.
- D Protect riparian and soil environments in order to maintain and improve the quality of water leaving the site.
- E Maximising opportunities to improve contribution of the site to ecosystem services.
- F Manage the woodland and restocking to maximise resilience to a changing environment and climate.
- G Undertake management of the forest and surrounding areas in a manner which minimises impact on Schedule 1 protected species and enhances habitat connectivity.
- H Manage the rate of change in the forest and proactively identify management opportunities to slow the rate of change.
- I Increase the proportion of broadleaves to ensure UKFS compliance.

3 Concept and Objectives

Objective	Aim	Opportunities	Constraints	Concept
<p>Undertake to prioritise removal of mature larch. This will reduce the risk of <i>P.ramorum</i> and improve tree health resilience and the ability to respond to SPHNs.</p>	A, B, F & H	<ul style="list-style-type: none"> To proactively reduce the risk of spread of <i>Phytophthora ramorum</i> into the area FLS identified as the PAZ less vulnerable zone. Improved provision of access to Larch coupes which may be difficult to fell if served with a SPHN. 	<ul style="list-style-type: none"> Access to some Larch coupes in both Glen Isla and Glen Markie is restricted. Rate of change in the block on European protected species. Landscape impacts from felling of Larch coupes and loss of autumnal contrast. 	<ul style="list-style-type: none"> Identify readily accessible Larch coupes in preparation for felling in Phase 1 and prioritise those coupes with windblown larch. Phase 2 coupes of Larch have been identified with the expectation these can be retained to reduce the rate of change driven by Storm Arwen windblow and the recent SPHNs in Glenisla. These Phase 2 Larch coupes would be readied for felling should that be required.
<p>Undertake to maximise the proportion of crops which are thinned. This will improve the timber quality but also increase management options going forward.</p>	A, B, C, D, F & H	<ul style="list-style-type: none"> The existing road network allows access to much of the site. Thinning will be used to fell isolated larch coupes and stands where there are low density larch mixtures in a crop. 	<ul style="list-style-type: none"> Crop Age and previous thinning History Ground Conditions Exposure on higher elevations Areas, especially in Glen Markie and to the west of Glen Finlet have poor operational access. 	<ul style="list-style-type: none"> Undertake first thinning within the thinning window to maximise opportunities for future management Specify areas for management under no thin system including reasoning.
<p>Supply quality timber to local markets</p>	A, C	<ul style="list-style-type: none"> Over 55% of the forest will be at or over Maximum Mean Annual Increment within this plan period. 	<ul style="list-style-type: none"> Tree disease and suitability limit the species suitable for commercial timber growth. – Larch may require removal before achieving timber dimension. Scots pine, although suited to poor conditions, shows reduced yield due in part to presence of DNB. Ecological constraints and climatic conditions provide a limited working window. This in turn exacerbates the impact operations have on the access infrastructure both within and to the block. 	<ul style="list-style-type: none"> Undertake to fell 249.51 hectares within phase one and 110.82 hectares in phase two of this plan.
<p>Interlinked habitat corridors Establishment of riparian buffer zones will protect water quality. Marginal woodland will provide refuge and linked corridors as well</p>	D, F, G & I	<ul style="list-style-type: none"> Watercourses provide opportunity to use riparian corridors for linkages. Existing low quality Lodgepole pine may be utilised to create deadwood reserves at higher elevations. Corridors would provide boundaries which would create wind firm coupe breaks and fire barriers. 	<ul style="list-style-type: none"> Given the gradient and narrow form of the block operational access and landscape may require removal of valley to tree line sections of forest at felling. Woodland edge if used will need to be designed appropriately to fit the landscape. Regeneration of exotic conifers may need to be managed at cost. 	<ul style="list-style-type: none"> Linking habitats can provide corridors for Schedule 1 protected species and other wildlife to benefit. Protect public and private drinking water sources to reduce diffuse pollution.

Objective	Aim	Opportunities	Constraints	Concept
as connectivity to other land use.		<ul style="list-style-type: none"> Maximise opportunities to establish new native woodland to improve margin habitats and connectivity between woodland habitats as well as linking to open habitats. 	<ul style="list-style-type: none"> There are limited numbers of minor watercourses running down the slopes of glens, so altitudinal links will require careful design in order to maximise habitat contribution whilst providing best fit into the landscape. 	
<p>Take opportunities to expand woodland cover.</p> <p>Maximising woodland cover on appropriate sites will maximise the carbon sequestration potential of the site. This must be balanced against ecosystem services offered by open ground.</p>	C, E, F, G, H & I	<ul style="list-style-type: none"> Historic afforestation has concentrated on commercial conifer. Areas exist above the present tree line which are suitable for sub montane woodland edge woodland. Land transactions to rationalise ownership have made available a section of lower ground for woodland creation. These areas are suited to low density sub montane and edge woodland. Improved woodland edge management maximises the habitat value of the site and may be able to make the block sit more naturally into the landscape. 	<ul style="list-style-type: none"> Establishment of broadleaf woodland in this upland environment can be challenging. Herbivore pressure must be maintained at a low level for a prolonged period in order to allow these woodlands to fully establish. 	<ul style="list-style-type: none"> Increase in native woodland coverage to meet UKFS. Improved habitat for European protected species and other wildlife. Visually, creation of a transition to open ground rather than a hard woodland edge.
<p>Where climate and soils are conducive alternative management systems to clearfelling should be utilised.</p> <p>Limiting soil disturbance through clear felling and ground preparation will help protect water quality and reduce carbon emissions from the woodland.</p>	D, G & H	<ul style="list-style-type: none"> Proportion of the site which has previously been thinned. Effective herbivore management is currently in place. Access infrastructure provides access to much of the site. 	<ul style="list-style-type: none"> Areas which are otherwise suitable but have missed age of first thinning. Disease present in otherwise suited species such as Larch and Scots pine. Neighbouring land management means high outside deer pressure. The boundary fences must be checked and maintained. Limited commercial species are well suited to the site conditions. Growing exotic conifers to seed bearing age inadvertently threatens those adjacent areas being managed towards broadleaf woodland or open ground. 	<ul style="list-style-type: none"> Slow the rate of change. Improved habitat for European protected species and other wildlife. Enhance the landscape character of the forest.