Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Glen Roy Land Management Plan Scoping Brief

1. Key background information

Introduction

Glen Roy forest is situated 12 miles North of Fort William, immediately to the North of the village of Roy Bridge and lies at the southern end of Glen Roy, between 100 m and 350 m on a tributary valley of Glen Spean. This Land Management Plan (LMP) area extends to 1791.78 ha and covers open ground and forest, of which 478 ha has tree cover (389 ha under conifers and 89 ha broadleaves). The open ground surrounding the woodland is owned by FLS but is subject to grazing by two crofting associations (Inveroy Crofters' and Bohuntine Crofters'). The land was purchased in 1959 from two separate owners and the original planting took place between 1964 and 1977; some of the commercial planting is now second rotation. This LMP will review and revise the previous Forest Design Plan (03/07/22 to 02/07/2022, extended to 31/03/2023).

The forest is primarily commercial conifers, with some extent of ASNW and PAWS and it lies within the Parallel Roads of Lochaber SSSI. A major amendment was approved in 2021 for new roads that cross the Allt Lonndrainn river to access coupes in the eastern part of the forest. These coupes will be restocked with broadleaves to improve visual amenity and to protect the landforms and geological aspects, primarily the Parallel Road features.

Economic factors

Approximately 74% of the landholding is open ground and is maintained under the crofting system. Of the remainder, 21% is forested, with small areas of internal open space (3%) and failed, felled or windblown (2%).

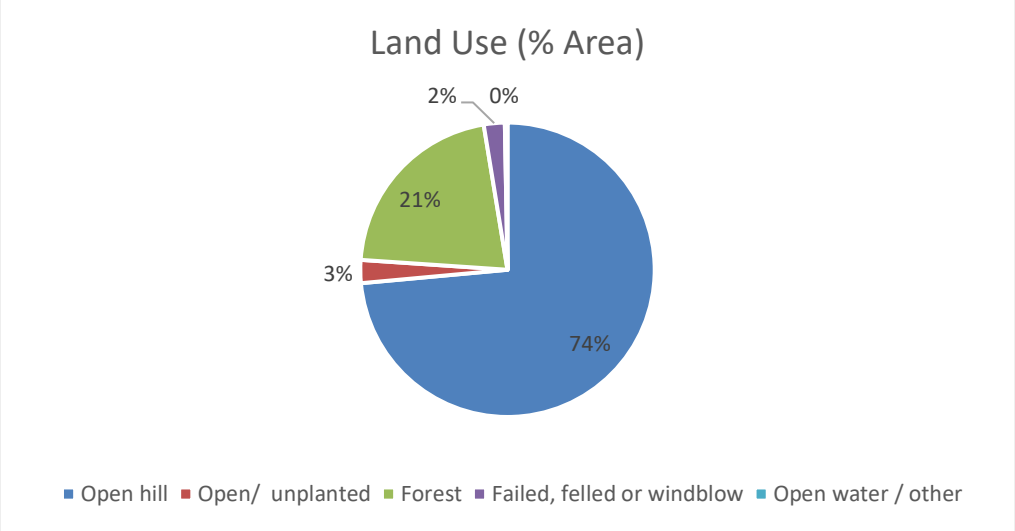

Figure 1 Land use in the Glen Roy LMP area

The species mix is dominated by Sitka spruce (48%) and Lodgepole pine (31%). There is a scarcity of alternative conifer species and the broadleaved component is not only small (18%) but also dominated by relatively few species (birch and oak). A challenge will be to diversify the species mix to improve resilience over the rest of the rotation.

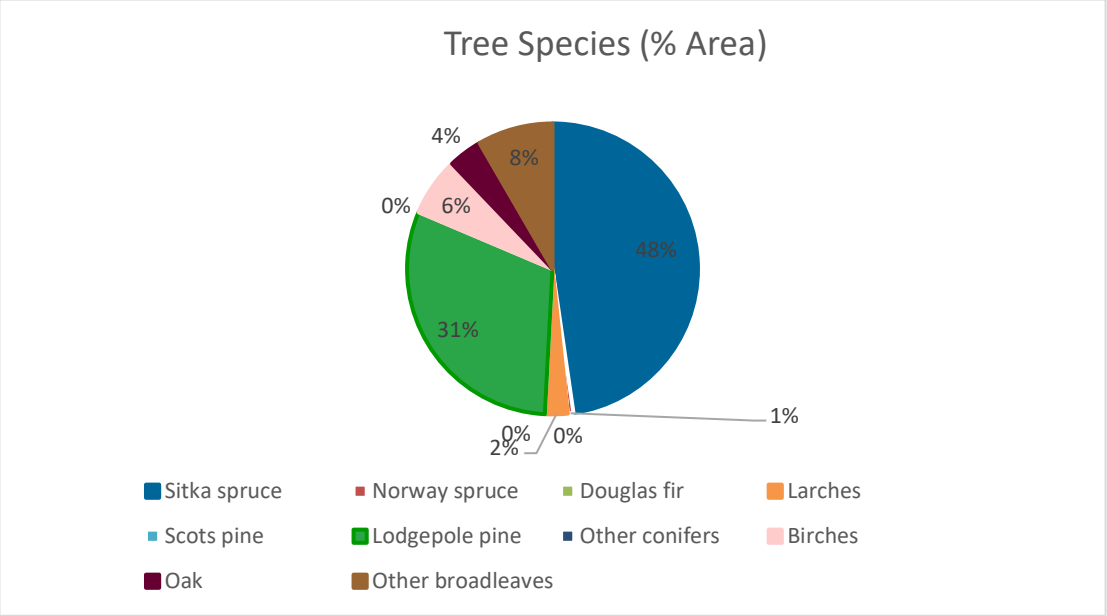

Figure 2 Current tree species composition

Larch covers approximately 12 ha (by component) present both as discrete stands and in intimate mixtures; 9.21 ha of this larch is mature (35+ years old). A priority will be to remove larch as early as possible, in line with the FLS Larch Strategy. Young stands can also be removed early, to avoid higher costs later on. For example, some 2.45 ha (by component) Japanese larch sits within a subcompartment covering 30.52 ha – all planted in 2011. Larch can be removed as a cleaning or an early thin from areas such as these. No Statutory Plant Health Notices have been served for Glen Roy to date. There is no indication of Phytophthora in the forest but there have been cases of the disease in the wider Lochaber area.

The age structure is similarly lacking in diversity, with most of the forest either planted between 40 and 60 years ago or within the past 20 years. The most predominant age group is 41 – 50 (1973 – 1982 PY). Many age groups (21 – 40; 81 to 100 and 140+ years) are completely missing. It will be a huge challenge to diversify the age range and this will take a long time, beyond the current rotation but older trees will be retained where possible, to help eventually achieve this.

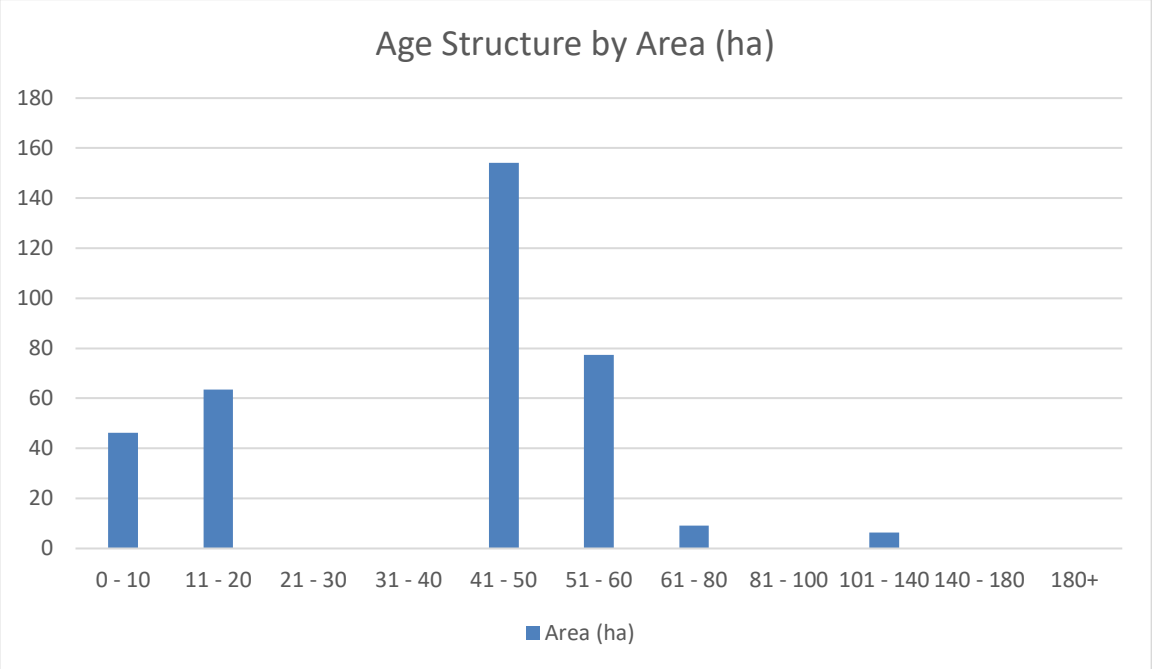

Figure 3 Current age structure by all species (ha)

The current (summer 2023) standing volume is approximately 119,388 m3 across all species. A large volume will be felled in the next five years then production will drop, with no felling currently planned for the periods 20 – 25 years from now. Harvesting will be smoothed where possible but various gaps are likely to remain.

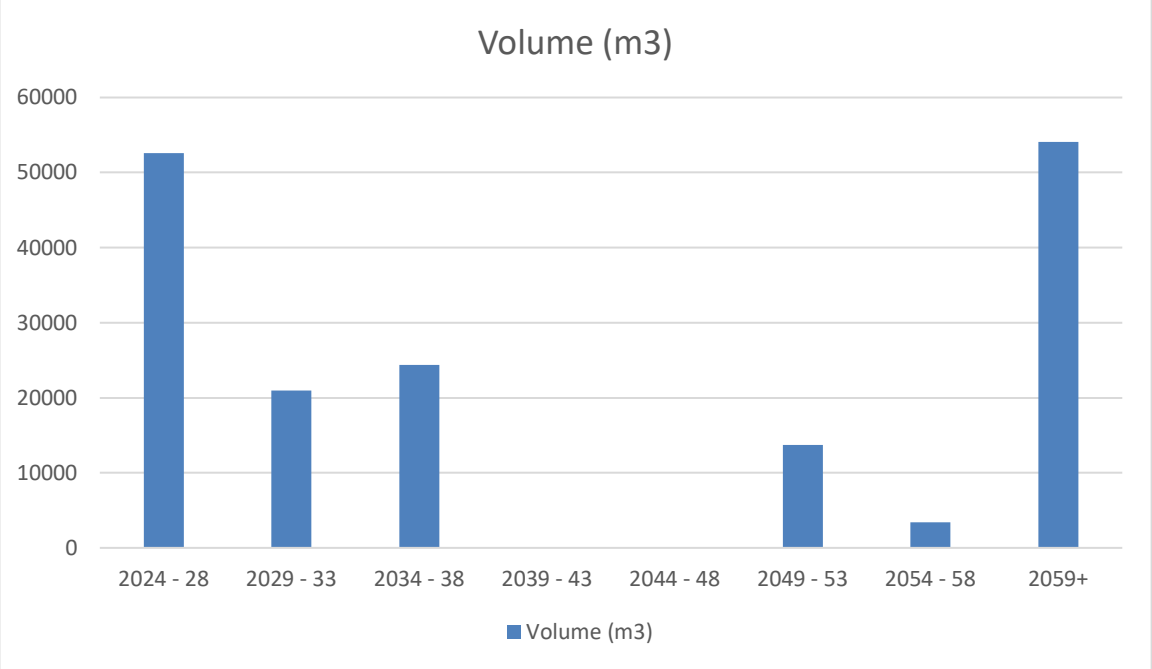

Figure 4 Volume production - current LMP

Part of the forested ground lies along the western bank of the River Roy, at the eastern boundary of the LMP area. Most of this riparian zone is broadleaved woodland, the majority of

which is Ancient Semi-Natural Woodland (ASNW). In some places, crofting ground lies within the riparian woodland or between the woodland and the public road although in some stretches, the woodland adjoins the road. Much of the riparian woodland here is grazed by livestock. There is a stand of Sitka spruce, planted in 1962, which is Plantation on Ancient Woodland Sites (PAWS) that sits between two areas of ASNW. This will need to be felled to restore the PAWS and protect the ASNW. In any case, the trees have likely exceeded their maximum Mean Annual Increment (MAI) and are past maturity for timber production. Options will be considered for felling this stand.

Silvicultural potential

The geology is mixed and is derived from Psammite groups on the upper slopes to a mixture of schists and Ballachulish limestone, with pelites, semi-pelites, dolomites and marble, and with quartzite formations to the East and West. Soils are mostly peaty gleys and surface water gleys, which are a key limiting factor in species choice. There are modest areas of podzols, iron pans and brown earths, which may better support a more diverse species composition. Large areas in the NW part of the forested ground are dominated by blanket bogs and other soil types indicative of deep peats, with smaller areas of category B soils that require assessment. Options for peatland restoration will be considered.

DAMS scores are 15 – 20 in the NW part of the forest and below 15 elsewhere, although there is significant windblow in different parts of the forest.

Much of the crop is reaching (or has already reached) economic maturity and approaching critical height; a significant area (135 ha) is currently planned for felling over the next five years. No thinning was undertaken in first rotation crops, precluded by the lack of roads to much of the crop. Parts of the forest are relatively sheltered and thinning and CCF systems could be considered for the future, despite the windblow in some places.

Operational access

Access to the forest is via a minor road (a consultation route) at Inverroy leading onto the A86 (an agreed route) and from the Glen Roy minor road (a consultation route) between Roybridge and Bohuntinville. Operational access is mostly from the West as access to the East is constrained due to the eight tonne weight restriction on a bridge across the Allt Ionndrainn.

A forest road (approx. 4 km long) leads to the NE part of the forest and a further 1.62 km of planned road will facilitate access to the eastern coupes, across the Allt Lonndrainn river. This has already been consented under an amendment. A further new road will be required to access the coupes in the NW of the forest. The current road line is approx. 2.54 km long and crosses two gullies but this will be revisited during the LMP development, to find best route across the steepest gully.

The coupes in the far eastern part of the LMP area are separated from the rest of the forest by open croft land and cannot be reached via the forest road network. Haulage will be severely limited along the public road (to Bohuntinville) to access these coupes due to the sharp bends and the weight restriction on the bridge. Alternative options for these coupes will be considered.

Environmental factors

Much of the LMP area is a designated SSSI (part of the Parallel Roads of Lochaber SSSI). The landforms and deposits in Glen Roy, Glen Gloy and Glen Spean are an internationally important part of Scotland's Earth heritage. They provide the clearest evidence in Britain for the formation and catastrophic drainage of a series of ice dammed lakes at the end of the last glaciation. Activities such as construction of roads or tracks can have a locally damaging impact that can be cumulative over time. FLS has agreed a Designated Sites Management Plan with NatureScot, which covers the entire SSSI area and informs the LMP.

The Braeroy – Glenshirra – Creag Meagaidh Wild Land Area designation covers part of the open hill at Glen Roy, just North of the forested area.

ASNW (approx. 63ha) is mainly concentrated on the riparian zones (where there is extensive upland oakwood) lower valleys and wetter parts of the crofts. Areas of alder among the crofts have previously been incorporated into wood pastures and much of the riparian zone along the River Roy is ASNW, which is currently grazed by livestock.

There is approximately 8.7 ha of PAWS, most of which lies along the riparian zone of the Allt Lonndrain river, with some along the River Roy – all adjacent to ASNW. The PAWS was surveyed in 2022 and found to be high ecological potential; an objective will be to restore this to native woodland.

Difficulties of haulage access to the eastern part of the LMP area mean that removal of conifers from the PAWS by the River Roy may be through fell to recycle rather than timber removals. Consideration will be given to the options for removal of the non-native species and the protection of the native woodland in these areas in discussion with the crofters.

Much of the open ground supports peatland that is eroding and hagged in places. Opportunities could be explored to restore areas of peat where possible, working with the crofting community.

There are two local water bodies at high status (WB 20353 – Allt Lonndrainn and WB 20351 River Roy – Spean to River Turret confluence) in the vicinity of the LMP. The underlying groundwater and local drinking water protected area (WB 150377 Spean and Loch Lochy bedrock and localized sand and gravel aquifer) is currently at good status. Engineering activities such as

culverts, bridges, watercourse diversions, bank modifications or dams would impact this and only considered where there is no practical alternative.

The Landscape Character Type is defined as Smooth Moorland Ridges comprising gently sloping hills, which are mostly found alongside the wide glaciated valleys that flank much of the area. Gently undulating hills with smooth elongated ridge profiles lie in a simple large-scale landscape pattern dictated by uniform land cover and uncomplicated landform. Glacial action has resulted in a distinct profile from the original higher hills and the marked ridges seen in Glen Roy were formed by successive shorelines of a receding glacial lake. Peat has accumulated on the flat plateau, where there are exposed peat hags and rounded hills support heather moorland, transitioning into rough grass swards, with crofting pasture on the lower slopes. Conifer forests cover many of the lower hills, while native broadleaved woodland follow burns and gullies, in places forming thicker growth along the wider riparian zones.

Most of the forest is hidden from local view, with only the south-eastern margins visible from the village and public road. There are long views of the forest block from higher elevations, especially from the surrounding high mountains but the LMP area is small scale within the wider landscape. Some of the woodland edges are geometric and in conflict with the open landscape, creating negative visual impacts where they are seen. Restocking will create more natural forms and improved woodland margins with a more gradual transition from high forest through woodland edge habitat to open hill. Most of the forested area lies on gentle slopes that can be worked by harvester/forwarder.

The woodland is an important component for the crofting townships and management of the woodlands must reflect this. One of the commercial coupes to the East of the LMP area lies isolated from the rest of the woodland, surrounded entirely by grazing land. There may be opportunities to rationalize some of the areas to benefit both crofters and FLS operations, with the agreement of the township.

Black grouse are found on the open ground outwith the forested area – creating a more diverse woodland margin will improve habitat for this species, as will the establishment of more broadleaved restocking on the eastern side of the forest and restoring open ground habitats. Barn owls have been recorded in the forest and there are signs of Red squirrels feeding in the eastern part of the LMP area. Badgers are also present. There are salmon in the River Roy, which runs along the eastern boundary of the LMP area.

Glen Roy is covered by the Monadliath Deer Management Group (DMG) of which FLS is a member. Red, Roe and Sika deer are present. The 2019 Deer Population Assessment indicated 23.3 deer / km^2 in the Spean complex but within Inverroy, Estimated Deer Utilisation (EDU) was 37 deer / km^2. The Nearest Neighbour Survey data indicates an average of 6.3% conifer damage between 2009 and 2020, with 7.3% deer damage on Sitka reported in 2019 compared to 6% conifer damage in 2012 (5.8% SS and 7.2% soft conifers) and 3.2% crop damage in 2013 (3.1% SS

and 4.7% soft conifers). As more coupes are felled and restocked, protection from browsing pressure will be a growing priority – particularly with an objective of increasing the proportion of broadleaves and alternative conifer species. Cull figures have increased over the last few years, from 10 (5 Red, 2 Roe and 3 Sika) in 2018/19 to 18 (6 Red, 5 Roe, 7 Sika) in 2019/10, 34 (0 Red, 7 Roe and 27 Sika) in 2020/21 and 75 (37 Red, 11 Roe and 27 Sika) in 2021/22.

Cultural environment

The Battle of Mulroy Registered Battlefield lies in the southern part of the LMP area. The Battle of Mulroy is known as the last clan battle, fought between Highlanders from the MacDonalds of Keppoch with Camerons, Macmartins and other allies, against the army of Lachlan Mackintosh, with Clan Chattan allies and several hundred Government infantry. No permanent features are likely but archaeological remains in terms of ammunition, weapons, personal accoutrements, and other physical remains may have been deposited in the area.

Several other heritage features associated with habitation are present, including five unlined circular pits at Allt a Bo-Loin, which lies in the middle of commercial conifer crops and an old sheep fank and sheiling huts on the open croft land. The inbye crofting township is listed as an archaeological feature in itself: a crofting township comprising one unroofed, fifty-nine roofed buildings and a head-dyke is depicted on the first edition of the OS 6-inch map (Inverness-shire 1873, sheet cxxvii). There is also an historic graveyard, a bridge (possibly part of a miliary road) and small enclosures. Key features will be protected during forestry operations as far as possible.

Crofting tradition is an important aspect of the culture of this area. The land subject to crofting legislation lies around the fringes of the wooded areas and in some cases, this has led to hard forest edges running perpendicular to the contour, where trees have been planted, or have infilled, right up to fence lines.

Community / social factors

There are no designated Public Right of Way or formal / waymarked trails within the main LMP area but the southern end close to the main road has vehicle access to houses. The forest road structure is used on an informal basis by local people for dog walking.

2. Achieving National Priorities Locally

The management of Scotland's National Forests and Land is guided by Scotland's Forestry Strategy 2019 – 2029 and FLS' Corporate Plan (2022 -2025) and is informed by strategies on a range of topics, including land use, economy, climate change, biodiversity and the historic environment.

The Scottish Government has identified three objectives to deliver over the next 10 years:

- Increase the contribution of forests and woodland to Scotland's sustainable and inclusive economic growth
- Improve the resilience of Scotland's forests and woodland and increase their contribution to a healthy and high quality environment
- Increase the use of Scotland's forest and woodland resources to enable more people to improve their health, wellbeing and life chances

This Land Management Plan will help deliver on these objectives, in line with FLS corporate outcomes, to ensure clear linkages through the planning framework and implementation of national and regional priorities. The Brief is also guided by the National Spatial Overview, which has identified the focus of effort and investment challenges for this area. Key contributions that Duror forest makes to our Priorities, Aims and Objectives are:

- Ecosystem services and additional public benefits – sustainable timber production; public access – resource well-used by local residents and by visitors, particularly on the long-distance routes and accessing munros; contributes to tourism income
- Other national commitments – PAWS restoration; Invasive Non-Native Species (INNS); dealing with the potential impact of P ramorum on larch; carbon reduction and climate change mitigation; forest resilience and peatland restoration; protection of water supplies
- Contribution to financial sustainability – range of softwood; hydro schemes

3. Draft Land Management Objectives

1. To maintain the productive timber potential of the forest, while improving diversity in species and age structure
2. Protect the existing ASNW and minimise browsing pressure
3. Restore high / medium ecological potential PAWS to native woodland; remove mature non-native conifers from the PAWS along the Roy River, possibly through Fell to Recycle
4. Where feasible, produce productive broadleaves from non-PAWS areas and PAWS of low ecological potential
5. Encourage natural regeneration and successional development of native broadleaves in riparian zones
6. Enhance habitat and landscape quality by diversifying the forest margin through restocking and allowing natural regeneration to develop softer margins
7. Assess peat areas and undertake peatland restoration or development of peat edge broadleaved woodland where appropriate
8. Construct an access road to the coupes in the NW of the forest, creating a road line that minimises gulley crossings and protects landscape and environmental features

4. Stakeholders and consultation

Scottish Forestry - Highland Conservancy
NatureScot - South Highland Area Office
Highland Council – Access Officer
Highland Council – Roads and Transport
Highland Council Archaeologist
Highland Council Planning and Environment
SEPA
RSPB
Scottish Mountaineering Council
Ramblers Association
Scottish Rights of Way Society
VisitScotland
Scottish Water
Scottish Wild Land Group
Lochaber District Salmon Fisheries Board
Lochaber Fisheries Trust
Spean Bridge, Roy Bridge and Achnacarry Community Council
The Bohuntine Crofters
The Inverroy Crofters
SSE
Keppoch Farm
Confor

Appendix 1: Key Issued Identified for the LMP

Corporate outcomes relevant to the LMP are:

Outcome 1: Supporting a Sustainable Rural Economy - FLS supports a sustainable rural economy by managing the national forests and land in a way that encourages sustainable business growth, development opportunities, jobs and investments.

Key operational actions relevant to the LMP:

- ensure a sustainable balance between the resilience and productivity of the national forests and land
- provide a sustainable supply of timber
- implement the national restocking strategy
- support Scottish tourism and the visitor economy through provision of visitor attractions
- work proactively with tenants & stakeholders to identify potential added-value opportunities

Issues	Challenges / Opportunities	Draft Objectives
Maintain sustainable timber production from the forest.	Current low species diversity but soils limit species choice. Limited age range – predominance of 40 – 60 years old trees with some age groups missing.	Restock with alternative conifers where feasible and consider use of nurse crops. Retain areas of older trees as LTR.
Work proactively with crofters to identify opportunities to rationalise coupes in the eastern part of the forest.	One coupe is isolated from the rest of the forest, surrounded by grazing land.	With the crofting community, consider options for future management.
Grow productive broadleaves where feasible.	PAWS areas of low ecological potential could be managed for productive BLs where conditions are suitable.	Produce productive broadleaves from non-PAWS areas and PAWS of low ecological potential.
Haulage access to isolated coupes in East of forest is difficult along narrow winding road and bridge weight restrictions.	Difficult to haul large volumes of timber from isolated coupe and from the mature conifers growing in the PAWS and ASNW riparian area.	Consider options as above

Outcome 2: Looking after Scotland's national forests and land – Scotland's forests and land are looked after; biodiversity is protected and enhanced; and more environmental services are provided to people.

Key operational actions relevant to the LMP:

- Manage the national forests and land to further the conservation and enhancement of biodiversity
- Collaborate with partners on integrated landscape-scale approaches to habitat management and restoration
- Take specific conservation action for vulnerable priority species
- Supporting forest research and development
- Develop an asset management approach to the historic environment within Scotland's forests and land
- Work with neighbouring land managers to undertake landscape – scale control of Rhododendron to conserve ground flora and improve habitats
- Continue to implement the larch strategy to reduce the rate of expansion of Phytophthora ramorum
- Identify, protect and restore significant areas of peatland, compatible with continued timber production where there are suitable Yield Classes on mosaic soils

Issues	Challenges / Opportunities	Draft Objectives
Areas of PAWS woodland	Restoration of high ecological potential PAWS is a priority but challenges with potential regeneration of SS and other non-native or invasive species. Presence of mature SS crop in PAWS, adjacent to ASNW along River Roy – difficult haulage due to road quality and bridge weight restrictions.	Restore the PAWS of med-high ecological potential to native woodland and consider options for future expansion of native woodland on hillsides and in riparian zones. Work with crofters to explore options on open ground. Control of non-native regeneration in and adjacent to PAWS. Fell mature conifers in PAWS / ASNW along eastern margin.
Presence of ASNW	Opportunities for expansion with existing seed sources. Grazing livestock along riverbank.	Protect areas of ASNW. Consider options to protect trees from grazing herbivores,

Issues	Challenges / Opportunities	Draft Objectives
		working with the crofting community. Where possible, expand ASNW in riparian zones.
Existing broadleaves developing along riparian zones, ride and track side and coupe margins within the forest	Opportunity to diversify species mix and improve habitat diversity.	Allow and encourage natural regeneration of native broadleaves along riparian zones.
Presence of non- native regeneration	Non-native regeneration in open areas and riparian zones, including ASNW/ PAWS will lead to reduced biodiversity.	Remove non-native regeneration from riparian zones, ASNW/PAWS and permanent open areas. Up to 15% may be tolerated outwith the ASNW and high ecological value PAWS.
Presence of Parallel Road features and related designations	Potential impact of forestry operations on Parallel Road and related features	Protection of PR features during felling and restocking operations. Operations to comply with the Designated Sites Management Plan for Glen Roy. Coupes in the eastern part of the forest will be restocked with native broadleaves in a design that will protect the features (as per the approved amendment).
Visibility of the forest in the wider landscape and landscape impacts of hard forest edges and geometric shapes	Forest margin in conflict with surrounding landscape. Felling coupe shapes potentially exacerbate negative landscape impacts. Windblow in parts of forest – limits management options.	Creation of a more natural upper margin with improved woodland edge habitat transitioning to open hill. Where possible, consider management of areas as LISS.

Issues	Challenges / Opportunities	Draft Objectives
Water flow and quality	Closely spaced watercourses in parts of the forest. Difficult crossings over the Allt Lonndrain and the Allt Coire Ceirsie Potentially impacted by harvesting operations – protection of watercourses during felling. Opportunities to create buffers around watercourses and to develop open canopied broadleaved woodland in main riparian areas.	Careful selection of route of new road to NW part of forest. Maintain water quality and mitigate against excessive water runoff. Create buffers around water courses. Review restock in areas with large numbers of watercourses close together – consider restock with native broadleaves.
Presence of peat – large areas of deep peat and peat areas in mosaic with other habitats	Large areas of bog habitat and deep peat – potential opportunities for restoration. Small areas peat in mosaic soils to be assessed – leave open or establish broadleaf. Hagged peat on the open ground – potential for restoration or development of some open canopied native broadleaf woodland?	Assess peat areas. Protect and restore significant areas of peatland where feasible. Low YC shallow peat or mosaic soils – consider retaining open areas or establishing broadleaved woodland. Liaise with crofting community to explore options that might create mutual benefits for crofting and environment.

Outcome 3: National forests and land for visitors and communities – Everyone can visit and enjoy Scotland's national forests and land to connect with nature, have fun, benefit their health and wellbeing and have the opportunity to engage in our community decision making.

Key operational actions relevant to the LMP:

- Maintain walking and biking trails to promote fun in the outdoors, focussing on improving entry level experiences for everyone to enjoy and gain health benefits

- Continue to remove barriers to ensure that people from all backgrounds can/do access the full range of benefits from the forest and land
- Facilitate renewable energy opportunities, to encourage community benefits
- Continue to engage communities in decisions relating to the management of the national forests and land
- Continue to support community empowerment by enabling communities to make use of the national forests and land to benefit their communities

Issues	Challenges / Opportunities	Draft Objectives
Informal use of the forest by local walkers.	Walkers use the existing forest roads – need to ensure provision is managed safely with harvesting programme.	Continue to maintain access for walkers through the forest. Create/ maintain views from the road where feasible by leaving open areas.
Crofting land within the LMP area, which abuts onto forested areas with sharp boundaries.	Planting up to fences between forest and grazed land – sharp boundaries at forest margins.	At restock, create a more diverse woodland margin. Seek opportunities to collaborate with crofting community to improve the woodland margins to provide mutual benefits.
Forest access through residential area.	Haulage from forest past residential properties.	Where possible, design felling programme to minimise frequency of haulage. Liaison with HC and Highland TTG.