Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Loch Goil Forest

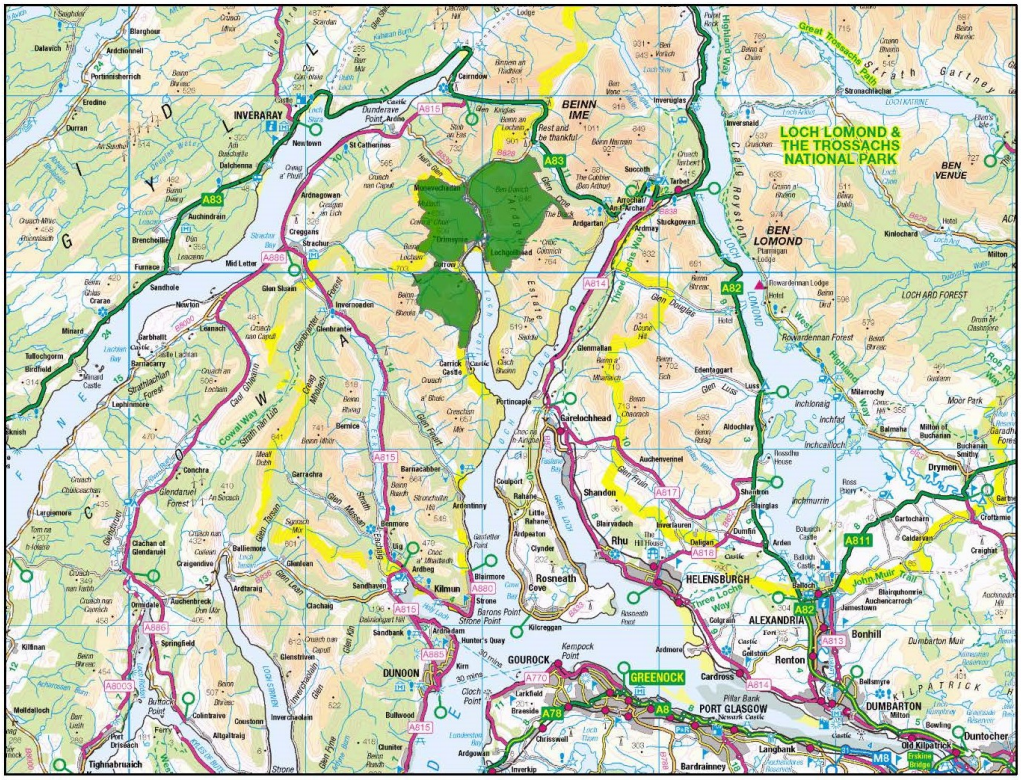
Strategic Larch Management Plan 2024 – 2029

Contents

1.0 Introduction

1.1 Location and Background

Figure 1 – Location map of Loch Goil forest (highlighted green)



Loch Goil Forest is located around the village of Lochgoilhead in the Cowal Peninsula, within the Loch Lomond and the Trossachs National Park *(Figure 1)*. The total plan area occupies 4119ha of coniferous forest, broadleaved woodland and open hill *(Map M03 Current Species)*.

This is a 5-year plan developed to undertake a structured removal of Larch spp. from the Loch Goil plan area to minimise the spread of *Phytophthora ramorum*. It succeeds the plan approved in 2010. Loch Goil Forest has been severely affected by *P.ramorum* infection in Larch spp., resulting in numerous Statutory Plant Health Notices *(SPHN)* which has and will necessitate widespread felling *(Map M02 SPHNs and Larch)*. The intention is to create a robust plan to remove Larch spp. from Loch Goil Forest and establish the permission to carry out this work, both in response to SPHNs already served and proactively in the remaining forest.

Although this 5-year plan covers a shorter time frame than normal Land Management Plans, it still addresses the issues that would normally be covered. Restocking largely follows that described in the previous plan, with some exceptions including the replacement of Larch spp. with alternative species. A revised 10 year plan will be produced to succeed this one which will cover the future forest in greater detail.

1.2 Existing Schemes and Permissions

Table 1 lists the most recent permissions in place for Loch Goil Forest. The previous Land Management Plan *(LMP)* expired in 2022; four Felling Permissions *(FPA)* were put in place to allow FLS to continue SPHN compliance felling until a new LMP was put in place.

Table 1 – Previous and existing permissions in Loch Goil Forest

Type (e.g. Felling Permission)	**Ref. No.**	**Details**
LMP	033/CT/L/07-7	Approved 03/02/2010. Expired 30/09/2022 after 2 year extension. This plan is intended to replace it.
FPA	FPA 9980	Approved 20/10/2022 until 19/10/2024 for clearfelling of coupe 04055 due to SPHN STH21_0612_0613_0619_0620.
FPA	FPA 9981	Approved 20/10/2022 until 19/10/2024 for clearfelling of coupe 04061 due to SPHN STH21_0612_0613_0619_0620.
FPA	FPA 9982	Approved 20/10/2022 until 20/10/2024 for clearfelling of coupe 04083 due to SPHN STH21_0608-0610.
FPA	FPA 9983	Approved 24/10/2024 until 21/10/2024 for clearfelling of coupe 04116 due to SPHN STH22_0199.
FPA	FPA 11141	Submitted in November 2023 for permission to fell windblow in coupe 04182 following Storm Babet. Application ongoing.

1.3 Consultation and Further Information

During the development of this *Strategic Larch Management Plan* and as part of wider communication over issues that *Phytophthora ramorum* presents, Forestry and Land Scotland *(FLS)* has been proactively engaging with stakeholders and local community groups throughout Cowal. A public "drop in" event took place in July 2022 to inform about *P. ramorum* and our management obligations as a consequence of this. More recently the local community council has been given a preview of these proposals in advance of this draft plan being published on the FLS website to inform and encourage local stakeholders to question any aspect of the plan with FLS staff. An update on *P. ramorum* will also be given as part of FLS' *P. ramorum* update programme.

The forests around Loch Goil and the wider Cowal area have been served with multiple SPHNs which, due to their mandatory nature, do not accommodate a true consultation process. The approach proposed in this *Strategic Larch Management Plan* introduces an element of public consultation more akin to that of a full 10 year Land Management Plan, but felling coupes have been identified in advance, fixed by the distribution of Larch spp. in the forest. The landscape impact of the felling will be highlighted, with replanting mitigating the long term impact.

This proposed plan will be placed on the FLS website to allow stakeholders time to consider the proposals and comment accordingly. This will allow the public and key stakeholders to be informed about the proposed future work, while minimising any time delays associated with a full 10 year LMP process. In addition, ongoing stakeholder engagement will include communications on the FLS website and local newspaper, regular updates to community councils, and information boards at key points.

For further information or to submit comments please contact:

Email: enquiries.central@forestryandland.gov.scot

Post: Central Region, Aberfoyle Office, Aberfoyle FK8 3UX.

1.4 Key Challenges and Objectives

- Comply with existing and future SPHNs, contributing to strategic national objectives to limit further spread of *Phytophthora ramorum*
- Produce a 5-year management plan for Loch Goil Forest focussed on Larch removal
- Manage recently windblown coupes
- Restoration of native woodlands and rainforest habitat through restocking and enhancement of existing remnant woodland
- Introduce greater species and structural diversity & provide greater options for future forest management

1.5 General Site Description

1.5.1 Topography and Landscape

Lochgoilhead Forest lies within a landscape of steep slopes and craggy summits in and around Gleann Mor, Donich Glen, the River Goil (Strath Goil) and Loch Goil. The landscape rises from sea level to a high point of 847m elevation at the summit of Ben Donich. Forestry is mainly found on the lower slopes; the upper slopes and summits are mainly open habitat. Parts of the plan area are highly visual on the local landscape, especially the slopes around Loch Goil itself; other areas are less easy to view, including the upper parts of Gleann Mor.

The landscape has been characterised into three Landscape Character Types in the SNH (now NatureScot) National Landscape Character Assessment: much of the plan area is within *LCT 250 Steep Ridges and Hills*[1], Gleann Mor is within *LCT 252 Upland Glens – Loch Lomond and the Trossachs*[2], and Loch Goil and Strath/Glen Goil in *LCT 253 Straths and Glens*[3].

A selection of visualisations will be produced to illustrate the change and associated visual impact on the landscape. Proposed viewpoints are shown on *Map M01 Location and Viewpoints.*

1.5.2 Geology and Soils

The underlying geology of the area is mainly metamorphic, part of the Southern Highland Group found on the northern side of the Highland Boundary Fault. These are composed of Psammite and Pelite, metamorphosed sandstones and mudstones and date from the upper Neoproterozoic and lower Cambrian Periods, around 542 Ma ago. More recent igneous intrusions can also be found.

Superficial deposits of glacial till can be found much of the area, with alluvial deposits around the River Goil.

Soils are mainly Ironpans and Peaty Surface Water Gleys; Brown Earths can be found in some areas, including around Monevechadan, Drimsynie, below Cruach nam Miseag and to the east of the River Goil. Alluvial soils occupy much of the lowest terrain by the River Goil.

1.5.3 Climate

Mean annual temperatures for this area are around 9.0°C, January being the coldest month and July-August the warmest. Annual rainfall is up to 3500mm, making the west of Scotland one of the wettest parts of the UK. October to January is the wettest season with rainfall of 120mm-150mm per month; April to June is the driest season, with 60mm-100mm per month. Western Scotland is very exposed to Atlantic weather systems, and the frequency and intensity of depressions is highest in the winter. Subsequently, winds are strongest from November until March, and lightest in July-August. Prevailing wind directions are typically from the south

[1] https://www.nature.scot/sites/default/files/LCA/LCT%20250%20-%20Steep%20Ridges%20and%20Hills%20-%20Final%20word%20pdf.pdf [Accessed 16/08/2023]

[2] https://www.nature.scot/sites/default/files/LCA/LCT%20252%20-%20Upland%20Glens%20-%20Loch%20Lomond%20&%20the%20Trossachs%20-%20Final%20pdf.pdf [Accessed 16/08/2023]

[3] https://www.nature.scot/sites/default/files/LCA/LCT%20253%20-%20Straths%20and%20Glens%20-%20Final%20pdf.pdf [Accessed 16/08/2023]

through to the northwest. Climate change projections suggest that the climate will in general become warmer and wetter in this area, with an increase of frequency and intensity of extreme weather events expected[4].

1.5.4 Hydrology

The northern parts of the forest (Drimsynie, Gleann Mor, Donich Glen and Strath Goil) are in the catchments of the River Goil and Allt Glinne Mhoire (north), Donich Water (east) and Lettermay Burn (west). These and the Lettermay area shed to Loch Goil itself, which is a sea loch.

1.5.5 Biodiversity and Habitat

Species: The forest is host to or in the vicinity of numerous protected species including Red Squirrels and Badgers; and Golden Eagle, Kestrel, Peregrine and Merlin. Black Grouse is known to lek in the area with potentially suitable habitat in the surrounding area.
Rainforest: There is good existing and potential rainforest habitat in the Loch Goil area with indicator species of lichen and bryophyte present; there is the potential for connectivity of this habitat from the Hell's Glen SSSI in the north, south through Strath Goil and along both sides of Loch Goil itself. Loch Goil has been identified as a priority landscape for rainforest habitat.
Other habitats: The upland areas, currently under grazing, hold remnants of montane willow scrub and blanket bog; amongst the crags are mature native broadleaved species including Aspen, offering a potential seed source for the natural regeneration of native woodlands. Loch Goil itself is part of Upper Loch Fyne and Loch Goil MPA (NC), a Marine Protected Area for Nature Conservation of marine habitat and species[5]. *(See Map M07 Designations and Features)*.

1.5.6 Invasive Species

Rhododendron ponticum and *Western Hemlock* are found throughout the forest area. These pose a threat to areas of existing native woodland and PAWS / rainforest restoration in particular.

1.5.7 Historic Environment

There are no Scheduled Ancient Monuments in Loch Goil Forest.
There are 35 known unscheduled heritage features within the forest, the majority of which have regional or local importance. Types of feature are various but many are remnant stone buildings such as shieling huts. A full list of these features is appended to this document *(Appendix III)* and their locations are shown on *Map M07 Designations*.

[4] https://www.metoffice.gov.uk/binaries/content/assets/metofficegovuk/pdf/weather/learn-about/uk-past-events/regional-climates/western-scotland_-climate---met-office.pdf [accessed 21/11/22]
[5] https://sitelink.nature.scot/site/10424 [Accessed 13/02/2024]

1.5.8 Recreation and Access

There are a number of promoted trails and features in the Loch Goil Forest area and these can be seen on *Map M08 Recreation*:

- Ben Donich footpath
- The River Walk
- Donich Glen Trail
- The Cowal Way
- Other Core Paths
- Lochgoilhead Car Park and Play Area
- Lochgoilhead Arboretum

The forest road network and wider forest is managed in line with the Scottish Outdoor Access Code *(SOAC)*.
FLS will continue to regularly engage with local community groups and other organisations for promoted events and proposals for new developments, and welcomes engagement with interested stakeholders to develop a sustainable visitor offer.

1.5.9 Adjacent Land Use

There is neighbouring private housing all around the Loch Goil forest, including the village of Lochgoilhead; the forest forms the backdrop to Drimsynie House Hotel and Holiday Park.
The Loch Goil plan area is contiguous with the FLS Land Management Plan areas of Glen Croe to the north, Ardgartan to the southeast and Beinn Lagan, part of Glenbranter Land Management Plan area, to the west. Part of the Loch Goil Forest area is managed by Cormonachan Community Woodland, and much of the open hill land in the LMP area is under lease for sheep grazing *(Map M07 Designations and Features)*. Elsewhere there are significant areas of privately owned land managed for forestry, sheep grazing and open hill habitat.

1.5.10 Utilities

Infrastructure for various utilities are to be found within or adjacent to the forest:

- Donich Water Hydro in Donich Glen
- Scottish Water infrastructure in Donich Glen
- Transmission masts at various locations
- Overhead powerlines *(OHPL)* along the main roads

Water: There are two Drinking Water Protected Areas *(DWPA)* in the plan area, around Donich Glen in the east and above Corrow and Lettermay in the west. Lochgoilhead village is served by mains water. In the west and north of the forest, water is supplied via Private Water Supplies *(PWS)*. The location of all known PWS in the forest area is mapped on the internal FLS GIS database but for privacy reasons are not published on maps accompanying this document. All other information is shown on *Map M09 Utilities*.

1.6 Woodland Description

Map M03 Current Species shows today's forest by the main species present per area unit ("sub-compartment") of the forest. This is broken down in *Table 2* and *Figure 2* below alongside an indication of the future direction of travel in terms of change and species diversification. Much of the current forest is dominated by Sitka spruce, frequently planted with Larch spp. More diverse conifers can be found in the Strath Goil area, and significant areas of native broadleaves are found around Hell's Glen SSSI, the west side of Strath Goil and the west side of Loch Goil. *Map M07 Designations and Features* shows the extent of *Plantation on Ancient Woodland Sites (PAWS)* in today's forest. Proposed clearfell coupes on such sites offer the opportunity to restore native species to the forest through restocking. The future forest will have a reduced amount of Sitka spruce and an increased amount of other conifer species and native broadleaves *(Map M05 Future Habitats; Table 2 and Figure 2)*.

Many of the older stands in the forest were planted in the 1960s and 1970s and these can still be found mainly in the Drimsynie and Donich Glen areas; the last approved LMP (2010-2022) oversaw a period of significant restructuring, through planned felling and additional felling due to windblow following storm events. This is shown on *Map A – Analysis of Previous Plan*. The distribution of Age Classes in the current and future forests is shown on *Table 3* and *Figure 3* below. An indication of the distribution of the younger plantations in the forest can be seen in *Map B – Concept, Issues & Opportunities*.

Table 2 – Change in species diversity over time as % of forested land

	2024	**2029**	**2034**	**2044**
Species	**%**	**%**	**%**	**%**
All Larch	5.0	0.0	0.0	0.0
Sitka spruce	70.4	65.4	61.0	55.0
Norway spruce	3.7	4.5	5.8	9.3
All other conifers	5.7	7.3	7.6	8.3
All broadleaves	15.3	22.8	25.6	27.4

Figure 2 – Change in species diversity over time (as per Table 2 above)

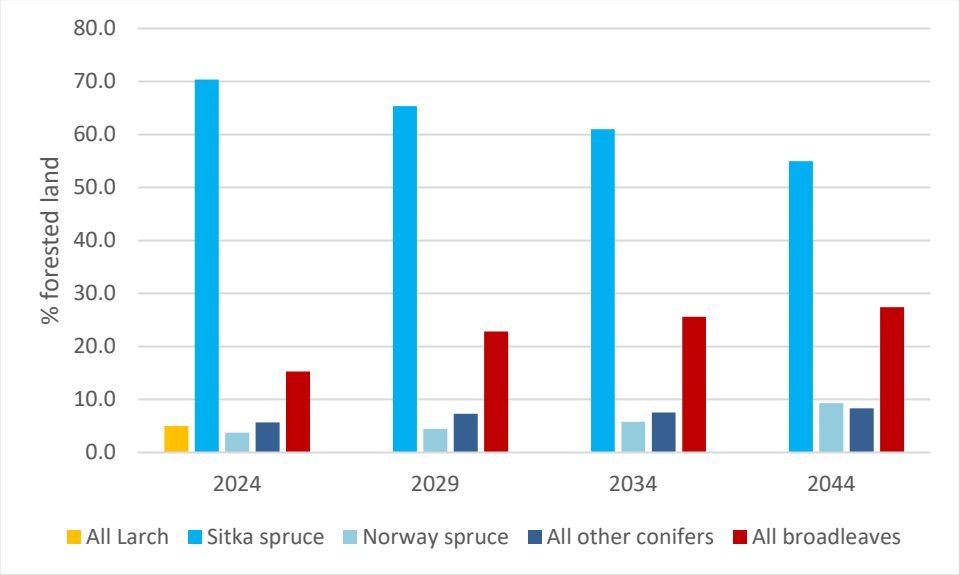
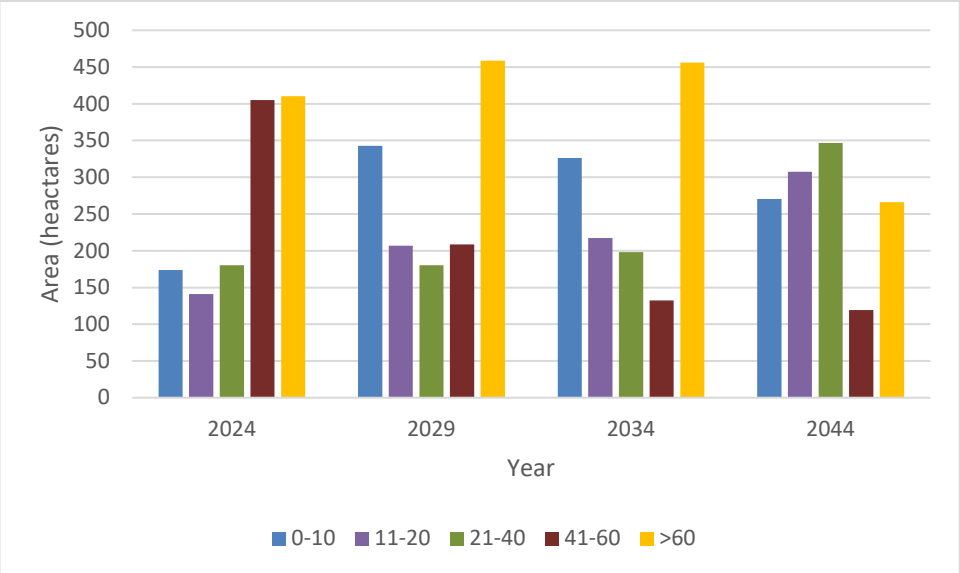


Table 3 – Change in Age Class diversity over time

Age Class (years)	Area (ha) 2024	Area (ha) 2029	Area (ha) 2034	Area (ha) 2044
0-10	173.6	343	326.2	270.3
11-20	140.9	206.8	217.4	307.4
21-40	180.2	180.1	198.3	346.5
41-60	404.9	208.8	132.5	119.3
>60	410.5	458.8	456	266

Figure 3 – Change in Age Class diversity over time (as per Table 3 above)



1.7 Plant Health

Phytophthora ramorum disease affecting Larch species was first confirmed in Loch Goil forest in 2020. Statutory Plant Health Notices *(SPHN)* have been served on the forest every year since as the disease spreads. It is expected that all Larch spp. In Loch Goil forest will become infected with *P. ramorum*. Compliance with SPHNs requires FLS to fell all Larch spp. trees within a defined buffer; this often means felling other trees at the same time in order to leave the remaining forest in a windfirm state. Loch Goil forest is with the *Risk Reduction Zone* of Scottish Forestry's *Phytophthora ramorum on larch Action Plan*[6]. Felling work is continuing (under *FPA*) in order to comply with SPHNs. The distribution of Larch spp. And SPHNs served in Loch Goil forest can be seen on *Map M02 SPHNs and Larch*.

1.5.5 Windblow

The Loch Goil Forest has suffered from windblow in recent years and this has partly shaped the forest as seen today, particularly in the Lettermay area. Much of this windblow was a result of storms in winter 2011-12 and has been cleared; further areas of windblow have developed in the Lettermay, Donich Glen and Drimsynie areas as recently as winter 2023-24. Areas of windblow are shown on *Map A* and *Map B*.

2.0 Analysis of Information

2.1 Constraints and Opportunities

Accompanying this document, *Map A – Analysis of Previous Plan* provides an analysis of felling during the period of the previous approved plan, and since the expiry of that plan under standalone Felling Permissions (FPA); it also shows the distribution of Larch spp., windblow and the proposed new clearfell coupes.
Map B – Concept, Issues & Opportunities shows the various issues and opportunities to be addressed by this plan as summarised below and in *Section 2.2 Opportunities*:

- Phytophthora ramorum has spread to all parts of the forest and numerous SPHNs have been served
- Windblow has continued to developed recently, including storms of winter 2023-24, in various parts of the forest
- In some places there will be a visual impact to the landscape as a result of the felling necessitated by *P. ramorum*
- Maintaining and developing recreation and public access has to be balanced with felling obligations and associated Health & Safety
- Poor operational access on some coupes will provide additional challenges *(see Section 2.3 Specific Issues)*
- Larch felling in coupes adjacent to the public road into Lochgoilhead village *(Section 2.3)*

[6] https://forestry.gov.scot/component/edocman/1024-scottish-forestry-phytophthora-ramorum-action-plan/viewdocument/1024?Itemid= [Accessed 09/02/24]

- Protection of biodiversity, hydrology & soils during continued removal of mature forest

2.2 Opportunities

- Accelerate PAWS / rainforest restoration via clearfell and restock
- Increase species and structural diversity
- Reduce reliance on a single species (Sitka spruce)
- Provide more options for future forest management e.g. LISS; CCF; native woodlands

2.3 Specific Issues

This section refers to specific proposed felling coupes, which are illustrated with coupe reference numbers in *Map M04 Felling and Thinning*:

- Access to 04076 in Donich Glen relies on the planned road being built in Donich Glen *(Map M06 Roads, Access and Haulage)*. This is not planned until 2026/27 for budgetary planning reasons which means that while this coupe is included in this plan, it may not be possible to clearfell it in this time. In the event of an SPHN being served in this area before the road is built, alternative solutions for Larch felling and SPHN compliance may be required if it is not possible to bring forward the construction of this road.
- Coupe 04087 is on the west side of Strath Goil. This is highly visible from the public road when travelling into the village and is adjacent to The River Walk, an attractive footpath promoted by local community groups. Larch in this coupe necessitates felling but there is a potential conflict with the footpath due to lack of options for operational access and timber extraction.
- Roadside coupes 04032 and 04044 contain a significant amount of Larch spp. and are adjacent to the B839 on the east side of Strath Goil. This is the only public road accessing Lochgoilhead village. There are also adjacent properties and an overhead powerline.

3.0 Management Proposals

3.1 Felling

3.1.1 Clearfelling

The plan presented here is focused on the removal of Larch spp. From the forest in the face of the rapid spread of *Phytophthora ramorum*. Due to the wide distribution of Larch spp. throughout the forest, and the mainly unthinned nature of the forest, clearfelling will be the principal management system used in this plan; felling proposals are shown in *Map M04 Felling and Thinning*. More detailed descriptions by coupe can be found in the *Table of Operations (Appendix II)*. *Table 4* below breaks down felling proposals by species.
Clearfell coupes have been designed to allow felling of trees to sensible, windfirm boundaries to maintain the stability of the remaining forest, as well as being operationally feasible. Selectively felling large stands of Larch spp. in these areas would come with a very high risk of windblow. These coupes target the most concentrated areas of Larch spp. but will include the felling of non-

Larch species. Coupe extent has been kept as small as possible. *Map M03 Current Species* illustrates how the proposed coupes will capture the majority of Larch spp. in the forest.

Table 4 – Proposed clearfelling by species in plan period (net areas)

Species	Area (ha)	Approx. Volume (m^3)
Larch spp. (all)	51.2	19085
Sitka spruce	94.8	55469
Norway spruce	3.5	1898
Western Hemlock	18.8	14964
All other conifers	6.4	3648

3.1.2 Selective Felling of Larch

Outwith the proposed clearfell coupes, there will be some targeted removal of Larch spp., including isolated small groups of mature trees and young crops. These will be *felled to recycle* where it is not operationally possible to extract as timber to roadside. Ref. *Map M04 Felling and Thinning*.

3.2 Thinning

There is no recent history of regular thinning operations on Loch Goil Forest. While the main focus of this plan is the felling of Larch spp., *Map M04 Felling and Thinning* does present a number of thinning coupes; most of these are crops approaching the first thinning stage during the plan period in terms of age and tree height. Further investigation will be required before the decision to thin is taken, including a fuller assessment of ground conditions. More detailed descriptions can be found in *Table 5* below and in the *Table of Operations (Appendix II)*. See also *Sections 3.2.3* and *3.2.4* below.

Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e. removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140 % of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription. Where trees need to be removed to accommodate facilities to support approved thinning and CCF, including stacking areas, ramps and access racks within adjacent management coupes, this should ideally be identified in thinning maps and thinning plans as part of the LMP submission. Where this is not the case, additional felling necessary for reasonable infrastructure can be agreed by exchange of email. In all cases work plans will define the detailed thinning prescription before work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components.

Table 5 – Proposed thinning by species in plan period (net areas)

Species	Area (ha)	Approx. volume (m^3)
Larch spp. (all)	7.6	1993
Sitka spruce	113.8	5691
Noble Fir	0.9	43
Broadleaves	1.7	41

3.2.3 Habitat Management

This definition of thinning refers to cleaning of invasive species from areas managed principally for habitat, including riparian areas, PAWS restoration, existing native woodlands and open ground habitats. The majority of this work will involve the removal of undesirable species before they become large trees, but it can be expected to include some stems >10cm dbh. There will also be an element of halo thinning and other thinning work akin to single-tree selection for the purposes of PAWS restoration. Coupe 04658 in west Strath Goil (Riverside) is an example of this, where gradual native woodland restoration will help contribute to the restoration of rainforest habitat and improve habitat connectivity. Volumes for this kind of work are expected to be low, up to $10m^3ha^{-1}$ per annum.

3.2.4 Potential for CCF / LISS

Due to the aforementioned lack of thinning historically in Loch Goil forest there are limited opportunities for Continuous Cover Forestry *(CCF)* or Low Impact Silvicultural Systems *(LISS)*. The best prospects will be younger or restocked crops found on the drier, more sheltered sites if thinning regimes can be introduced early enough not to compromise the stability of the stands. Future options will include much of the native broadleaf areas, and the west side of Strath Goil (Riverside).

Lochgoilhead Arboretum is one exception (Coupe 04578 on *Map M03 Felling and Thinning*); this is a mature stand with a very diverse mixture of tree species. The removal of Larch spp. from the Arboretum will be comparable to a *single-* or *group-selection* thinning. The success of this operation will influence future work and may instigate a period of renewed and active CCF management in this coupe.

Colonisation of invasive species (e.g. Rhododendron ponticum; natural regeneration of Western Hemlock) will have to be managed if CCF / LISS management is to be a success.

3.3 Timber Haulage and Roading

Haulage plans for timber movements out of Loch Goil Forest are detailed on *Map M06 Roads, Access and Haulage*. The public road network around Lochgoilhead (B828 and B839) are Timber Transport Consultation Routes. Argyll & Bute Council will be consulted on for this plan, and are given annual updates from FLS on timber haulage plans. In summary, all timber transport from

the Donich Glen, east Strath Goil and Gleann Mor areas use the internal forest road network exclusively until joining the Agreed Route by the Rest & Be Thankful; haulage from the Lettermay and Drimsynie areas uses approx. 800m of the B839 Consultation Route between the Drimsynie and Pole Cottage forest entrances; haulage from the Riverside area has previously left the forest travelling south to the turning facilities approx. 250m to the south before driving north to Pole Cottage on the B839, approx. 2.5km.
One forest road is planned for construction in the plan period, but is not programmed until 2026/27. Due to the limited period of approval, an EIA Screening Opinion Request will not accompany this plan but will be submitted for consideration to Scottish Forestry separately, nearer the time. Any additional civil engineering works including harvesting infrastructure will likewise be submitted for approval separately.

3.4 Future Habitats and Species

3.4.1 Restocking

Restocking proposals in this plan can be seen on *Map M05 Future Habitats*. This map shows the ultimate destination of the forest but only the highlighted *Clearfell* and *Felled Awaiting Restock* coupes will be restocked as part of this plan. A coupe-by-coupe description can be seen in the *Table of Operations (Appendix II)*. The effect these restocking proposals will have on the future forest can be seen in *Section 1.6 Table 2* and *Figure 2*.
Restocking proposals are largely based on the previous approved plan, with the main significant change that all Larch spp. proposed for restocking in the previous plan (mainly as mixture components) have been replaced as appropriate with Norway spruce, Scots pine or Other/Mixed Conifers; detailed site observations at the work planning stage will determine the most appropriate alternative conifer species. Another departure from the previous plan is an expansion of native broadleaves for PAWS restoration post-clearfell, as seen on the east side of Strath Goil.
In the event of restocking following SPHN felling, species choice will follow Scottish Forestry's *Advice on Replanting Sites Affected by Phytophthora ramorum*[7]; this includes conifers and broadleaves. Natural regeneration of Larch spp. will be controlled as directed by the SPHN. Where Larch spp. is removed selectively, natural regeneration will be the preferred method of restock if it appears to be a realistic prospect. A survey of natural regeneration will be conducted at year 5 to assess progress; where it appears to be developing, a subsequent survey will be conducted at year 7; where natural regeneration is not developing satisfactorily, enrichment planting will be conducted by year 10 with appropriate species.

3.4.2 Ground Preparation

Ground preparation, including cultivation, is undertaken to aid tree establishment. FLS is committed to undertaking ground preparation operations with minimal site disturbance.

[7] https://forestry.gov.scot/publications/787-advice-on-replanting-sites-affected-by-phytophthora-ramorum [Accessed on 13/02/2024]

Soils and terrain vary throughout the plan area *(Section 1.5.2)*, as can post-harvesting site conditions. This means a mix of different ground preparation techniques will be required on restocking sites in Loch Goil Forest, ranging from no cultivation ("flat-planting") to non-linear cultivation techniques including various types of mounding. The most appropriate technique will be selected during detailed site planning following harvesting, and will include appropriate buffers and mitigations to protect vulnerable features such as watercourses, water supplies or sensitive habitats.

3.5 Management of Open Land

The main areas of open land in the Loch Goil Forest plan area is on the high ground around Ben Donich in the northeast, Cruach nam Miseag in the southwest and around the multiple summits west of Drimsynie. Much of this high ground is under lease for sheep grazing. There may be potential in some locations for the expansion of native woodlands, including montane habitats, or peatland restoration, in line with Loch Lomond and the Trossachs National Park's *Trees and Woodland Strategy*[8]; this has not been addressed in this plan but there may be scope for investigating this in the future and this will be reviewed in the next full Land Management Plan. The remaining open ground in the plan area is internal open space around crags and riparian areas. These will be managed as successional but where there is encroachment from invasive species such as Rhododendron ponticum, Sitka spruce or Western Hemlock, these will be managed to acceptable levels, particularly around watercourses and priority habitats.

3.6 Woodland Management in Visitor Zones

Visitor Zones have been identified in areas where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes. Visitor Zones surround the various paths and other features listed in *Section 1.5.8* above and mapped on *Map M08 Recreation*.

In these areas, single trees or small groups of trees will be removed when necessary to protect facilities, infrastructure and trails, or to enhance the setting of features, or to maintain existing views.

Woodland in these zones will also be thinned, or trees re-spaced, for safety reasons (including to increase visibility to ensure that sites are welcoming and feel safe) and where it is necessary to enhance the experience of the forest setting, through the development of large trees, or preferential removal of trees to favour a particular species.

3.7 Other Tree Felling in Exceptional Circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission

[8] lochlomond-trossachs.org/wp-content/uploads/2019/11/Trees_woodland_2019_2039.pdf [Accessed 13/02/2024]

due to the risks or impacts of delaying the felling. Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

- Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

**Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities and services, and drains.*

The maximum volume of felling in exceptional circumstances covered by this approval is 75m^3 per Land Management Plan per calendar year. A record of the volume felled in this way will be maintained and will be considered during the five year Land Management Plan review.

3.8 Deer Management

The proposals for restocking include replacing felled Larch spp. with a significant amount of mixed conifer and native broadleaf species, much of which will be vulnerable to deer browsing. Deer management measures will be critical to successful restocking, including culling and fencing. Currently, external fencing is mainly limited to stock fencing which is in variable condition. It is FLS policy that internal fences should be the exception rather than the rule, but will be considered where additional protection is required for areas of vulnerable species, or where opportunities to shoot are limited by, for example, high public usage. It is acknowledged that fencing can present a risk to wildlife, including bird strike, and that Loch Goil and the surrounding area is highly suitable for protected species such as Eagle species and Black Grouse. The requirement for fencing will be assessed by the FLS Wildlife Management team, and design considered at the operational work planning stage; any fencing will have to consider public access, landscape impact and potential impacts on wildlife, including the risk of bird strike, and migration of deer species. Where fencing is deemed to be necessary, appropriate mitigations to maintain access and protect wildlife will be used, including careful route design, fence markers and timely takedown.

Deer Management for Loch Goil Forest is covered by the *Deer Management Plan for Ardgartan, Drumsynie and Lettermay*, which supplements the *Cowal & Trossachs Deer Management Plan (ref. Appendix IV)*.

3.9 Standards and Guidance

This plan has been produced in accordance with a range of government and industry standards and guidance as well as recent research outputs. A full list of these standards and guidance can be found here:

https://forestryandland.gov.scot/what-we-do/planning/links

3.11 EIA Screening Determination for Forestry Projects

3.11.1 Proposed Deforestation

There is no proposed deforestation within this plan.

3.11.2 Proposed Forest Road Works

One new forest road is illustrated on *Map M06 Roads, Access and Haulage*, in Donich Glen. As explained in *Section 3.3* above, this work is not planned until 2026/27. Due to the limited time of approval for EIA SOR, a submission for this work will be submitted separately, nearer this time.

3.11.3 Proposed Forest Quarries

There are three active quarries within the plan area. There is no plan to expand these quarries as part of this plan. Should quarry development or expansion be required, an EIA Screening Opinion Request will be submitted separately.

3.11.4 Proposed Afforestation

There is no proposed woodland creation within this plan.

3.12 Tolerance Table

	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to restocking species	Changes to roadlines	Designed open ground	Windblow clearance
SF Approval not normally required	Felling date can be moved within 5 year period where separation or other constraints are met	Up to 10% of coupe area (up to a maximum of 1ha)	Up to 2 planting seasons after felling Up to 10 planting seasons for natural regeneration	Change within species group i.e. diverse conifers; broadleaves; Sitka spruce Non-native conifers in native woodland areas and designated open space up to 400 stems/ha <20% increase in area of Sitka spruce	Up to 60m either side of the approved line if this has been appropriately assessed for landscape, visibility and visual amenity purposes and does not breach any other conditions	Increase by up to 5% of coupe area	
Approval by exchange of letters and map	First phase felling delayed into second or later period Second phase felling brought forward into first phase	Up to 15% of coupe area	Between 2 – 5 years after felling	>20% increase in area of Sitka spruce	Additional felling of trees not agreed in plan Departures of >60m in either direction from centre line of road	Increase by up to 10% Any reduction in open ground within coupe area	Up to 5ha
Approval by formal plan amendment	Felling date of third or later phase brought forward into first or second phase	More than 15% of coupe area	More than 5 planting seasons after felling	Change from specified native species Change between species groups	As above, depending on sensitivity	More than 10% of coupe area Colonisation of open areas agreed as critical	More than 5ha

4.0 Appendices