Forestry and Land Scotland Coilltearachd agus Fearann Alba

# Meall Mor, Moy and Farr

# 030/517/432

# Land Management Plan 2023 - 2033

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<sup>®</sup> 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



Property details	
Property Name:	Meall Mor,
	Moy and Farr
Grid Reference (main forest entrance):	NH 7230 3591
Nearest town or locality:	Moy, Farr, Inverarnie
Local Authority:	Highland Council

Applicant's details	
Title / Forename:	Mr David
Surname:	Walker
Position:	Planning Forester
Contact number:	07500952911
Email:	David.walker@forestryandland.gov.scot
Address:	Forestry and Land Scotland, The Links, Golspie Business Park
Postcode:	KW10 6UB

Owner's Details (if different from Applicant)						
Name:	N/A					
Address:	N/A					

- 1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.
- 2. I apply for an opinion under the terms of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 for deforestation/quarries as detailed in my application.
- 3. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included. Where it has not been possible to resolve specific issues associated with the plan to the satisfaction of the consultees, this is highlighted in the Consultation Record.
- 4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
- 5. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed, Pp F	Regional	Alexander I Maderd	Signed, Conservator	
Manager	J			
FLS Region		North Region	SF Conservancy	
Date		12 <sup>th</sup> May 2023	Date of Approval	
			Date Approval	
			Ends	

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# 1.0 Objectives and Summary

# 1.1 Plan overview and objectives

Plan name	Meall Mor, Moy and Farr
Forest blocks included	Meall Mor, Moy, Farr, Inverarnie, Moy Moss, Littlemill
Size of plan area (ha)	2782ha
Location	See Location map (Map 1)

#### Long Term Vision

Fifty years from now the overstory necessary for successful continuous-cover forestry (CCF) will be well on the way to being established and contributing to an uneven age and height structure to the forest. This will allow selective thinning to provide steady and periodic income, whilst increasing the forest's resilience to climate change and pests and diseases. Where CCF is not possible, coupes will be designed to be smaller and more sensitively placed within the landscape.

Collaboration with neighbours will have supressed the local deer population, whose browsing of young trees threatens the success of this system.

The A9 corridor and Loch Moy areas will provide beautiful scenery to visitors, and healthy woodland will be creeping up the hillsides.

The complex hydrological features across the plan area will be clean and sustaining both the wildlife and water needs of the local populace, and visitors to the area will be able to park and walk on trails and forest roads.

Management Objectives

- 1. The Meall Mor, Moy and Farr area produces good quality saw logs of various species. We will seek to continue this productivity, with greater environmental sensitivity.
- 2. There are numerous ancient woodland areas across the plan area of both semi natural and plantation origin. We will assess the status of these areas and seek to rejuvenate and expand them where possible.
- 3. The plan area features several long term retention (LTR) zones. We will seek to enhance and expand these where possible, to benefit the wildlife that relies on areas of low disturbance.

- 4. The plan area features peatlands in various states of integrity. In line with our commitment to combatting climate change, these will be surveyed and where appropriate we will work to restore them.
- 5. We will seek to establish permanent riparian woodland areas around the notable watercourses, to benefit the local ecology and hydrology.

# 1.2 Summary of planned operations

Table 1 - Summary of Operations over the Plan Period						
Clear felling (gross)	479 ha					
Thinning (potential area)	484.6 ha					
Restocking (gross)	515 ha					
Afforestation	0 ha					
Deforestation	27.7 ha					
Forest roads	540 m					
Forestry quarries (potential area)	3 ha					

The forest is managed to the UK Woodland Assurance Standard – the standard endorsed in the UK by the *Forest Stewardship Council and the Programme for the Endorsement of Forest Certification*. Forestry and Land Scotland is independently audited to ensure that we are delivering sustainable forest management.

# 2.0 Analysis and Concept

The planning process was informed by collecting information about the woodland, which is presented in **Appendix I** and on the Key Features map **(Map 2)**. During the development of this plan we have consulted with the local community and other key stakeholders, and a Consultation Record is presented in **Appendix III**.

Below lists the objectives for the site and how the key features present opportunity or constraint. The Analysis of these form the concept for this Land Management Plan.

Table 2 – Analysis and Concept			
Objective	Opportunities	Constraints	Concept
Continue producing quality sawlogs, with greater environmental sensitivity	Breaking up of large coupes will allow smaller, more sensitively designed future coupes Increased emphasis on thinning interventions will produce a higher quality final product	Existing mature coupes will require felling before smaller coupe shapes can be implemented Large parts of the plan area have been single- age class, diversification will take time	Felling the remaining large scale single age plantation coupes will allow us to start restructuring the age classes of the forest. Bringing the recently planted crops into a thinning programme will be the start of a better silvicultural regime.
Protect the ancient woodland sites of varying categories	More sensitive felling coupes and species choice will maintain integrity	The ancient woodland sites are spread out across the plan area and not always easily identifiable. Non-native species and deer damage threaten integrity.	Surveying the ancient woodland sites will allow us to identify any ancient features to be protected. At the restock stage, we will select native species.
Protect existing long term retention (LTR) zones were feasible and seek appropriate new sites	Only intervening in LTR areas when absolutely necessary will provide continuous habitat for birds of prey and other sensitive species Identifying new sites of mature pine that could be designated LTR areas will benefit the local wildlife	Selection of new sites can be difficult due to landscaping constraints. <i>P. ramorum</i> infection may necessitate partial or total removal Sufficiently windblow damaged existing sites may need to be removed	There are several existing LTR zones. Some of these are in better condition than others, and may need to be removed. We will identify new LTR areas to compensate.
Assess and survey peatland sites	Restoring suitable peatland sites to functioning bog will provide carbon storage and capture, and add another habitat type to the local area	Removal of non-native regeneration will be required for a period before the restoration is wholly successful	Successfully restored blanket bog will contribute to the mosaic of habitat in the area, and capture and store carbon in line with our organisations aims.
Establish riparian woodland around notable watercourses to benefit local ecology and hydrology	Permanent riparian zones will shield watercourses from forestry operations, and provide another habitat type for the local area.	Will take time to establish, and will involve species particularly palatable to deer	Riparian zones will be planted after the current crop reaches an economically viable age for felling. This will allow for the operations to be integrated in adjacent restock works and should result in better ability to manage deer and lower cost of establishment.

# 3.0 Management Proposals - regulatory requirements

This LMP was produced in accordance with a range of government and industry standards and guidance as well as recent research outputs, recognised at the time of its production. A full list of the current standards and guidance which guide the preparation and delivery of FLS LMP's can be found using the link <u>HERE</u>.

### 3.1 Designations

The plan area forms part of, includes, or is covered by the following designations and significant features.

The Key Features map (Map 2) shows the location of all designated areas and significant features. Any deep peats are indicated on the Soils map (Map 9).

Table 3		Designations and significant features
Feature type	Present	Note
Site of Special Scientific Interest	Littlemill SSSI	Fluvioglacial landform
(SSSI)		
National Nature Reserve (NNR)	n/a	
Special Protection Area (SPA)	n/a	
Special Area of Conservation	n/a	
(SAC)		
World Heritage Site (WHS)	n/a	
Scheduled Monument (SM)	Military	Mid Lairgs old military road, 200m
	road	
National Scenic Area (NSA)	n/a	
National Park (NP)	n/a	
Deep peat soil (>50 cm		Please refer to <b>Map 9 - Soils</b>
thickness)		
Tree Preservation Order (TPO)	n/a	
Biosphere reserve	n/a	
Local Landscape Area	n/a	
Ancient woodland	456ha	230ha Ancient, of plantation origin. 104ha Ancient, of semi-natural origin. 126ha Roy from
		map.
Acid sensitive catchment	n/a	
Drinking Water Protected Area	n/a	
(Surface)		

# 3.2 Clear felling

Sites proposed for clear felling in the plan period are identified as Phase 1 and Phase 2 coupes on the Management map (Map 4).

#### Table 4 – Phase 1 Clearfelling

_			_	Gross					Other	Open		
Coupe		Felling	Restocking	Area	SS (1)	LP	SP (1)	Larch	species	ground	Management –	
reference	Phase	Year	Year	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	Туре	Monitoring Comments
27312	1	2023/24	28/29	10.7	4.2		4.7	1.7		0.1	Clearfell	Non-native removal, some mature SP
27013	1	2024/25	29/30	41.0	35.4	1.9	3.2			0.5	Clearfell	Several watercourses and river in close proximity
27038	1	2024/25	29/30	14.1	4.2		2.8	2	5	0.1	Clearfell	Non-native removal, some mature SP
29016	1	2024/25	29/30	26.6	5.6	4.3	14.1	2.5		0.1	Clearfell	
27015	1	2026/27	31/32	35.0	12.8		19.5	2.3		0.4	Clearfell	
												Shape designed with landscape architect to minimise
27025	1	2026/27	31/32	10.7	0.9	1.2	4.7	3.7		0.2	Clearfell	visual impact
28009	1	2026/27	31/32	0.3	0.3						Clearfell	Quarry expansion coupe
												Overmature DF starting to blow, large badger sett
29001	1	2026/27	31/32	5.7	3.1				2.6		Clearfell	present.

#### Table 5 – Phase 2 Clearfelling

		Felling	Restocking	Gross Area	ss	LP	SP	Larch	Other species	Open ground	Management	
Coupe reference	Phase	Year	Year	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	Туре	Monitoring Comments
28128	2	2028/29	33/34	25.7	1.2	2.6	18.4	2.7		0.8	Clearfell	
27033	2	2029/30	34/35	21.0	3.8	0.1	17			0.1	Clearfell	
27045	2	2029/30	34/35	10.3	2.7	3	3.7			0.9	Clearfell	
28007	2	2029/30	34/35	50.9		16.7	26.2	1.9	4.2	1.9	Clearfell	
28008	2	2029/30	34/35	53.4	6.6	24.5	16.8			5.5	Clearfell	Retain any mature SP at top of slope
28477	2	2029/30		2.5	0.8	1.7				0.0	Clearfell	Peatland restoration felling - not to be restocked
29007	2	2029/30	34/35	10.8	2.7	0.9	2.5		1.5	3.2	Clearfell	
27032	2	2030/31	35/36	3.2	0.5	0.2	0.7	1.8		0.0	Clearfell	
28005	2	2030/31	35/36	25.0	5.7	1.8	17.1			0.4	Clearfell	
28581	2	2031/32	36/37	6.0		0.2	1.2	1.1		3.5	Clearfell	Dependent on A9 dualling works
28867	2	2031/32	36/37	12.7	1.2		11		0.4	0.1	Clearfell	
28935	2	2031/32	36/37	4.7	0.8	1				2.9	Clearfell	Non-native removal to be timed with thinning of wider area
28314	2	2032/33	37/38	29.4	13.1	2.1	12.5	0.6		1.1	Clearfell	
29005	2	2032/33	37/38	28.5	5.6	1.7	13.6	5.1		2.5	Clearfell	Potential for new LTR stands, wind and landscaping dependent
29021	2	2031/32	36/37	7.8	2.8			2.3	1.3	1.4	Long Term Retention	P. ramorum precautionary programming, otherwise LTR
29571	2	2029/30	34/35	21.6	10.9	0.8	9.8	0.1			Long Term Retention	P. ramorum precautionary programming, otherwise LTR
29004	2	2030/31	35/36	5.3				5.3			Long Term Retention	P. ramorum precautionary programming, otherwise LTR

Table 6 - Scale of Proposed Felling Areas										
Total Woodland Area			2766.4	ha						
Felling	Phase 1	%	Phase 2	%	Phase	%	Phase 4	%	Long Term	%
					3				Retention	
Net Area (ha)	144.5	5.2	283.7	10.3	188.1	6.8	10.1	0.4	78.9	2.9

Nb – phase 2 total includes LTR coupes

# 3.3 Thinning

Potential sites for thinning in the plan period are identified on the Thinning map (Map 5).

This covers an area of 484.6 ha.

Table 7 - 1	hinning				
Coupe	Total				Monitoring
No	Area	Thin Year	Species	Prescription for thinning	comments
29999	8.11	2022/23		Selective fell	Road network
28999	18.85	2022/23		Selective fell	Road network
27999	8.62	2022/23		Selective fell	Road network
29991	1.75	2023/24	SS		1st Thin
29997	30.16	2023/24	SS		1st Thin
29992	9.62	2023/24	SS		1st Thin
29998	19.11	2023/24	SS		1st Thin
28998	56.81	2024/25	SS		1st Thin
28003	129.12	2025/26	SP/MB	Littlemill general thinning template	Mature
27998	7.77	2025/26	HL		1st Thin
28002	29.25	2025/26	MC	Inverarnie Wood general thinning template	Mature
27996	8.32	2026/27	SS/BI		1st Thin
29994	4.17	2026/27	HL		1st Thin
29990	5.57	2026/27	SS		1st Thin
28995	27.56	2026/27	SS		1st Thin
29996	17.28	2027/28	HL		1st Thin
27997	6.23	2028/29	HL		1st Thin
28992	7.25	2028/29	HL		1st Thin
27002	16.02	2029/30	SP		Mature
27994	27.52	2029/30	SS/LP		1st Thin
29987	8.74	2032/33	EL/MC		1st Thin
28993	4.27	2032/33	HL		1st Thin
28996	8.84	2032/33	HL		1st Thin
28997	6.49	2032/33	SP		1st Thin
29995	12.69	2032/33	SS/EL		1st Thin
29993	4.55	2032/33	HL/MC		1st Thin

## 3.4 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 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 over the plan area covered by this approval is 75 cubic metres 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.

[N.B. Trees may be felled without permission if they: are of less than 10 cm diameter at breast height (1.3 m); pose immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

# 3.5 Restocking

Table				Restocking			
8							
Phase	Coupe	Gross Area	Year felled	Proposed Restock	Species	Method	Minimum stocking
	Number	(ha)	or	Year		1	Density (s/ha)
			programme				
			year				
			2017			-	Conifers 2500/
1	28155			aa /a .	SS/LP/MB	Р	Mixed broadleaves
		48.6	2010	23/24			1600*
1	28006	38.5	2019	24/25	SS/LP/MB	P	*
1	28183	52.8	2018	24/25	SS/LP/MB	P	* *
1	28002	6.8	2018	24/25	SP/MB	Р	*
1	28940	11./	2020	24/25	SS/MB	Р	*
1	27255	7.2	2020	25/26	SP/MB	Р	*
1	28124	18.6	2017	25/26	SS/LP/MC/MB	Р	*
1	28114	1.5	2021	26/27	SP/MB	NR	*
1	29590	51.1	2018	26/27	SS/SP/MB	Р	*
1	28746	19.8	2022	27/28	SS/MC/MB	Р	*
2	27013	41.0	24/25	29/30	SS/LP/SP/MB	Р	*
2	27038	14.1	24/25	29/30	SP/MB	Р	*
2	29016	26.6	24/25	29/30	SS/XC/MB	Р	*
2	27015	35.0	26/27	31/32	SP/MB	Р	*
2	27025	10.7	26/27	31/32	SP/MB	Р	*
2	29001	5.7	26/27	31/32	SP/MC/MB	Р	*
2	29005	28.5	26/27	31/32	SP/MC/MB	Р	*
2	28128	25.7	28/29	33/34	SS/XC/MB	Р	*
3	27033	20.9	29/30	34/35	SP/MB	Р	*
3	27045	10.3	29/30	34/35	SS/XC/MB	Р	*
3	28007	48.1	29/30	34/35	SS/XC/MB	Р	*
3	28008	53.5	29/30	34/35	SS/XC/MB	Р	*
3	29007	10.8	29/30	34/35	SP/XC/MB	Р	*
3	29571	21.6	29/30	34/35	SS/XC/MB	Р	*
3	27032	3.2	30/31	35/36	SP/MB	Р	*
3	28005	25	30/31	35/36	SS/MB	Р	*
3	29004	5.3	31/32	36/37	SS/XC/MB	Р	*
3	28581	6	31/32	36/37	SS/XC/MB	Р	*
3	28314	29.4	32/33	37/38	SS/XC/MB	Р	*
3	28867	12.7	31/32	36/37	SS/XC/MB	Р	*
3	28935	4.7	31/32	36/37	SP/MB	Р	*
3	29021	9.5	31/32	36/37	SP/MB	Р	*

1 - Replant(R) / natural regeneration(NR) / plant alternative area(ALT) / no restocking (None)

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Proposed restocking is shown on the Future Habitats and Species maps (Map 6 and 6.1).

If the Restock or natural regeneration should fail to reach 1600 per hectare (Native Broadleaves) or 2500 stems per hectare (productive Conifers) the site will be beaten-up to the required planting density. This will be assessed at year 3 and year 5 after planting with beat up by at least year 5.

## 3.6 Species diversity and age structure

The following tables show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard. The current woodland composition is shown on **Map 8**. The species are indicated by largest component, mixtures are present throughout.

Stands adjoining felled areas will be retained until the restocking of the first coupe has reached a minimum height of 2m. Where this is not possible (e.g. due to windblow (risk) or disease), the planned approach to achieving height separation between adjacent coupes is outlined in section 4.1 – Clear felling.

Table 9	Plan area by species						
	Current		Year 10		Year 20		
Species	Area (ha)	%	Area (ha)	%	Area (ha)	%	
Sitka spruce	733.3	26%	753.2	27%	866.7	31%	
Scots pine	617.4	22%	458.7	16%	442.7	16%	
Larch	133.2	5%	96.8	3%	89.6	3%	
Other conifers	180.7	6%	116.5	4%	129.9	5%	
Native broadleaves	109.8	4%	183.8	7%	273.7	10%	
Fallow	323.7	12%	475.7	17%	252.6	9%	
Open ground	662.8	24%	676	24%	707	25%	
Other	20	1%	20	1%	20	1%	
Total	2780.9	100	2780.7	100	2782.2	100	



Table 10 - Age diversity							
	Current		Year 10		Year 20		
Age Class (years)	Area (ha)	%	Area (ha)	%	Area (ha)	%	
0-10	432.2	25%	488.4	29%	481.6	26%	
11-20	278.4	16%	368	22%	482.2	26%	
21-40	263.8	15%	459.9	27%	596.4	33%	
41-60	380.1	22%	74.5	4%	172.5	9%	
60+	418.7	24%	244.3	14%	121	7%	
Total	1773.2	100	1635.1	100	1853.7	100	



## 3.7 Road Operations and Quarries

Planned new roads, road realignments, road upgrades, new quarrying, and timber haulage routes are shown on the **Civil Engineering map** (**Map 7**).

We are exploring three options for quarrying within the plan area. One option is an extension of the existing, closed Cold Hollow quarry. The other two options are new quarrying sites on the north side of the A9.

We may need to upgrade an existing forest path to facilitate timber extraction should a statutory plant health notice for *P. ramorum* be issued for the larch around Farr loch. As the coupes in question (29004/29571) are otherwise long-term retention coupes, we will only upgrade this road if required to for an SPHN. According to the tolerance table (**Appendix IV**) this falls below requirements for a formal amendment or EIA.

## 3.8 Environmental Impact Assessment (EIA)

Any operations requiring an EIA determination are shown in the table below. If required, the screening opinion request form is presented in **Appendix II**. We will construct a turning point along the main haul route, but the area required falls below the threshold for an EIA.

Table 11 - EIA projects in the plan area						
Type of project	Yes / No	Note				
Afforestation						
Deforestation	Yes	Peatland restoration works				
Forest roads						
Forestry quarries	Yes	Three potential sites at Farr loch, Meall Mor and Littlemill				

## 3.9 Tolerance table

Working tolerances agreed with Scottish Forestry are shown in Appendix IV.

# 4.0 Management Proposals – guidance and context

## 4.1 Silviculture

#### 4.1.1 Clear felling

To achieve the UK Forestry Standard of separation between adjacent crops, adjoining coupes should not be felled before the restocking of the first area has reached and average height of at least two metres. We expect this to be achieved in 5 years following planting. Any unforeseen reduction in separation during the period of the plan will be formally agreed with Scottish Forestry as an amendment. Felling will be undertaken once trees in adjacent restocked coupes have reached 2m height.

The mature crop across much of the plan area is uniform in age class and structure, and is approaching either max MAI or is starting to suffer from advancing wind damage. This has meant much of the remaining mature crop has been scheduled for felling in the coming decade, in some cases in advance of the 'ideal' felling time. By being proactive we can begin restructuring and diversifying the forest, in pursuit of our national goals of a more resilient estate.

In line with the UK Forestry Standard (UKFS) all operations undertaken on our land are subject to a work planning process. This is set up several years in advance of work commencing, during which time each internal team – planning, programming, harvesting, forest management, civil engineering, visitor services, environment – contributes to the

planning of the operation. A pre commencement site visit will be carried out, and finally the work plan's initial stage will be signed off as complete by a senior manager. At around 75% completion of the work, a site visit will be carried out by the relevant internal staff, to note the sites progress and any issues. Following the works completion, the operational team will close out the work plan by notifying the planning team of any issues or remedial works required. This will be used to update our internal GIS data, thus feeding in to the next planning phase.

#### 4.1.2 Thinning

**Please refer to Map 5.** 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. 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.

The 1st thin in each young crop will be a rack and matrix thin, to allow us to entry into the stand and to evaluate the quality with in. The effect of this  $1^{st}$  thin on the crop will inform the thinning regime going forward. In all likelihood this will continue to be a systematic thin every 5 - 10 years until the crop is mature, at which point the thinning strategy may become selective.

The road network is included as a thinning coupe to allow removal of trees that exceed the 10cm DBH limit within 5 metres without a separate amendment.

In recent years the remaining mature crops have received their final thinning interventions before clearfelling. The vast majority of the thinning works proposed are either first interventions of young crops or resilience applications as commented on below.

Inverarnie Wood is included as a thinning coupe, despite not being regarded as a productive area. It is very well used by the local community, and despite not featuring a formal path network we do have a duty of care to remove dangerous trees, or intervene where we feel trees may become dangerous.

Littlemill has been included as a thinning coupe in order to allow us to maintain the path network and thin out non-native species. It produces reasonable timber but is not generally regarded as a high-production area.

# 4.1.3 Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF)

Please refer to Map 4 – Management, and to Table 7 - Thinning.

This plan revision comes during a transitory stage for the forest. The age range is sharply divided, with much of the forest being either immature or overmature. It is therefore difficult to establish CCF/LISS prescriptions at this time.

Littlemill will be managed under a LISS regime of periodic thinning and natural regeneration. Some larger fells may be required to remove non-native elements. Elsewhere in the block, natural regeneration will be utilized wherever possible.

#### Overmature

The overmature stands of spruce and pine within Meall Mor have been reduced heavily during the recent past, and during this plan period the remainder will be harvested to avoid catastrophic wind damage. This is a larger landscape change than would ordinally be desirable, however it will allow us to rebalance the age/height class of the standing timber to be more varied, and therefore more resilient.

The mature pine in the Moy block has now received its final thin. We will continue to monitor the regeneration level of the understory, but at present they are not sufficient to commit wholly to a CCF model, and so we are likely to undertake clear fells in this area. Ground-disturbance during clear felling may result in better regeneration of the desired species.

Though well outside the Caledonian pine range, Littlemill is a native pine woodland with a strong native broadleaf component. It features the only carpark and walking trails in the plan area, and given the complex topography of the SSSI landform features, lends itself well to a LISS regime. We will be thinning periodically to maintain the health of the canopy, and will remove the few remaining stands of non-native species.

#### Immature

Within the plan area, there is strong regeneration of native broadleaves, spruce, pine, and larch within the Meall Mor and Farr blocks. We will seek to incorporate this into our planted areas to diversify the age and height classes of the forest. Additionally, by scheduling first

thinning interventions we can set these compartments on the way to the wind firmness that will be required if we are to establish a continuous canopy in the future.

Once the final large-scale felling operations have occurred and we have replanted the land, we will design smaller, more sympathetic coupe shapes. In the future, this will help us to avoid punching large holes in the canopy, which increase wind damage and weevil numbers.

# 4.1.4 Long term retention (LTR) / Minimum intervention (MI) / Natural reserve (NR)

Refer to Map 4.

Designation	Area (ha)
Long term retention	132
Minimum intervention	61
Natural reserve	4
Total	197

There are nearly two hundred hectares of LTR/MI/NR coupes across the plan. The area is a noted stronghold for predatory birds, and is designated a Red Squirrel stronghold. These species and others benefit from areas with low footfall and operational disturbance.

We will preserve existing LTR where possible, and seek to site new areas where they will be most beneficial. Unfortunately some of our LTR coupes contain mature larch, which may be subject to an SPHN for P. ramorum in the coming years. We will programme these coupes and plan how we would fell them if required to, but the decision will be made on the threat level on a yearly basis.

#### 4.1.5 Tree species choice / Restocking

Restocking will be done according to **Maps 6 and 6.1 - Future Habitats and Species** and the **Restock Prescriptions in Appendix 6**. A variety of restock prescriptions are proposed

dependant on the main objectives of the area in question. Stocking densities, species and main objectives are given in these restock prescriptions. **Map 6** shows the sub compartments after 20 years, and indicates the main component species for viewability. **Map 6.1** indicates the broad species mixes by area, as described in the **Restock Prescription Appendix.** 

The plan area has two main soil 'zones'; Meall Mor, which covers two-thirds of the plan area, is predominantly moist to wet gley soils with low nutrient levels, with richer brown earths at the base of the slopes. Farr, Moy and Littlemill feature drier podzolic soils, also of poor nutrient levels.

Accordingly, we are planning a Sitka spruce led mix in Meall Mor, with either Lodgepole pine in wetter areas or Scots pine on the drier knolls. The native broadleaf component will be largely alder and Downy birch, both of which also regenerate freely throughout.

In the drier zones the mix will be Scots pine with either mixed broadleaves or an non - native conifer where appropriate. The native broadleaf component will be Silver birch and rowan, plus infill from other species which prefer or tolerate drier soils.

Our beat forester will undertake micrositing of each particular species to best suit that species requirements and the landscape. This will result in a variety of planting schemes, including intimate or block mixtures and/or pure stands. The species selection will reflect the restocking zones indicated in the LMP and the prescriptions appendix.

Restocking in productive areas will aim to maximise the productive capacity of the forest. The brief guidelines below will be followed to ensure adequate restocking:

- To obtain maximum benefits from restructuring, contiguous restocking areas will not be less than 3 ha per individual shape or exceed 50 ha unless forest health issues, open habitat restoration feasibility or wind blow dictate otherwise.
- Restock coupes adjacent to the forest roads should be restocked to within 5 metres of the forest road for at least 30% of the coupe frontage to facilitate future access and to limit potential for soil disturbance of compaction.
- Areas of non productive broadleaved trees within productive coupes will be located where they will be of greatest ecological benefit; along drainage channels, adjacent to open ground, other broadleaf woodland or around archaeological features to enhance their setting.

• Commercial restocking will not be undertaken on soil types 9e, 11c, 11d due to the intensive drainage regimes and high fertiliser inputs that would be required to achieve successful establishment.

The LMP seeks approval for restocking of areas felled prior to the plan period, species enhancement operations and in those coupes felled within the first 5 years of the plan. The conventional 5 year fallowing period generally means that all coupes felled in the second phase of the plan will usually be restocked beyond the approval period.

Where pine weevil numbers are expected to remain low following felling, restock will take place directly or shortly after felling. If this risks adjacency issues, we will seek to justify to Scottish Forestry why this is beneficial to the area. In order to secure approval for the restocking of coupes felled in the second phase of the plan, the restock proposals are also shown on **Map 6 and 6.1 – Future Habitats and Species.** 

All broadleaf planting will be native to the area and should complement and/or enrich existing naturally growing scrub and woodland to give the most ecological value.

The Restocking Strategy for Scotland's National Forest Estate aims to minimise chemical usage in restocking (i.e. application of insecticides and/or herbicides) by considering adequate ground preparation at site level, and using tactics such as delayed planting (i.e. applying five year fallowing) to achieve this.

#### 4.1.6 Natural regeneration

Natural regeneration of the desired species in CCF areas will be recruited as the next rotation, and it will be important that thinning/CCF interventions avoid damage to young trees.

There should be a preference for natural regeneration of broadleaf areas (to maintain provenance and improve the chances of establishment) but where this is unlikely or has not been successful then these areas should be planted/beaten up to the required stocking density and site requirements.

It is expected that some of the riparian zones, designed open ground and broadleaf areas will fill in with natural regeneration of both conifers and broadleaves. This will be managed in such a way as to ensure that, where practicable, it does not impose a negative impact

upon the objectives of the plan or create a negative impact upon the watercourse by becoming too dense, resulting in acidification.

There are some productive sites where natural regeneration is occurring. These will be monitored and recorded in the FLS sub-compartment database. Where this is the desired species, we will endeavor to use it to establish the required stocking density. If stocking density is too low it will be beaten up by year 5. If the natural regeneration is too dense it may be necessary to clear and restock. Where the natural regeneration is not the desired species it will be considered against the plan objectives and tolerance table and either accepted (with a plan amendment if necessary) or removed.

#### 4.1.7 New planting

No new planting is proposed during this plan period. There is no expectation of significant regeneration on open ground. If significant regeneration occurs on open ground we will consider at the mid-term review stage whether an EIA is required.

#### 4.1.8 Protection

Deer

- See Appendix VII Deer Management Plan
- The LMP falls into the Monadhliath Deer Management Group area.
- Over the previous five years FLS has culled an average of 500 deer per annum.
- Red, Roe and Sika deer are present.
- Deer are currently processed at Inshriach larder, but there are plans for a larder at Daviot, just north of the plan area.

#### Tree Pests and Diseases

The forest is generally healthy, but is of course vulnerable to the common pests and disease facing forestry in Scotland at present.

- Resin-top, *Peridermium pini*, is low in the area but may increase with the expanded planting of Scots pine.
- Larch is present throughout the block, but there has so far been no *Phytopthtora ramorum* detected. All of the Larch is within reach of the road network, and so should an SPHN be issued the remedial felling can be carried out easily.
- Pine weevil (*Hylobius abietus*) management will be determined using the *Hylobius* Management Support System. If weevil populations are too high, early restocking

risks high mortality or requires more intensive and frequent use of pesticide which is undesirable and therefore a fallow period of maximum five years will be applied.

In 2020 FLS published its 'Larch Strategy' to detail how it intends to combat the spread of *P. ramorum* across the country. The plan area sits on the boundary between two large scale 'vulnerability zones', with the ground to the west of the A9 being more vulnerable than the ground to the east. Whilst a long way from the current front of the infection, we feel it is prudent to plan for the worst. Accordingly, all of the mature larch within the plan area has been scheduled for removal within the plan period.

Where protective tubes are required, we will note the date of installation and inspections will be carried out periodically by the beat team. Once the tubes have served their purpose and the crop established, we will remove the tubes from site to avoid environmental contamination.

There is a large quantity of immature larch across the plan area, both planted and naturally regenerating. Meall Mor in particular is very well suited to the needs of Japanese and Hybrid larch. We will allow this to grow until it reaches a commercially viable size, as the cost of removal when immature would be extremely high.

#### Fire

FLS continues to work closely with the Scottish Fire and Rescue Service (SFRS) to prevent and tackle wildfires that threaten Scotland's National Forests and Land. FLS support SFRS in their lead role for fire prevention and suppression through creating annual fire plans, maintaining a duty rota, and providing additional logistical support. FLS's primary objective is always to protect people's health, safety and wellbeing.

# 4.1.9 Road operations, Timber haulage and other infrastructure

**Map 7** shows the existing forest road network, main egress points, and agreed Timber Transport Routes.

There is very little planned road building within the plan area, being generally well serviced. The existing roads will need repairs in some areas before timber or machinery haulage occurs, but this will be decided closer to the time. There will be some additional turning points built, and the existing quarry has been exhausted, so a new source of material for the block will be identified. We will submit an EIA for three potential quarry sites.

Table 12 – Littlemill SSSI designated site plan objectives						
Objective –	Management undertaken					
1. To maintain the integrity of the landforms	No quarrying or clearance of broadleaves is planned					
present on the site by, for example:	on FLS land.					
<ul> <li>avoiding further quarrying operations</li> </ul>	Grazing stock is excluded from FLS land.					
that would damage the landforms						
<ul> <li>avoiding the clearance of boulders</li> </ul>						
<ul> <li>excluding grazing stock from esker</li> </ul>						
ridges where they could cause						
deterioration of the landforms						
2. To maintain access to the features and	Trees and shrubs will be removed from key points					
ensure their visibility by, for example:	to allow visual interpretation. This will be ongoing					
<ul> <li>maintaining or re-instating grazing</li> </ul>	and will be discussed and agreed with NatureScot.					
where it has previously taken place	The existing trails will be promoted and maintained.					
and is not causing deterioration.						
<ul> <li>carefully removing trees and shrubs</li> </ul>						
from key areas (including subsequent regeneration)						
<ul> <li>promoting the use and development</li> </ul>						
of the geo-trails for interpretation.						

## 4.2 Biodiversity

#### 4.2.1 Designated sites

See **Appendix VIII - Environmental features**. Littlemill SSSI is native pine woodland atop fluvioglacial landforms, extending to 142ha. The woodland will be managed under a LISS regime of thinning and encouraging natural regeneration. Management considerations for the land forms are laid out in the designated site plan (DSP), as detailed in t Environmental features appendix. The main objectives are listed below;

#### 4.2.2 Native woodland

The plan area features approximately 65.7ha of planted ancient woodland sites. FLS policy is to restore a minimum of 85% of all sites classified as Plantations on Ancient Woodland Sites (PAWS). This is in addition to the protection and enhancement of Ancient and semi-natural Woodland Remnants.

Key management for the other sites are prioritised removal of non-native conifers. Once non-natives have been removed there is a subsequent rolling programme of regeneration removal. Most PAWS sites will be restored using natural regeneration of existing native species but where there is a lack of seed source for under-represented species, these may be planted. A key objective in the restoration programme will be the continual reduction of grazing pressure to levels that allow sufficient natural regeneration to establish.

# 4.2.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWs)

AW ID	Area (ha)	Threat level	Action Proposed
Inverarnie Cpt 91	7ha	Secure	Mature non-natives have been removed but non-native regen of SS still an issue and will be removed
Farr Cpt 93/95	17ha	Threatened	Future Clearfell – Med Ecological Potential
Farr Cpt 77	6ha	Secure	Mature non-natives have been removed but non-native regen of SS still an issue and will be removed
Moy Cpt 3333	16ha	Threatened	Part restored but remaining non-natives will be removed
Moy Cpt 3331/3328	20ha	Threatened	Part restored but remaining non-natives will be removed

#### 4.2.4 Protected and priority habitats and species

All forest management operations involve a planning process before work commences which includes checks for wildlife and important habitats. Work plans will be adjusted if necessary to avoid disturbance, and opportunities to further protect species or enhance habitats will be identified.

#### **Red squirrel**

The plan area – with the exception of Farr loch - is a Red squirrel stronghold. The proposals in this plan have therefore been assessed using the practice guide 'Managing forests as red squirrel strongholds' (Forestry Commission Scotland, 2012). The proposals in this LMP will benefit the species by increasing broadleaf coverage, and the riparian zones will create corridors to facilitate movement. The block wide restructuring of age and height will further benefit the squirrels.

The felling proposed during this plan has been discussed with our environment team, who support the long-term vision of a diverse stand of varying age and height.

FLS has a single license to cover forest management activities that may affect red squirrels on the national forest estate (NFE). This is in accord with the Scottish Biodiversity Strategy's aim to resolve species management issues. All works within the plan area will follow the assessment and mitigation actions set out as conditions of this license, which is monitored by our environment staff.

#### 4.2.5 Open ground

There are scattered areas of priority open ground habitat types throughout the plan area – generally belonging to either the blanket bog, upland heathland or acid grassland types, though others are present. These are highlighted in **Appendix VIII – Environmental Features.** We will be restoring some currently forested ground into Blanket Bog through restoration works through the plan period.

Within restocks opportunities will be sought to create high value open habitats in areas of extreme infertility, waterlogged soils and/or to buffer existing open habitat. The restock prescriptions as detailed in **Appendix VI – Restock Prescriptions** have allowance for these elements within the coupe.

#### 4.2.6 Dead wood

Opportunities for retaining or creating deadwood will be identified during the planning of all felling and thinning works, favouring areas with the highest deadwood ecological potential. Valuable deadwood and deadwood areas will be marked on contract maps. Areas of natural reserve will offer some of the best opportunities for the development of standing and fallen deadwood. Where it is safe to do so, standing mature dead trees will be retained as these

offer excellent potential for a range of species. We adhere to the UKFS on deadwood, and follow internal guidance (FC Practice note 20).

All deadwood creation will be done in accordance with the FLS guidance document 'FLS Deadwood Management (FLS, September 2021)' which can be provided on request. This document should be seen as a supplement to the Scottish Forestry Practise Guide 'Managing deadwood in forests and woodlands (Humprey & Bailey, 2012)'.

#### 4.2.7 Invasive species

The plan area is generally free of invasive species, with the only notable incursion being from *Rhododendron ponticum* in the privately owned land around Farr loch. We will continue to monitor the expansion of the species and take action where appropriate.

# 4.3 Historic Environment

Please refer to Maps 2 and 13 and Appendix V.

There is a scheduled ancient monument in the plan area – General Wades Military Road. There will be no clearfelling during the plan period, but there may be some thinning depending on the condition of the crop surrounding the road. Currently the forest encroaches on the minimum 20m buffer recommended in the UKFS – when restocking occurs in the future we will roll the forest edge back to the edge of this zone.

We consulted with Historic Environment Scotland during the creation of this plan, who noted that a Scheduled Monument Clearance would be required if any work – thinning, felling or restocking - where to take place either within or near to the 20m buffer. To err on the side of caution if any work takes place in the two coupes either side of General Wades Road we will consult with HES prior to and during the work planning stage. **Map 13** indicated the Scheduled Monument site in detail, as it stands presently.

Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at significant historic assets; and to seek opportunities to work in partnership to help to deliver Our Place in Time: the historic environment strategy for Scotland (2014) and Scotland's Archaeology Strategy (2015). Significant archaeological sites will be protected and managed following the UK Forestry Standard (2017) and the FCS policy document Scotland's Woodlands and the Historic Environment (2008). Harvesting coupes, access roads and fence lines will be

surveyed prior to any work being undertaken in order to ensure that upstanding historic environment features can be marked and avoided. At establishment and restocking, work prescriptions remove relevant historic environment features from ground disturbing operations and replanting. Where appropriate, significant historic assets are recorded by archaeological measured survey, see active conservation management and may be presented to the public with interpretation panels and access paths. Opportunities to enhance the setting of important sites and landscapes will be considered on a case-by-case basis (such as the views to and from a significant designated site).

The Regional Historic Asset Management Plan includes conservation management intentions for designated historic assets on the National Forest Estate. Details of all known historic environment features are held within the Forester Web Heritage Data and included within work plans for specific operations to ensure damage is avoided. Significant historic environment features will be depicted on all relevant operational maps. Areas of historic environment interest should be checked both on FLS's internal historic environment records and also with the Council's HER prior to the commencement of forestry activities. Any upstanding features should be clearly marked, both on the ground and on operational maps. Care should be taken to avoid any damage to surviving structural elements.

## 4.4 Landscape

Please see Map 11 Landscape Character Types, Appendix X – Landscape Visual Assessment and Appendix XI – Moy Face Visualisations.

# 4.5 People

#### 4.5.1 Neighbours and local community

Several neighbors have taken an active interest in the development of the plan and their aspirations have been incorporated where they do not conflict with the objectives of the plan and are consistent with FLS's approach to land management.

We undertook a public consultation event at the midpoint of this plans development to show to interested local residents the proposed schedule of work over the next plan period.

We understand the community that uses Inverarnie Wood frequently are considering an application through the CATS scheme to take it into their control.

#### 4.5.2 Public access

Visitors are welcome to explore FLS land, and will only be asked to avoid routes while certain work is going on that will create serious or less obvious hazards for a period (e.g. tree felling). Scotland's outdoors provides great opportunities for open-air recreation and education, with great benefits for people's enjoyment, and their health and well-being. The Land Reform (Scotland) Act 2003 ensures everyone has statutory access rights to most of Scotland's outdoors, if these rights are exercised responsibly, with respect for people's privacy, safety and livelihoods, and for Scotland's environment. Equally, land managers have to manage their land and water responsibly in relation to access rights and FLS will only restrict public access where it is necessary and will keep disruption to a minimum.

At present the only visitor zones are the way-marked trails within the Littlemill block – **Map 12 - Littlemill recreation**. We have explored expanding the provision of official walking or multi-use trails, but cannot at present find a practical or cost-effective way to do so.

#### 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.

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.

#### 4.5.3 Renewables, utilities and other developments

The main forest road that serves the Farr and Meall Mor blocks was constructed with aid from the windfarm development at Farr. The windfarm retains a right of access along the road.

There is a hydroelectric scheme on the Uisge Dubh watercourse at the far south of the Farr block. The operators have a right of access along the forest road.

The A9 trunk road that bisects the plan area is in the early stages of being dualled into a dual carriageway. This will necessitate the loss of some ground immediately adjoining the present route. This work is being carried out by an external contractor under Construction Design and Management (CDM) regulations, and is expected to take 4-5 years. At the end of the lease period the land and control over forest road access will be handed back to FLS.

## 4.6 Soils

#### 4.6.1 Protection and Fertility

# Please see Map 9 – Soils, Map 9.1 Bedrock Geology and Map 9.2 JHI Land Capability for Forestry.

There will be minimal soil disturbance and machine movement on sites with clayey soils to reduce the risk of compaction or damage to the soil structure. Brash mats (or alternative measures) will be used to protect sensitive soils. Felling residue will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking.

The extended fallow periods (generally up to five years) that are required prior to restocking, to allow pine weevil populations to abate, have the negative effect of compounding nutrient deficit because nutrient released from decaying leaf litter will have largely been flushed from the site by the fifth year. Therefore it is possible that post planting applications of fertiliser, containing phosphates and potassium, might be required on the upper (more nutrient poor) margins of the forest with further remedial applications required in some crops in line with industry best practice (Taylor, 1991).

However, appropriate choice of silvicultural mixtures and well-timed heather control is preferable to fertilizer application. In this plan the choice of species has taken into account the fertility of the site to the extent that it anticipates no fertiliser will be used during restock and woodland creation. Broadleaf species will be incorporated within silvicultural

mixtures to improve soil function and encourage a sympathetic and characteristic field layer to develop.

#### 4.6.2 Cultivation

Where required, the choice of ground cultivation technique will consider the short-term benefits for establishment against any long-term side effects on tree stability, access for future forest operations and the environment. There will be a preference for the least intensive technique.

A mix of scarifying, mounding and flat/screef planting will be used depending on soil type, weed growth, geomorphology and the desired species. Scarifying will like be used in those areas where natural regeneration of Scots pine is desirable.

#### 4.6.3 Deep peats

In April 2022, FLS published a Peatland Restoration Strategy. Sites for which there is a 'Presumption to restore' are defined as:

- Habitats designated as qualifying features in the UK Biodiversity Action Plan, or on Natura sites, Ramsar sites,
- Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNRs);
- Sites or parts of sites where restocking is likely to adversely affect the functional connectivity (hydrology) of an adjacent Annex 1 peatland habitat (as defined in the EU habitats Directive) or a habitat associated with one;
- Sites where deforestation would prevent the significant net release of greenhouse gases

Some peat types (8a, 8d, 9a, 10a, 10b, 14, 14h, 14w) are classed as 'Scenario A' soils: edaphically unsuited to woodland. Additionally, 10a and 10b peat types are associated with raised bog habitats. Lowland raised bog and blanket bog are UK BAP priority habitats and therefore a presumption to restore. In the LMP process, by default we will not commercially restock areas where Scenario A peat types dominate, and will include such areas for further assessment for either peatland restoration, or manage as native broadleaf or peatland edge woodland (PEW). We are aiming to restore three sites in the plan area to blanket bog - one site each in Farr, Meall Mor and Littlemill, covering a total of 33.72ha. Of this total area, 27.73ha will require deforestation. Though these sites have grown timber in excess of YC8 – up to a maximum of YC12 – as these sites fall under a 'presumption to restore' categorisation, we believe restoration will be preferable. These areas have all been surveyed and found to contain peat in excess of 50cm in depth, and often over 120cm. Additionally, these sites are all connected to watercourses and to existing, continuous blanket bog habitats.

There are other areas of peat soils across the plan. We have surveyed them, and whilst some of them contained some areas of deep peat, their small size or remoteness from any existing blanket bog habitat means they are unlikely to be successfully restored. In these cases we will try and use the open ground and native broadleaf components of the restock prescription to provide another habitat for the local landscape mosaic.

### 4.7 Water

#### 4.7.1 Drinking water

Please refer to Map 3 – Key Water Features and Appendix IX – Hydrology. All private drinking water supply points (and pipes) are recorded as a layer in our Forester Web GIS (included in Map 2). This is consulted during the work plan process for all forest operations to ensure their protection. Affected neighbours will be consulted prior to any works commencing by the harvesting team. Features will be clearly marked on all contract maps, as well as on the ground. The design of the future forest has incorporated an open space or broadleaf buffer of at least 50m around these supply points to minimise future disturbance.

#### 4.7.2 Watercourse condition

All forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water.

#### 4.7.3 Flooding

Please see **Appendix IX – Hydrology**. There are no specific flood prevention considerations within the plan area at this time (see Description of Woodlands). The scale and timing of felling in the forest, along with an increasingly diverse age structure is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.