

Lael



Land Management Plan 2022 - 2032 030/516/433

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

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



The mark of
responsible forestry



Property details	
Property Name:	Lael
Grid Reference (main forest entrance):	NH 1869 8533
Nearest town or locality:	Ullapool
Local Authority:	Highland Council

Applicant's details	
Title / Forename:	Eelco
Surname:	de Jong
Position:	Planning Forester
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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 afforestation / ~~deforestation~~ / ~~roads~~ / ~~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 Scottish Forestry 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 Regional Manager		Signed, Conservator	
FLS Region	North	SF Conservancy	Highlands and Islands
Date	23/06/22	Date of Approval	
		Date Approval Ends	

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1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Lael
Forest blocks included	Lael
Size of plan area (ha)	788.5
Location	See Location & Viewpoints map (Map 1)

Long Term Vision
<p>Over time the forests in Lael managed by Forestry and Land Scotland will develop in a few different ways. The current productive crop on the steep ground which includes large elements of larch will be removed and replaced by a forest designed to secure the hillside against landslip. This will contain mostly native species to simultaneously make the slopes more safe and enhance the ecological value of the block.</p> <p>The gullies in the glen will be the main ecological hotspots and will contain a large variety of tree, shrub, plant and lower plant species many of which are unique to the Atlantic rainforests. To further enhance the ecological quality and reduce competition Rhododendron will have been removed on a landscape scale.</p> <p>Timber production will take place with high yielding species lower down in the glen and along the A835. A mixture of Pacific North-Western species will be used to ensure a diverse and resilient crop. Higher up, where nutrient availability is poorer, a mixture of pines and native broadleaves will balance ecological, productive and soil development objectives.</p> <p>Riparian zones will form a network of native, largely broadleaved, elements improving both aquatic and terrestrial habitats.</p> <p>Recreation will be taking place throughout the block as Lael is the main access to Beinn Dearg and the surrounding hills. The Forest Garden will have been expanded and remains the area's main attraction due to its unique selection of species from temperate high rainfall habitats around the world.</p>
Management Objectives
<ol style="list-style-type: none"> 1. Diversify species to mitigate against the impact of anticipated climate change 2. Remove Rhododendron to improve integrity of Atlantic rainforest habitat 3. Manage deer population to enable natural regeneration and allow restocked sites to develop 4. Remove larch to prevent infection of <i>Phytophthora ramorum</i> 5. Expand the Forest Garden 6. Establish network of riparian woodlands
Critical Success Factors

Long Term Vision

- The removal of larch on the steep slopes needs to have started within the plan period
- Rhododendron management should only need to be focused on removal of regeneration by the end of the plan period
- The Forest Garden will be expanded northwards by the end of the plan period
- Deer numbers must be maintained below a level that allows regeneration of broadleaved trees and of insignificant damage to productive woodland restocking

1.2 Summary of planned operations

Summary of Operations over the Plan Period	
Clear felling (gross)	138.1 ha
Thinning (potential area)	328.8 ha
Restocking (gross)	87.1 ha
Afforestation	6.2 ha
Deforestation	0 ha
Forest roads	0 m
Forestry quarries	0 ha

Table 1: Summary of operations over the plan period

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 1 – Description of Woodland** and on **Map 2 – Key Designated Features**. 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 3 – Consultation Record**.

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.

Different management options for achieving the plan’s objectives were considered against the constraints and opportunities identified during scoping and consultation. The preferred approach is summarised on **Map 4 - Concept**.

Objective	Opportunities	Constraints	Concept
Diversify species to mitigate against impact of anticipated climate change	- Large scale felling to limit impacts of <i>Phytophthora ramorum</i> provides an opportunity to restructure large parts of the forest	- Deer numbers limit the use of more palatable species	- Restock the areas of Larch with a large variety of native species - Ensure access is provided into these areas to allow for effective deer management
Remove Rhododendron to improve quality of Atlantic rainforests	- Collaborative working with neighbours will improve efficacy and reduce cost	- Rhododendron in gullies and on steep crags is hard to access and may provide a future seed source if left	- Collaboratively remove Rhododendron from the plan area as well as neighbouring estates - Ensure removal includes hard to reach places to prevent future issues
Lower deer damage to allow for natural regeneration and allow restocked sites to develop	- Neighbouring estates are exploring woodland creation which could ease deer pressure on FLS land	- Geology of Lael hampers fencing, shooting and access	- Ensure established fences are maintained - Ensure restock is taken back from fences to prevent damage - Improve access where possible to allow deer management
Remove larch to prevent infection of <i>Phytophthora ramorum</i>	- Timely removal will ensure timber quality and value is maximized - Current timber value might offset some of the costs involved with these fellings	- Steep ground, lack of access and infrastructure at the bottom of the slopes make these coupes hard to fell - Contractor resource is limited	- Improve infrastructure to allow for skylining or helicopter extraction
Expand the Forest Garden	- Felling to the north of the garden will allow for expansion northwards	- Deer browsing could significantly impact rare, expensive and sometimes very palatable species	- Extend the Forest Garden perimeter fence to incorporate new ground

Table 2 : Analysis and concept

3.0 Management Proposals - regulatory requirements

This land management plan 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 Land Management Plans can be found using the link [HERE](#).

3.1 Designations

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

Designations and significant features		
Feature type	Present	Note
Site of Special Scientific Interest (SSSI)	Yes	Beinn Dearg SSSI
National Nature Reserve (NNR)	No	Corrieshalloch Gorge NNR/SSSI is approximately 600m upstream and south of Lael Forest
Special Protection Area (SPA)	No	Beinn Dearg SPA 1.4km to the east of Lael
Special Area of Conservation (SAC)	Yes	Beinn Dearg SAC
World Heritage Site (WHS)	No	
Scheduled Monument (SM)	No	
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	Yes	See soils map 9
Tree Preservation Order (TPO)	No	
Biosphere reserve	Yes	Part of Wester Ross Biosphere
Local Landscape Area	No	
Ancient woodland	Yes	
Acid sensitive catchment	No	
Drinking Water Protected Area (Surface)	Yes	

Table 3 : Designations and significant features in Lael Forest

The Key Designated Features map (**Map 2**) and Key Water Features map (**Map 3**) show the location of all designated areas and significant features. Any deep peats are indicated on the Soils map (**Map 9**).

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 5**).

1.1 Table of Clearfelling (Phase 1)									
Coupe No.	Fell Year	Total Area (Ha)	Spp by Ha (SS)	Spp by Ha (SP)	Spp by Ha (Larch)	Spp by Ha (DF)	Spp by Ha (X con)	Restock Year	Monitoring Comments
71879	22/23	5.5				2.3	3.2	27/28	
71013	23/24	7.3			7.3			28/29	
71102	23/24	12.5	0.5	7.3	4.7			28/29	
71043	24/25	2.3	1.9		0.4			25/26	No fallow because of slope stability issues
71082	24/25	1.6	1		0.6			25/26	No fallow because of slope stability issues
71976	24/25	9.1		2.8	6.3			25/26	No fallow because of slope stability issues
71029	25/26	20.9		2	17		1.9	26/27	No fallow because of slope stability issues
71038	25/26	9.3	1.5	0.7	7.1			26/27	No fallow because of slope stability issues
Totals		68.5	4.9	12.8	43.4	2.3	5.1		
1.2 Table of Clearfelling (Phase 2)									
Coupe No.		Total Area (Ha)	Spp by Ha (SS)	Spp by Ha (SP)	Spp by Ha (Larch)	Spp by Ha (DF)		Restock Year	Monitoring Comments
71058	28/29	16.5	11.8		4.7			33/34	
71072	28/29	13		1.3	11.7			29/30	No fallow because of slope stability issues
71074	28/29	5.6				5.6		29/30	No fallow because of slope stability issues
71046	29/30	34.5	13			13.5	8	34/35	
Totals		69.6	24.8	1.3	16.4	19.1	8		

Table 4: Clearfell Summary by Phase and Coupe Number

Scale of Proposed Felling Areas											
Total Woodland Area			788.6 ha								
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%	
Net Area (ha)	68.5	8.7	69.6	8.8	72.7	9.2	72	9.1	4.3	0.5	

Table 5 Scale of Proposed Felling Areas

3.3 Thinning

Sites for thinning in the plan period are identified on the Thinning Coupes map (Map 7) and described in the table below.

1.5 Table of Thinning (Phase 1 & 2)					
Coupe No.	Total Area (Ha)	Thin Year	Species	Prescription for Thinning	Monitoring Comments
71907/8	31.1	2026	WH/SS/DF	Rack and thin, promote native species	
71903/4/5	31.1	2027	SS/BI/SS/EL	Rack and thin, promote native species in riparian zone	
71906	13.7	2028	SS/MB	Rack and thin	
71909	27.9	2030	EL/JL	Rack and thin	
71911/16	25.8	2030	SP/SS/MB	Respacing	
71910	13.3	2030	SS/DF/MB	Thin to promote native species	
71912	12.3	2030	Various	Thin as part of Forest Garden Maintenance	
71914/5	13.3	2030	DF/SP/SS	Rack and thin, promote native species	
71917	13.2	2030	SS	Rack and thin	
71913	7.3	2030	NMB	Thin as part of Forest Garden Maintenance	
71918	4.8	2032	SP/SS/MB	Mature SP stand, thinning would allow for management of this stand to remove non-natives if necessary	
Roadside	47	N/A	N/A	5 metre buffer along all forest roads will be mapped to allow roadside vegetation with over 10cm stem diameter to be cut. Map 7 shows these areas	
Riparian Zones	88	N/A	N/A	A 30 meter buffer along all watercourses has been delineated to allow removal (by thinning) of non-native tree regeneration.	
Total	328.8				

Table 6 : Proposed Thinning Coupes

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.

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 / New Planting

Proposed restocking and new planting is shown on the Future Habitats and Species map (Map 6 – Future Habitats and Species).

1.7 Table of Restocking								
Phase 1 Restock (2022-2026)								
Coupe No.	Total Area (Ha)	SP (Ha)	Prod. Non Native Con. (Ha)	Native B/Leaf	Open (Ha)	Year	Method	Monitoring Comments
71043	2.3		1.8	0.3	0.2	25/26	R	
71082	1.6		1.2	0.2	0.2	25/26	R	
71976	9.1	2.9	0.6	4.2	1.4	25/26	R/NR	
71029	20.9	4.2		12.5	4.2	26/27	R/NR	
71038	9.3	1.9		5.5	1.9	26/27	R/NR	
Total	43.2	9	3.6	22.7	7.9			

Phase 2 Restock (2027-2031)								
Coupe No.	Total Area (Ha)	SP (Ha)	Prod. Non Native Con. (Ha)	Native B/Leaf	Open (Ha)	Year	Method	Monitoring Comments
71879	5.5		3.5	1.2	0.8	27/28	R	
71013	7.3	0.5	5.3	0.8	0.8	28/29	R	
71102	12.5	4	3.5	3.4	1.6	28/29	R	
71072	13	2.6		7.8	2.6	29/30	R/NR	
71074	5.6	1.1		3.4	1.1	29/30	R/NR	
Total	43.9	8.2	12.3	16.6	6.9			

Phase 3 Restock (2032-2036)								
Coupe No.	Total Area (Ha)	SP (Ha)	Prod. Non Native Con. (Ha)	Native B/Leaf	Open (Ha)	Year	Method	Monitoring Comments
71058	16.5	6.7	4.6	3.5	1.7	33/34	R	
71046	34.5	5.8	12.9	9.7	6.1	34/35	R	
Total	51	12.5	17.5	13.2	7.8			

Table 7 : Proposed areas of restocking

† recently felled awaiting restock (F) / Phase 1 (1) / Phase 2 (2)

* replant (R) / plant (P) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)

1.8 Table of New Planting								
Coupe No.	Total Area (Ha)	SP (Ha)	Other Con. (Ha)	Native Mixed B/Leaf	Open (Ha)	Year	Method	Monitoring Comments
71007	6.2	2.5		2.3	1.4	28/29	P	
Total	6.2	2.5	0	2.3	1.4			

Table 8: Proposed areas new planting

† recently felled awaiting restock (F) / Phase 1 (1) / Phase 2 (2)

* replant (R) / plant (P) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)

If the Restock or natural regeneration should fail to reach 1600 stems 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

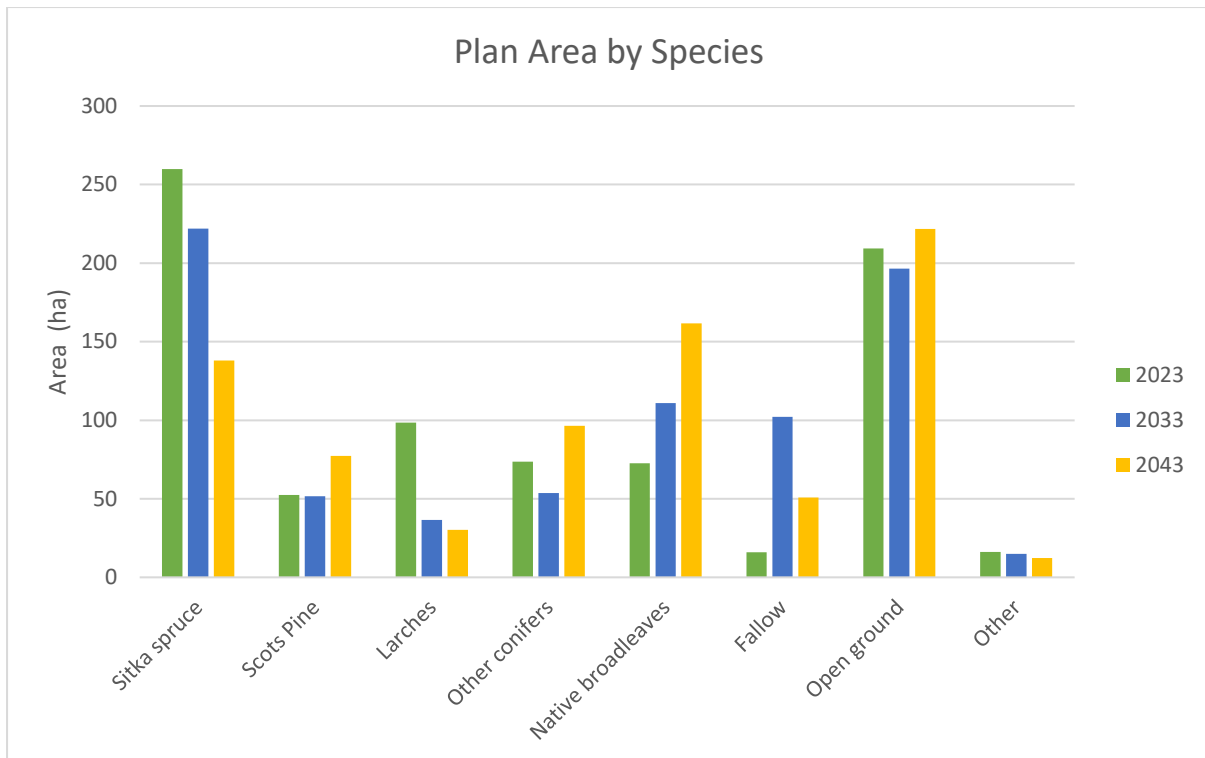
The following tables show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard.

Stands adjoining felled areas will be retained where possible 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 will be achieved through delaying restocking. Because the main face in Lael contains a large quantity of almost entirely pure larch crops which are at risk of getting *Phytophthora ramorum* infection. This face will be felled in its entirety. The subsequent restocking here consists of native broadleaves to become a Minimum Intervention native woodland into the future.

Plan area by Species						
Species	Current Area (ha)		Year 10 Area (ha)		Year 20 Area (ha)	
		%		%		%
Sitka spruce	259.9	33	222	27	138.1	18
Scots Pine	52.5	7	51.7	7	77.3	10
Larches	98.5	12	36.5	5	30.3	4
Other conifers	73.7	9	53.7	7	96.5	12
Native broadleaves	72.5	9	110.9	14	161.7	20
Fallow	16	2	102.1	13	50.9	6
Open ground	209.3	26	196.5	25	221.8	28
Other	16.1	2	15	2	12.3	2
Total	788.5	100	788.5	100	788.9	100

Table 9: Species diversity

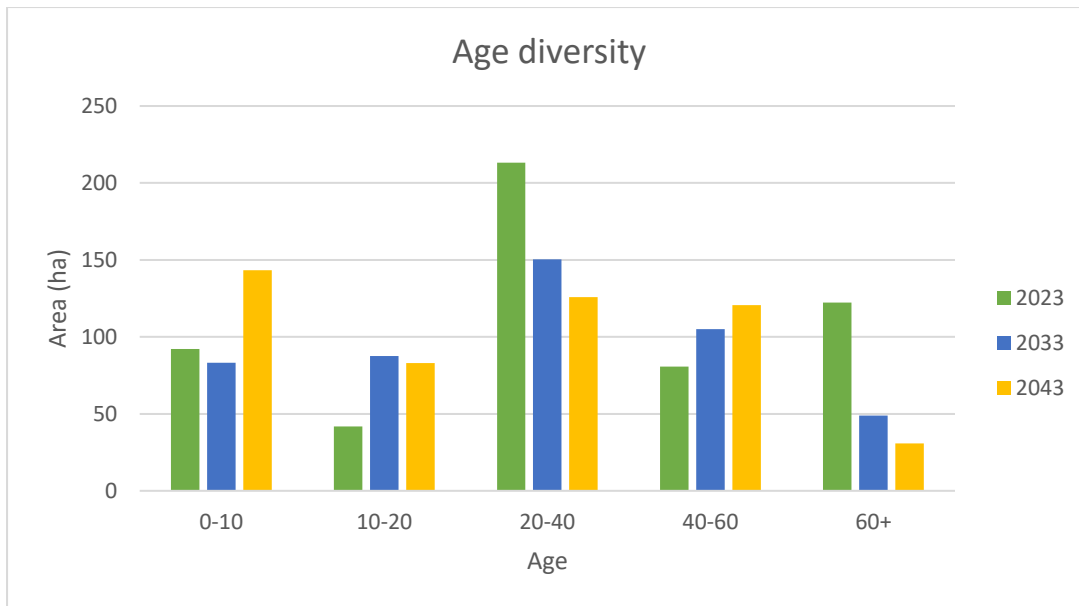
Figure 1: Bar chart demonstrating species diversity



Plan area by Tree Age						
Age Class (years)	Current		Year 10		Year 20	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
0 – 10	92.1	17	83.2	18	143.4	28.5
11 – 20	41.8	8	87.5	18	82.9	16.5
21 – 40	213.2	38	150.3	32	125.9	25.0
41 – 60	80.8	15	105	22	120.6	23.9
60+	122.3	22	48.9	10	30.8	6.1
Total	550.2	100	474.9	100	503.6	100

Table 10: Age diversity

Figure 2: Bar chart demonstrating age diversity



3.7 Road Operations and Quarries

Planned civil engineering operations are included in **Map 5 - Management Coupes**.

Forest Road Upgrades, Realignments, New Roads and New Quarrying				
Phase	Name / Number	Length (m)	Year	Operation
1	71976 Skylining Bay	100	23/24	Building of an extra levelled area adjacent to the track to allow for machines and stacking

Table 11: Civil Engineering Operations

3.8 Environmental Impact Assessment (EIA)

Any operations requiring an EIA determination are shown in the table below. The corresponding screening opinion request form is presented in **Appendix 2 - EIA**.

EIA Determination projects in the plan area		
Type of project	Yes / No	Note
Afforestation	Yes	
Deforestation		
Forest roads		
Forestry quarries		

Table 12: Environmental Impact Assessment Determination Summary

3.9 Tolerance table

Working tolerances agreed with Scottish Forestry are shown in **Appendix 4 – Tolerance Table**

3.10 Predicted future export timber volumes

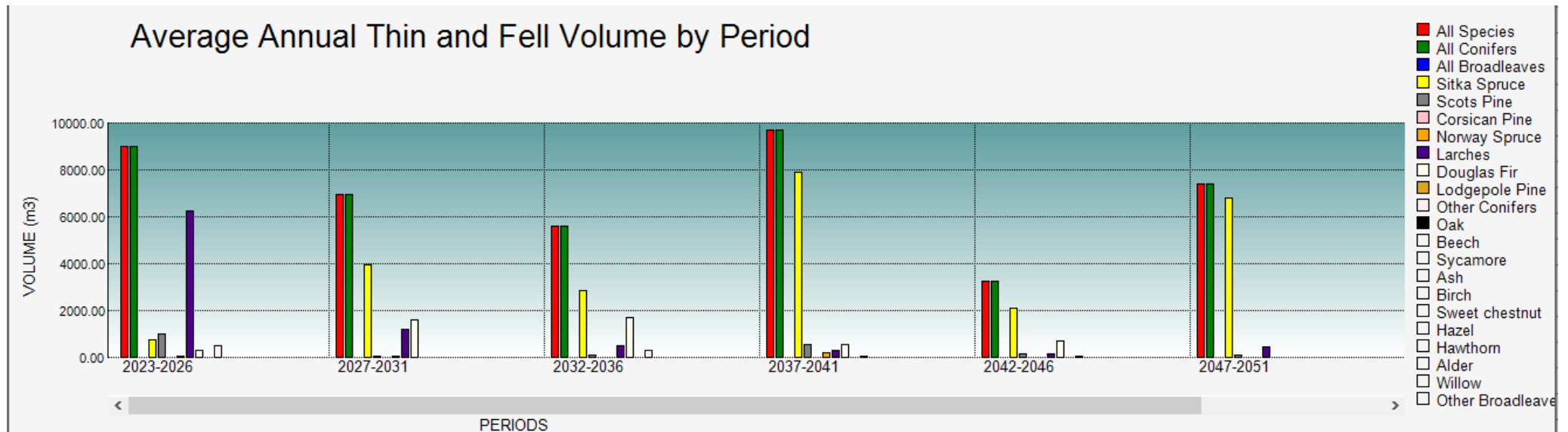


Figure 2: Predicted future export timber volumes

4.0 Management Proposals – guidance and context

4.1 Silviculture

4.1.1 Clear felling

Coupe detail can be found in section 3.2 and **Map 5 – Management Coupes**.

Clearfelling in this plan area is largely driven by the threat of *Phytophthora ramorum* infection. As the Lael LMP area contains a significant percentage of larch species and *P. ramorum* is making its way along the west coast northwards the reduction of larch is the main priority.

As stipulated in the '2022 FLS Larch Strategy', the 'PAZ more vulnerable zone', of which Lael is a part, requires the following changes:

- • Removal of at least 20% of the larch by April 2027 (against an April 2021 baseline and focusing on the areas closest to the boundary of the Risk Reduction Zone)
- Fell the “difficult and complex larch coupes” by April 2032 (starting with those most at risk to disease and maintaining a balanced annual programme)
- Construct access to at least 80% of all mature larch by April 2027.

The larch coupes along the A835 can all be classed as difficult coupes because of access issues and steep ground. The small spruce/larch coupes 71043/71082 require felling permission to allow for skylining of the coupe above. The three coupes in the main glen contain larch as well as other species and are past their respective maximum mean annual increment. The main impetus to fell these coupes is to remove the larch in areas where access is difficult. The coupe containing Grand- and Douglas fir, along the A835, is to be kept in the current felling programme as this proposal has already progressed to its operational phase.

Only one coupe proposed for clearfelling not associated with larch removal. This coupe (71046) contains a mixture of firs and spruces and is suffering from windblow as well as a fungal butt rot infection.

4.1.2 Thinning

Due to the local geology and geomorphology the thinning potential of Lael is limited. However, in a few places lower down in the glen, there is potential for thinning which would bring both environmental and commercial benefit.

Map 7 – Thinning Coupes identifies the coupes where thinning will or might take place are shown. Thinning will be done to increase timber quality or to promote a specific species composition and therefore selection is done predominantly on species, crown health and form. An outline thinning prescription for the upcoming coupes has been determined and is shown in the Activity tables in section 3.3. Initial thinning will generally establish access racks and lightly thin the crop between the racks. Depending on the estimated stability a more conservative approach may be taken.

On the thinning maps there are two additional thinning areas besides the regular silvicultural interventions. These are the road buffers and riparian zones. Alongside roads and within riparian zones management is necessary at regular intervals. This involves felling or mulching regenerating trees to prevent the road becoming too shaded and therefore damp and to prevent roadside ditches from becoming blocked. In riparian zones regeneration of non-native species can threaten the objectives in these areas by outcompeting the native broadleaved species desirable for a well-functioning riparian zone. Removal of these non-natives will be scheduled when non-native populations and impacts are deemed problematic.

The Forest Garden is also included as a thinnable coupe to allow for the management of the arboretum. Motor-manual felling will likely take place throughout the duration of the plan to remove dangerous trees, promote growth of certain individuals/species or to remove certain individuals/species if they threaten the objectives of the Forest Garden.

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

As the potential for thinning in Lael is limited, as mentioned in section 4.1.2, so are the opportunities for applying Low Impact Silvicultural Systems. The Forest Garden is a notable exception as management here envisages only small scale interventions. Because of the range of tree and shrub species ages it is not expected or desirable, for the Garden to undergo felling at a more extensive scale.

In the north of the plan there is a recently felled area which coincides with an area of Plantation on Ancient Woodland Site (PAWS). This area has been regenerating naturally with a wide variety of both native and non-native species. It is intended that this area can be thinned, with native species retained, and moved to a Continuous Cover Forest system utilising the retained native species. As the current crop is only 16 years old or younger the next thinning intervention will focus non-native removal and re-spacing to favour retained trees with better form. This thinning prescription will promote the establishment of better quality, windfirm seed trees which will in turn enable a move towards continuous cover management.

High up above the slopes along the A835 there is an area of woodland (Coupe 71910) which was previously conifer. It was felled at the turn of the century and has been replanted using broadleaves. There is regeneration of non-native conifers throughout the coupe in small quantities. This coupe will be thinned to preserve a largely native broadleaved stand with the aim to have a low yielding native CCF coupe taking out small quantities of firewood.

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

Lael LMP contains several LTR, MI and NR sites, these are illustrated spatially in **Map 5 – Management Coupes**. These will be managed in accordance with FLS guidance for these respective management classifications. In the previous plan a larger section of the larch on the steep slope above the A835 had been classified as an NR. In this plan only the area of Scots pine is retained as NR as the larch needs to be felled in line with current policy (see section 4.1.1).

On the same slopes a mixture of native species will be restocked to replace the felled larch. The aim for these areas is to establish continuous cover for environmental and stability purposes by using native species. These areas will in the future likely become MI or NR. Riparian areas have, in previous plans, been marked as Minimum Intervention zones. However, to facilitate removal of mature non-native species and to allow for management of regenerating non-native species these are now classified as part of the management coupes/thinning coupes where appropriate. Similarly the area of PAWS in the north of the plan has been changed from a MI to CCF to allow for the management intervention to steer the area towards native forest (section 4.1.3).

4.1.5 Tree species choice / Restocking

Restocking will be done according to **Map 6 - 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.

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 windblow 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 following period generally means that all coupes felled in the second phase of the plan will 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. 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 – 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 following) 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 is important that thinning/CCF interventions avoid damage to young trees. Where a change of species composition is desirable or where natural regeneration is not giving adequate recruitment underplanting will be considered.

There is 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 will be restocked/beaten up to the required stocking density and site requirements. On the steep slopes where the larch is scheduled for clearfelling, natural regeneration of native broadleaved woodland is anticipated. However, in areas where recruitment is insufficient supplementary restocking will be undertaken.

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 significant negative impact upon the broader objectives of the plan or create a negative impact upon the watercourses and native ground flora through excessive shading or 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 regeneration is by the desired species, we will endeavour to use it to contribute to the required stocking density. If the stocking density by recruitment 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 (by seeking a plan amendment if necessary) or removed to allow restocking with proposed species.

4.1.7 New planting

An area in the north of the plan has been identified for woodland creation (**see map 6 – Future Habitats**). As this area is on relatively poor soils the main tree species used will be Scots pine. Along the watercourse riparian woodland will be established. Works will coincide with the restock of the adjacent site to the north as this will allow for easier contract management as well as benefit from the more focussed deer control employed to protect establishing trees from browsing. An EIA determination form is attached in **Appendix 2 - EIA**

4.1.8 Wildlife Management

The Lael LMP area lies within the catchment areas of the North Ross Deer Management Group (NRDMG).

This DMG area covers from the Skiach A9 road junction West to Ullapool via Garve following the public road North to Ledmore junction then East to Inveroykel and then South encompassing Corriemulzie, Alladale and Glencalvie Estates on the Eastern edge of the group. Lael Forest borders with Braemore and Inverlael Estates. The DMG area total is 118,000 hectares which is mainly open hill ground with deer stalking sporting interest. SNH, now Naturescot, carried out a deer census in 2019 and the count was an average of 10.3 Red deer per 100 hectares. More information on the group can be found on the Association of Deer Management Groups (ADMG) website.

There are three species of deer present in the LMP area – Red, Roe and the non - indigenous Sika deer. Over the last 3 years FLS have culled approximately 150 deer in Lael Forest. FLS have collaborated with neighbours in regard to deer fence inspection and maintenance and carried out significant repairs in the recent years to the perimeter boundary fence to the north of the block bordering with Braemore Estate.

FLS expects to be able to continue managing the deer population adequately with the current management strategy in place - through deer control and upkeep of existing perimeter fences. During the public consultation several neighbours raised their concerns regarding deer moving between FLS ground and residential gardens around Braemore. It is

expected that due to the planned felling in this area the deer will be easier to manage and therefore alleviate the matter.

To protect the extension of the Forest Garden from browsing damage, a new section of deer fence will be erected. There is a large variety of trees and shrubs to be planted in the Forest Garden. As these species can be particularly valuable, often extremely palatable and slow growing, this deer fence will be essential to their successful establishment. The new fence will be approximately 1000m long and will contain this Forest Garden extension only.

4.1.9 Tree Health

As mentioned previously this LMP contains some significant changes in direction from previously plans to mitigate against the risk of *P. ramorum* infection. All planned operations have taken the threat of this disease into account and align with the '2020 FLS Larch Strategy'.

Besides *P. ramorum* there are some other tree health concerns in the area. Primarily along the A835, there is a high prevalence of buttrot species. Both *Heterobasidion annosum* and *Phaeolus schwientizii* can cause substantial damage to the health and timber quality of conifer species. The areas of larch are planned for transformation to mainly native broadleaved woodland and therefore the presence of butt rot is of lesser concern here. In areas where buttrot is present and there an intention to retain productive conifer the fungi causing rot pose a significant threat. As both *H. annosum* and *P. schwientizii* have been found locally the choice of more resistant species is limited. In these areas a mixture of species will therefore be restocked in the hope that this provides increased and adequate resilience to potential large scale infection. Furthermore, timber crop rotation periods will not be extended passed the maximum mean annual increment for that crop in the next rotation to prevent over maturity of coniferous trees which results in higher butt rot susceptibility.

Incidence of Resin-top, *Peridermium pini*, is low in the area but with the increasing age of some of the Scots pine stands this might become a problem. Any increase in incidence should be picked up during normal tree health monitoring operations.

Large pine weevil (*Hylobius abietus*) remains an ongoing constraint to forest management. Because of weevil populations density assessments will be done to determine when restock success will be likely. Ideally restock will follow felling within one or two years as this reduces nutrient run-off and reduces the need for herbicide. Whether this is possible 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.

4.1.10 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.

4.1.11 Road operations, Timber haulage and other infrastructure

Map 5 – Management Coupes shows the existing forest road network, planned new roads, main egress points, and other proposed civil engineering works

Most of Lael has a well-developed road network. Roads are steep in places which leads to limited access but, especially in the main glen, there is adequate roading. Along the A835 there is however a section which currently does not have vehicular access. The forests north and west of Foich estate are inaccessible due to steep and unstable slopes and a condemned bridge limiting further access. This represents the main civil engineering challenge for Lael.

To gain access into this area the condemned bridge will be replaced. The detail of the replacement bridge is currently undecided and will depend on operational constraints, costs and suitable contractor availability. As a minimum requirement, the new bridge will be accessible for light motorised vehicles such as quadbikes and other compact all-terrain vehicles to allow for the extraction of deer and management of the forest.

Just north of Foich estate, and of the area described above, access is non-existent as well. In here the building of a new forest entrance of the A835 is being explored. Depending on survey results from geotechnical surveys a detailed plan will be made. Once the plan has been made planning application and an EIA determination request will be carried out. Because of the lengthy process of surveying and designing a new entrance off the main road it was not possible to include this project work within this plan revision

The harvesting of coupe 71976 will be done using the old hairpin track situated below the coupe. To allow for the skyline setup and stacking a harvesting bay will need to be created at the bend in the corner as described in section 3.7.

General forest road maintenance will be undertaken in response to any monitored deterioration or structural deficiencies.

4.2 Biodiversity

4.2.1 Designated sites

Designated sites within the plan area are listed in table 3 in section 3.1 and **Map 2 – Key Designated Features**. The Habitats Regulations Appraisal (HRA) and Designated Site Plan (DSP) can be found in **Appendix 9 – Habitats Regulations Appraisal** and **Appendix 10 – Designated Site Plan**. There are two designated sites in the vicinity of the plan area. At its south-eastern end, the Beinn Dearg SAC/SSSI slightly overlaps the plan area. This designated site now largely borders onto coniferous non-native forests or recently planted/regenerating sites. The future habitats prescription for the plan however envisages a buffer of native woodland to be established to protect the designated site from unwanted non-native regeneration.

To the south of the plan area is Corrieshalloch Gorge NNR/SSSI. As this is upstream from the Lael LMP area the impact of the forest management outlined within this plan is considered to have minimal impact on the quality and integrity of Corrieshalloch Gorge.

Both sites are however at risk from invasion from invasive non-native species (INNS). For more information on the management of INNS see section 4.2.7.

4.2.2 Native woodland

The Native Woodland Survey of Scotland (Scottish Forestry, 2022) demonstrates the condition and extent of natural and semi natural woodland in Scotland. For Lael it highlights the value of the old growth Scots pine as well as the gully systems and watercourses. The areas around the main watercourse through Inverlael, and along the watercourses in Lael forest contain large elements of native species. The mature Scots pine in the glen and on the steep slopes also form significant elements of native woodland remnants. Protecting and enhancing the value of these where possible is one of the main objectives of this plan. The mature Scots pine will be retained where this does not interfere with the objectives of removing the larch. The watercourse and gully buffers have been extended where this matches up with the underlying geomorphology to further enhance the ecological value of these unique habitats. As specified in section 4.1.2 thinning permissions is sought to allow for the management of these areas for the benefit of native trees species and to control non-native species incursion.

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

PAWs sites can be viewed on **Map 2 – Key Designated Features**. As determined by the Native Woodland Survey of Scotland (Scottish Forestry, 2022), these PAWs sites are of low

quality. There are currently little to no native woodland remnants or associated ground flora on the PAWs sites due to the planting and ongoing presence and dense shade of high yielding conifers. Any remnants identified in pre-operational environmental walkover surveys will be marked for protection and retention through programmed harvesting and restock operations.

4.2.4 Protected and priority habitats and species

Protected and priority habitats and species are listed in **Appendix 5 – Environmental Features** and shown spatially in **Map 2 – Key Designated Features**.

All forest management operations involve a Work Planning process prior to work commencing and includes checks for the presence of wildlife and important/sensitive habitats. Work plans are adjusted when necessary to avoid undue disturbance, as well as to identify opportunities for further species conservation or habitat enhancement.

Red squirrel

FLS has a single licence to cover forest management activities that may affect red squirrels on the national forest estate (NFE). This is in accordance 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 licence.

There is a known presence of red squirrel within the Lael LMP area. The felling and restock plans have been assessed to determine the impact of the plans on red squirrel. Considering an element of mature conifers will be retained and restock will contain a large variety of species the impact of forest operations on squirrel is deemed neutral. For the benefit of red squirrel Norway spruce might be used in areas of native woodland. The Norway spruce element will constitute a maximum of 10% of the area.

4.2.5 Open ground

Priority open habitats present within the plan area are described in **Appendix 5 – Environmental Features** and **Map 2 – Key Designated Features**. It is expected that, with continuous deer management, natural regeneration will slowly start spreading up the hill and the resultant low density native woodland will create a buffer between the conifer forest and the open hill. This habitat will have a large component of open ground to create a mixture of open and forested habitat. Similarly the steep slopes along the A835 which will be restocked or regenerated with native woodland and will similarly contain a large component of open ground for the benefit of biodiversity. It is however essential that individual areas of open ground are comparatively small in size though numerous, to ensure the stability of these slopes.

The existing priority open habitat will be monitored and protected. If regeneration threatens the integrity of this habitat it will be removed.

4.2.6 Dead wood

Deadwood is a vital element of the forest ecosystem, positively affecting biodiversity, carbon storage, soil nutrient cycling, energy flows, hydrological processes and natural regeneration. Deadwood also plays a vital role in the functioning of river ecosystems. Managing riparian woodland under a Minimum Intervention regime in future will encourage a high proportion of deadwood over time, helping to retain water and sediments, trapping and facilitating the breakdown of organic matter into food for aquatic invertebrates, diversifying channels by creating pools, falls and riffles and improving physical habitat structure for fish and invertebrates.

As a consequence, retention of appropriate quantities of deadwood is a mandatory element of UKFS sustainable forest management. Guidance on the quantities required is not specific but an average of 20m³/ha has long been acknowledged as a minimum industry standard.

Managing Deadwood in Forests and Woodlands – A Practice Guide (Humphrey and Bailey, 2012) and the FLS internal guidance document written and reviewed by the FLS Species Ecologist on proportions and types of deadwood, will be used to guide decisions on the spatial distribution and quantities of retained deadwood on a case by case basis. **Map 11 – Deadwood Ecological Potential** details the areas where deadwood retention is considered to be of high, medium and low priority for the LMP area and will underpin decision-making at the work planning (i.e. pre-operational) stage.

The position and type of deadwood required will be stipulated by the local FLS Environment team in these work plans and the prescription communicated to contractors at contract pre-commencement meetings in advance of harvesting operations. Achievement of specified deadwood retention is reviewed at FLS' routine 75% contract completion site meeting and any corrective actions required passed to the contractors prior to completion.

4.2.7 Invasive species

There is a high presence of invasive non-native species in Lael and the surrounding area. This is due to the favourable Atlantic mild and humid climate and the historical presence of non-native species in surrounding designed landscapes and botanical gardens. The most concerning invasive non-native species is *Rhododendron ponticum*. There are several reasons why this species is damaging to the environment. Firstly it creates a very dense shrub layer which completely overshadows – and ultimately excludes - any native floral ground layer and the potential for its regeneration. Secondly it is a sporulating host for *Phytophthora ramorum* and therefore has the potential to aid the spread of this disease. *R. ponticum* is very prolific and will often grow back after being cut at stump. In the past FLS has cut back and killed most of the *R. ponticum* within the Lael block. Due to regrowth of stumps, as well as newly seeded specimens from adjacent ground, a continuous removal programme is necessary. As adjacent land owners, the local fisheries trust and FLS share the

same objective of removal of this species, the work will be undertaken collaboratively and timed so that the highest chance of successful eradication is achieved. Currently there's a large presence of *R. ponticum* on the grounds of Braemore estate to the south of the Lael LMP area. When Braemore has removed *ponticum* on their ground, FLS will do another round of *R. ponticum* removal on their adjacent ground. Removal will generally be done by using saws to dismantle the mature (flowering and seeding) shrubs and painting cut stumps or stem injection of cut stumps with herbicide to ensure the rootstock is killed. Some bushes have established in the gorges which are also some of the most unique habitats for certain native lower plant communities. Removal here will be done using rope-access work. All works will be done in line with current legislation, industry best practice and the Forest and Water guidelines.

Japanese and giant knotweed have both been found in the Lael LMP area in the past. Their presence is being monitored and when live specimens are found they will be exterminated. If populations are found across ownership boundaries FLS will liaise with the neighbour to arrange simultaneous removal.

Throughout the Plan area cotoneaster (*Cotoneaster spp.*) and Himalayan honeysuckle (*Leycesteria formosa*) is present. Both species can be found on open ground as well as in forest environments with medium light levels. It is found underneath mature larch and pine as well as on restock sites, along roads and rides and on open ground. The presence of both species is being monitored and where it fits with other management activities they will be removed. Himalayan honeysuckle is deemed an invasive species in Ireland so a close eye will be kept on population numbers in Lael to prevent numbers growing out of control.

4.3 Historic Environment

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 are written to remove relevant historic environment features from ground disturbing operations and replanting. Where appropriate, significant historic assets are recorded by archaeological measured survey 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.

There are no scheduled monuments within the Lael LMP area, however, there is an impressive amount of heritage found throughout the glen. Of particular note in Inverlael are numerous old ruinous structures of a variety of origins and timescales. The Ullapool Museum undertook a rapid walkover survey in 2021 and, within the wider area of Inverlael, 86 structures, 61 walls, 6 kilns and 63 clearance cairns were plotted. FLS is supporting the efforts of the Ullapool Museum and the local community to further investigate the history of the area. Management of the woodland as well as FLS's heritage layers will be updated depending on the quality and significance of newly identified heritage.

4.4 Landscape

See **Appendix 7 – Landscape, Appendix 14 - Visualisations** and **Map 8 – Landscape Character**

4.5 People

4.5.1 Neighbours and local community

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

The village of Lochbroom is a pro-active community and has previously developed the Lochbroom Community Renewables hydro-electric scheme. A CATS application is currently being explored with this group for the acquisition of a section of Lael forest.

Another CATS application is being considered by the Ullapool Community Trust for the development of mountain bike trails in Inverlael glen.

Both formative proposals have been taken into account during the design of this land management plan and any potential or perceived conflict has been mitigated where possible.

As mentioned in section 4.3, the Ullapool Museum is carrying out a project in the Lael glen to uncover more of the history of the area. The Ullapool Museum is closely involving the local community by organising excavation days with the local school and/or community.

At the outset of the revision of this Plan a public consultation was held and was well attended. The comments raised at the public consultation can be found in **Appendix 3 – Consultation Record**

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 absolutely necessary, and will keep disruption to a minimum.

The forests of the Lael area are popular with many local residents. There has also been an increase in non-local visitors in recent years, in particular due an increasing popularity of the North Coast 500 route. As a result, the area is becoming better known and the popularity of the area is expected to increase for some time with the current trends for campervan holidaying and "staycations". The majority of visitors come to this area for outdoor activities and to appreciate its natural beauty. FLS forests contribute to this through both formal and informal recreation provision.

The FLS forests in this area host two core paths, one through the main glen to Glensguaib and another through and around the Forest Garden. There are also a number of long distance routes through this area, sections of which pass through FLS forests. The most popular of these is the Cape Wrath Trail.

This area has two sites with formal promoted recreation facilities. One at the walkers carpark for Beinn Dearg, the other consists of the Forest Garden and the waymarked trails in and around it.

Forest Garden

The forest garden will be maintained and expanded northwards. Currently the objectives and vision are being reviewed so that the new part of the forest garden can contribute optimally to the research and aesthetic values of the tree collection. Felling around the forest garden has the potential to adversely impact the environment within the garden and as a result, a new 'buffer' of native woodland will be planted around the garden to prevent such sudden and dramatic change in neighbouring forest structure into the future. New signage will improve how the forest garden is interpreted.

Waymarked trails

We hope to maintain our current waymarked trails, but there are currently no plans to expand these in the area. We will continue to facilitate community led projects when approached.

Car parks

In the last 2-3 years visitor numbers in the area have hit a record high due to the increased profile of the NC500 and the popularity of ‘staycations’ as a result of Covid-19. During holiday season the car parks in the area have at times been unable to cope with the large visitor numbers. Over the coming years visitor numbers will be monitored, as there is a possibility these may eventually drop to pre-pandemic levels. If the car parks prove to be inadequate in the longer term, opportunities for expansion will be sought.

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 are part of the thinning coupes on **Map 7 – Thinning Coupes**.

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. In Lael this will be done in the whole of the Forest Garden.

The Forest Garden 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

Within the Lael LMP area there are currently two active hydro-electric schemes which are shown on **Map 3 – Key Water Features**. One is ran by Lochbroom Community Renewables and is a community-owned scheme in Lael Forest. This scheme is fed by the Allt a’Mhuilinn with the intake being close to the top edge of the woodland. The other scheme is in the main Inverlael glen and is fed by the River Lael and its tributary Allt Mor. Both intakes are again at the top edge of the woodlands.

As these intakes are relatively high up on the forest edge the impact of prescribed forest management on water quantity and quality is considered to be small. However felling and restock proposals have considered the impact of the management on both water quality and quantity and no adverse effects are expected.

Currently there are no plans for any new development of utility facilities within the plan area. Any facilities seeking permission for construction in the future would require to go

through full planning and consultation processes. If the development of such facilities is deemed to impact the Plan area and/or the approved, intended management of it, FLS will engage with Scottish Forestry and apply for the appropriate changes to the LMP.

4.6 Soils

4.6.1 Protection and Fertility

Brash mats (or alternative measures) will be used to protect sensitive soils on areas where harvesters and forwarders are being used. Felling residue will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking.

Because of the slopes in Lael many sites are likely be felled using skyline extraction systems. When skylining larger trees, the trees are often partly brashed out (i.e. debranched) prior to uplift. Smaller trees are generally extracted as a whole. Branch material is subsequently removed by a harvester in the skylining bay with the accumulating material marketed as woodchip or woodfuel.

Skylining has the advantage of causing minimal soil disturbance as no heavy machines are tracked across the site. This reduces soil run-off protecting against fertility loss and siltation of watercourses.

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.

In Lael this will generally mean flat or screef planting on the steep slopes as machine access

is limited. In areas where machine access is possible inverted mounding is generally the preferred choice of cultivation.

4.6.3 Deep peats

As can be seen on **Map 9- Soils** Lael does not contain large expanses of deep peat. The slopes on which the forests are found are generally a mixture of peaty gleys, brown earths and podzols. Above the forest, where the ground starts to level off, the deeper peats are found. These are mostly outwith FLS ownership and FLS only manages a strip of deep peat to the south of the Inverlael glen. As this area has not been afforested in the past the disturbance has been relatively low. Currently there are no plans to restore this area of peatland as it is not in a degraded state or under a “presumption to restore” as determined in ‘Deciding Future Management Options for Afforested Deep Peatland’ (Scottish Forestry, 2015). The area will be monitored to check if haggling is being exacerbated by high deer numbers. If deterioration is detected, deer numbers will be reduced and/or peatland restoration action considered.

4.7 Water

For more detail regarding management of water and catchment see **Appendix 8 – Water and Catchment Management** and **Map 3 – Key Water Features**.

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