Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Assich, Laiken and Ferness

Land Management Plan 2023-2033 North Region

Plan Reference No: 030-517-439
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Plan Expiry Date: 2033

We manage Scotland's national forests and land 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.

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1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Assich, Laiken and Ferness
Forest blocks included	Assich, Laiken and Ferness
Size of plan area (ha)	1087 ha
Location	See Location map (**Map 1**)

Long Term Vision
Fifty years in the future Assich, Laiken and Ferness forests contribute to the local timber market by providing a range of timber products. The overstory necessary for Continuous cover forestry (CCF) is established and contributes to an uneven age and height forest structure. This allows selective thinning to provide a steady and periodic income, whilst increasing the forest's resilience to climate change, pests, and diseases. Where CCF is not possible, clear fell coupes have been designed to fit within the landscape. The native woodland, peatland and clean water courses support healthy populations of priority species, particularly those associated with pine woodlands. These areas of high natural capital are part of a wider habitat network, connected to the surrounding area. Private water supplies are protected by native woodland buffers and the forest is valued and enjoyed by locals and visitors using the network of tracks to spend time in the forest. Collaboration with neighbours has reduced the local deer population to a sustainable level, with minimal browsing of young trees, allowing for successful CCF and the establishment of native woodland.
Management Objectives
1. Provide a reliable supply of timber products to support local markets 2. Provide a sustainable forest ecosystem with high biodiversity value through a mosaic of natural habitats 3. Maintain high water quality through the establishment of riparian woodland around notable watercourses and private water supplies 4. Diversify species, height and age structure of forest to provide resilience and mitigate against the effects of climate change
Critical Success Factors
• Thinning interventions must be timely to improve crop stability, increase age and species diversity and reduce the need for clearfell • Continuous cover forestry established using appropriate species selected for existing climatic conditions as well as those anticipated in the future (next 50/ 100 years) • Restocking must be timely and successful whether through planting or natural regeneration

- Deer must be managed at a level to allow successful establishment of broadleaves and soft conifers
- Mature Scots pine and associated habitats to be retained and expanded to support protected species including capercaillie, red squirrels and raptors

1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling (gross)	165.5 ha
Thinning (potential area)	214.5 ha
Restocking (gross)	162.5 ha
Afforestation	0 ha
Deforestation	5.2 ha
Forest roads	0 m
Forestry quarries	0 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 2a,b,c). During the development of this plan we have consulted with the local community and other key stakeholders. A Consultation Record is presented in Appendix 3.

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 the Concept maps (Map 3 a, b and c).

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	Opportunity	Constraint	Concept
Provide a reliable supply of timber products to support local markets	• Soils and climatic conditions are suitable for commercial forestry • Access to timber market is good via consultation and agreed timber transport routes • Good internal access to all stands • A high proportion of the forest has good stocking density in well-established stands at thicket stage with a yield class 14 and above • Increased emphasis on thinning interventions will produce a higher quality final product	• Parts of the plan area have single age-class so diversification will take time • Risk of windblow of windblow on coupes that have missed the window for 1st thin. • Internal forest roads will require upgrading/ maintenance • Ruallan (Assich) is isolated from the rest of the forest with difficult access	• Restructure even aged crops through staggered felling of smaller coupes • Carry out a late 1st thin on stands where conditions allow • Thin stands to maximise volume production and improve timber quality of final clearfell trees • Use existing quarry at Assich for forest maintenance and source local stone for Laiken and Ferness • Ensure all upgrades/ maintenance are planned in advance • Consider selling Ruallan
Provide a sustainable forest ecosystem with high biodiversity value through a mosaic of natural habitats:	• Soils and climatic conditions are suitable for the establishment of a variety of native woodland types. • Expand areas of SP and juniper habitat • Expand and enhance existing riparian woodland habitat • Provide contiguous woodland network with neighbouring ground • 11ha of PAWS within Ferness	• Limited range of native species • Non-native regeneration within riparian zones and open areas	• Plant native broadleaves to establish seed source and restock with under-represented native species eg. aspen, hazel, holly, oak, cherry • Non-native conifer removal • Where ground vegetation and brash are preventing regeneration and the soil is podzolic in nature then scarification will be used to encourage natural regeneration

Objective	Opportunity	Constraint	Concept
			• Remove non-native invasive *Rhododendron ponticum* from Ferness
	• Good internal roads allow effective deer control to support expansion of new mixed woodland and increased floral diversity on open ground for a relatively low cost/ ha • Link the timing of deer control effort to the timing of browsing-sensitive restock	• Prolific gorse regeneration along tracks an on clearfell sites due to rich soils make deer control difficult • Timing of deer control linked with management of other sites	• Manage gorse to allow deer control along forest tracks and onto clearfell sites. • Group restock of species sensitive to deer browsing into areas easily managed for deer • Collaborative deer management with neighbouring estate
	• Felling of non-native conifers on deep peat	• Will require additional work to restore peatland	• Following felling, deep peat will not be restocked • Where necessary, ground smoothing and drain blocking will be used to re-wet peatland areas
	• Expand and enhance existing open habitats • Soil type on open habitats usually prevents tree establishment	• Seeding of non-native conifers on open ground	• Non-native conifers removed • Low density native trees will be tolerated
Maintain high water quality	• Groundwater quality, water flows and levels are assessed as Good • All 3 forests drain through areas prone to flooding. Woodland cover will increase rainfall interception, reducing surface water run-off and smoothing	• Clear fell sites and delays to restocking have the potential to increase water quality and run off • Non-native regeneration establishing within riparian zones	• Increase CCF to retain woodland cover • Use scarification where soils are appropriate to speed up the rate of natural regeneration • Remove non-native conifers from riparian zone

Objective	Opportunity	Constraint	Concept
	peaks/troughs of watercourse flow • Expansion and enhancement of riparian woodland • Peatland restoration will increase lag time for water entering watercourses		• Plant native broadleaves within riparian zones to increase cover and introduce seed source • Restore deep peat and/or review current crop health to identify future peatland restoration area
	• A number of private water supply points and water pipes are located within the forest	• Felling and restock operations have the potential to damage or disturb these	• Protect integrity of all watercourses and water bodies during management operations and into long term by applying measures outlined in UKFS Forest and Water guidance • Create native woodland buffers around water supply points to reduce the need for access to these areas in the future
Diversify species, height and age structure of forest to provide resilience and mitigate against the effects of climate change	• The LMP area is within the Low Priority policy zone for *Phytopthtora ramorum* on Larch • Good internal forest road network limits the need for the removal of less accessible stands of larch	• Restrictions on planting larch • Less accessible larch stands should be identified for felling	• Restock felled Larch with a variety of alternative species • Retain accessible larch stands until they have reached Max MAI • Timely thinning of existing stands of larch • Encourage natural regeneration of larch where good access exists • Consider planting larch in species mix if guidance changes during life of the LMP

Objective	Opportunity	Constraint	Concept
	• Good ground conditions and current climate will support the establishment of alternative species • Introduce species resilient to predicted drier growing conditions • Increase genetic diversity and wider species and age composition through phased restock and regeneration of native woodland will increase habitat resilience to impacts of future climate change	• Deer numbers limit the use of more palatable species • Limited seed source of alternative species present on site • Existing species naturally regenerating on site	• Restock with alternative species currently under represented on site • Ensure access is provided into restock areas to allow for effective deer management • Collaborative deer management with neighbours

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

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

3. Designations and significant features		
Feature type	**Present**	**Note**
Site of Special Scientific Interest (SSSI)	No	Lower Findhorn Woods SSSI is immediately downstream of Ferness on the River Findhorn. Designated for supporting nationally important assemblages of bryophytes.
National Nature Reserve (NNR)	No	
Special Protection Area (SPA)	No	Darnaway and Lethen Forest SPA is approximately 600m north of Ferness. It regularly supports a breeding population of the Annex 1 species capercaillie (*Tetrao urgallus*).
Special Area of Conservation (SAC)	No	Lower Findhorn Woods SAC is immediately downstream of Ferness on the River Findhorn. It represent *Tilio-Acerion* forest in the north-eastern part of its range in the UK.
World Heritage Site (WHS)	No	
Scheduled Monument (SM)	No	2 SM located out with the forest boundary at Laiken.
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	Yes	Please refer to **Map 9 - Soils**
Tree Preservation Order (TPO)	No	
Biosphere reserve	No	
Local Landscape Area	No	Findhorn Valley and Wooded Estates Local Landscape Area is immediately downstream of Ferness on the River Finhorn. Designated for the richness of the woodlands and designed landscapes which lie either side of the dramatically incised River Findhorn.

3. Designations and significant features		
Ancient woodland	Yes	11 ha of Ancient Woodland (of semi-natural origin) at Ferness.
Acid sensitive catchment	No	
Public Water Catchment Area	Yes	22.11 ha located in New Inn Wood, Ferness

Table 3 Designations and significant features in the LMP Area

3.2 Clear felling

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

Table 4 Phase 1 Clearfell Summary by Coupe Number

4 Table of Clearfelling (Phase 1)									
Coupe No.	Fell Year	Total Area (ha)	SS (ha)	SP (ha)	Larch spp. (ha)	DF (ha)	Other spp (ha)	Restock Year	Monitoring Comments
12016	23/24	6.8	1.1	1.8	0.7		3.2	28/29	
12015	23/24	0.3		0.1			0.2	28/29	
12041	23/24	2.8	0.1	0.5	1.8			28/29	removal of non-natives for PAWS restoration
12701	23/24	12.4	0.5	2.2		3.1	6.7	28/29	removal of non-natives for PAWS restoration but DF and NS in steep gullies will be tolerated
12316	23/24	28.1	1.3	18	8.2		0.6	28/29	
12699	24/25	10.2		6.4	1.1	1.7	0.5	29/30	Windblown mature crop. Previous FR plot
12021	24/25	7.5	1	6	0.5			29/30	
12001	24/25	4.9	2.2	1.1	1.4		0.2	29/30	Over mature, seeding SS to be removed to bring this coupe into stripfell system & increase chances of larch and SP regeneration. Removal of Larch on S boundary will reduce future access/ management issues
12013	25/26	17.4	16.5				0.9	30/31	BL to be retained where possible
12551	25/26	10.4	0.2	6.2			4	30/31	
12571	26/27	14.5	12.7		0.1			31/32	open ground= 1.7ha
12307	27/28	7.2	0.2	3.7	0.4		3.2	32/33	
Totals		122.5	35.8	46.0	14.2	4.8	19.5		

Table 5 Phase 2 Clearfell Summary by Coupe Number

5 Table of Clearfelling (Phase 2)									
Coupe No.	**Fell Year**	**Total Area (ha)**	**SS (ha)**	**SP (ha)**	**Larch spp. (ha)**	**DF (ha)**	**Other spp (ha)**	**Restock Year**	**Monitoring Comments**
12928	28/29	14.7	1.8	11	2			33/34	
12282	29/30	13.9	1.6			10.6	1.6	34/35	Previous FR plot. Mature DF showing some signs of windblown. Not suitable for thinning.
12998	31/32	14.4	13.4					36/37	
Totals		43.0	16.8	11.0	2.0	10.6	0.0		

Table 6 Scale of Proposed Felling

Scale of Proposed Felling Areas										
Total Woodland Area			1085.8 ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Net Area (ha)	123.1	11.3	43	4	103.2	9.5	113.7	10.5	10.8	1

3.3 Strip Felling

Sites for strip felling in the plan period are identified on the Management Coupes **Map 4c** and on **Table 7** below.

Table 7 Proposed Strip Felling

7.1 Table of Strip Felling (Phase 1)					
Coupe No.	Coupe Size (Ha)	Max. total strip size (Ha)	Year	Spp	Monitoring Comments
12039	57.6	19.2	24/25	SP/JL/HL	1st set of strips to be worked at the same time as fell 12001. The HC Public Water Catchment area within this coupe will be mitigated for at the operational work plan stage.
Totals	61	20.3			
7.2 Table of Strip Felling (Phase 2)					
Totals	0	0			

3.4 Thinning

Potential sites for thinning in the plan are identified on the Thinning maps (Map 5a,b,c) and on Table 8 below.

Table 8 Proposed Thinning Table

8 Table of Thinning (Phase 1 & 2)							
Coupe No.	**Total Area (Ha)**	**Thin Year**	**Species**	**Prescription for Thinning**	**Final Thinned Area (ha)**	**Final Vol/ha Removed**	**Monitoring Comments**
12906	7.02	23/24	SS/SP	1st thinning - rack and thin			Work at same time as CF of 12316
12904	40.3	24/25	SS/SP	1st thinning - rack and thin			Remove non-natives within riparian zone at same time
12917	10.3	24/25	EL/SS	1st thinning - rack and thin			
12932	5.03	24/25	SS	1st thinning - rack and thin			remove SS within buffer around water catchment in coupe 12258 at same time
12919	4.5	24/25	SS/SP	1st thinning - rack and thin			
12946	16.4	24/25	SS/EL	1st thinning - rack and thin			Remove non-natives within riparian zone at same time at same time
12921	4.8	25/26	SP/SS	Intermediate thin on SP			
12939	32.2	25/26	SS/SP/LP	Intermediate thin			Review thinning potential. If thinnable, put felling year back by 10 years. If not thinnable, CF coupe 12034 in 2037
12915	5.3	25/26	SP/HL	1st thinning - rack and thin			
12914	6.7	25/26	SS	1st thinning - rack and thin			
12941	2.2	25/26	SS/LP/SP	Removal of SS & LP adjacent to peatland restoration site			

8 Table of Thinning (Phase 1 & 2)							
12937	5.8	25/26	SP/SS/JL	Intermediate thin			
12942	9.4	25/26	HL/ MB	1st thinning - rack and thin			Potential 1st thin
12905	25.7	26/27	BI/MB	1st thinning - rack and thin			Potential 1st thin
12907	23.4	26/27	SS/SP	1st thinning - rack and thin			
12912	15.5	27/28	SP/SS/LP	Intermediate thin			Remove mature/seeding SS & review potential for strip felling
Total	**214.6**				**0**	**0**	

This covers an area of 214.6 ha

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.

3.5 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].

3.6 Restocking

Proposed restocking is shown on the Future Habitats and Species map (Map 6a,b,c). Restock Prescriptions containing the species mix and stocking densities are found in Appendix 6

Table 9

9.1 Table of Restocking							
Phase 1 Restock (2023-2027)							
Coupe No.	**Fell Year**	**Total Area (ha)**	**Planting Year**	**Species**	**Method***	**Prescription (Appendix 6)**	**Monitoring Comments**
12042A	12/13	0.9	2029	MC/ BL	NR/R	Mix 4	(Previously 12034) BL regeneration but supplementary planting will be done at the same time as restocking adjacent coupe 12041
12317A	13/14	0.3	2029	SS/SP/MB	NR/R	Mix 5	Larch regeneration but supplementary planting will be done at the same time as restocking coupe 12041
12418A	15/16	2.8	2025	SP/MB	NR/R	Mix 3	
12002A	17/18	1.3	2024	SS/MB	NR/R	Mix 4	Failed regeneration on stripfell. Need to scarify ground &/or replant
12224A	18/19	3	2026	DF/SS/MB	R	Mix 5	Previously left out of programme due to unknown HMSS results
12842A	18/19	0.6	2026	MB	R	Mix 2	wet ground
12841A	15/16	6	2026	SS/SP/MB	NR	Mix 5	
12283A	17/18	0.6	2026	DF/SS/MB	R	Mix 5	Restock with 12224A
12665A	20/21	1.9	2026	MB	R	Mix 2	Restock with 12035
12842A	18/19	0.6	2026	MB	R	Mix 2	wet ground
12842A	18/19	0.6	2026	MB	R	Mix 2	wet ground
12224A	18/19	3	2026	DF/SS/MB	R	Mix 5	Previously left out of programme due to unknown HMSS results

9.1 Table of Restocking							
Phase 1 Restock (2023-2027)							
12665B	20/21	1.9	26	MB	NR/R	Mix 2	BL buffer around water supply/ riparian zone. Restock at same time as 12035A
12138A	22/23	5.4	28	SS/MB	R	Mix 4	
12035A	20/21	10.4	26	SS/MC/MB	R	Mix 5	Restock with 12665B
	Total	**39.3**					

Phase 2 Restock (2028-2032)							
Coupe No.	**Fell Year**	**Total Area (ha)**	**Planting Year**	**Species**	**Method***	**Prescription (Appendix 6)**	**Monitoring Comments**
12016A	23/24	6.8	2029	MB/SP	NR/R	Mix 1	PAWS restoration area. Restock at same time as 12701A
12701A/B	23/24	12.4	2029	MB/SP	NR/R	Mix 1	PAWS restoration area. Restock at same time as 12016A
12015A	23/24	0.3	2029	MB/SP	NR/R	Mix 1	PAWS restoration area. Restock at same time as 12016A
12316B	23/24	5.1	2029	SP/MB	R	Mix 5	Restock at same time as 12316A
12316A	23/24	22.5	2029	SS/SP/MB	R	Mix 6	Restock at same time as 12316B
12316C	23/25	0.6	2029	MB	R	Mix 1	Restock at same time as 12316B
12041A	23/24	2.8	2029	MC/MB	R	Mix 4	
12021A	24/25	7.5	2030	SS/SP/MB	R/NR	Mix 5	
12699A	24/25	10.2	2030	DF/SP/MB	R	Mix 5	
12001A	24/25	4.9	2035	SP/JL	NR	Mix 3	Strip fell system - monitor regen and apply interventions if insufficient
12013A	25/26	16.4	2031	SS/SP/MB	R	Mix 5	Previous trench & mound to be levelled off to enable future thinning
12013B	25/26	1	2031	MB	R	Mix 2	Restock at same time as 12013A
12551A	25/26	10.5	2031	SP/MC/MB	R	Mix 5	
12571A	26/27	13.8	2032	SS/DF/MB	R	Mix 5	

Phase 2 Restock (2028-2032)							
12571B	26/27	0.7	2032	MB/SP	R	Mix 1	
12307A	27/28	7.7	2033	SS/SP/MB	R	Mix 5	
Total		**123.2**					

Phase 3 Restock (2032-2036)							
Coupe No.	**Fell Year**	**Total Area (Ha)**	**Planting Year**	**Species**	**Method***	**Prescription (Appendix 6)**	**Monitoring Comments**
12307A	27/28	7.7	2033	SS/SP/MB	R	Mix 5	
12928A	28/29	14.7	2034	SS/SP/MB	R	Mix 5	
12316A	23/24	24.8	2029	SS/SP/MB	R	Mix 6	Restock at same time as 12316B
12316B	23/24	2.8	2029	MB	R	Mix 2	Scattered broadleaves on open ground to soften the forest edge visibly from road
12282A	29/30	13.9	2035	DF/SS/MB	R	Mix 5	
12998A	31/32	7.4	2037	SS/DF/MB	R	Mix 5	Restock at same time as 12998B
12998B	31/32	7	2037	SS/MB	R	Mix 4	
12875A	33/34	23.6	2039	SS/DF/MB	R	Mix 5	
Total		**101.9**					

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

If the Restock or natural regeneration should fail to reach 1600 per hectare (Native Broadleaves) or 2500 sph (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.

3.7 Species diversity and age structure

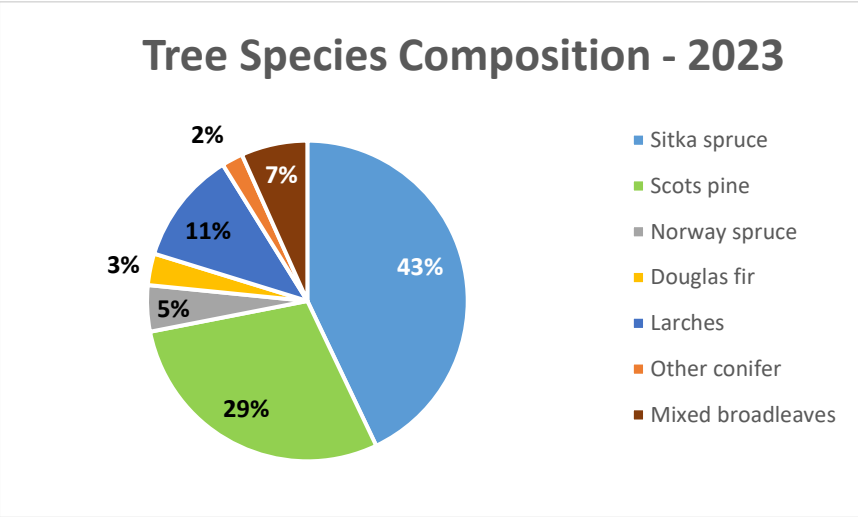
The following tables and charts show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard.

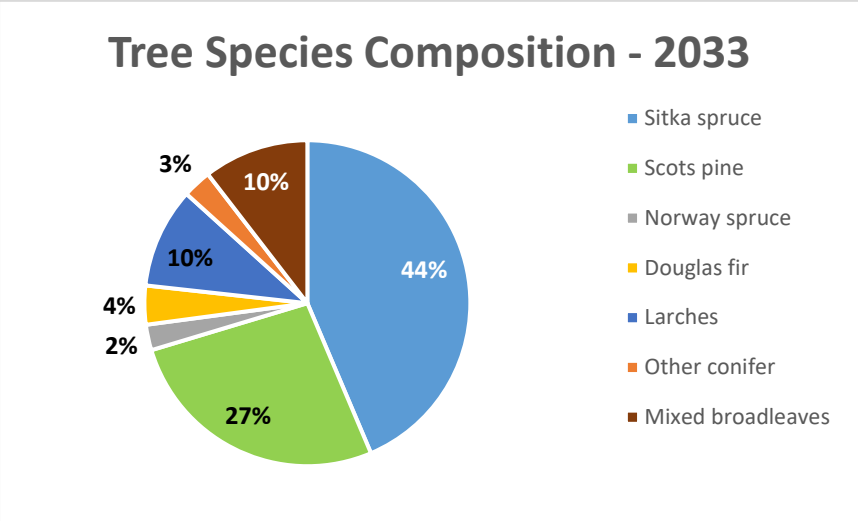
Stands adjoining felled areas will be retained where possible until the restocking of the first coupe has reached an average height of 2m. Where this is not possible (e.g. due to windblow(risk) or disease), the planned approach to achieving height separation between adjacent coupes may be achieved through delaying restocking.

Table 10 - Woodland Composition

Plan area by species						
Species	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
Sitka spruce	388.6	36%	393.9	37%	327.1	30%
Scots Pine	262.4	24%	241.4	22%	220.5	20%
Larches	103.1	9%	89.9	8%	84.1	8%
Douglas Fir	28.8	3%	34.9	3%	44.4	4%
Norway Spruce	42.2	4%	22.9	2%	8.9	1%
Other conifers	19.4	2%	25.7	2%	29.7	3%
Native broadleaves	60.6	6%	94.4	9%	96.5	9%
Fallow	48.7	4%	42.6	4%	137.4	13%
Open ground	131.6	12%	130.2	12%	127.6	12%
Other (archaeology, quarry, water)	0.6	<1%	0.6	<1%	0.6	<1%
Total	**1086**	**100**	**1076.5**	**100**	**1076.5**	**100**

Figure 1 - Species diversity over time





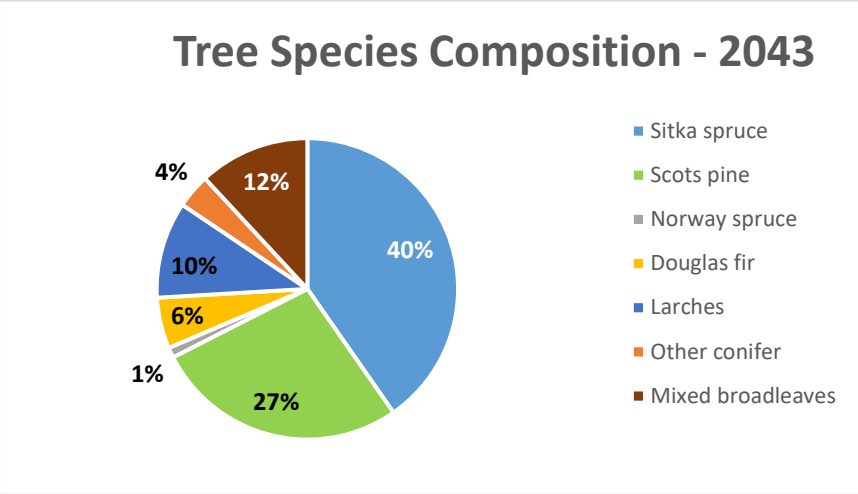


Table 11 – Age diversity

Plan area by Age						
Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	114.2	13%	187.2	21%	152.1	19%
11 – 20	243	27%	104.5	12%	174.4	21%
21 – 40	186.8	21%	322.4	36%	320	39%
41-60	14.7	2%	68.7	8%	56.7	7%
61-80	335.2	37%	87.4	10%	1.2	0%
81-100	9.9	1%	128.9	14%	97	12%
100+	1.2	0%	4.1	0%	9.8	1%
Total	**905**	**100**	**903.2**	**100**	**811.2**	**100**

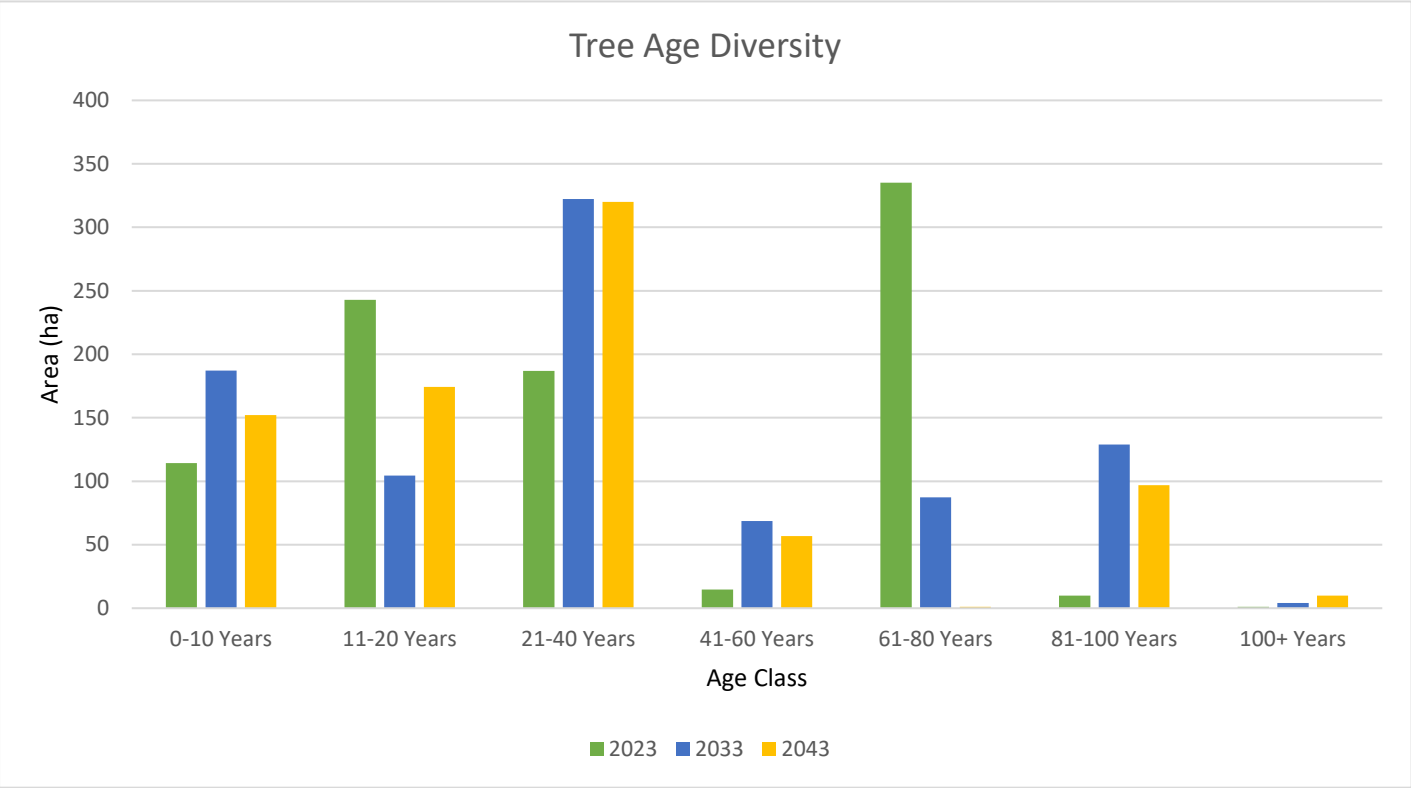


Figure 2 – Age diversity

3.8 Road Operations and Quarries

There are no new roads planned. To facilitate the maintenance of existing roads within Assich, the quarry on site will be used and no extension to this is required. Any material required at Laiken and Ferness will be imported from local suppliers.

3.9 Environmental Impact Assessment (EIA)

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

Table 9

Potential EIA projects in the plan area		
Type of project	**Yes / No**	**Note**
Afforestation	No	
Deforestation	Yes	Peatland restoration area at Ferness
Forest roads	No	
Forestry quarries	No	Assich quarry will not be expanded, therefore no EIA scoping is necessary

3.10 Tolerance table

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

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 4a,b,c – Management Coupes.:

The UKFS guidelines states that where a forest lacks diversity and has extensive areas of even-aged trees, adjoining coupes should not be felled before the restocking of the first area has reached an average height of 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 or MTR.

Clearfelling in this plan area is largely driven by signs of instability, over-maturity and the desire to fell at the right time to be able to influence the next generation of trees. Past ground preparation and the rate of growth within the Sitka spruce crop at Assich and Laiken have either prevented thinning or the 1st intervention has been missed. Signs of windblow in all three forests are linked to over-maturity. Most of these are also close to or past their MaxMAI and felling at this stage will allow us to begin restructuring and diversifying the forest, in pursuit of our national goals of a more resilient estate.

Clear felling the remaining productive forest on the steep slopes above the River Findhorn at Ferness will aid the restoration of the PAWS site in addition to extending the native woodland within this riparian corridor.

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, community and 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 operation, a site visit will be carried out by the relevant internal staff to review progress and issues. Following the completion of work, 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 and feeding in to the next planning phase.

4.1.2 Thinning

Refer to Thinning map Map 5a,b,c and Table 8

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 climate and soils as well as good internal roads in all three forests lend themselves to thinning from an operational point of view with the proximity of local sawmills adding to the viability. Thinning operations have been carried out in each of the three forests however, the first thin or subsequent thinning window has been missed in several coupes and any thinning at this stage would lead to crop instability and windblow. There are also coupes at Assich and Laiken where deep trench mounding used in the ground preparation of the current crop has prevented the thinning of these coupes (due to access issues as well crop instability).

Where thinning cannot be carried out due to previous ground preparation, the coupes will be clear-felled at MaxMAI and deep trenches and mounds will be repaired at restocking to enable future thinning of subsequent crops. The first intervention must be timely to avoid future problems.

Thinning will be done to allow for access into the crop, increase timber quality or to promote a specific species composition. Selection will be done predominantly on species, crown health and form. An outline thinning prescription for the upcoming coupes is shown in the Table 8 in Section 3.4. Initial thinning will establish access racks and, where suitable, thin the crop between the racks. A more conservative approach may be taken if the crop appears to be less stable.

In addition to regular thinning interventions, the thinning map also identifies a roadside buffer/ visitor zone. 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.

In riparian zones, regeneration of non-native species can outcompete the native broadleaved species desired within a functioning riparian zone. Removal of these non-natives will be scheduled when impacts are deemed problematic. These are not mapped individually but will be addressed during thinning or felling during the plan period.

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

Continuous Cover Forestry has advantages over a clearfell and restock management system; it positively contributes to soil health, carbon capture, ecology and forest aesthetics (Forestry Commission, 2008). For these reasons FLS has looked to maximize areas of CCF within the national forests and land. To enable this management a site has to be thinnable and this is largely the case within Assich, Laiken and Ferness. Where the current crop cannot be thinned, it will be clearfelled and thinning will be established through timely 1st thinning of the subsequent crop.

Where thinning is not possible, due to high DAMS score for example, thinning may be achieved through self-thinning self- contained coupes. By scheduling first thinning interventions we can set these compartments on the way to the wind firmness that is required if we are to establish a continuous canopy in the future. Where historic ground preparation is restrictive to access, this will be remediated at restocking to enable future thinning.

During this plan period, Strip Shelterwood will be undertaken at New Inn Woods at Ferness. Future silvicultural systems will be determined across the plan area after 1st thinning, depending on species, exposure and soil. Refer to Map 4a,b,c

Strip Shelterwood

The strip shelterwood system consists of strips of forest, usually between 1 and 3 tree lengths wide being harvested from a stand with subsequent strips being felled once the first strips have regenerated. The strips are usually perpendicular to the prevailing wind direction (leeward) and felling is done into the wind to minimize the risk of windthrow. The regeneration period is dependent on the number of strips necessary for full regeneration and the fertility of the soil. New Inn Woods will be regenerated using three subsequent strip felling operations.

Strip width in the shelterwood systems is dependent on the light demand of species, seed dispersal abilities, aspect and soil. Scots pine is highly light demanding therefore strips will be approximately 60m, not exceeding 80m. This will allow for seed dispersal and maximize sunlight. As strip felling will be done in three phases, the small scale clearfells will not exceed 19.2ha. Monitoring of the regenerating strips will be undertaken at 5 years with underplanting if necessary.

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

Refer to Map 4a,b,c.

Table 10: Area of LTR. MI and NR

Designation	**Area (ha)**
Long term retention	55
Minimum intervention	63
Natural reserve	13
Total	131

There are 131 hectares of LTR/MI/NR coupes across the three forests. The area is a noted stronghold for raptors and red squirrels as well as two species of wood ant. Capercaillie have also been sighted in the forest at Ferness but no lekking has been observed 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.

4.1.5 Tree species choice / Restocking

Restocking will be done according to Map 6a,b,c - Future Habitats and Species and the Restock Prescriptions in Appendix 6. Stocking densities, species and main objectives are given in these restock prescriptions and vary according to the main objectives of the different areas.

Soils across the plan area are dominated by typical podzols and podzolic peaty surface gleys. Species mixes are therefore Sitka spruce led with Norway spruce, Douglas fir and 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 non - native conifer such as Douglas fir. 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 micro-siting of each species to match the species requirements and the landscape. This will result in a variety of planting design, 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 1 ha per individual shape (except in CCF areas) or exceed 40 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 or 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 and those coupes felled within the first 5 years of the plan. Where monitoring has highlighted insufficient regeneration/ stock density species enhancement will also be undertaken. The 5 year fallow period required for reduced chemical use, 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 6a,b,c – Future Habitats and Species.

All broadleaf planting will be native to the area and will 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 explains that we will minimise chemical usage in restocking (insecticides and herbicides) by considering options at the site scale and using tactics such as delayed planting (i.e. applying five year fallow) to achieve this.

4.1.6 Natural regeneration

Natural regeneration of the desired species in CCF areas will be established as the next age cohort, and it will be important that management operations avoid damage to young trees.

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

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, where practicable, to ensure that there is no significant negative impact for shading or acidification on watercourse or the wider plan objectives.

Where there is natural regeneration on productive coupes, these will be monitored and recorded in the FLS sub-compartment database. We will use natural regeneration where possible, adding or reducing the stocking density at year 5 as required. If an undesired species is regenerating, we will decide to remove or keep the species in line with the wider plan objectives. We will seek an amendment from SF if the species change required this.

4.1.7 New planting

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

4.1.8 Protection

Deer

See Appendix 11 - Deer Management Plan

Tree Pests and Diseases

One of the main objectives of this LMP is to increase the resilience of the forest to climate change, disease and windblow. There are currently several pests and diseases impacting the forests and more are anticipated as a consequence of climate change.

One of the main diseases currently impacting forest management across Scotland is *Phytophthora ramorum*. To reduce the impact of the disease, Forestry and Land Scotland published it's 'Larch Strategy' in 2020 to detail how it intends to combat the spread of *P. ramorum* across the country. This LMP is within the Less Vulnerable Area (Zone 3) for *P. ramorum,* therefore pre-emptive felling is not required. Investment in cleaning or respacing of naturally regenerating larch may be made to promote larch as a future mature species where site conditions are met. Investment in the management of younger larch (e.g. uneconomic first thinning) may also be made based on the same site requirements.

As larch is well suited to the poorer soils within the plan area it is has been planted in all three forests and is naturally regenerating where suitable conditions exist. It has good potential for natural regeneration, particularly as a component in mixture with Scots Pine and this will be encouraged where access is easy. This would ensure easy removal in case of a Statutory Plant Health Notice (SPHN). This approach will be kept under review depending on the progress of *P. ramorum*.

Pine weevil (*Hylobius abietus*) management will be determined using the Hylobius Management Support System (HMSS). If weevil populations are too high, early restocking risks high mortality and/or requires more intensive and frequent use of pesticide. A fallow period of up to five years will generally be used, unless monitoring indicates low population.

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 is established, tubes will be removed from site to avoid environmental contamination.

Fire

See Appendix 10 - Fire

4.1.9 Road operations, Timber Haulage and other infrastructure

Map 2a,b,c shows the existing forest road network, main access points, and agreed Timber Transport Routes.

There are no new roads proposed within the plan area but some of the existing roads will need repairs prior to timber or machinery haulage occurring. At Assich, material will be sourced from the existing quarry and local quarries will be used for Laiken and Ferness.

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 2a,b,c – Key Issues/ Features.
The removal of non-native conifers and restocking/ regeneration of native broadleaves on the slope above the River Findhorn will benefit the Lower Findhorn Woods SAC and Lower Findhorn Woods SSSI which are both located downstream of the forest.

Due to the proximity to Darnaway SPA to the North of Ferness and the occasional sighting of capercaillie, fences were removed during the previous plan period therefore deer management is essential to the ongoing management on site. The retention of older, more open SP habitat forest through thinning interventions and Long Term Retention will provide suitable habitat for capercaillie in the short and longer term.

4.2.2 Native woodland

The plan area has 11.9ha 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 Semi-Natural Woodland (ASNW) remnants.

The key management priority for these sites is the removal of non-native conifers. Once the initial crop of non-native species have been removed, there follows a rolling programme of non-native 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)

Table 11: PAWS

Ancient Woodland Area	Area (ha)	Threat level	Action Proposed
Cpt 9	11.9	Partly Secure (3.0ha still threatened)	Mature non-natives have been removed from most of the site and are programmed for removal from the remaining areas within 5 years. The area already secured has extensive regeneration of native species. Future intervention will involve removal of regenerating non-natives.

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

FLS has a single licence 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 licence.

Juniper

Juniper exists in the area and will be protected from damage during harvesting/restocking operations. The creation of areas of native woodland through PAWS restoration and deer control will improve conditions for juniper.

4.2.5 Open ground

There are scattered areas of priority open ground habitat throughout the plan area including acid grassland and blanket bog. These can be seen in Appendix 1 – Key Habitats and Species. We will be restoring some previously forested ground to Blanket Bog during this plan period (area is identified on Soils map 8c).

Restocking 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 6 – 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 Practice Guide 'Managing deadwood in forests and woodlands (Humprey & Bailey, 2012)'.

4.2.7 Invasive species

The plan area is generally free of invasive species. There is a small area of *Rhododendron ponticum* within Ferness and the aim will be to completely remove this during the life of the plan.

4.3 Historic Environment

FLS' key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording of significant historic assets; and where possible, to seek opportunities to work in partnership with others to help to deliver *Our Place in Time: the historic environment strategy for Scotland* (2014) and *Scotland's Archaeology Strategy* (2015). Significant archaeological sites are protected and managed following the *Forests and Historic Environment UKFS Guidelines* (FC, 2017) and the FLS policy document *Scotland's Woodlands and the Historic Environment* (FCS, 2008).

There are no scheduled historic sites within the Plan area. Appendix 1 – Description: Historic Environment presents a description of the recorded heritage features.

Two scheduled monuments, Laikenbuie and Slagachorrie, are located outwith the forest boundary at Laiken. The thinning and felling proposed will not impact on these scheduled monuments. However, if any extraction routes go beyond the LMP boundary, particularly at Laikenbuie, scheduled monument consent (SMC), which is issued by Historic Environment Scotland would be required.

The two unscheduled monuments within Assich forest at Sluggan and Duglaick will be kept clear of conifers to a distance of 30m and left open when restocking. Regeneration will be monitored and action taken to remove tree growth that may ultimately compromise these features.

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 our internal GIS system and included in work plans for specific operations to ensure damage is avoided.

Areas of historic environment interest will 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 will be clearly marked, both on the ground and on operational maps. Care will be taken to avoid any damage to surviving structural elements.

Work plan prescriptions will exempt recorded historic environment features from ground disturbing operations, re-planting and/or tolerance of tree regeneration in compliance with Forestry Commission's Forests and Historic Environment - UKFS Guidelines (Third Edition, 2017).

4.4 Landscape

See **Appendix 5** – Landscape, **Appendix 7** - Visualisations and **Map 7** – Landscape Character (this also includes the View Point (VP) locations used for the Visualisations in Appendix 7).

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 possible and are consistent with FLS's approach to land management.

A public consultation event was undertaken at the midpoint of the plan's development to allow local residents to view the proposed schedule of work over the next plan period.

4.5.2 Public access

The Land Reform (Scotland) Act 2003 ensures everyone has a statutory right of responsible access to these woodlands through guidance in the Scottish Outdoor Access Code (SOAC). FLS recognizes the substantial benefits to health and wellbeing that are offered by access to these and other forests.

The area covered by this land management plan does not have formal, promoted visitor facilities such as car parks and waymarked trails. As such, recreation use is relatively low compared to some other forests within the wider area (such as Culbin). Current recreational use includes walking, dog walking, horse riding and mountain biking. Laiken in particular is used by local mountain bikers.

There are no current plans to expand recreation provision in these forests. FLS remains open to discussing ideas with local communities and partnership organisations. In the meantime, we will seek to maintain the current level of informal access.

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.

Roadside buffers/ Visitor Zones have been identified on the Thinning maps 5a,b,c.

4.5.3 Renewables, utilities and other developments

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 have 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, Scottish Forestry will be consulted through the planning process. If planning permission is approved, any changes to the LMP will be incorporated at the next revision/ MTR.

CairnDuhie windfarm is proposed to the immediate south of Ferness. This has the potential to disturb deer during the construction phase with possible ingress in to the forest. This will be monitored and deer intrusions delt with through culling.

4.6 Soils

4.6.1 Protection and Fertility

There will be minimal soil disturbance and machine movement on sites with clay soils to reduce the risk of compaction or damage to the soil structure and reduce carbon release from soil disturbance. Brash mats, or alternative measures i.e. low ground pressure machinery, 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.

Appropriate choice of silvicultural mixtures and well-timed heather control is preferable to fertiliser application, and this is the management approach taken in this plan. The choice of species has accounted for the fertility of the sites and we anticipate 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.

As a last resort, post planting applications of fertiliser, containing phosphate and potassium, may be used on the more nutrient poor soils of the forest, where a particular issue with tree growth has been identified. Any application will be planned to minimise nutrient loss/runoff.

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).

The intention is to restore one site at Ferness to blanket bog, covering a total of 6ha (area is identified on Map 8c -Ferness Soils). Of this total area, 5.2ha will require deforestation as 0.8ha was left unplanted, presumably because of deep peat. The LP and larch crop was clearfelled in 2017 and has remained fallow due to the intention to restore the peat bog.

Yield class (YC) data is missing for the felled crop but ESC gives the range to be between 5 and 9 for LP and 3 -10 for the larch. The higher YC figures are located in areas that are identified as 6zpx

(Peaty podzolic surface water-gley) however peat depths >1m deep were still found in these areas during the peat depth survey.

ESC for SS estimates the yield class between 5 and 15. Where peat is over 1m deep, this corresponds with the lower YC figures for ESC and covers the larger part of the site.

A peat depth survey to establish the extent of the hydrological unit has revealed that the site is predominantly deep peat, with a depth of over 100cm. Peat depths around the edges of the hydrological unit shallow out but are still over 50cm. We therefore believe restoration is preferable.

We have surveyed other areas of peat soils within the plan area. There are a couple of locations at Ferness where SS has been planted on 10b soils in 2011 and the growth of these trees is checked in places. We will monitor tree growth at the MTR to determine whether peatland restoration at that stage is a viable option.

4.7 Water

For more detail regarding management of water and water catchments see **Appendix 9 - Hydrology** and **Map 2a,b,c – Key Features.**

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