Forestry and Land Scotland
Coilltearachd agus Fearann Alba

West Region

Duror

Land Management Plan

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.

FSC
www.fsc.org
FSC® C123223
The mark of responsible forestry

PEFC
PEFC/16-40-1002
Promoting Sustainable Forest Management
www.pefc.org

Plan Reference No:

Plan Approval Date: ******

Plan Expiry Date: ******

Forestry and Land Scotland
Coilltearachd agus Fearann Alba

FORESTRY AND LAND SCOTLAND
Application for Land Management Plan Approvals in Scotland

Forestry and Land Scotland - Property

Region:	West
Woodland or property name:	Duror forest
Nearest town, village or locality:	Duror
OS Grid reference:	NN 0148 5417
Local Authority district/unitary Authority:	Highland Council

Areas for Approval	*Conifer Ha*	*Broadleaf*	*Open Space*	*Other Land*	*Peatland Restoration*
Clear felling	*176.96*		*21.97*		
Restocking (including legacy RS)	*84.26*	*32.07*	*47.34*		
Selective Fell					
Restock by Natural Regeneration		*6.08*	*0.56*		
Thinning	*53.46*	*4.28*	*42.18*		

Note: restock includes areas felled under previous Plan

1. I apply for **Land Management Plan** approval for the property described above and in the enclosed Forest Plan.
2. ~~* I apply for an opinion under the terms of the **The Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017** for road building /quarries /afforestation /deforestation as detailed in my application.~~
3. I confirm that the initial scoping of the plan was carried out with FLS and SF staff on 26/06/2023
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the SF agreed must be included.
6. I confirm that agreement has been reached with all of the stakeholders over the content of the forest plan and that there are no outstanding issues to be addressed. Copies of consultee endorsements of the plan are attached.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed …… Regional Manager

Signed …… Conservator

Region: West

Conservancy:

Date :

Date of Approval: ……

Date approval ends: ……

Contents

FORESTRY AND LAND SCOTLAND – DUROR LMP

1 Regulatory Requirements

1.1 Summary of Proposals

This Land Management Plan (LMP) presents the vision for Duror forest and outlines the management planned for the next 10 years. Duror forest is part of the wider North Argyll forest area and is covered by the Strategic Plan for the area, which provides overview and context.

The Duror LMP area covers more than 3,113 ha, extending from 40 m to 510 m above sea level and comprising more than 60% open ground, which includes the lower southerly and westerly slopes of Beinn a' Bheithir. Most of the forested area is commercial conifers, dominated by Sitka spruce but there are small areas of Ancient Semi-Natural Woodland (ASNW) and more recent native woodland, which will be protected.

A key objective for the forest is the continued production of timber but with improved species diversity through restocking with alternative conifer species where conditions are suitable. Plantations on Ancient Woodland Sites (PAWS) of high ecological value (most of which lie along the River Duror) will be restored.

Native broadleaved woodland will also be strengthened in other riparian zones and on upper margins, to create a network of native woodland habitat. The upper margins of the forest will be improved where possible, to create woodland edge habitat and a more natural transition from the forest to the open hill. The intention is eventually, to expand native woodland on the open ground at Lagnaha along the seaward facing slopes, linking with the native woodland that will be restored at Glenachulish. This native woodland creation will be implemented later so the details are not presented in this Land Management Plan, although an overview is presented.

The establishment of broadleaves and soft conifer species will be dependent on successful deer management, the exclusion of livestock and a reduction in herbivore browsing pressure. A Deer Management Plan already exists for the North Argyll Strategic Plan area, which includes Duror.

The open hill is covered by the Glen Etive and Glen Fyne SPA and part of the ground at Lagnaha lies within the Ben Nevis and Glen Coe National Scenic Area, with a small area involved in the Kentallen geological SSSI.

The land provides important habitats for a wide variety of flora and fauna but it is also a valuable resource for residents and visitors. There are popular recreational routes through the forest including an informal route (a candidate core path) that links through to Glen Creran and Glenachulish and a path to the James o' the Glen Bothy, which is maintained by the Mountain Bothies Association. Existing routes, much of which follow the forest roads network, will be maintained and although there are no intentions to create new recreational access routes, where possible, judicious siting of tracks that facilitate forestry operations will also benefit public access.

Objectives

1. Optimise softwood production from commercial conifer crops through coupe and access design and by reviewing options on steep and marginal ground
2. Develop plans for the removal larch from Duror, balancing the risk of disease spread with the needs of sustainable forest management and the safe recovery of the timber
3. Implement timely thinning and manage Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF) where this is feasible and compatible with required larch removal
4. Build resilience by improving diversity of tree species and age categories; increasing the proportion of alternative conifers, as well as native broadleaves
5. Review the restocking in areas with low Yield Class on wet soils and where peat may be present in discrete areas or in a mosaic
6. Grow some productive broadleaves, where this is accessible for management; compatible with safety, slope and soil conservation
7. Restore the Plantations on Ancient and long established Woodland Sites of high-medium ecological potential (along the River Duror) to native woodland and protect Ancient Woodland Sites - balancing the need for economic sustainability with restocking and management of low ecological potential PAWS
8. Strengthen native broadleaves in riparian zones and develop a network of native broadleaved woodland that longer term, will eventually link through Duror, from Glenachulish to Bealach and Appin
9. Improve visual amenity and landscape impact of the woodland, with a particular focus on the highly visible frontage to the public roads and settlement
10. Recognise the importance of public access and the involvement of the community in developing the future design
11. Work with neighbours and partners to reduce grazing/browsing pressure from deer and livestock, to protect planted and naturally regenerating trees and to maintain priority open ground habitats in favourable condition
12. Design and manage the forest to deliver sustainable carbon management (adaptation, reduction, capture) throughout the rotation, while balancing productivity with resilience

Summaries of Management Proposals

The felling proposals in the first twenty years of the plan are summarised below:

Felling	Phase 1	Phase 2	Phase 3	Phase 4	Open
Area in ha	98.32	104.45	171.8	181.07	209.53
% of area (not including other land)	8.89	9.4	15.5	16.4	18.95
Volume (Km3)	36404	49040	43017	71450	

The species composition over the first twenty years is:

Species Group	Current – 2025		Year 10 – 2035		Year 20 – 2045	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
Sitka Spruce	610.9	19.62	520.3	16.71	316.9	10.18
Norway Spruce	14.8	0.48	16.3	0.52	19.8	0.64
Larches	50.0	1.61	21.8	0.70	12.6	0.40
Scots Pine	1.2	0.04	4.7	0.15	11.3	0.36
Mixed Conifers	41.5	1.33	70.8	2.27	117.5	3.77
Mixed Broadleaves	1.5	0.05	1.5	0.05	0.6	0.02
Native Broadleaves	44.0	1.41	81.0	2.60	121.1	3.89
Failed	25.6	0.82	23.1	0.74	5	0.16
Felled awaiting restock	79.7	2.56	120.6	3.87	192	6.17
Internal successional open space	64.07	2.06	63.75	2.05	128.08	4.11
Internal Open Space	172.27	5.53	181.69	5.84	180.66	5.8
Forested Area Total	**1105.54**	**35.51**	**1105.54**	**35.51**	**1105.54**	**35.51**
Open Hill	2007.58		2007.58		2007.58	
Agriculture						
Open Water						
Open Habitat Total	**2007.58**	**64.49**	**2007.58**	**64.49**	**2007.58**	**64.49**
LMP area Total	**3113.12**		**3113.12**		**3113.12**	

The age class composition over the first twenty years is:

Age Class	Current – 2025		Year 10 – 2035		Year 20 – 2045	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
0 – 10 yrs	117.8	15.41	132.1	18.43	175.0	29.05
11 – 20yrs	73.9	9.67	112.5	15.7	131.6	21.84
21 – 40 yrs	178.6	23.36	88.5	12.35	174.4	28.95
40 – 60yrs	277.9	36.36	149.9	20.92	77.2	12.81
60+ yrs	116.4	15.20	233.6	32.6	44.3	7.35
Total	764.4	100.00	716.6	100.00	602.5	100.00

UKWAS Summary

Description	% of LMP Area[1]	Location of Data
Restock main conifer spp	12	Forester Restock Layer
Restock other conifers	6	Forester Restock Layer
Open Space[2]	73	Forester Restock Layer
Native broadleaves[3]	9	Forester Restock Layer
Management for biodiversity as primary objective (incl NR and MI area)	74	Forester Management Layer
LISS	3	Forester Management Layer
Natural Reserves	0	Forester Management Layer

Notes

1. The % will total more than 100% as the species and management categories overlap.
2. Only the larger areas of open space area recorded here. There many more small areas of open space within the broadleaf woodland.
3. The native broadleaves will be at variable stocking densities.
4. The low % of the LMP area identified for restocking reflects the fact that 65% of the LMP area is open ground

Planned Roading Operations

Planned operations	2025 – 2035 10 plan period
Road Construction	No new roads or significant upgrades are planned during the 10 year period

Any unexpired PN's and EIAs are listed in Appendix VIII.

1.2 Activity Summary

1.1 Table of Clearfelling (Phase 1)											
Coupe No.	**Total Area (Ha)**	**Spp by Ha (SS)**	**Spp by Ha (SP)**	**Spp by Ha (LP)**	**Spp by Ha (NS)**	**Spp by Ha (Larch)**	**Spp by Ha (MC)**	**Spp by Ha (BL)**	**Open Land by Ha**	**Restock Year**	**Monitoring Comments**
40980	5.58	1.2	0	0	0	1.92	0	1.07	1.39	2034	Felling of conifers along and adjacent to gulley. Restock by NR of native BLs. Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines. Restock by NR
40976	24.6	9.22	0	0	0	8.37	1.99	0	5.02	2031	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40658	15.94	12.18	0	0	0	1.85	0	0.32	1.59	2034	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40504	11.94	10.28	0	0.53	0	0	0	0.05	1.08	2033	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.

1.1 Table of Clearfelling (Phase 1)											
40615	1.75	0.4	0	0	0	1.35	0	0	0	2031	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40033	0.73	0.45	0	0	0	0.28	0	0	0	2031	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40420	19.4	11.91	0	1.13	0	4.13	0.23	0	2	2033	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40492	15.97	10.78	0	0.95	0	2.51	0.02	0	1.71	2031	Retain and protect all native BL / SP and standing dead trees during harvesting and thinning operations. Protect watercourses during harvesting as per Forestry and Water Guidelines.
40633	2.41	0.06				0.94		1.35	0.06	2034	Retain and protect BLs; fell JL and SS only
Totals	**98.32**	**56.48**	**0**	**2.61**	**0**	**21.35**	**2.24**	**2.79**	**12.85**		

1.2 Table of Clearfelling (Phase 2)											
Coupe No.	**Total Area (Ha)**	**Spp by Ha (SS)**	**Spp by Ha (SP)**	**Spp by Ha (LP)**	**Spp by Ha (NS)**	**Spp by Ha (Larch)**	**Spp by Ha (MC)**	**Spp by Ha (BL)**	**Open Land by Ha**	**Restock Year**	**Monitoring Comments**
40987	17.75	12.68	0	0	0	3.12	0	0.06	2.02	2036	Retain & protect all native BL / SP & standing dead trees during harvesting & thinning. Protect watercourses during harvesting as per Forestry & Water Guidelines.
40618	4.21	0.88	0	0	0	2.52	0.15	0.15	0.51	2036	Retain & protect all native BL / SP & standing dead trees during harvesting & thinning. Protect watercourses during harvesting as per Forestry & Water Guidelines.
40654	23.77	20.48	0	0	0	0.17	0	0.13	2.99	2039	Retain & protect all native BL / SP & standing dead trees during harvesting & thinning. Protect watercourses during harvesting as per Forestry & Water Guidelines.
40996	32.91	27.85	0	0	0	1.98	0	0.84	2.24	2039	Retain & protect all native BL / SP & standing dead trees during harvesting & thinning. Protect watercourses during harvesting as per Forestry & Water Guidelines.
40314	25.81	21.79	0	0.93	0	1.73	0	0	1.36	2036	Retain & protect all native BL / SP & standing dead trees during harvesting & thinning operations. Protect watercourses during harvesting as per Forestry & Water Guidelines.
Totals	**104.45**	**83.68**	**0**	**0.93**	**0**	**9.52**	**0.15**	**1.18**	**9.12**		
Totals P1 / P2	**202.77**	**140.16**	**0**	**3.54**	**0**	**30.87**	**2.39**	**3.97**	**21.97**		

1.3 Table of CCF Felling (Phase 1)											
Coupe No.	**Total Area (Ha)**	**Volume (m^3)**	**Spp by Ha (SS)**	**Spp by Ha (SP)**	**Spp by Ha (LP)**	**Spp by Ha (NS)**	**Spp by Ha (MC)**	**Spp by Ha (MBL)**	**Open Land by Ha**	**Silv.Method**	**Monitoring Comments**
Totals											

1.5 Table of Thinning (Phase 1 & 2)								
Coupe No.	**Total Area (Ha)**	**Species**	**Thin-able Area (Ha)**	**Prescription for Thinning**	**Thinning Year**	**Final Thinned Area (Ha)**	**Final Vol/Ha Removed**	**Monitoring Comments**
40139	8.45	SS, EL, BLs	2.38	Assess CONS for thinning in 2025/26; if stand height not achieved then leave until 20 years. Target removal of larch where possible. Intermediate line thin on an initial 5 year cycle, but with a harder thin on coupe margins. Retain BLs along watercourses and ride / track edges.	2026			
40562	33.94	SS, BLs, LP	15.51	Assess CONS for thinning in 2032. SS & LP - first thin at 15 years if stand height achieved, otherwise leave until 20 years. Intermediate line thin on an initial 5 year cycle,	2032/33			

1.5 Table of Thinning (Phase 1 & 2)								
				but with a harder thin on coupe margins. Aim to retain both species in the stand for as long as possible, managing in groups if necessary. SS stands - 5 year cycle, thin intensity 1, removing 1 row for every 2 rows). At 25 years, intermediate thinning at 0.8 thin intensity, then at 30 years intermediate thin on a 7 year cycle at 0.7 thin intensity. Retain BLs along watercourses and ride / track edges.				
40583	22.48	SS, LP, CAR	15.29	Assess for thinning in 2032, if stand height not achieved, then leave until 20 years. Intermediate line thin on an initial 5 year cycle, but with a harder thin on coupe margins. Aim to retain both species in the stand for as long as possible, managing in groups if necessary. Retain BLs along watercourses and ride / track edges.	2032/33			

1.5 Table of Thinning (Phase 1 & 2)								
40068	5.71	BLs (SOK, DBI)	4.28	Outwith the PAWS, assess for thinning in 2033/34 - to favour best stems but focusing on SOK; first thin when stand top height is 10 – 12 m or basal area 20 – 30 m3 /ha.	2033			PAWS in immediate riparian zone. Outwith this area, consider thinning to favour SOK
40529	20.27	SS, MC	8.48	Area below road. Assess for thinning in 2032; favour alternative conifers to maintain a species mix where feasible and economical.	2032			
40558	23.07	SS, EL	11.75	Assess for suitability in 2030. Remove EL.	2030			

	1.6 Table of Total Felling for Approved Plan Period										
Method	**Total Area (Ha)**	**Total Volume (M^3)**	**Spp by Ha (SS)**	**Spp by Ha (SP)**	**Spp by Ha (LP)**	**Spp by Ha (NS)**	**Spp by Ha (larch)**	**Spp by Ha (MC)**	**Spp by Ha (MBL)**	**Open Land by Ha**	**Comments**
Clearfell	**202.77**	**78218**	**140.16**	**0**	**3.54**	**0**	**30.87**	**2.39**	**3.97**	**21.97**	**Native BLs will be retained unless absolutely necessary to fell during operations**
Thinning	**113.92**	**2800**	**43.22**		**7.9**		**1.21**	**1.13**	**4.28**	**42.18**	**57.69 ha thinnable area; 7.87 ha existing BLs not thinned**
CCF											
	316.69	**81018**	**Grand Total of Felled Timber Proposed for Plan Period**								

1.7 Table of Restocking – including incomplete RS from previous plan												
Coupe No.	**Total Area (Ha)**	**SS (Ha)**	**LP (Ha)**	**SP (Ha)**	**NS (Ha)**	**Other Con. (Ha)**	**Native Mixed B/Leaf**	**Other B/Leaf**	**Open (Ha)**	**Year**	**Restock Method & Density (Restock/Nat Regen/Alt Area/Coppice/Open)**	**Monitoring Comments (Including any reason not to restock)**
40980	5.58	0	0	0	0	0	5.02	0	0.56	2034	Coupe to be felled 2028/29. Restock by NR of native BLs.	Felled in P1
40976	24.6	0	0	3.1	1.55	9.3	5.16	0	5.5	2031	planted	Felled in P1
40658	15.94	5.81	0	0	0	3.67	4.08	0	2.38	2031	planted	Felled in P1
40504	11.94	5.40	3.58	0	0	0	0.55	0	2.41	2031	planted	Felled in P1
40615	1.75	1.21	0	0.17	0	0.35	0	0	0.02	2031	planted	Felled in P1
40033	0.73	0.29	0	0	0	0	0	0	0.44	2031	planted	Felled in P1
40420	19.4	9.19	1.25	0	0	0.58	1.05	0	7.33	2031	planted	Felled in P1
40492	15.97	0	0	0	0	0	8.25	0	7.72	20	planted	Felled in P1
40633	2.41						1.06			2034	NR native BLs	1.35 ha existing BLs retained
40181	30.67	19.46	2.67	0	0	0.16	1.16	0	7.22	2026	planted	Felled previously
40767	31.88	8.05	6.35	0	0	0	4.61	0	12.87	2027	planted	Felled previously
40003	1.79	0	0	0	0	0	0.9	0	0.89	2026	planted	Felled previously
40657	2.35	1.41	0	0	0	0.71	0.23	0	0	2026	planted	Felled previously

1.7 Table of Restocking – including incomplete RS from previous plan												
TOTALS	165.01	50.82	13.85	3.27	1.55	14.77	32.07	0	47.34			

1.8 Table of New Planting												
Coupe No.	**Total Area (Ha)**	**SS (Ha)**	**LP (Ha)**	**SP (Ha)**	**NS (Ha)**	**Other Con. (Ha)**	**Native Mixed B/Leaf**	**Other MBL**	**Open (Ha)**	**Year**	**Planting Method & Density (Planting/Nat Regen)**	**Monitoring Comments**
N/A											Woodland creation plans to be submitted separately	

1.9 Table of Civil Engineering				
Proposed Activity (Road/Quarry)	**OS Grid Reference**	**Forest/Coupe**	**Description (Length/Area/Construction)**	**Monitoring Comments**
N/A				

1.10 Table of Other Projects				
Proposed Activity	**OS Grid Reference**	**Forest/Coupe**	**Description (Length/Area/Construction)**	**Monitoring Comments**
Control of Invasive Non Native Species (INNS) e.g. Rhododendron, Japanese knotweed,		40481 Riparian zones	Rhododendron control in ASNW Monitor riparian zones for INNS, prioritising River Duror – particularly Rhododendron, Japanese knotweed, Himalayan balsam and Gunnera,	

1.10 Table of Other Projects				
Control of Non Native Regeneration (NNR)		40976 40978 (min Int) 40283 (min int) Various, but particularly 40282, 40617, 40619, 40068, 40583, 40592, 40481, 40562, 40609, 40996, 40139, 40370	Ensure all WH regeneration is removed from road edges and coupe margins when coupe is felled. Ensure any WH regeneration is removed from adjacent coupes 40978 and 40283. Remove SS and other NN CONS regeneration along main riparian zone (River Duror) at earliest opportunity. Various mature NN CONS have also been left in riparian zone when coupes were harvested. These also need to be felled. Also see notes on PAWS. In all coupes - during felling, ensure all NN CONS (particularly SS and WH) trees and young regen. are removed along watercourses	
Environment works - PAWS	various	40282, 40617, 40576, 40618, 40619	Veteran BLS (OK, HOL, HAZ, CAR, WCH, AH) along riparian zone in deep gorge with bryophytes and other indicator species. To protect native species, where possible FTR NN CONS (SS, DF) or halo thin ahead of coupe felling.	
Environment works - PAWS	various	40904, 50583, 40657, 40654, 40068, 40592, 40562	Remove SS regeneration and FTR any mature SS that were missed during harvesting.	
Environment - monitoring		40996	Suspected wood ant nests along edge of standing crop. Protect site during felling and restocking. FLS Environment team or Environmental Clerk of Works to conduct on-site checks prior to commencement.	
Environment - monitoring	NN 0210 5229 NN 0535 5329		Dwarf juniper on hillside South of conifer plantation M1 Sphagnum auriculatum bog pool at boundary with Glen Creran	Evidence of damage/ poaching by livestock

1.10 Table of Other Projects				
	NN 0359 5440 & NN 0135 5578 NN 0131 5596		M11 Carex demissa – Saxifraga aizoides mire M10 Carex dioica – Pinguicula vulgaris mire M 17a Scirpus cespitosus – Eriophorum vaginatum blanket mire (Drosera rotundifolia – Sphagnum spp. sub-community) M17c Scirpus cespitosus – Eriophorum vaginatum blanket mire, Juncus squarrosus – Rhtiadelphus loreus sub-community M19 Calluna vulgaris – Eriophorum vaginatum blanket mire M32 Philonotis fontana – saxifraga stellaris spring (minerotrophic spring) Monitoring for evidence of ongoing overgrazing / poaching, or recovery	
Heritage	NN 057 5639		Old quarry, lies within Lagnaha and management will be addressed in an amendment for woodland creation proposals. Site lies adjacent to 40981 (minimum intervention) and 40980 (P1 coupe). Minimise disturbance to margins of feature during forestry operations.	There are various heritage sites that lie either within minimum intervention areas or in coupes that will be felled later in the harvesting programme. These are outlined in a separate document: *Duror heritage sites*
Tree health – P. ramorum		40975 P3; 40983 P6 40987 P2; 40133 P5 40623 P4; 40618 P2 40976 P1; 40658 P1	These coupes contain larch and will be checked regularly for signs of disease. Coupes 40976, 40658, 40987, 40618, 40654, 40996, 40615, 40420, , 40633 (larch) and 40492 are due to be felled during the	

1.10 Table of Other Projects				
		40654 P2; 40633 P1 40143 P3 40139 gp shelterwood 40135 P3; 40996 P2 40615 P1; 40155 P5 40032 P7; 40216 P5 40217 gp shelterwood 40190 P3; 40420 P1 40314 P2; 40492 P1 40634 P4 40558 > 2060	lifetime of this LMP (phases 1 and 2) – harvesting would be brought forward in the event of a SPHN or evidence of P. ramorum. Coupes 40633, 40139 and 40217 are to be managed as LISS (Group Shelterwood or Group Selection). Larch to be removed at first thin date.	
Tree health-Chalara	various		Monitor ash trees for ash die-back (Chalara). Retain dead/dying trees apart from accessible areas close to rides, trails, roads etc., where they may present a hazard.	

1.3 EIA Screening Determination

1.4 Other Regulations

Standards and guidance

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

Forestry and Land Scotland's list of standards and guidance

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 in 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, services and drains.

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

Table of Other Felling				
Date	**Coupe/Area**	**OS NGR**	**Volume**	**Comments**

1.5 Tolerance Table

	Adjustment to felling coupe boundaries	Timing of restocking	Changes to species	Changes to road lines	Designed Open Ground	Wind blow clearance
Scottish Forestry Approval not normally required (record and notify SF)	<10% of coupe size	Up to 5 planting seasons after felling (allowing for fallow periods for Hylobius)	Change within species group e.g. Scots pine to birch Non-native conifers e.g Sitka spruce to Douglas fir Non-native to native species (allowing for changes to facilitate Ancient Woodland policy)	Departures of up to 60m from the centre of the roadline	Increase by up to 5% of coupe area	
Approval by exchange of emails and maps	10-15% of coupe size	5 years +	Change of coupe objective likely to be consistent with current policy e.g. from productive to open, open to native species	Departures of greater than 60m from the centre of the roadline	Increase between 5-10% coupe area. Any reduction in open ground within coupe area	Up to 5 ha
Approval by formal plan amendment may be required	> 15% of coupe size		Major change of objective likely to be contrary to policy e.g. native to non-native species, open to non-native	As above, depending on sensitivity	Increase >10% of coupe area	More than 5 ha

2 LMP ANALYSIS

2.1 Introduction

The Duror Land Management Plan (LMP) will review and replace the previous Duror Forest Development Plan, which expired on 31st March 2024. The LMP outlines the Vision, Objectives and Priorities for managing the forest over the next 10 years. Duror is part of the wider North Argyll forest area and is covered by the Strategic Plan for the area, which provides overview and context.

The Duror LMP area covers 3,113 hectares and extends over land ranging from 40 to 510 m above sea level, comprising approximately 1,119 ha commercial forest (including internal open space) and 2,005 ha open hill, with small areas of semi-natural and native woodland. The forested area extends through the long West/East aligned Glen Duror, occupying the glen floor and extending up the steep glen sides to about 300-350 metres. (See Map 1: Location map). Lagnaha, a sheep farm that was acquired in 2015, has been added to the original Duror forest Plan area.

The forest lies above the villages of Duror and Kentallen but is also within easy reach of the communities of Ballachullish, Glenachulish and Appin. The extensive forested slopes at the mouth of the glen are clearly visible from the A828 but the forest becomes progressively less visually accessible as it extends eastwards. The forest is easily accessed from the village of Duror on its western edge where there is a FLS car park.

The LMP area bounds FLS ground to the South (Bealach) North (Glenachulish) and East (Glen Creran) with a small stretch of boundary shared with private ground to the North-East at Lagnaha. On the western side, the forest abuts onto the A828 road in places, although part of the seashore is also FLS land. There is also frontage onto parts of Duror village. Neighbouring land use is primarily forest, open hill and agricultural ground.

2.2 Plan Objectives

1. Optimise softwood production from commercial conifer crops through coupe and access design and by reviewing options on steep and marginal ground
2. Develop plans for the removal of larch from Duror, balancing the risk of disease spread with the needs of sustainable forest management and the safe recovery of the timber
3. Implement timely thinning and manage Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF) where this is feasible and compatible with required larch removal
4. Build resilience by improving diversity of tree species and age categories; increasing the proportion of alternative conifers, as well as native broadleaves
5. Review the restocking in areas with low Yield Class on wet soils and where peat may be present in discrete areas or in a mosaic

6. Grow some productive broadleaves, where this is accessible for management; compatible with safety, slope and soil conservation
7. Restore the Plantations on Ancient and long established Woodland Sites of high-medium ecological potential (along the River Duror) to native woodland and protect Ancient Woodland Sites - balancing the need for economic sustainability with restocking and management of low ecological potential PAWS
8. Strengthen native broadleaves in riparian zones and develop a network of native broadleaved woodland that longer term, will eventually link through Duror, from Glenachulish to Bealach and Appin
9. Improve visual amenity and landscape impact of the woodland, with a particular focus on the highly visible frontage to the public roads and settlement
10. Recognise the importance of public access and the involvement of the community in developing the future design
11. Work with neighbours and partners to reduce grazing/browsing pressure from deer and livestock, to protect planted and naturally regenerating trees and to maintain priority open ground habitats in favourable condition
12. Design and manage the forest to deliver sustainable carbon management (adaptation, reduction, capture) throughout the rotation, while balancing productivity with resilience

Key challenges

- Reducing browsing pressure consistently in the short and long term, to enable establishment of young planted and naturally regenerated trees. Deer numbers and activity controlled to sustainable levels and livestock ingress prevented from neighbouring ground
- Effective control of INNS, including Rhododendron throughout the forest and Japanese knotweed, Himalayan balsam and Gunnera at coastal margins / Sustrans route / along watercourses
- Effective removal of Non-Native Regeneration (NNR) across the forest
- Harvesting and extraction on challenging slopes and hanging coupes safely while optimising returns
- Protecting slopes and conserving soils during and after harvesting
- Harvesting access and extraction / haulage along sections of forest road that are poor quality but unsuitable for upgrade due to topography and steepness
- Mitigation of visual impact of felling coupes
- Develop plans for safe early removal of larch and immediate removal in the event of a SPHN
- Build resilience to Climate Change – in terms of species choice; design of windfirm, stable stands; protection of soils and slopes; mitigation against excessive surface run-off and flooding etc.
- Liaise effectively with community representatives so that plans take cognisance of forest users and to reduce potential conflict with forestry operations

2.3 Analysis and concept

See Map 3: Concept.

Objective	Opportunity	Constraint	Concept
Develop plans for the removal of all the larch from Duror, balancing the risk of disease spread with the needs of sustainable forest management and the safe recovery of the timber	Maximise larch felling where possible through coupe design and scheduling. Opportunities to take mature larch in close proximity in adjacent coupe when redesigning felling coupes. Narrow strips of larch at forest margins can be fell to recycle.	Larch in intimate mixtures – difficult to remove without felling all or large proportion of coupe. Windblow risk – constrains opportunities to fell parts of coupes to remove larch.	Where possible, bring forward in the felling schedule, coupes with a high proportion of mature larch. Redesign coupe shapes to incorporate mature large in P 1 and 2 coupes if necessary and feasible. Fell to Recycle inaccessible larch. Small group felling of larch where feasible if stands are likely to be windfirm. Grow on younger larch for as long as possible to achieve viable product, while creating access for harvesting in the event of a SPHN. Take a decision on pre-emptive early removal of larch younger than 10 years old.
Implement timely thinning and manage Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry	Some thinning has been undertaken successfully previously and could continue on lower slopes. There may be opportunities for small group felling, even on higher slopes –	Very steep slopes on the visible slopes facing the settlement.	Assess potential for small group felling on steep slopes that require winch work. Identify sites on lower slopes for small group felling.

Objective	Opportunity	Constraint	Concept
(CCF) where this is feasible and compatible with required larch removal	to achieve structural diversity and to remove larch.		Early thin young restock for group shelterwood systems.
Build resilience by improving diversity of tree species and age categories; increasing the proportion of alternative conifers, as well as native broadleaves	Introduce a wider range of species where possible, including alternative conifer species and a variety of locally native broadleaves. More sheltered areas on lower slopes with better soils may be suitable for some alternative conifer species. Restocking native broadleaves in riparian zones will improve freshwater habitats and protect drinking water catchments, as well as diversifying species mix. Retain stands in the rotation for longer where possible, to increase proportion of older trees present. Retain broadleaves wherever possible during harvesting.	High herbivore browsing / grazing in the forest impact growth of natural regeneration and planted trees, potentially limiting the successful establishment of a diversity of species. Deer numbers are too high and livestock ingress the forest from neighbouring ground.	Restock riparian zones, high value PAWS and some upper margins with native broadleaves. Retain existing beech, sycamore and other non-native broadleaves in coupes, away from riparian zones, ASNW, other existing native woodland and areas of PAWS with high ecological potential. Include alternative conifers in restock where soil and climate conditions allow. Livestock fence to be constructed on march boundary at Glenachulish / Duror / Creran with neighbouring ground and remove any existing livestock within the forest. Deer culls as per the Deer Management Plan for the North Argyll Forests Strategic Plan area.
Review the restocking in areas with low YC on wet	There is a substantial area of ground in the SW of the forest with low YC and where soil maps indicate presence of	Access required for peat restoration – may be difficult at this site.	Harvest coupe as early as is feasible. Environment team to assess suitability for peat restoration. If full

Objective	Opportunity	Constraint	Concept
soils and where peat may be present in discrete areas or in a mosaic	deep peat in discrete areas or in mosaics. Opportunities exist to either restore the peat post-felling or to restock with native broadleaves as peat edge woodland	Large coupe area but potentially low volume – potentially high net costs. Herbivore browsing needs to be reduced to enable establishment of native broadleaves by planting or natural regeneration.	peat restoration isn't an option then restock with a variety of locally native broadleaved tree species suited to site conditions.
Grow some productive broadleaves, where this is accessible for management; compatible with safety, slope and soil conservation	There is potential to grow productive broadleaves on lower slopes and on better soils. There are existing stands of beech in places, which can be retained and managed, where these do not impact on PAWS or high ecological potential or riparian zones. Inclusion of broadleaves in mixture with alternative conifer species can improve growing conditions for the conifers,	Suitable sites – avoiding steep slopes; accessible for thinning management and maintenance; relatively sheltered with low windthrow risk and with relatively fertile soils - are at a premium. Sites must be selected carefully.	Identify areas for growing productive broadleaves and for growing broadleaved / conifer mixes.
Strengthen native broadleaves in riparian zones and develop a network of native broadleaved woodland that will eventually link through Duror, from Glenachulish	Potential to develop new riparian native woodland and to strengthen the existing woodland. Protection of the woodland in the deep gulley in the NW of the forest will facilitate the expansion of native woodland along the seaward facing slopes stretching towards Glenachulish. Native woodland expansion on upper slopes will also help to create corridors and to link existing native woodland,	Timeous felling of non-native conifers in riparian zone and removal of non-native regeneration and any INNS – resource issues. Herbivore browsing impacts preventing establishment of broadleaved trees. Hanging coupe – NF – along riparian zone - decision to be made on retainment or removal.	Restock with native broadleaves in riparian zones and on upper margins where appropriate. Early felling of non-native conifers adjacent to large gulley in NW of forest and establishment of native species.

Objective	Opportunity	Constraint	Concept
to Bealach and Appin	ultimately creating a network of broadleaved habitat between Appin and Glenachulish.		
Improve visual amenity and landscape impact of the woodland, with a particular focus on the highly visible frontage to the public roads and settlement	Opportunities to improve visual diversity on the visible slopes facing the settlement and road.	Very steep slopes, requirement for winch extraction and windthrow risk constrain feasible coupe shapes and boundaries. Temporary visual impacts likely until restock establishes. Presence of larch in multiple coupes, covering significant areas, in discrete stands and intimate mixes – coupe design to fell early where feasible but significant visual impacts likely if emergency felling required in response to a SPHN.	Coupe design to accommodate technical and safety requirements of felling steep coupes. Where possible, coupes will be designed to minimise disruption as much as possible if larch needs to be felled early in response to a SPHN. Restocking with species mixtures, designed to improve visual amenity.
Recognise the importance of public access and the involvement of the community in developing the future design	The forest is well used by the immediate and wider community, mainly for walking, riding and cycling. The scoping consultation event was quite well attended and there is community interest in what is happening in the forest, particularly for public access.	Available resources present significant constraints on provision that can be made to improve public access. But some access provision for forest management purposes can also benefit forest users.	Where possible new access for forest management will be designed to also help improve public access, for example, routing of ATV tracks and forest rides. Felling racks can also be used to create informal access routes. Where appropriate, felling will open up views from forest roads, particularly along the route to the open hill.
Work with neighbours and partners to reduce	There is significant scope to increase cull levels to reduce herbivore grazing / browsing pressure.	Developing accurate population estimates proves challenging but new	Duror is covered by the Deer Management Plan for the North Argyll Strategic Plan area. Deer

Objective	Opportunity	Constraint	Concept
grazing/browsing pressure from deer and livestock, to protect planted and naturally regenerating trees and to maintain priority open ground habitats in favourable condition	Livestock access the forest from the adjoining private land. Once the boundary is secured, the remaining sheep can be gathered and removed.	techniques, such as infra-red cameras on drones, may prove successful. Duror is part of the Strategic Plan area and deer management must be considered across the whole area. Achieving the necessary cull figures is resource intensive and is dependent on the integrity of the strategic deer fence, which runs between Brecklet and Creran. Removing livestock from the forest will be challenging and relies on the construction of a new livestock fence on the boundary with neighbouring ground between Glenachulish and Brecklet	management will be guided by this DMP.
Design and manage the forest to deliver sustainable carbon management (adaptation, reduction, capture) throughout the rotation, while balancing productivity with resilience	Parts of the forested area are suitable for growing a variety of alternative conifer species, as well as some productive broadleaves, potentially improving species diversity and resilience. Native broadleaves can be established in riparian zones and PAWS with high ecological potential. Some thinning windows have been missed but there is scope for Continuous Cover Forestry in parts of the forest. In the longer term, the age	Some areas with wet and / or poor soils and high DAMS scores – will support only a limited constrain range of species. Establishment of broadleaves will be severely constrained if herbivore browsing levels are not reduced. Thinning on very steep slopes is inadvisable (safety and cost grounds) so LISS / CCF won't be viable in these areas.	A variety of conifer and native broadleaves species will be restocked, where growing conditions are suitable. Some of the areas currently identified as LISS lie on steep slopes and the trees are long past their thinning window, so will need to be clear felled. If conditions allow, some small group felling may be attempted if larch need to be felled early in the event of a SPHN. There remains

Objective	Opportunity	Constraint	Concept
	structure can be improved through retention of some coupes or stands for longer. Soils where peat is indicated have scope either for peat restoration or establishment of scattered native broadleaved woodland, following felling.	Successful Long Term Retention or later clear fells will be dependent on creating a windfirm edge when felling adjacent stands. Peat restoration will be dependent on suitable access provision for machinery.	scope to thin young restock on lower more sheltered slopes and some form of Continuous Cover Forestry will be managed in these areas. Restoration will be considered where there are significant areas of deep peat but otherwise, low yield class areas on deep peat will be restocked with native broadleaved species, to create open canopied, peatland edge habitat.

3 LMP Proposals

3.1 Management

(See Map 4a for Management Proposals; Map 4b – phase 1 & 2 felling coupes)

Clear Felling

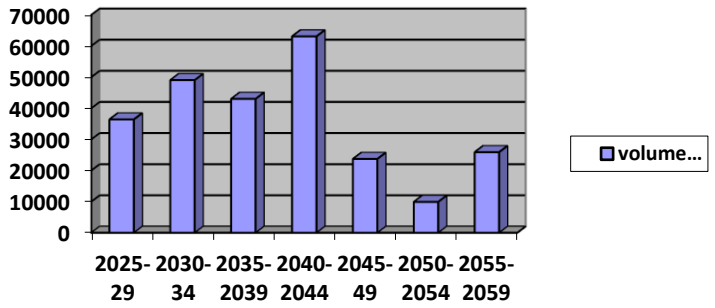
Due to the age of the trees and ambient exposure levels, clear felling will remain the predominant management type across the forest during the current rotation. Management (felling) coupes have been designed to best fit the landscape, taking account of windblow risk and steepness of slopes, and as far as possible, to produce a sustainable timber volume across the rotation. Where possible, the next rotation will manage more of the forest under Continuous Cover Forestry but clear felling will still be required for most of the conifer coupes.

Conventional mechanised harvesting and extraction will be adopted across much of the forest, applying use of brash mats to protect soils and log bridges at watercourse crossing points. The steep slopes, particularly in the north-west part of the forest, will require manual felling and extraction via a skyline winch. Coupe design has been informed by the need to accommodate these requirements.

All felling operations will comply with UKFS Forest and Water guidelines and will consider impacts on watercourses draining into the River Duror. During felling, precautions will be taken to minimise run-off, including use of buffer zones and avoiding felling during periods of extremely wet weather. Forestry drains will be designed and maintained to avoid discharge direct into watercourses; silt traps will be deployed during harvesting.

Pre-operational checks will be conducted by the FLS Environment team or the Environmental Clerk of Works, to identify features, mark buffers and advise on any mitigations. Operational teams will have responsibility for identifying areas for machine maintenance, fuel storage, welfare and timber stacking areas.

During the 10 years LMP lifespan, 30.87 ha larch will be clear felled, with a further 1.8 ha planned for removal during thinning operations. The remaining larch are either accessible or will be Fell–to-Recycle in the event of a SPHN.



Total conifer volume production (m^3) per felling period over the next 40 years

Native broadleaves will be retained during felling operations and where possible, standing dead trees will also be retained for their habitat value, where these do not present a hazard.

Thinning

Some stands in the north-west part of the forest were thinned previously but this has not been repeated timeously, while the thinning window was missed altogether in other stands. Slopes are too steep for safe and cost effective thinning and these areas will now be clear felled. Accessible restock on lower slopes with adequate DAMs scores will be thinned at appropriate times but elsewhere, stands will not be thinned.

Thinning approvals are also sought for trees within fall height of public and forest roads, ATV tracks, paths, forest trails, car parks and other access areas

See Map 5: Thinning and Selective felling map.

Selective felling

In places, for example in riparian zones and on upper forest margins, mature non-native conifer trees have been left when coupes were felled. Non-native regeneration, primarily Sitka spruce, has also infilled some open spaces and riparian areas. These trees need to be felled, to restore habitats and to prevent them seeding into nearby priority habitats.

Low Impact Silvicultural Systems (LISS)

Young restock on the lower more sheltered slopes will be thinned where suitable and some of these coupes will be managed for LISS, as indicated in the management and thinning maps. Group selection or group shelterwood may be most suitable for conifers but irregular shelterwood systems will be initiated for productive broadleaves, outwith high ecological value PAWS or riparian zones, or where non-native components need to be removed from mature woodland.

LISS is also used where the management of native woodland and establishing PAWS restoration will necessitate larger scale interventions than would be associated with minimum intervention, such as removal of non-native regeneration and INNS; respacing; halo thinning of veteran trees and enhancement or supplementary planting.

Natural Reserves (NR)

No Natural Reserves have been identified in Duror forest.

Long Term Retentions (LTR)

A total of 12.06 ha has been identified for Long Term Retention, across six coupes:

Coupe	Species	Area (ha)
40005	SS (1922)	1.91
40627	NS, SP, SS, LP (1923)	0.68

40619	DF, SS (1923)	1.71
40904	NF (1970)	1.16
40920	NS, SS, BLs (1927)	3.0
40062	NS, SS (1927); SS (2008)	3.6

In these coupes, most of the trees are well beyond their Maximum Mean Annual Increment and will be allowed to grow into old age, to help increase the age range within the forest and improve habitat diversity. However, the trees will be felled eventually and may be felled earlier where there is risk of windblow or safety concerns.

Minimum Intervention

Minimum intervention has been selected where there is ASNW or established native woodland and where minimal operations are anticipated. However, some works will still take place, such as removal of non-native regeneration or INNS; management of diseased trees (e.g. Ash infected with Chalara) and small - scale enhancement planting.

Resilience

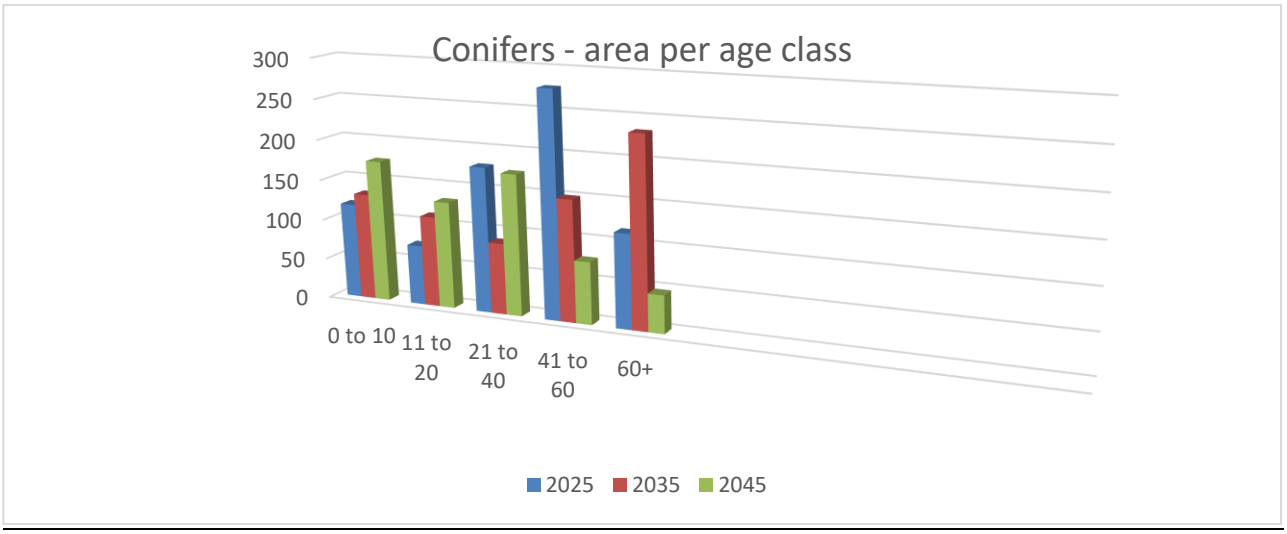
Restructuring:

The main purpose of restructuring is to create truly multi-purpose forests meeting a wide range of objectives, including enhancing landscape, biodiversity, productivity and community/recreational opportunities, whilst protecting and improving the setting of heritage features and restoring priority habitats. Increased species and age class diversity also increases the resilience of the forest.

The aim will be to achieve a more diverse forest structure over the length of the rotation, although achieving this fully will take longer. In the meantime, the spread of age classes will vary widely, as mature crops are harvested and young restock establishes. By 2045 only 7% of the standing crop will be 60+, with 51% aged less than 20 years. This compares to 15% 60+ and 25% aged less than 20 years in 2025.

Opportunities to retain mature and veteran trees across the forest will be sought, through Long Term Retentions and through later felling where appropriate, although the risk of windblow and the need to bring timber to market limits options.

Expected changes in age structure:

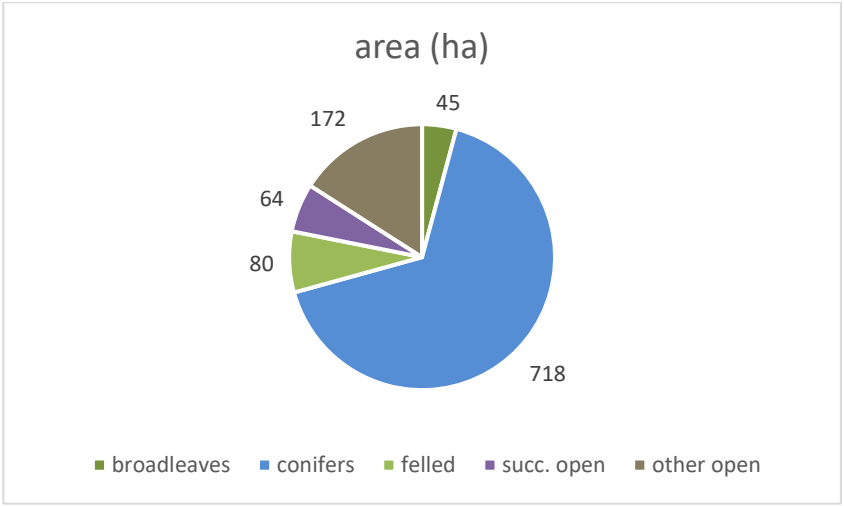


Clear fell coupes will be designed to minimise landscape impacts as much as possible although felling, particularly on the steep slopes in the NW part of the forest, will be dictated by safety and technical requirements.

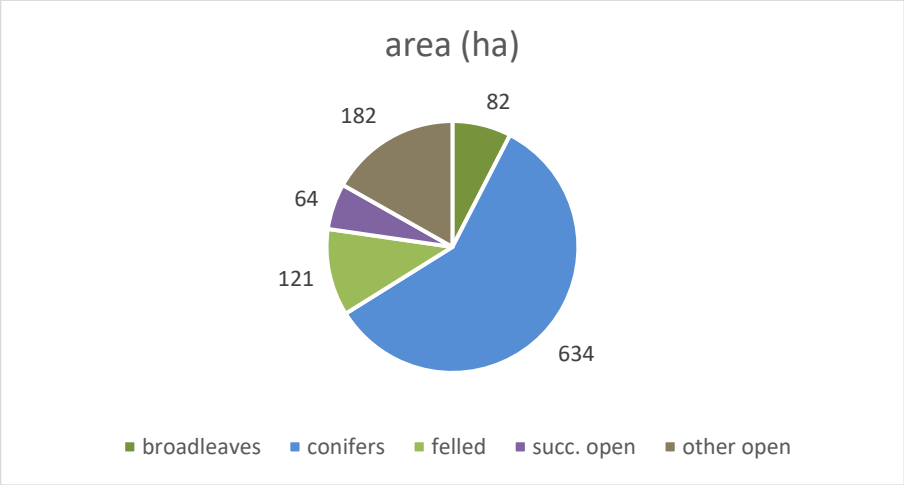
Over the next 20 or so years, species diversity will be improved gradually, through restocking more alternative conifers where growing conditions are suitable; establishing a range of native broadleaves in riparian zones and high ecological potential PAWS and by growing productive broadleaves on lower, sheltered, accessible slopes on better soils. There will be a modest net increase in the proportion of broadleaves but the dramatic decrease in the area under conifers over the next 20 years largely reflects the large increase in the areas that are felled and await restock.

Changes in species composition in the forested area during the first 20 years:

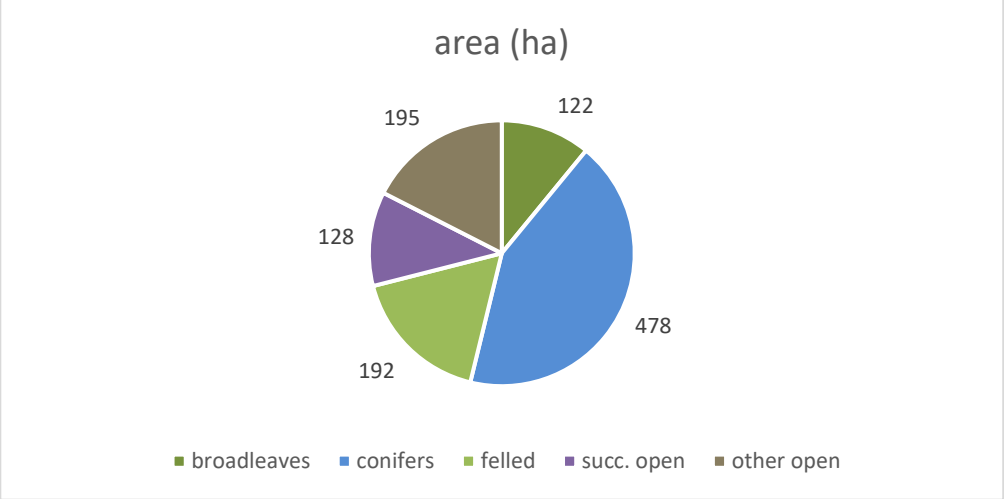
2025



2035



2045



Where possible, natural regeneration of native species will restock felled coupes in PAWS along the riparian zones but some planting of local provenance native species will be required where there are no seed sources, where there are steep slopes and where productive broadleaves are an objective. Species choices will be informed by existing native woodland in the local area.

The establishment and management of productive broadleaves will be considered in coupe 40618 and part of coupe 40658 (P2 and P1 coupes respectively) covering approximately 5.36 ha. These coupes are very accessible, on soils that are predominantly brown earths and relatively gentle slopes across much of the area, although these vary between 17% and 42%.

Climate change:

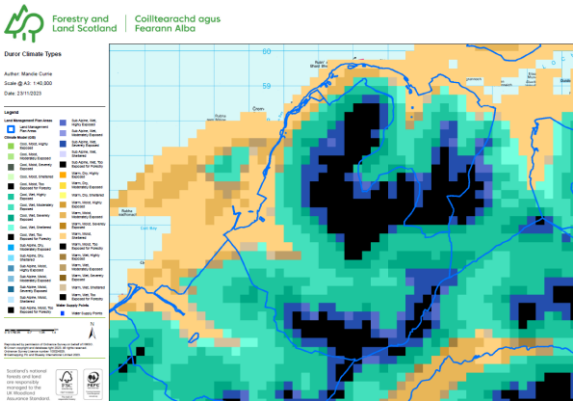
Climate change models suggest that the general trend will be towards a significantly warmer climate with higher winter rainfall and lower rainfall in the summer, leading to a partial soil moisture deficit

during the summer months. In terms of the current rotation, these figures have limited impact on species choice according to ESC models and the short rotation of SS across much of the site further reduces the risk of climatic impacts. However, this level of climatic change is likely to interact in the longer term with soil characteristics and this may have a positive impact on soil structure and widen the range of species potentially suitable for the site. In more sheltered areas, the effects may be positive, enabling a wider range of potentially suitable species. But in parts of the forest, higher rainfall may lead to greater leaching and podsolization where soils are free draining and conversely, greater waterlogging where drainage is poor.

DAMS scores range between 11 and 13 along the riverbank and the bottom of the glen, with the westerly part of the glen floor being most sheltered, increasing to 17 to 24 on the upper slopes. Felling coupes need to take account of windblow risk, as exposed coupes will be vulnerable to winds that funnel down through the glen and the turbulence created by the wind passing over the mountain tops and ridges.

Climate types within the current forested area range from cool, moist, moderately exposed to highly or severely exposed, except for the western fringe, which is warm, moist, sheltered (extending further into the forest in the SW). Cool, wet, sub alpine areas that are too exposed for forestry cover a large part of the Land Management Plan area, which extends into the Mountain Massif of Beinn a Bheithir. Climatic conditions place significant constraints on the range of species that can be grown commercially in certain parts of the forest.

Climate types in Duror forest:



Tree diseases and pests:

An increase in the type and scale of tree diseases and pests is, increasingly, impacting on species choice and forest management. The most serious disease currently in the region is *Phytophthora ramorum* in larch (also found on Rhododendron) and the only one subject to Statutory Plant Health Notices (SPHN). Larch is no longer a viable tree species for forestry on the west coast. It is no longer being planted and existing stands of larch will be removed early wherever possible. Larch comprises 50.5 ha (by component) in the forest but because larch is present both in discrete stands and in intimate mixtures, this covers 90.22 ha of subcompartments. Much of this area lies within the

proposed P1 and P2 coupes or could be Fell to Recycle. However, needing to take larch early in coupes scheduled for later in the programme and which require felling to windfirm edges means that a minimum additional 85 ha would be affected (in addition to approved coupes and FTR) if all the larch had to be felled quickly in the event of a SPHN.

Approximately 31 ha of the larch component will be removed in the next five years through clear fell or during thinning operations. A small area of larch will be Fell to Recycle where it sits in inaccessible places. Other than the FTR, all larch stands are accessible if felling needs to be done quickly. Young larch regeneration will be removed from felled and restock coupes during weeding and cleaning operations.

Dothistroma needle blight (DNB) affects a range of conifers - notably pine species - and occurs in the Region. Native pinewood forests are at particular risk and planting of pine is restricted in those areas. As a native conifer, Scots pine plays a valuable role in maintaining both species and overall biodiversity and therefore will be planted in Duror, where site conditions are suitable. Duror does not lie close to any Caledonian pinewood inventory sites.

Ash Dieback (Chalara) is caused by a fungal pathogen (Hymenoscyphus fraxineus) characterised by leaf loss and crown dieback in infected trees. It is spreading through West Region with the expectation that at least 75% of the ash will be lost. The disease has been recorded in the locality in and around Duror. Pre-emptive felling of ash is not being undertaken in the hope of being able to identify some resistant trees. But trees will be monitored around roads, rides and other accessible areas and any diseased trees removed where necessary, to protect public safety.

Ash is a unique tree in the forest environment. It supports a rich ground flora, due to its light canopy and readily decomposed leaf litter, and a diversity of insects and birds. As a long- lived tree, ash can support many specialist deadwood species and hole-nesting birds, as well as roosting space for many species of bat. Ash bark is alkaline and supports a wide range of epiphytic lichens and bryophytes and attracts snails. The loss of ash will have a devastating impact on the landscape and the biodiversity of our woodlands. It is thought that a proportion of trees may have some tolerance to the disease, so that the population might recover over time (probably 50 years or more). Consideration must be given to what species might be used to replace ash in areas of planted restock or woodland creation. Given the unique features of this tree species, no single species can replace it and it is likely that a mixture of native tree species would be required instead. This will require careful thought and planning, and species mixtures will need to be very site specific. Birch, rowan and aspen may be suitable for planting near native woodland, although these are pioneer species and not very long lived. Natural regeneration of ash in native woodland areas may occur, if there is even a small proportion of ash trees that are tolerant or immune to the disease.

Fire resilience:

Due to climate change, there is an increasing risk of fires across Scotland's National Forest Estate (NFE) although the risk is low in the generally wetter conditions of the West Highlands. The proposals within this plan aim to limit the risk in Duror further, through improved age and species diversity, an increase in the proportion of broadleaved trees and by maintaining open rides and glades and creating broadleaved content along riparian areas and at the forest edge.

Flood risk:

As with any water body, there is an identified flood risk associated with the river from surface water, although limited numbers of properties would be affected. Clear felling operations in the forest will be managed to reduce any potential exacerbation of surface water run-off. This will be achieved by following Forest and Water Guidelines, including protection of riparian zones; avoiding drains running directly into water courses; coupe design to reduce catchment run-off; avoiding harvesting operations during prolonged, extreme wet weather where possible.

OPERATIONAL ACCESS

Timber Haulage within the forest area is set out in the following protocols: Protocol for timber transport operations.

No new forest roads will be required but some roads are very old and are not compliant with modern standards. Where required, roads will be upgraded for haulage. All roads will conform to both the Timber Transport Forum document "The design and use of the structural pavement of unsealed roads 2014" The design and use of the structural pavement of unsealed roads and SNH's "Constructed tracks in the Scottish uplands – revised Sept 2015" Constructed Tracks in the Scottish Uplands.

3.2 Establishment

(See Maps 6a & b: Future Habitats and Species; Map 6c: Restock coupes phase 1 & 2)

Restocking

Sitka spruce will remain the largest component crop and one of the few commercial conifer species suitable for the higher, exposed slopes. Lodgepole pine and Scots pine will also be stocked on higher slopes or poorer soils. But alternative conifer species will be restocked on lower sheltered ground on better soils; including Norway spruce, Noble fir, Scots pine, Grand fir. Productive broadleaves will also be established on accessible ground where soils are suitable, including birch and oak, with beech and sycamore planted away from riparian zones and PAWS.

There is adequate ATV access to facilitate forest management in most parts of the forest. A track linking two forest roads and following the line of an existing ride in the southern part of the forest is planned. This will also benefit visitors by creating a circular loop. However, it won't be constructed until the P3 coupe is felled as there is windblow at the western margin of the coupe, so track construction won't be undertaken during this LMP period.

Woodland Creation

Native woodland establishment is planned for the West-facing slopes between Duror and Glenachulish. Where possible, establishment will be primarily through natural regeneration, particularly on ground close to existing native woodland. Some enhancement planting may be required in areas zoned for natural regeneration and some areas will be planted as a preference. Priority open habitats have been identified and mapped and these will be avoided for planting and kept open as far as is possible. The details on this woodland expansion proposal will be presented as amendment to the LMP.

Natural Regeneration

Natural Regeneration surveys will be conducted at year five, and if regeneration of desired species is not present, stands will be reassessed at year seven to decide whether to plant or whether full stocking by natural regeneration can be anticipated at year 10.

PAWS restoration

Areas of PAWS identified as high ecological potential in recent surveys will be restored to native woodland. But low – medium potential sites will be restocked with commercial conifer or productive broadleaved crops. The key areas of PAWS restoration lie along the River Duror riparian zone, which will be restored as coupes are felled through the cycle.

Riparian Management

There is the potential for natural regeneration of non- native conifer species to occur within the riparian corridor and elsewhere. Attempts will be made to remove all of this non-native regeneration but additional, specific funds may need to be found to tackle this issue.

Opening up Where possible, the riparian zone along the River Duror and its main tributary will be opened up early by felling selected non- native trees ahead of felling the rest of the coupe, This will allow sunlight onto the watercourse and the natural establishment of native broadleaves along banks, with the aim of creating conditions of dappled shade with approximately 50% canopy cover.

3.3 Open Land

Integral open ground within the forest area delivers a significant part of the forest's ecological value. Rides and deer glades will be maintained as open ground but other areas will remain as successional, where natural regeneration of native species will be accepted if this occurs. A significant part of the LMP area lies on the open hill and forest margins and will remain as permanent open ground. These open ground habitats are covered by an open habitat management plan, which underpins the Strategic Plan for the whole North Argyll forest area and aims to maintain priority open habitats in good condition.

Peat is present in parts of the forest, the largest area being in coupe 40135. This will be assessed for potential peat restoration but will otherwise be restocked with native broadleaved species to create a peat / wet woodland edge habitat.

3.4 Deer Management

(see Appendix 5: Deer Management Plan)

3.5 Visitor Zones, Community and Public Access

Informal access will continue to be provided along the forest road network, which gives cyclists and walkers opportunities to enjoy and explore the wider area, offering spectacular views as you climb the hillside. This access is managed under the Scottish Outdoor Access Code (SOAC).

Highland Council records a candidate core path that runs from the forest entrance along the northern part of the forest, along forest roads, and exiting to the East where it forms an access route to the Munros and through to Glenachulish and Creran. Another candidate core path is recorded South of the river, joining from the forest road at Acharn, progressing eastwards and looping across the river to join the forest road/ path North of the river. A pedestrian bridge that crossed the river at this point was unsafe and has been dismantled.

Duror and Kentallen Community Council have led the preparation of a Local Place Plan (LPP), which suggests various access improvements locally. In Duror forest, in addition to the replacement footbridge, this includes a path linking the Sustrans cycle track to the parking area at the head of Kentallen Bay and the creation of a path above the shore, from the old pier northwards towards the Holly Tree Hotel. FLS have no plans, or budget, to reinstate the bridge or to create any new footpaths but will consider any proposals from Highland Council or the community for an Agreement, should either party wish to take responsibility for installation and maintenance. It appears that most of the route of the proposed path above the shore does not lie on FLS ground.

The LLP records various environmental concerns; those relevant to the Duror forest are:

- Proliferation of deer
- Regeneration of the River Duror and Salachan burn
- Stresses caused by tourists including campervans and motorbikes in the forestry areas
- Reinstatement of paths fallen into disrepair including a number of bridge repairs

- Enthusiasm for regeneration and rewilding of forestry areas – especially near rivers (there was also a desire for walking trails through ancient {*sic}* *native* woodland)

See Map 10: Visitor zones.

3.6 Heritage Features

Various heritage features are scattered across the forest block, most being associated with the land's former life as agricultural land, supporting individual steadings as well as a settlement. These include evidence of barns, farmsteads, fanks, buildings, a settlement of several houses, several stone rings, a cup mark and a quarry (at Lagnaha) and the site of the Kentallen Railway Station.

A buffer will be maintained around heritage features, which will be protected during forestry operations. An heritage survey will be undertaken on the open ground at Lagnaha, prior to finalising native woodland expansion proposals here. The protection of the old quarry, which lies just North of the large gulley in the north-east part of the forest, will be considered when the woodland creation plans are prepared.

See Map 11 a: Heritage features.

3.7 Habitats & Species

The River Duror, which is a key habitat, runs through the forest and many watercourses of differing scale drain into the river, predominantly in a N-S / NE-SW or S-N / SE-NW direction. Watercourses will require protection during forestry operations. As already described, riparian habitat will be improved either through creation of open buffers at restocking or through development of open canopy native broadleaved riparian woodland, where feasible. Where possible, veteran native trees will be halo thinned ahead of clear felling coupes, where this will not have negative impact on stand stability / windthrow risk and where slope steepness and stability allow. *See map 11b: Conservation.*

Significant areas of native woodland already exist in riparian zones, along gullies and on the seaward facing slopes at Lagnaha. Some 1.5 ha of this woodland is ASNW, most of which is at Lagnaha but with small areas along the River Duror, in the centre of the forest. The management of this riparian ASNW is outlined in the LMP but the management of the larger part, located outwith the forested area at Lagnaha, will be considered in separate proposals for the expansion of native woodland habitat across the seaward facing slopes.

There is also PAWS with high ecological potential, mostly in the main riparian zone along the river, which will be restored to native woodland. PAWS with low ecological value, for example on the North facing slopes in the southern part of the forest, will be restocked with commercial species.

The Glen Etive and Glen Fyne SPA covers the open ground and extends into the forested ground in the northeastern part of the forest. Forestry operations will be managed to avoid disturbance to species on which the designation is based and the FLS Environment team will undertake site checks prior to commencement of works where necessary.

Prior to any harvesting operations, the FLS Environment team or the Environmental Clerk of Works will undertake a pre- commencement survey in the coupes to check for the presence of any protected species. The relevant FCS guidance notes: Wildlife and Forest. Operations 31- 35d will be adhered to if protected species are found to be present.

A range of priority open habitats have been identified through survey on the open hill, including blanket bog, calcareous grassland, montane heath and springs and wet flushes or various types. The aim will be to protect these habitats but there are extensive areas that are suitable for native woodland creation. As already mentioned, the intention is to expand the native woodland cover from the deep gulley to the north-east of the forested area, along the seaward facing slopes, to link with the PAWS restoration in Glenachulish. The woodland creation zone will need to be surveyed further in more detail, for priority open habitats/ species- and heritage features, prior to submission of an EIA and an amendment for these proposals.

Significant areas of deep peat have been identified in the south-west part of the forest that are currently under commercial conifers with low Yield Class (coupe 40135). When this coupe is eventually felled, the intention is leave much of the area as open ground, possibly with some peat restoration and surrounded by native broadleaves to create peatland edge habitat, although this will not be undertaken during the timescale of this LMP.

Evidence of Pine marten activity is recorded throughout the forest. Suspected wood ant nests are located on the margins of a coupe scheduled for felling in P2, which will be checked by the FLS Environment team or Environment Clerk of Works prior to harvesting, to enable suitable protection measures to be put in place. Various bird species including Golden eagle, Rock ptarmigan, Red grouse and Black grouse have been sighted on the open ground to the South of the forest. Forestry operations will be planned to minimise any disturbance to these species but planned improvements to upper margins at restocking should improve forest edge habitat.

To summarise, priorities to maintain and improve biodiversity include:

- Through the harvesting programme, clear felling non-native species in riparian zones and restocking with native broadleaves along larger watercourses using natural regeneration with enhancement planting at wide spacings where necessary. Smaller watercourses will be left unplanted
- Early harvesting of conifers in the large gulley in the north-west part of the forest, followed by expansion of native woodland to the North
- Where possible, halo thinning any veteran broadleaves ahead of coupe harvesting, where access, slope conditions and windthrow risk permit this approach
- Protecting important bryophyte and lichen assemblages during harvesting and other operations

- Control of invasive species
- Removal of non- native regeneration along the main riparian zones as well as felling mature non-native conifers that have been left when coupes were harvested previously
- Monitoring priority open habitats and where necessary, controlling tree regeneration or grazing to favour priority habitats
- Improving structural diversity in the younger areas of conifer plantation as early as possible, ahead of eventual harvesting
- Eventual removal of commercial species from significant areas of deep peat and restoration and / or establishment of peatland edge woodland habitat

3.8 Invasive Species

Duror does not suffer from the extent of problems with Rhododendron and other Invasive Non-Native Species (INNS) compared to other blocks but there is an issue with non-native regeneration (mainly Sitka spruce but also Western hemlock) in ASNW, riparian zones and high ecological potential PAWS. Progression of Sitka spruce regeneration on upper slopes should also be addressed where possible, as this will impact on native woodland remnants and even potentially, the montane scrub that exists on high ground. Early removal of this regeneration will need to be done wherever possible but resource limitations may mean that similar work in other forests with more extensive or higher value ASNW/ PAWS takes priority. Rhododendron will be treated where it does occur, for example along the River Duror. Japanese knotweed, Himalayan balsam and Gunnera exist in the locality and particularly along the Sustrans track. Monitoring and removal along the riparian zone or priority habitats will be a priority. Elsewhere, control will be undertaken where resources allow

See Map 20: INNS and NNR.

3.9 Water Supplies

Public Water Supplies

There are no operational public water supply catchments in the forested area.

Private Water Supplies

Three Private Water Supplies (PWS) are present within the forest and the open ground, as shown on *map 12.*

A minimum 50 m buffer will be maintained around the drinking water supplies in the forest and the supply on open ground will be buffered when new native woodland is established. Information on PWS will be fed into the FLS work plan process to ensure that worksite planning is undertaken well in advance of forestry operations. The water catchment associated with abstraction points will be mapped for use at an operational level. Forest and Water Guidelines will always be followed.

Any works that may potentially affect these supplies will be discussed with the relevant properties and plans prepared to manage the site. FLS endeavours to protect all water supplies and any new supplies, or new data on existing supplies, will be added to the FLS database as it arises.

See Maps 12a and b: Water and Water Supplies.

4.0 Critical Success Factors

- Successful reduction in browsing pressure through a combination of deer control and preventing livestock incursion is a business critical requirement
- Safe removal of trees on steep slopes and limiting visual impacts of felling, particularly on the highly visible steep slopes in the NW part of the forest
- Removal of all conifer seed trees from difficult / inaccessible areas where native woodland regeneration / expansion is planned and in the main riparian zone along the River Duror; using suitable Fell to Recycle methods if extraction is not possible
- Removal of non-native regeneration throughout the forest but particularly in riparian zones and PAWS areas of medium – high ecological value
- Relationships and where appropriate, partnerships, with key stakeholders and forest users, to co-ordinate management of grazing pressure and to ensure that recreation activities within the forest are safe and are compatible with forestry operations