Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Fort Augustus Land Management Plan 2024 - 2034

Plan Reference No: **030-517-447**
Plan Approval Date:
Plan Expiry Date:

Forestry and Land Scotland - North Region
Tower Road, Smithton, Inverness IV2 7NL

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.

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Property details	
Property Name	Fort Augustus
Grid Reference *(main forest entrance)*	NH 4229 1484 *(Rubha Ban entrance, by Portclair)*
Nearest town	Fort Augustus
Local Authority	Highland Council

Applicant's details	
Title / Forename	Mr. Christopher
Surname	Marsh
Position	Planning Forester
Contact number	0131 370 5187
Email	chris.marsh@forestryandland.gov.scot
Address	Forestry and Land Scotland, North Region, Tower Road, Smithton, Inverness
Postcode	IV2 7NL

Owner's Details (if different from Applicant)	
Name	n/a
Address	n/a

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

Signed *Regional Manager*	Alexander J Macleod	Signed *Conservator*	
FLS Region	North	SF Conservancy	Highland & Islands
Date	*26th September 2024*	Date of Approval	
		Date Approval Ends	

Contents

Objectives and summary

1.1 Plan overview and objectives

1.1.1 Location and context (see also **Map 1)**

FLS' Fort Augustus landholdings cover 9,678 ha of which just over half is afforested and the remainder open ground. The forests generally occupy the mid- to lower slopes of ground running continuously from Fort Augustus in the south-west, along Loch Ness-side toward Drumnadrochit in the north-east (encompassing Allt na Criche, Port Clair, Invermoriston, Alltsigh and Bark Sheds), and along both flanks of Glen Moriston - as far west as Dalchriechart – as well as incorporating extensive open hill ground between the Moriston and 'Great' glens.

Currently the forests are managed primarily for timber production however there is already a significant and increasing amount of management specifically for environmental conservation. The Plan area supports a number of protected wildlife species and contains a large element of PAWS (Plantations on Ancient Woodland Sites) including several fragmented elements of old Caledonian pinewood (at Achlain, Dundreggan and Achnaconeran). Occupying ground within the catchments of rivers Moriston and Oich, the forests play an important role in conserving water quality and influence surface water and watercourse flow. The forests are also a prominent, often dominant, feature in the local landscape - providing a backdrop to Loch Ness, Fort Augustus and Invermoriston landscapes as viewed from main transport corridors, interior and external settlements and from popular external vantage points. There is also high recreational interest and scheduled heritage features in certain areas around Fort Augustus and Invermoriston whilst the nationally-important Great Glen Way long-distance trail also passes through the Plan area. In the last two decades, new hydro-electric renewable electricity schemes, upgraded National Grid electricity transmission and new public water supply infrastructure have been significant new developments accommodated within the landholding.

A more detailed description of the Land Management Plan (LMP) area, its context, constituent habitats, flora and fauna is provided in **Appendix 1** – Background Information.

1.1.2 The role of the Land Management Plan

A Land Management Plan (LMP) summarises the objectives of, and proposals for, management of a Forestry and Land Scotland landholding – presented along with underpinning rationale. It outlines forest and open ground management intentions for the next 20 years, with the first 10 years' plans described in detail, including any requirement for new or modified management infrastructure (e.g. quarries, roading, fencing etc.). The Land Management Plan document is used to:

- explain to stakeholders and communities how FLS intend to implement Scottish Government and FLS commitments;
- inform the timely scheduling of FLS' resources to deliver the Plan's programme of work;
- gain regulatory approval from Scottish Forestry as a 'long term forest plan'; and
- meet regulatory requirements for management planning documentation.

An LMP is reviewed after five years to ensure initial objectives are still appropriate in light of any change in conditions or management regulation. Management operations, both planned and completed, are also reviewed at this stage to ensure they remain pertinent to meeting initially stated objectives. There is also a review of the LMP's critical success factors (section 1.1.5).

To supplement this overarching and strategic Plan, all consequent management operations are preceded by a more detailed and focused operational planning process. This is enshrined in FLS' Work Plan process which ensures relevant FLS teams (i.e. planners, delivery foresters/staff, visitor services, civil engineers and environment/conservation staff etc.) provide and share detailed information relevant to the delivery of a specific, planned operation. The Forest Works Manager is then able to deliver operations in light of the fullest contemporary information or else make changes, or employ mitigation measures informed by this wider context, to minimise the potential for negative impacts on the natural environment, its visitors, or other stated objectives of the LMP and its implementation.

This Plan revises and replaces the 2014-2024 Fort Augustus Forest Design Plan - approved 7th October 2014 - which had a conventional approval period of ten years and expires 6th October 2024.

1.1.3 Long term vision

Section 1.1.4 (below) states the key management objectives for this Land Management Plan – many of which are replicated from the previous Plan on account of their long term objectives and implementation being delivered over several decades.

10-year vision

The most conspicuous change experienced by local people, and those familiar with the area, is the steady incremental change taking place along the steeply sloping public roadsides and at settlement boundaries. Here the once extensive stands of often very large (but storm-susceptible) conifer trees have been, or are continuously being, felled and replanted with native woodland species. As a result, the sense of permanence and grandeur provided by these older trees over much of the last hundred years is being replaced with young birch/hazel/willow woodland scattered throughout with oak and Scots pine – much still at an early establishment (pre-thicket) stage although some already beginning to assert a new and sympathetic visual character, with associated seasonal variety, along major road corridors and at popular trail thresholds, car parks and picnic sites. Forest and riverside trails around Auchterawe, Torr Dhuin, Allt na Criche and Dalcataig - along with the moorland/tree-line sections of the Great Glen Way - are also beginning to evidence this 'restructuring' with a greater proportion of deciduous woodland establishing in place of maturing/over-mature, dense and seemingly impenetrable, coniferous woodland.

Similar restructuring effort in areas of core productive timber woodland is also resulting in significant visual and character change as the familiar and expansive stands of non-native conifers - of fairly uniform age structure and species diversity – have (and still are) being felled as they reach maturity, or are pre-emptively felled on account of increasing instability concern or to reduce potential tree pest and disease-susceptibility into the future. Larch trees in particular are becoming a lesser constituent of these woodlands whilst the previous dominance of uniform Sitka spruce and lodgepole pine plantation is being reduced as a patchwork of replacement productive woodland with more intimately mixed species establishes in its place with more emphasis on Scots pine and silver birch in these mixtures as well as a wider spectrum of spruce, fir and other coniferous species being restocked where soil fertility and drainage allows. An increase in productive broadleaved woodland planting is also evident – in Auchterawe and the afforested loch-side slopes above the A82 from Fort Augustus to Invermoriston as well as within Glen Moriston where the conversion of all mature/maturing non-native conifer woodland is being replaced with both conservation and productive native woodland (Scots pine, silver birch and oak-dominant) although much is still at a juvenile stage of development. Elsewhere in this glen, thinning regimes – initiated in the late 20th century – are continuing as some previously neglected thinned stands and early 21st century restocked/restructured woodland has been taken back into an expanded thinning/continuous cover forest where Scots pine and silver birch are managed for joint timber and conservation benefit. Core pine and veteran oak woodland is now free of non-native afforestation within broad regeneration zones that conserve and perpetuate this unique genetic and important ecological resource. Beyond these minimum intervention 'reserves', oak, birch and pine woodland (and mixtures of these) have been restocked or are regenerating with the intention too of blended productive/conservation objectives and benefit.

Overhead power lines and wayleave corridors are still a highly visible component of roadside and interior forests as well as on the open hill but the marked linear geometry that this infrastructure initially imposed is being softened in afforested areas where more recent felling has allowed more variable woodland densities and more naturalised (i.e. non-linear) forest edges in restocking operations.

50-year vision

The afforested flanks of Glen Moriston are now almost entirely composed of pine, birch and oakwood with productive stands within this mosaic being managed primarily under uniform shelterwood thinning regimes. Veteran indigenous oak and pine specimens are increasingly senescent or declining in condition but now embedded in established and extensive regenerated conservation-focussed woodland. The steeply sloping ground above the shores of Loch Ness and the main A82 trunk road corridor have now almost entirely been cleared of all vestiges of 20th century forest planting schemes and replaced by mixed deciduous woodland along roadsides and trails – stabilising the slopes and protecting thoroughfares. Mid-contour slopes now have re-established productive timber forests based predominantly around Scots pine (but some spruce and fir stands as well as birch- and oak dominant zones on best soils and accessible terrain). Where these forests are practically and viably accessible, management will be by cyclical thinning for timber and/or other biomass products but also still employing clearfell/restock regimes where thinning is less practical or else (on steepest slopes and toward the naturalised treeline) left in perpetuity as future 'old growth' woodland.

Rotational clearfell and thinning-based productive forestry is still practised at scale on Inchnacardoch's afforested slopes although these are bisected by broad riparian native woodlands along the river Oich's tributary watercourses. Around the settlements of Auchterawe, Jenkins Park and the riverside and forest trails there, productive broadleaved woodlands are now established and being managed (thinned regularly) to provide (relatively novel for the area) hardwood timber products. Invermoriston and its more disparate settlements/residences are likewise enclosed within native, predominantly deciduous, birch and oak woodland with discrete areas of Scots pine, oak and birch woods being managed for timber/biomass products where accessibility for thinning-based silviculture is practical but otherwise the woodlands existing for ecological, visual and terrain stability benefit.

1.1.4 Management objectives

The management of Scotland's National Forests and Lands by Forestry and Land Scotland (FLS) is guided by the FLS Corporate Plan (2019), the FLS National Spatial Overview (2016) and the Scottish Forestry Strategy (2019) in compliance with the UK Woodland Assurance Standard and UK Forestry Standard (see **Appendix 11** – *Key policies and publications*). The specific objectives of this new Plan are derived from consideration of the Key Features, Issues and Challenges summarised and represented in **Map 2**, community and wider stakeholder feedback (see **Appendix 2** – *Consultation Record*) and a review of historic management to date. This process of considering and defining management objectives is described in **Section 3** – *Analysis and Concept* and represented in the respective **Maps 3a** and **3b**.

The over-arching objectives of this Land Management Plan are:-

- **Increase the resilience of the landholding to withstand impacts of anticipated climate change** – for native species/habitats, built features/infrastructure, forest health and productivity, slope stability, peatland restoration, water quality and public safety.
- **Continue landscape-scale restoration of native woodland through Glen Moriston** (a 50-year restructuring process) and conserve, expand and connect fragmented native woodland habitat on Loch Ness-side and around Auchterawe.
- **Continue to manage and consolidate sustainable timber production** within the Inchnacardoch area and in other suitable and practically-managed areas of restructured native woodland.
- **Protect water quality, and enhance associated riparian habitat** of designated river Moriston and the wider Ness catchment.
- **Support and maintain public access** to the landholding and maintain respectful communication with local communities.
- **Continue forest restructuring to improve the scenic value** of the Great Glen & Loch Ness to achieve a greater sympathetic and integrated fit with broader landscape character.

1.1.5 Critical success factors

- Deliver the programme of productive woodland felling

  Monitored by adherence to felling schedule outlined in section 2.2. Assessed by comparison of tree species and habitat data at Plan outset with those datasets at mid-term review and full Plan revision in 2034.

- Protect naturally regenerating and restocked native trees from levels of deer browsing likely to significantly (and adversely) impact successful regeneration and establishment of native woodland.

  Routine monitoring of PAWS, regenerating fallow and restocked sites to assess browsing impacts and, by association, the effectiveness of - and any need to alter or redirect - requisite deer control effort.

- Undertake restocking in a timely manner where anticipated natural regeneration of native trees is limited and where the competitive threat of non-native seedbed regeneration is high.

  Monitored by adherence to restocking schedule outlined in section 2.5 and routine stocking density assessment of restocked and regenerating land.

- Implement 'cleaning' interventions routinely to remove regenerating and establishing non-native trees in areas of establishing native woodland and restoring peatland.

  Routine stocking density assessment undertaken across regenerating and establishing restocked areas will report on non-native tree recruitment, informing a prioritised cleaning programme.

- Engineering works are carefully planned and delivered to provide access infrastructure allowing felling, restocking, peatland and environment programmes including restoration of PAWS sites.

  Proposed civil engineering and forestry works are defined and controlled through the Work Plan process and ultimately delivered through UKWAS- and UKFS-compliant FLS working practices.

- Invasive non-native species (INNS) control measures are implemented frequently to minimise their presence, and capacity to spread, within the LMP area and into the wider landscape.

  INNS presence monitored through routine PAWS survey and also reported through cyclical stocking density assessments on early regenerating, or establishing restocked, native woodland areas.

1.2 Summary of planned operations

Table 1

Summary of operations over the Plan period	
Clear felling (gross)	1,715 ha
Thinning (potential area)	279 ha
Restocking (gross)	2,501 ha
Afforestation	14 ha
Deforestation	139 ha
Forest roads (new)	4,170 m
Forestry quarries (new)	2.3 ha

This Land Management Plan was produced in accordance with current government policies and forestry industry standards and guidance as listed in **Appendix 11.**

The forest will be managed in compliance with the UK Woodland Assurance Standard (UKWAS) – the standard endorsed in the UK by the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification(PEFC). Forestry and Land Scotland is independently audited to ensure that they are delivering sustainable forest management to this Standard.

The objectives of this LMP are also considered compliant with The Highland Council's '*Highland Forest and Woodland Strategy (2018)*' with significant emphasis on the following four of its eight principal themes:

- Achieving the economic potential of forest and woodlands;
- Developing resilience to climate change;
- Protecting and enhancing Highland's natural capital;
- Integrating with development and tourism.

2 Management Proposals – regulatory requirements

2.1 Designated sites/areas

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

Table 2

Designations and significant features		
Feature type	**Present**	**Note**
Site of Special Scientific Interest	No	*Adjacent:* Levishie Wood – ancient semi-natural birch-juniper woodland {179.5 ha; Condition (2015): Unfavourable (no change) – over-grazing}.
National Nature Reserve	No	
Special Protection Area (SPA)	No	
Special Area of Conservation (SAC)	No	*Adjacent:* River Moriston SAC. Qualifying features: Atlantic salmon, fresh water pearl mussels. SCM Condition (2011) Unfavourable (no change).
World Heritage Site	No	
Scheduled Ancient Monument (SAM)	**Yes**	2 sites: Torr Dhuin fort; and Fort Augustus to Bernera military road (570 m, SE of Achlain)
National Park	No	
Deep peat (>50 cm thickness)	**Yes**	A significant area of afforested peat with potential for restoration (i.e. deforestation) has been surveyed for peat depths. The area is illustrated on **Map 9** and restoration proposals outlined in section 2.6 and **Appendix 6**.
Tree Preservation Order	No	
Geological Conservation Review Sites	**Yes**	'*9592 – Fort Augustus*' (2 of 3 component sites within LMP area: 34.73 ha): glacier flood deposits, raised shorelines, kame and kettle topography. GCR sites are depicted on **Map 9a** – *Soils.*
National Scenic Area (NSA)	No	
Special Landscape Area	**Yes**	Loch Ness and Duntelchaig
Ancient woodland	**Yes**	Nature Conservancy Council's Inventories of Ancient, Long-established and Semi-natural woodlands identifies 2,444 ha of ancient woodland and 185 ha of long-established woodland of plantation origin within the LMP area.
Acid sensitive catchment	No	
Drinking Water Protected Area (Surface)	**Yes (partial)**	2 areas: Loch Ness and catchment (partial overlap with LMP); and Allt Bail 'an Tuim Bhuidhe catchment, Glen Moriston (partial overlap with LMP).

Map 2 illustrates the location of all designated areas and significant features.

2.2 Proposed clear felling

Areas (coupes) proposed for clear felling within the period of the Plan are detailed in the following table and identified as either Phase 1 (to be carried out within the first five years of the Plan) or Phase 2 (in the second five years). These specific coupes are also illustrated and labelled on the Management maps (**Map 4a** and **4b**) which also displays all areas of indicative felling anticipated over the next twenty five years - colour-coded in five-yearly increments as described in the map legend.

Table 3

Clearfelling (Phase 1)								
Coupe Number	Gross Area (ha)	Sitka spruce (ha)	Scots pine (ha)	Lodgepole pine (ha)	Norway spruce (ha)	Larch species (ha)	Other conifers (ha)	Comments
05065	7.21	0.02					6.66	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05068	4.31		0.04		0.07		3.45	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05070	4.59		0.03		0.06		3.76	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
04657	9.26	4.35	0.83	0.31	0.87	2.03	0.6	*Windblow clearance, SSE substation/FR nursery boundary, Auchterawe*
04014	2.1	1.76						*Windblow clearance, Balantoul/Jenkins Park*
04019	13.91	1.64		0.08	1.37	6.47	1.72	*Windblow clearance, 33kV and Auchterawe public rd corridors, cemetery edge.*
04022	5.94	0.19					4.78	*Windblow clearance, Torr Dhuin slopes (PAWS), Auchterawe*
04025	8.16	3.24			0.46		3.97	*Windblow clearance (PAWS), Balantoul/Inch Hotel*
04312	5.67	1.91					3.43	*Windblow clearance, large p27 SS incl seed stand, Auchterawe*
04644	3.2	1.16			0.05		1.52	*Windblow clearance, Balantoul/Inch Hotel, A82 boundary*
05008	46.03		5.44	28.85		1.14		*Non-native clearfell for SP/SBI restock, Balnacarn block*
05071	8.1	1.61					6.04	*Some large (p26) DF, above A82, (PAWS & new link road proposal), Invermoriston*
05089	15.72	9.67					5.66	*Resilience felling for new powerline wayleave (PAWS), Bhlaraidh*
05108	10.65	1.31				0.07	3.91	*Resilience felling for new powerline wayleave (PAWS), Bhlaraidh*
05233	38.25	9.3	4.4		10.97	1.33	8.22	*Steep slopes, large p26 NS/SS/SP component (PAWS), Dalcataig/Invermoriston*
05297	8.84	0.39	2.63	0.07		3.59	0.79	*Resilience fell/restructuring along 33kV OHPL (CPI/PAWS), N of Dundreggan dam*
05366	10.29		0.28		1.47	3.41	5.02	*Northside of Alltsigh threshold (PAWS), Loch Ness-side/A82 frontage*
05585	33.24	1.67	9.04		9.61	0.03	11.52	*Large (p33) non-nat conifers clearfell (PAWS), some steep slopes, Dalcataig*
05590	16.91	6.69	2.81	3.57			2.4	*Non-native clearfell, PAWS & CPI zone, Torgoyle*
04026	13.34	2.46	4.15			2.59	3.29	*Windblow clearance*
04346	23.2	2.98	12.85	0.39		2.4	0.61	*Windblow clearance*
04590	21.73	5.93		1.03	1.75		10.19	*Windblow clearance, (PAWS), Coille Torr Dhuin, by Auchterawe*
04765	17.82	2.93			3.2	0.46	10.68	*Windblow clearance, large p27/32 cons incl SS & DF seed stands, A82 frontage*
04887	15.23	3.64					11.02	*Windblow clearance, E of Torr Dhuin SM(PAWS), Auchterawe*
05076	5.11						4.32	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05083	3.39						2.84	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05606	33.82	4.76	0.02			1.14	25.53	*Unstable (p80s) non-nat cons clearfell (PAWS), steep slopes, Dalcataig*
05113	14.85		7.29	2.3		3.72		*Edge & internal non-nat cons (incl JL) (PAWS/CPI) in SP CCF Dalchriechart blocks*
04042	31.37	7.41	12.14	0.53	4.9	1.24	1.06	*Partial windblow, large p1920, 1940s/50s conifers, Balantoul, N of Ft Augustus*
05022	57.93	24.3		13.55			16.17	*Some steep slopes & veteran oaks (partial PAWS) Bhlaraidh.*
05069	23.7	9.12	1.01		0.47		11.07	*Southside of Alltsigh threshold (PAWS), some steep slope working*
05084	7.07	0.01			0.16		6.8	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05365	10.14	0.01	0.19		4.18	1.74	3.74	*Large p33 conifers, steep slopes (PAWS), N of Alltsigh, above A82/Loch Ness-side*
05945	19.97	4.02	4.99		10.09			*p30/42 non-nat cons felling in CPI, Dalcataig/Coille na Feinne*
04004	29.09	13.54	0.86	5.79	3.38	2.88	0.03	*Partial windblow clearance/unstable large p22 conifers, Inchnacardoch forest*
04037	22.13	2.67			10.04		2.51	*Some large p34 cons & local steep slopes (PAWS), S of Portclair*
04221	20.71	9.86	0.47		0.91	0.83	7.32	*Mature non-nat cons in PAWS (with heritage) & seasonal campsite/A82 frontage*
05058	33.35	5.64	5.78		16.87		4.55	*p25/30 non-nat cons felling (PAWS), Dalcataig/Coille na Feinne*
05086	6.62	0.01			1.12	1.73	3.31	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05992	17.04	3.05	1.89			1.52	8.77	*Mature non-nat cons, some steep slopes (PAWS), A82/OHPL, house/garden edges*
04001	41.11	21.66				18.27		*Partial windblow clearance/unstable p60s conifers incl larch, Inchnacardoch forest*
04153	24.05	0.35		17.85		0.15		*Remnant windblown/DNB LP clear-up: fell to recycle, Beauly-Denny OHPL plateau*
04999	68.4	15.65	13.36	31.9		5.43		*Partial windblow clearance/unstable p50s conifers incl larch, Inchnacardoch forest*
05011	249.26			166.59				*Peatland Restoration proposal with 75.4 ha Peatland Edge Woodland restock*
05124	8.27	1.38	0.54			0.18	5.82	*A82 Loch Ness-side (PAWS) – steep slopes. Traffic management/catch fencing possible.*
05390	23.2	7.76	6.87		6.88		0.35	*Large (p31) non-nat cons clearfell (PAWS), some steep slopes, Dalcataig*
05868	28.13	5.25	13.68	0.34	1.98	2.26	2.83	*Large (p50s) non-nat conifers clearfell (PAWS/CPI), some steep slopes, Dalcataig*
05097	0.95	0.48	0.48					*Resilience felling for new powerline wayleave. 0.95 ha deforestation (upland plateau).*
Totals	**1,123.4**	**199.8**	**112.1**	**273.2**	**90.9**	**64.6**	**216.3**	*Net* area of phase 1 clear felling: 956.7 ha

Clearfelling (Phase 2)								
Coupe Number	Gross Area (ha)	Sitka spruce (ha)	Scots pine (ha)	Lodgepole pine (ha)	Norway spruce (ha)	Larch species (ha)	Other conifers (ha)	Comments
04052	11.5	6.04	1.23	1.23	0.24			*Conventional clearfell p50s/60s SS/LP/SP, part PAWS, Inchnacardoch*
04186	53.97	28.71		19.69	2.16			*Partial windblown, incl JL & medium DNB LP removal, Inchnacardoch*
05279	9.19	n/a	n/a					*FTR of isolated/singleton remnant non-nat cons in Achlain SP/SBI regen cpe.*
05681	33.16	1.85	0.96		3.98		5.1	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05053	14.82	8.1	0.3	0.08	0.43		3.6	*Some large p29 DF in steep Allt Sigh gulley, winch across burn (PAWS), Alltsigh*
05119	22.94	1.23	4.33	5.33		9.46		*Edge & internal LP & JL) (CPI) in SP CCF part of Balnacarn block*
05404	4.42	3.27	0.03			0.85		*Edge & internal non-nat cons (incl JL) (CPI) in SP CCF Dalchriechart blocks*
04158	22.92	2.4	1.2	3.48		12.66	2.53	*Large p70s JL component (resilience felling), adjacent heritage, above Jenkins Park*
04376	7.95	4.66				2.03	1.09	*Partial windblown incl JL scpts, above Auchterawe settlement, Inchnacardoch*
05456	7.25	2.49			3.88			*Large p34 SS/NS on steep rocky slopes & ledges, NE of Alltsigh (PAWS), L Ness-side*
05533	20.63	7.46	0.01		6.16	2.58		*Conventional clearfell mature non-nat cons (PAWS/CPI), Dalcataig*
04011	29.26	8.18	2.63	0.2	7.88	3.06	2.23	*Large p50s non-nat cons, some steep slopes & JL, part PAWS, Allt na Criche*
04629	18.47	4.84	0.46	9.84				*p60s SS&LP clearfell, adjacent to 132kV OHPL & Lon Mor site, Inchnacardoch*
05111	6.24		3.06		2.86			*Clearfell of p50s NS/SP, only non-thinnable stands (PAWS/CPI), Dundreggan block*
05480	39.29	17.45	10.37	4.41		3.11	0.53	*Part CPI/PAWS, high ecological value & JL removal priority, Torgoyle/Inverwick*
05811	12.81	0.14				0.23	10.74	*A82 Loch Ness-side (PAWS) – steep slopes/traffic management/catch fencing*
05020	160.84	34.63	6.18	95.44			0.85	*Large clearfell p80s non-nat cons/DNB LP in partial CPI, Upper Dalcataig*
04058	19.69	9.94	0.11		3.28		5.82	*Some steep slopes (mostly PAWS), above A82, N of Portclair/S of Invermoriston*
04074	46.77	9.21		36.57				*Extensive windblow (2024) but large current adjacency issue, Inchnacardoch*
04443	41.05	15.7	1.14	12.34		5.51	0.98	*Conventional fell p40s/50s/60s cons incl large HL/JL component, Inchnacardoch*
04574	9.75		1.81		0.72	0.71	5.22	*Large p22 cons incl JL (& instability risk), bounding OHPL & Auchterawe substation*
Totals	**592.3**	**166.3**	**33.8**	**188.6**	**31.6**	**40.2**	**38.7**	*Net* area of phase 2 clear felling: 499.2 ha

Table 4

Scale of proposed felling										
Total LMP Area			9,678 ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Gross Area (ha)	1,123	**11**	592	**5**	641	**6**	380	**4**	9	**0.1**

NB: Table 4 shows gross coupe areas (i.e. inclusive of integral open ground, all tree species for felling and native trees for retention for habitat continuity and/or natural regeneration seed source). The area of proposed Long Term Retention felling (windblow clearance) is also included in the Phase 1 felling area total.

2.3 Proposed thinning

Table 5

1.5 Table of Thinning (Phase 1 & 2)					
Coupe No.	Area (ha)	Thin Year	Species	Prescription for Thinning	Monitoring Comments
05904	66.31	26/27	SP/JL	Late thinning of p55 SS/JL intimate mix to remove all JL and open remaining canopy to initiate SP natural regeneration (uniform shelterwood).	Regeneration monitoring scheduled (phase 2) to assess efficacy of canopy opening.
04903	6.02	26/27	SS/JL	Conventional (uniform) 2nd thinning of p92 SS. All p92 JL (1% of total) to be felled.	
04902	6.09	26/27	SP	Conventional (uniform) late thinning of p47 SP to open canopy to initiate SP natural regeneration.	Regeneration monitoring scheduled (phase 2) to assess efficacy of canopy opening/regeneration.
04908	1.95	26/27	JL/MC	Selective felling of singleton mature conifers (including all JL) at amenity/access boundary.	Long term public access resilience.
04909	3.1	25/26	NS/SS/SP	Fell all non-native conifers (p32 & p50), retaining windfirm SP @ threshold/roadside.	
05903	28.71	2025 to 2034	NS/SS/DF	Halo fell-to-recycle of inter-planted non-native conifers (p31 NS/SS and p2001 SS & DF) from scattered, isolated singleton veteran Scots pine (conservation objective)	Further detailed condition survey proposed of this remnant pinewood area within Plan period.
05909	34.18	30/31	SP/EL	Late thinning of p59 SP and SP/EL in intimate mix to remove all EL - to open remaining canopy to initiate SP natural regeneration (uniform shelterwood).	Regeneration monitoring scheduled (phase 3) to assess efficacy of canopy opening.
04905	35.09	32/33	SP	Continuation of group shelterwood thinning of p33 & p49 SP to open canopy holes (6 x 0.5 ha) to initiate SP and NBL natural regeneration (amenity & conservation objectives).	Regeneration monitoring scheduled (phase 3) to assess efficacy of canopy opening/regeneration.
04906	28.17	30/31	SBI	Motor manual thin including group felling (FTR & firewood yield) to improve SOK regen opp and growth of retained SBI (irregular & group shelterwood)	Regeneration monitoring scheduled (phase 3) to assess efficacy of canopy opening/regeneration.
05951	1.45	28/29	MC	Halo fell to recycle of non-native conifers threatening veteran SP in Achlain central CPI zone.	FTR priority set & impacts assessed through PAWS/CPI monitoring.
05926	58.87	28/29	MC	Halo fell to recycle of non-native conifers threatening veteran SP in Dundreggan central CPI zone.	FTR priority set & impacts assessed through PAWS/CPI monitoring.
05913	9.37	28/29	MC	Halo fell to recycle of non-native cons threatening veteran SP in Achnaconeran central CPI zone.	FTR priority set & impacts assessed through PAWS/CPI monitoring.
Roadside	n/a	n/a	n/a	5 m 'thinning' buffer along all forest roads defined to allow roadside vegetation with >10 cm stem dbh to be cut to maintain management access. Maps 5a/b illustrate these areas.	Roadside drains and stacking verges already recorded as open ground.

2.4 Other tree felling in exceptional circumstances

FLS seek to map and identify all planned tree felling expected within the ten-year Plan period for inclusion in the LMP approval process. However, there may be circumstances where small-scale tree felling is required and where it may not be possible to apply for and receive a specific felling permission on account of the unacceptable risks or impacts incurred through delaying the felling.
Prior felling permission is therefore sought, for the approval period of the LMP, 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 de-stabilised or made unsafe by wind, physical damage, or impeded drainage. **Infrastructure includes forest roads, footpaths, access routes (vehicle, cycle, horse, walking), buildings, utilities and services, and drains.*

The maximum cumulative volume of felling in exceptional circumstances covered by this approval is 75 cubic metres per calendar year for the Land Management Plan area.
A record of timber volume felled in this way will be maintained and will be reported to the forestry regulator at the Land Management Plan's mid-term review.

N.B. Trees can, and may, also be felled without permission if they are:

- of less than 10 cm diameter at breast height (1.3 m above ground level);
- pose an immediate danger to persons or property;
- are completely dead; or
- are part of authorised Planning Permission works or wayleave agreements.

2.5 Proposed restocking and new planting

Proposed restocking – by planting or natural regeneration - is illustrated on restocking **Maps 6a** and **6b**. The restock species composition for each coupe is given by a "mixture number(s)" which is described in **Appendix 5** and illustrated on **Maps 7a** and **7b**. The maximum post-clearfell fallowing period will be 5 years to limit pine weevil impacts on restocked plants - reducing the need to apply pesticides to minimise these impacts (see also section 4.1.5). The table includes restocking of currently fallowing coupes (i.e. felled during the last Plan period) with the felling year stated in the 'Felled' column. All currently fallowing coupes are programmed for restocking in the first three years of the Plan. Table 6 includes some Phase 3 restocking (i.e. beyond Plan period) as felling undertaken in the final years of this Plan will be restocked beyond the Plan's timespan.

All broadleaf restocking will be of native species only except for a trial area of productive sycamore proposed in a new zone of productive broadleaves at Auchterawe (coupe 04023). Further explanation of restocking rationale is given in section 4.1.5 and 4.1.6. If planting or restocking is failing to achieve target densities of 1,600 stems per hectare (native woodland) or 2,500 stems per hectare (productive conifers) at year 3 or 4 stocking density assessment, the site will be beaten up to required planting density by or at year 5 after felling. Areas prescribed for establishment by natural regeneration will be assessed at year 3 or 4 after felling with any supplementary contingency measures required to encourage regeneration recruitment (e.g. scarification) completed by year 5, and any subsequent enrichment planting required to achieve required target establishment densities undertaken by or at year 7 after felling.

Table 6

Coupe No.	Fell Year (**complete** or *indicative*)	Area (ha.)	SS (ha.)	LP (ha.)	SP (ha.)	XC (ha.)	PBI/SBI (ha.)	SOK (ha.)	Other B/Leaf (ha.)	Open (ha.)	Restock / Regen. Year	Restock Method/Prescription *Fallow Restock (FR), Restock (R), Nat Regen (NR), Fallow NR (FNR)*	Monitoring Comments (Including any reason not to restock)
04824	**2016/17**	11.63	1.75	1.75	0.55	0.68	2.67	0.8	1.6	1.83	2024/25	FR - Mixes 16, 5 and 4	
04005	**2018/19**	36.52		14.29					3.94	18.29	2024/25	FR - Mix 16 and Mix 2	*NBL restock with 40% OG (poor gnd)*
04096	**2018/19**	96.78	24.81	24.81		3.64	10.91		10.9	21.71	2024/25	FR - Mixes 16, 5 and 2	*NBL restock with 40% OG (poor gnd)*
05019	**2010/11**	32.41					16.64		6.66	9.11	2025/26	FR - Mix 5	*NBL restock with 50% OG (poor gnd)*
04908	**2017/18**	78.16	3.38	3.38		29.08	20.84		13.65	9.96	2025/26	FR - Mixes 5, 16 and 2	
05023	**2018/19**	17.97					7.01	3.5	3.5	3.96	2025/26	FR - Mix 24	
04048	**2019/20**	27.16			8.11		9.26		2.71	7.08	2025/26	FR - Mix 22 and Mix 17	
04686	**2020/21**	54.5	12.43	12.43		13.74			5.07	10.83	2025/26	FR - Mix 16 and Mix 19	
05201	**2020/21**	9.35			5.14		1.87		0.93	1.41	2025/26	FR - Mix 17	
05863	**2020/21**	24.59			11.67				6.58	6.34	2025/26	FR - Mix 18 and Mix 2	
05931	**2020/21**	21.49			10.03		3.94		2.87	4.65	2025/26	FR - Mix 18 and Mix 6	
04045	**2020/21**	1.24					0.22	0.33	0.35	0.34	2025/26	FR - Mix 25 and Mix 3	
04894	**2020/21**	46.22			0.44	29.08	0.22		6.52	9.96	2025/26	FR - Mixes 19, 2 and 17	
05045	**2021/22**	9.72					3.71		3.71	2.3	2025/26	FR - Mix 5	
05065	*2024/25*	7.21			1.16		2.13		2.3	1.62	2025/26	R - Mix 5 and Mix 18	*Hot plant. A82 coupe.*
05279	**2007/08**	9.19			4.6		1.84		0.92	1.83	2025/26	FNR - Mix 1	*NR survey missed last Plan period. Survey 25/26.*
05128	**2008/09**	3.94			0.39		1.97		0.79	0.79	2025/26	FNR - Mix 5	*NR survey missed last Plan period. Survey 25/26.*
05340	**2019/20**	19.85			7.94		5.95		1.98	3.98	2026/27	FR - Mix 17	
04041	**2020/21**	23.96					9.90	5.33	5.18	3.55	2026/27	FR - Mix 5	
05914	**2020/21**	23.53			5.31		9.41	3.72	3.34	5.69	2026/27	FR - Mix 4 and Mix 18	
04856	**2020/21**	11.29			6.56		2.33	0.07	0.07	2.26	2026/27	FR - Mix 17 and Mix 24	
04612	**2021/22**	2.73			1.46		0.49			0.78	2026/27	FR - Mix 17	
04165	**2021/22**	12.46			4.24		0	1.19	4.18	2.85	2026/27	FR - Mixes 18 and Mix 3	
04009	**2023/24**	28.75			10.45		8.44	3.13	0.85	5.88	2026/27	FR - Mixes 17, 24 and 3	
04018	**2023/24**	16.13					4.76	3.23	4.49	3.65	2026/27	FR - Mix 24 and Mix 3	
04023	**2023/24**	26.95					10.94	6.00	4.90	5.10	2026/27	FR - Mix 24 and Mix 3	

04755	**2023/24**	2.16					1.29	0.22	0.43	0.22	2026/27	FR - Mix 24	*Hot plant. Isolated windblow clearance coupe*
Coupe No.	**Fell Year** (**complete** or *indicative*)	**Area (ha.)**	**SS (ha.)**	**LP (ha.)**	**SP (ha.)**	**XC (ha.)**	**PBI/SBI (ha.)**	**SOK (ha.)**	**Other B/Leaf (ha.)**	**Open (ha.)**	**Restock / Regen. Year**	**Restock Method/Prescription** *Fallow Restock (FR), Restock (R), Nat Regen (NR), Fallow NR (FNR)*	**Monitoring Comments (Including any reason not to restock)**
05068	*2025/26*	4.31			0.3		1.55		1.59	0.87	2026/27	R - Mix 5 and Mix 18	*Hot plant. A82 coupe.*
05070	*2025/26*	4.59					1.84		1.84	0.91	2026/27	R - Mix 5	*Hot plant. A82 coupe.*
05010	**2022/23**	70.98			39.75		0.09		10.45	20.68	2027/28	FR - Mixes 18, 2 and 5	*Coupe currently includes 6.1 ha unplantable OG*
04657	*2024/25*	9.26				2.66	3.74	1.22	0.71	0.93	2027/28	R - Mix 5 and Mix 14	
04014	*2024/25*	2.1					0.8	0.8	0.2	0.3	2027/28	R - Mix 25	
04019	*2025/26*	10.69						2.00	5.59	3.10	2027/28	R - Mix 3 and Mix 2	
04022	*Phase 1*	5.94			0.41		2.07	1.05	1.13	1.28	*Phase 1*	R - Mix 24	
04025	*Phase 1*	8.16					1.65	2.07	2.83	1.61	*Phase 1*	R - Mixes 3, 24 and 25	
04312	*Phase 1*	5.67				0.96	2.08	0.95	0.95	1.08	*Phase 1*	R - Mix 24 and Mix 13	
04644	*Phase 1*	3.2					0.27	0.71	1.4	0.82	*Phase 1*	R - Mix 3 and Mix 24	
05008	*Phase 1*	46.03			15.51		2.25		9.97	18.3	*Phase 1*	R - Mixes 18, 4 and 2	
05071	*Phase 1*	8.1			1.56		3.04	0.76	1.71	1.03	*Phase 1*	R - Mix 22 and Mix 6	
05089	*Phase 1*	20.32			1.63		8.13	4.06	2.44	4.06	*Phase 1*	R - Mix 24	
05108	*Phase 1*	10.65			0.63		4.28	2.14	1.51	2.09	*Phase 1*	R - Mix 24	
05233	*Phase 1*	38.25			21.36		6.66		5.38	4.85	*Phase 1*	R - Mix 1 and Mix 6	
05297	*Phase 1*	8.84			0.62		3.55	1.77	1.14	1.76	*Phase 1*	R - Mix 1	
05366	*Phase 1*	10.29			2.46		3.72	0.95	0.78	2.38	*Phase 1*	R - Mix 22 and Mix 5	
05585	*Phase 1*	33.24			18.9		6.11		4.5	3.73	*Phase 1*	R - Mixes 16, 5 and 2	
05590	*Phase 1*	16.32			6.13		4.6		1.63	3.96	*Phase 1*	R - Mix 17	
05689	**2023/24**	34.47			16.73		6.64	0	3.91	7.19	2028/29	FR - Mix 17 and Mix 6	
04036	**2023/24**	22.69			11.65		5.79		0.71	4.54	2028/29	FR - Mix 17 and Mix 22	
05060	**2023/24**	15.98			5.94		1.36	1.94	3.53	3.21	2028/29	FR - Mix 18 and Mix 24	
05002	**2023/24**	1.44			0.82		0.41		0.16	0.05	2028/29	FR - Mix 17 and Mix 22	
04026	*Phase 1*	13.34			6.58	2.63	2.63			1.5	*Phase 1*	R - Mix 10	
04346	*Phase 1*	23.2			10.76	5.47	4.3		0.17	2.5	*Phase 1*	R - Mix 10	
04590	*Phase 1*	21.73					10.78	3.26	2.51	5.18	*Phase 1*	R - Mix 5	
04765	*Phase 1*	17.82						3.56	8.91	5.35	*Phase 1*	R - Mix 3	
04887	*Phase 1*	15.23			5.18		3.73	1.32	1.79	3.21	*Phase 1*	R - Mixes 17, 24 and 2	
05076	*Phase 1*	5.11					2.04		2.04	1.03	*Phase 1*	R - Mix 5	*Hot plant. A82 coupe.*
05083	*Phase 1*	3.39					1.36		1.36	0.67	*Phase 1*	R - Mix 5	*Hot plant. A82 coupe.*
05606	*Phase 1*	33.82			17.18		5.73	1.56	5.46	3.89	*Phase 1*	R - Mix 17 and Mix 8	
05113	*Phase 1*	14.85			8.52				4.38	1.95	*Phase 1*	NR - Mix 18	*In CCF Dalchriechart block. Survey by 2030.*
04042	*Phase 1*	31.37				16.97	2.1	2.91	5.27	4.12	*Phase 2*	R - Mixes 19, 3, 25 and 5	
05022	*Phase 1*	57.93			12.37		13.41	8.97	7.86	15.32	*Phase 2*	R - Mix 18 and Mix 24	
05069	*Phase 1*	23.37			14.44		5.11		0.89	2.93	*Phase 2*	R - Mix 17 and Mix 5	

Coupe No.	Fell Year (*indicative*)	Area (ha.)	SS (ha.)	LP (ha.)	SP (ha.)	XC (ha.)	PBI/SBI (ha.)	SOK (ha.)	Other B/Leaf (ha.)	Open (ha.)	Restock / Regen. Year	Restock Method/Prescription *Restock (R), Nat Regen (NR)*	Monitoring Comments (Including any reason not to restock)
05084	*Phase 1*	7.07					2.83		2.83	1.41	*Phase 2*	R - Mix 5	*Hot plant. A82 coupe.*
05365	*Phase 1*	10.14			2.95		3.94	0.98		2.27	*Phase 2*	R - Mix 22	
05945	*Phase 1*	19.97			11.77		3.92		2.03	2.25	*Phase 2*	NR - Mix 1 and Mix 2	*CPI coupe (Dalcataig). Survey by 2033.*
04004	*Phase 1*	29.09				16.27			5.68	7.14	*Phase 2*	R - Mix 19 and Mix 2	
04037	*Phase 1*	22.13			6.8		2.62	0.78	2.22	9.71	*Phase 2*	R - Mixes 17, 3 and 22	
04221	*Phase 1*	20.71			1.28		0.18	3.78	9.44	6.03	*Phase 2*	R - Mix 3 and Mix 17	
05058	*Phase 1*	33.35			20.01		6.67		3.34	3.33	*Phase 2*	R - Mix 17	
05086	*Phase 1*	6.62			0.47		2.35		2.42	1.38	*Phase 2*	R - Mix 5 and Mix 18	
05992	*Phase 1*	17.04			11.92			1.7	1.7	1.72	*Phase 2*	R - Mix 23	
04001	*Phase 1*	41.11	11.32	11.32	4.4	8.8	4.4		1	4.27	*Phase 2*	R - Mix 16 and Mix 11	
04153	*Phase 1*	24.05					8.06		4.44	11.55	*Phase 2*	R - Mix 5 and Mix 2	*NBL restock with 40% OG (poor gnd)*
04999	*Phase 1*	68.4	0.41	0.29	18.66	29.63	15.64		6.02	10.37	*Phase 2*	R - Mix 16 and 2	
05011	*Phase 1*	249.3					30.17		15.62	203.47	*Phase 2*	R - Mix 5	*Peat Edge Woodland (Peatland Restoration cpe)*
05124	*Phase 1*	8.27					4.13	1.65	1.65	0.84	*Phase 2*	R - Mix 5	
05390	*Phase 1*	23.2			13.86		4.62		2.31	2.41	*Phase 2*	R - Mix 17	
05868	*Phase 1*	28.13			17.12		5.71		2.85	2.45	*Phase 2*	R - Mix 17	
04052	*Phase 2*	11.5	2.76	2.76	1.78		1.49	0.11	1.31	1.29	*Phase 2*	R - Mixes 15, 17, 4 and 2	
04186	*Phase 2*	53.97		13.19		9.56	22.6		0.66	7.96	*Phase 2*	R - Mixes 20, 21 and 2	
05681	*Phase 2*	33.16			2.52		11.86	0.76	10.17	7.85	*Phase 2*	R - Mixes 5, 1 and 8	
05053	*Phase 2*	14.82			3.52		4.48	0.36	3.56	2.9	*Phase 2*	R - Mixes 1, 5 and 7	
05119	*Phase 2*	22.94			7.15			0.45	7.1	8.24	*Phase 2*	R - Mixes 18, 3 and 2	
05404	*Phase 2*	4.42			1.77		1.33	0.44	0.44	0.44	*Phase 2*	R - Mix 17	
04158	*Phase 2*	22.92			7.78	5.84	4.71	3.04	2.23	2.16	*Phase 2*	R - Mix 17 and Mix 12	
04376	*Phase 2*	7.95	0.18	0.18		5.02	1.32	0.66	1.13	1.13	*Phase 2*	R - Mix 13, 24 and 16	
05456	*Phase 2*	7.25			3.57		2.2	0.72		0.76	*Phase 2*	R - Mix 17 and Mix 22	
05533	*Phase 2*	20.63			12.36		4.12		2.06	2.09	*Phase 3*	R - Mix 17	
04011	*Phase 2*	29.26			9.77		6.31	1.55	5.97	5.66	*Phase 3*	R - Mixes 17, 3 and 22	
04629	*Phase 2*	18.47	0.97	0.97	4.67	0.34	7.79		0.24	3.49	*Phase 3*	R - Mix 22 and Mix 16	
05111	*Phase 2*	6.24			3.74		2.5				*Phase 3*	R - Mix 17	
05480	*Phase 2*	39.29			16.27		11.16		3.98	7.88	*Phase 3*	R - Mix 17	
05811	*Phase 2*	12.81			1.23		3.36	1.23	4.02	2.97	*Phase 3*	R - Mix 5 and Mix 3	
05020	*Phase 2*	160.8			10.72		67.67		27.31	55.14	*Phase 3*	R - Mix 5 and Mix 22	
04058	*Phase 2*	19.69			11.93		3.47		0.3	3.99	*Phase 3*	R - Mix 17 and Mix 3	
04074	*Phase 2*	46.77	17.41	20.17			2.76		3.44	2.99	*Phase 3*	R - Mix 11	
04443	*Phase 2*	41.05	0.21	0.21		24.39			6.95	9.29	*Phase 3*	R - Mix 19 and Mix 2	
04574	*Phase 2*	9.75						0.21	7.6	1.94	*Phase 3*	R - Mix 2	

One area of new woodland creation is envisaged – a riparian native woodland area - and was an original but uncompleted proposal in the last forest plan. As this proposal is afforestation, it also described and considered in the EIA screening document (**Appendix 3**).

Table 7

New Planting													
Coupe No.	Area (ha)	SS (Ha)	LP (Ha)	SP (Ha)	NS (Ha)	Larch (Ha)	Other Con. (Ha)	Native Mixed B/Leaf	Other B/Leaf	Open (Ha)	Year	Planting Method & Density (Planting/Nat Regen)	Monitoring Comments
04075	13.5							9.4		4.1	2025	Mound & Plant	

2.6 Proposed peatland restoration/deforestation

One significant area of afforested ground has been identified for peatland restoration. **Appendix 6** presents site analysis and decision-making undertaken which followed FC's Practice Guide 104 *Deciding future management options for afforested dep peatland* (2015), A corresponding EIA determination request is submitted (**Appendix 4**) in respect of this deforestation. Future Habitats **Maps 6a** and **7a**, also illustrate this area. FLS will also undertake a Prior Notification process with the Highland Council in regard to these peatland restoration proposals and adhere to any resultant conditions imposed upon consented works.

In addition, 0.95 ha of resilience felling (consisting of four 0.24 ha stands of first rotation trees on the Inchnacardoch plateau) are proposed to be returned to open ground (see Management Map 4a and Future Habitats Map 7a). As this proposal is under 1 ha and outwith a sensitive area or CPI buffer – and not considered part of an accumulated deforestation area – it has not been included in the EIA determination **Appendix 4**.

2.7 Summary of species diversity and age structure

The following charts and tables show how proposed management is intended to achieve a more diverse tree species composition and age-class structure - as recommended in the UK Forestry Standard. The current tree species composition of the LMP area is illustrated on **Maps 8a** and **8b** and the long term objective future woodland composition in **Maps 7a** and **7b**. Table 8 details areas occupied by native and non-native woodland tree species (and some grouped tree species) on the landholding over time, along with the percentage *of the whole LMP area* this represents. Accompanying pie charts similarly illustrate tree species' composition over time - but as a percentage of *the total woodland area* as opposed to the entire LMP area.

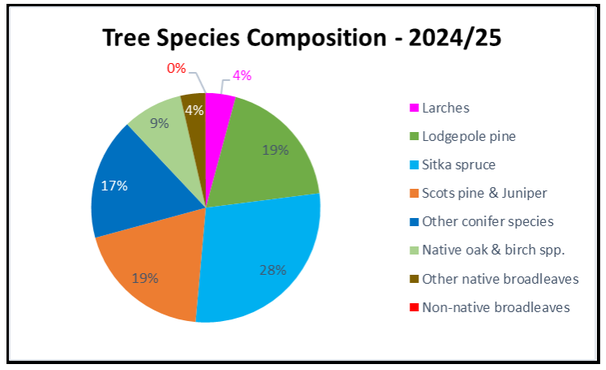
Land Use Compositional Change

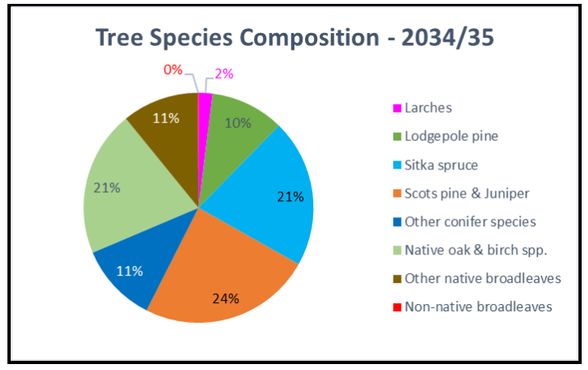
Table 8

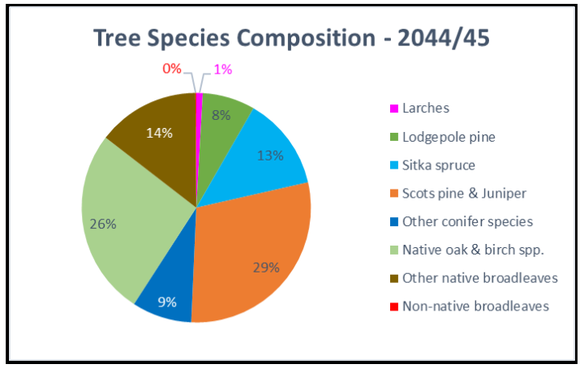
Area by species/groups						
Species	Area in 2024/25 (ha)	% of LMP Area (2025)	Area in 2034/35 (ha)	% of LMP Area (2035)	Area in 2044/45 (ha)	% of LMP Area (2045)
Native tree species	1518	16	2600	27	3118	32
Non-native trees species	3248	34	2079	21	1336	14
Felled/Fallowing	810	8	446	5	596	6
Open ground	4074	42	4525	47	4601	48
Other (built/heritage/quarries/water)	28	0	28	0	28	0
Total	**9678**	**100**	**9678**	**100**	**9678**	**100**

Tree Species Compositional Change

The pie charts show the change over time of individual or grouped tree species as a percentage of the total afforested area.







In common with many UK upland productive conifer forests, Sitka spruce is the largest component followed by Lodgepole pine and Scots pine. Sitka spruce is frequently found in intimate and block mixtures with Lodgepole pine, characteristic of upper Moriston and Inchnacardoch. Douglas fir, Norway spruce and larch species are generally restricted to lower slopes on more fertile and free-draining soil types. The broadleaf element is currently focussed in riparian zones and fragmented areas of 'unplanted' steeper ground but also where contemporary (i.e. 21st century) native woodland re-instatement has already commenced.

Into the future, there is greater scope to diversify the species composition of productive woodland in the lower margins of the forests, and given the presence of extensive PAWS, the native woodland re-instatement potential accounts for a significant component of increased native broadleaf and Scots pine cover anticipated.

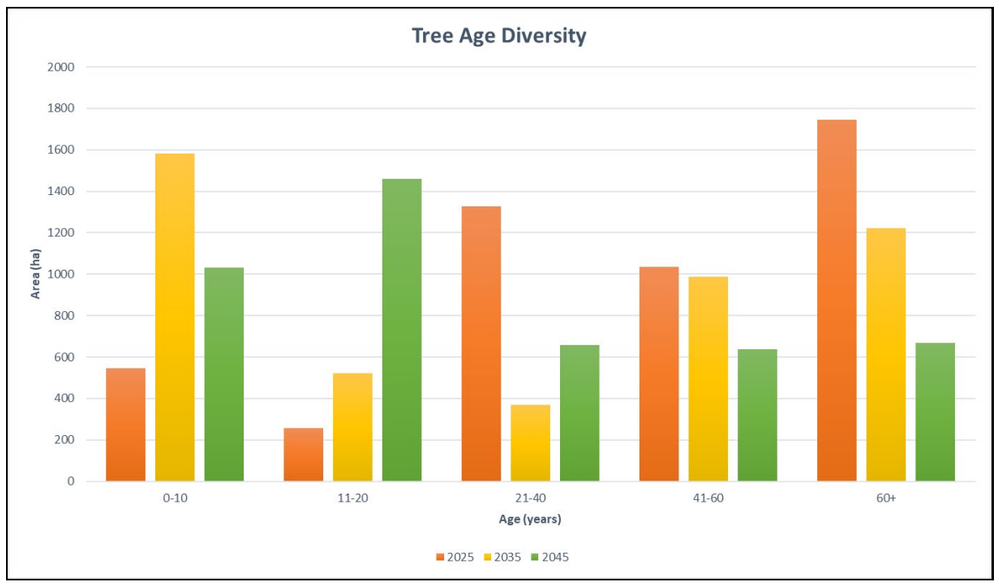
Woodland Age Class Change

Table 9

Plan area by Age						
Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	537	11	1580	34	1031	23
11 – 20	251	5	523	11	1459	33
21 – 40	1310	27	367	78	657	15
41 – 60	1021	21	987	21	638	14
60+	1727	36	1222	26	669	15
Total	4846	100	4679	100	4454	100

The current age structure of the forest within the Fort August Plan area is predominantly mature and old forest (orange bars in table below); with a notably small percentage of young forest. This top heavy age structure reflects the comparatively low levels of felling over the last two decades but is also skewed by the stands of extended rotation (historically thinned) conifers on difficult terrain, primarily along the A82 corridor and within Dalcataig forest.

Increased age diversification through restructuring is a key theme of this LMP. The plant health objective, to continue pro-active targeting of lodgepole pine and larch stands over the Plan period, in conjunction with restructuring of mature crops on steep slopes will also result in a more balanced age structure and underpins the rationale behind significantly increased harvesting activity envisaged over this Plan period.



2.8 Proposed roading operations and extractive sites

Seven sections of new forest road construction are proposed within the first five years of the Plan and currently proposed within the second phase. These are outlined in Table 10 (below), are depicted on the Management maps (**Maps 4a** and **4b**) and included in the Environmental Impact Assessment (EIA) Scoping Opinion Request (SOR) form (**Appendix 3**). FLS also undertake a Prior Notification process with the Highland Council in advance of all proposed new road construction. All new road construction proposals – and any within-Plan road renovation works - will be carried out using stone sourced from existing in-forest quarries.

FLS propose four new extractive sites to be opened within Phase 1 of the Plan and are described in Table 10, identified on the LMP management maps (**Maps 4a** and **4b**) and considered within the EIA screening opinion form (**Appendix 3**). The four sites are located within the upper reaches of Dalcataig forest (southern flank of Glenmoriston) and envisaged to provide stone for existing road improvement works on the extensive network of roads that service this predominantly steep afforested terrain and where the felling schedule over the next twenty years will see these roads used over concerted periods of timber harvesting with associated wear and tear and maintenance requirements of the unbound aggregate formation.

Table 10

Forest road upgrades, re-alignments, new roads and new quarrying				
Phase	Name / Number	Length (m)	Year	Operation
1	Butterfly Extension	610	2024/25	*This **roadline extension** initially approved by Plan amendment at 2021 mid-term review (total: 1,900 m; ref: 030/518/284 & no EIA required) and a subsequent road re-alignment notified to Scottish Forestry by exchange of letters - but now requiring re-approval within a new LMP for the 610 m still to be built. This Category B forest road (load bearing capacity: 44 tonnes) extends vehicle access to current (and future) productive timber forest, to a peatland restoration coupe and thus future peat-edge woodland management.*
1	Balintombuie Spur Extension	70	2025/26	*Construction of **new road** (Category C unbound stone carriageway) with associated side drain to provide permanent vehicular access to Balintombuie forest (managed under CCF). The road length is designed to be just sufficient to allow suitable timber presentation, stacking and uplift for haulage from this block.*
1	Inch West Spur Extension	1,140	2024/25	*Construction of **new road** (Category B unbound stone carriageway) with associated side drain and stacking verge to provide permanent vehicular access to the far western forest coupes of Inchnacardoch forest for timber harvesting/haulage operations (Phase 1) and follow-on productive & riparian woodland management.*
1	Inch NW Spur Extension	1,040	2028/29	*Construction of **new road** (Category B unbound stone carriageway) with associated side drain and stacking verge to provide permanent vehicular access to the north-western forest coupes of Inchnacardoch forest for timber harvesting/haulage operations (Phase 2) and follow-on productive & riparian woodland management.*
1	Jenkins Park Hammerhead	130	2025/26	*Construction of **new road** spur (Category C) 30 m spur and 100 m 'hammerhead' roading for timber uplift and vehicle-turning off single carriageway Jenkins Park - Auchterawe public road. This roading will service windthrow clearance work (Phase 1) and provide long term access to productive timber and deciduous amenity woodland establishment/management.*
1	Balantoul Spur	550	2028/29	*Construction of **new road** spur (nominal 3.4 metre running width Category A unbound stone carriageway) with associated side drain and stacking verge to provide permanent vehicle access to 40 ha of productive woodland (CCF management). Access for timber operations otherwise constrained by bounding settlement (Jenkins Park) and heritage (old military road).*
1	Moriston link road & bridge	630	2025/26	*Construction of **new road** (Category A unbound stone carriageway) and associated side drain and 21 m panel **bridge** spanning Allt Coinneag to provide permanent vehicular access for timber haulage/export from 140 ha of productive forest along the flanks of Creag nan Eun and Allt Saigh gulley. Timber operations and haulage otherwise constrained by insufficient space to develop adequate road access directly at Alltsigh coupled with difficulty of establishing safe, workable traffic management for access onto Loch Ness-side A82 trunk road at this and other possible locations (where sightlines might allow) or technically complex and thus too expensive.*
1	Upper Dalcataig access	1,350	2026/27	***Upgrade/re-formation of existing forest road** between the lower Dalcataig Forest/Coille na Feinne and the upper afforested zone (proposed in the LMP for non-native productive conifer forest to native, conservation forest restructuring).*
1	Dalchriechart access upgrade	460 m	2025/26	***Upgrade/re-formation of existing forest road** access into western side of the Dalchriechart forest block, Glen Moriston to allow timber haulage access for proposed thinning operations in this CCF block.*
1	Coire a Mhadaidh	0.08 ha	2025/26	***Quarry**: c. 25 m roadside length x maximum 30 m depth working site to provide material to renovate forest roading within Upper Dalcataig.*
1	Creag Bheithe	0.38 ha	2025/26	***Quarry**: c. 50 m roadside x 70 m deep working site to provide material to renovate forest roading within Upper Dalcataig.*
1	Meall a' Mhuic	0.98 ha	2025/26	***Quarry**: c. 100 m roadside length x max 98 m depth working site to provide material for forest road link upgrade between lower and upper Dalcataig forest for forest operations/management.*
1	Coille na Feinne	0.88 ha	2025/26	***Quarry**: c. 80 m roadside length x 110 m deep working site to provide material for upgrading and future maintenance of forest roading in Dalcataig forest.*

2.9 Meeting UK Forestry Standard (UKFS) requirements

In revising the Fort Augustus Land Management Plan, FLS has complied with all requirements and good practice guidance of the UKFS to deliver the aims and objectives of the national strategies and corporate policies that derive from this (see **Appendix 11).**

2.10 Environmental Impact Assessment (EIA)

Operations proposed in the first five years of the Plan period and requiring an EIA determination are shown in the table below. The SOR Form associated with the EIA determination process is presented as **Appendix 3**.

Table 11

Projects requiring EIA determination in the Plan area		
Type of project	**Yes / No**	**Note**
Afforestation	Yes	*13.5 ha new native woodland (upland birchwood with SP) – coupe 04075.*
Deforestation	Yes	*139.5 ha associated with peatland restoration as outlined in section 2.6 and rationale presented in **Appendix 6.***
Forest roads	Yes	*As outlined in section 2.8: Table 10 (cumulative totals – new road: 4,170 m; upgraded road: 1,810 m).*
Forestry quarries	Yes	*As outlined in section 2.8: Table 10 (cumulative area: 2.32 ha).*

2.11 Summary of additional regulations

Should any new management proposals fall outwith the scope of Scottish Forestry approvals, the correct regulatory procedures will be followed to gain relevant permission(s). For the proposals presented within this Plan, this is limited to the Prior Notification planning process (undertaken with the Highland Council) required in advance of peatland restoration or forestry-specific road works and for establishing agreeable timber haulage terms on public roads of consultation status (see section 2.8). The Prior Notification process can result in the local authority stipulating that a formal Planning Permission application is undertaken to formally seek approval for the proposed work.

2.12 Tolerance table

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

3 Analysis and Concept

3.1 Introduction

The land management planning process reviews the objectives of the previous Forest Plan and management delivered towards those objectives over that Plan period (section 3.2). This allows the production of an initial Key Issues and Features map (**Map 2**) which is initially consulted upon by FLS staff (internal scoping) and then with local residents, community organisations and other key stakeholders (external scoping). The record of internal and external stakeholder consultation is presented in **Appendix 2** – Consultation Record.

Different management options for achieving this new Plan's objectives are subsequently considered against the constraints and opportunities identified through the previous Plan review and scoping exercises. The preferred approach/management proposed to achieve these objectives is then analysed and summarised on Analysis and Concept maps (**Map 3a and 3b**).

3.2 Analysis of previous Plan

The key objectives of the last (Forest Design) Plan were:

1. The restoration of native woodland at a landscape scale over the next 50 years.
2. To minimise risk posed to people and the A82 trunk road through good design and practice.
3. To protect and enhance the water quality of the Ness catchment.
4. To promote resilience of the forest to the future challenges of climate change.
5. To strengthen ties with the local community and enhance the landscape of the Great Glen and Loch Ness.
6. Sustainable timber production within Inchnacardoch and the productive native woodland zones.

Progress and issues resulting from management to achieve these objectives is presented below – summarised from 2021 mid-term review and discussion/feedback received during internal and external scoping in preparation of the new LMP.

Table 12

Review of delivery against Objectives of expiring Plan		
Plan Objectives	**Progress to date**	**Proposed action (in this Plan)**
Restoration of native woodland at a landscape scale	Excluding ongoing A82 project (progress described below) 14 FDP-approved felling coupes in PAWS areas were delivered and 9 coupes not progressed to date. One particular approved felling coupe at Invermoriston became subject of unexpected public protest (soon after the Plan's local consultation and approval) which escalated via social media engagement. This resulted in FES suspending operations and revising plans - retaining some contested spruce and Scots pine stands as a concession. This reputational concern - coupled (coincidentally) with a requirement to re-focus felling priorities to new powerline installations (Inchnacardoch) - and new watermain installation within the Portclair forest which temporarily excluded forest operations/export haulage for several years in the vicinity of Port Clair and Dalcataig. This redirection of (finite) resources led to consequent postponement of access improvement in Dalcataig and thus also postponed the felling originally proposed and approved in Dalcataig and in the vicinity of Invermoriston. All other coupes felled in PAWS areas were either restocked or are under natural regeneration monitoring except where felling was undertaken within the last two years and coupes are therefore still fallowing. Routine PAWS condition monitoring and both PAWS and non-PAWS natural regeneration surveys programmed for 2020/21, but postponed by the Covid pandemic, have not yet been reinstated. Halo thinning programmes were implemented early in the Plan period (FTR and chemical thinning) around veteran oak trees at Blairaidh prior to Plan-approved clearfelling of enclosing non-native plantation in later years. Similarly halo thinning around veteran "granny" pines in Achlain and Dundreggan core pine inventory buffer zones was also carried out in priority areas identified in 2017/18 PAWS monitoring. Cleaning of non-native regeneration from within the Dundreggan CPI buffer zone was also completed in two of three large, clear-felled and regenerating coupes. There was a contradiction in the last Plan between the objective of restoring native woodland throughout Glen Moriston and the acceptance of using Norway spruce as a component species in restocking there. This had only been envisaged in areas outwith CPI and PAWS zones and as 'insurance' planting for red squirrel foraging should Scots pine become DNB susceptible in the future however Scots pine is currently appearing resilient to known DNB strains and therefore an attempt to restructure to more characteristic native woodland composition is prescribed. Just 1.7 ha of NS had been restocked (p2021) during the last Plan period.	*Approved coupes not completed within the last Plan period are to be reconsidered – and prioritised in the new Plan if their previous postponement has increased the urgency for initiating their PAWS-related restructuring. This is becoming increasingly urgent in Dalcataig forest.* *Reinstate PAWS monitoring surveys as soon as possible to refresh understanding of time-sensitive restoration priorities (new priorities? Interventions?) and to feedback into deer control and non-native regeneration cleaning programmes.* *Similarly monitoring and formal attribute survey of fallowing non-PAWS coupes under natural regeneration prescription need to be reinstated.* *Continue to undertake routing cleaning of non-native seedbed regeneration in Glen Moriston/PAWS areas.* *Unless DNB infection is compromising future Scots pine-based restructuring in Glen Moriston, NS will not be considered a component of restocking in the glen.*

Review of delivery against Objectives of expiring Plan		
Minimise risk posed to people and the A82 trunk road through good design and practice	The A82 project commenced in Phase 1 ('Primrose Cottage' coupe - highest slope instability area) as a proof of concept/work method. Experience gained was then employed in Phase 2 operations prioritised at 'Bark Sheds' – a similarly High risk stability zone. Progress has been slow to establish an efficient work methodology and significantly constrained by winter/spring-only working (for associated traffic management), the need to integrate other pre- and post-fell operations delivered by project partners, and because these slopes are the most difficult and complex. c.30.5 ha of felling has been achieved to date with a further Plan-approved 39 ha not yet started (though the total original Plan-approved area was the maximum 'aspirational' area and also designed to giving flexibility to switch to other approved coupes if priorities or circumstances dictated). All work has been implemented safely to date with no significant incidents and no particular adverse public feedback as there appears to be a widespread acceptance of the necessity for, and difficulty of, the work and therefore a knock-on (though seasonal) inconvenience. No restocking of Phase 2 clearfell coupes has yet been implemented (oldest areas: 2 yrs fallowing) and slopes are colonising with grasses/herbaceous vegetation.	*Continue implementation of A82 project – anticipated to increase in pace with safe working practices now well established and good experience/efficiencies gained in early, novel operation.* *Commence restocking of fallowing steep slopes, aiming to catch up with felling and thereafter hot plant*
Protect and enhance the water quality of the Ness catchment	Work within river Moriston (SAC) catchment has employed freshwater pearl mussel operation guidance in delivery and no pollution incidents or near-miss incidents have occurred. An instance of diffuse pollution (sedimentation) did result from a harvesting operation at Inchnacardoch which impacted several surface water catchment private water supplies. This resulted in temporary suspension of works and formal investigation prior to remediation works being undertaken. FES (now FLS) committed to replacing affected private water supply infrastructure with boreholes - most of these boreholes are now installed/operational, two are still being legally formalised between FLS and third parties prior to installation.	*Continue to employ freshwater pearl mussel operational guidance - in addition to default UKFS-compliant Forest and Water requirements (2023 – Chapter 9) - in all Glen Moriston (SAC catchment) civil engineering and forestry works.*
Promote resilience of the forest to the future challenges of climate change	Over 250 ha of highest scoring DNB-infected lodgepole pine was felled during the Plan period however there remains an equivalent area of infected lodgepole pine still within the LMP area – with approximately 100 ha of this located in CPI buffer zones. A planned thinning of the Dalchriechart Scots pine/larch blocks (some PAWS and some CPI present) was not undertaken within the Plan period – nor the prescribed clearfelling of a fragmented network of larch and (DNB-infected) lodgepole pine sub-compartments therein. The establishment of FLS' larch strategy (2022) in response to disease spread makes the pro-active removal of larch woodland a new priority – require FLS to implement programmes of access development to, and felling of, areas of larch-dominant woodland. The January 2024 storm event resulted in extensive windthrow damage particularly in stands of historic non-native conifers prescribed for long term retention on account of historic value and intrinsic contribution to 'sense of place' these 'cathedral stands' provide. Incremental windthrow damage is occurring in un-thinned p1980s timber stands as well as in (historically thinned) p1930's coupes in Dalcataig. The associated soil disruption on steep slopes is both a potential diffuse pollution risk (to SAC) and increased slope stability concern. Unchecked windthrow may result in more widespread wind susceptibility issues if timely felling is not planned and undertaken to windfirm edges.	*Undertake selective felling (and some clearfelling) of larch and lodgepole pine components from Dalchriechart forest blocks as well as thinning of main SP matrix. This work to be replicated in the lower areas of Balnacarn block in phase 2.* *Reconsider the long term retention prescription for stands of 1920s/30s conifers at increased risk of affecting public safety, infrastructure and thoroughfares due to increasing storm events and from untypical wind directions.* *Upgrade in-forest timber haulage access to Dalcataig and Creag nan Eun forest areas to allow (overdue) commencement of felling and restructuring of PAWS areas and wind-susceptible timber crops.*
Strengthen ties with the local community and enhance the landscape of the Great Glen and Loch Ness	FLS continued to liaise with/notify the community council in respect of upcoming forest operations particularly in relation to temporary closures/diversions required to recreational trails. Over the last Plan period, the council's Great Glen Way (GGW) ranger service was decreased and ultimately disbanded as a dedicated access/interpretation/tourism-support entity and with whom FLS had previously worked closely. However FLS Visitor Services continued to interact with THC's centralised Access Officer function with respect to GGW issues. FLS contributed to community liaison meetings established by utility provider SSE during the last Plan period to ensure local residents were kept abreast of proposed (some now delivered) developments in electricity supply infrastructure in the Plan area (e.g. powerlines, sub-station). Third party (utility) planning permissions for felling/deforestation were progressed during Plan period that accommodated – or intend to - new powerline infrastructure and were not therefore part of FES/FLS' original (landscape architect involved) Plan and have introduced new linear geometry into the forest-scape. The A82 project and the requirement to clear areas of windblown trees in fairly conspicuous locations close to settlements through emergency felling amendments has also contributed to obvious 'change' in popular locations & on conspicuous boundaries. A number of additional community groups have been formally inaugurated within the last Plan period -with potential interest in the LMP area and its management and objectives. A related 'Local Place Plan' community-oriented collaborative planning project is also currently underway.	*Continue to maintain a liaison/notification process with the local community council as well as through other liaison groups instigated by other organisations (i.e. utilities/third party renewables developers) to maintain a transparency over management and any alterations to management as defined/declared by the new LMP.* *In view of the increasing need to address postponed mature forest felling in and around Invermoriston and Dalcataig, ensure local stakeholders are properly notified of Plan review and consultation opportunities – including all parties identified and involved in previous felling issues and protest during the last Plan period.*
Sustainable timber production within Inchnacardoch and the productive native woodland zones	Apart from additional felling approved by utilities and carried out to accommodate new powerline/wayleave corridors, felling within Inchnacardoch and other productive woodland zones has generally adhered to the 2014-2024 Plan. Some felling amendments were submitted and approved to swap coupes from later, beyond-Plan, phases to within the Plan period (and vice versa) on account of observed increasing severity of DNB-infections (Inchnacardoch and Achlain coupes) and latterly to clear windblown trees (Jan 2024 storm) to windfirm edges. The restocking of several coupes within Inchnacardoch has not been implemented to Plan-declared timescales (of maximum 5 year fallowing) – nor was the forest regulator informed of this fact during the Plan period. There is currently 330 ha of fallowing land in Inchnacardoch – although one third	*Address the significant extent of fallowing land in Inchnacardoch (i.e. prioritise resources for urgent restocking here).*

Review of delivery against Objectives of expiring Plan		
	is ground prepared and due for restocking in winter 2024. However some coupes have fallowed for 5 and, in a few instances, 7/8 years and require urgent action. The inability to restock during the Covid pandemic was a contributary factor in delay, as well as a short term inability to fill some forest management roles before and during this period. One coupe was 'forgotten' due to administrative error in updating the GIS database. The significant extent of fallowing ground – combined with the extent of restocked but < 2 m mean tree heights - will inevitably constrain ambitions to fell more mature coupes in the vicinity over the short term on account of intentions to meet UKFS 'adjacency' principles.	

3.3 Analysis of opportunities and constraints

The following table identifies the opportunities and constraints relative to each stated Plan objective (section 1.1.4). It therefore summarises the issues considered to inform the concept and ultimately the practical management activities and critical success factors (section 1.1.5). **Map 3** summarises this analysis process with respect to relevant geographical areas.

Table 13

Concept Analysis			
Objective	**Opportunities**	**Constraints**	**Concept**
Increase climate-related Resilience *(steep slopes/public infrastructure)*	• Felling mature forest stands that are a current windthrow risk to important access corridors (public roads, core paths, popular trails) and utility infrastructure (water pipelines, power & communications lines). • Felling of mature and over-sized conifers on steep slopes presents opportunity to replant with lower stature, non-productive native woodland with visual, environmental and slope stability benefits. • Post-fell tree stumps and root systems offer short- to medium term (c. 10 year) increase in slope stability (tree removal eliminates windthrow risk with soil disruption and slope stability concern). • Fertile south-facing slopes will revegetate quickly with pioneer weeds/grasses	• Some extremely difficult terrain (very steep and at close proximity to public roads & infrastructure) requiring specialist felling/recovery techniques and limited competent contractor resource. • Traffic management required in conjunction with steep slope felling above A82 will inconvenience year-round busy/vital trunk road use with additional summer tourist traffic. • Risk of enhanced surface water run-off until follow-on woodland is establishing. • Fertile, south facing slopes will revegetate quickly with restock-competing weeds/grasses. • Similar difficulty posed by terrain and public road proximity to restocking operations and associated deer browsing control. • Continued intensive and monocultural forest management in follow-on woodland on steep, potentially unstable slopes may exacerbate soil erosion and landslip risk. • Possible requirement to accommodate more/new powerline corridors and renewables infrastructure can compromise or else fragment semi-natural habitat (including core pinewood and remnant native woodland) in wider afforested landscape and increase windthrow susceptibility in adjacent forest stands.	• *Design felling coupes to windfirm features within the forest where possible.* • *Specialist felling/extraction techniques to continue to be delivered through A82 Project - prioritising highest risk stands and slopes for initial felling within LMP period.* • *Felling to adhere to out of (tourist) season working to minimise traffic disruption & partnership traffic management constraints (BEAR, Highland Council).* • *Restock steep slopes with minimum intervention native woodland species of predominantly lower stature to increase soil cohesion/slope stability and improve long term water regulation (rainwater interception, percolation and evapo-transpiration rates).* • *Undertake restocking operations on steep slopes soon after felling phase to increase restock success over pioneer weeds/grasses.* • *Use effective manual screef ground prep techniques to create planting positions on steep slopes.* • *Continue to engage with major utility companies in relation to potential new developments within LMP area – with a view to minimising impacts through encouraging and contributing to options appraisals (least worse option choices) and integration of acceptable forestry in infrastructure design (e.g. retention or inclusion of low stature shrubs/NBLs/juniper in wayleave corridors)*
Increase climate-related Resilience *(trees/habitats/soils)*	• Diversification of forest tree species in restocked productive woodland will increase resilience to future threats posed by climate change (pests/diseases). • Expanding and connecting core pinewood and isolated remnant native woodland will increase ecological function and	• Dothistroma needle blight (DNB) still present in the LMP area and posing a threat in (and to) Core Pinewood areas. • Poor soils and micro-climate limit potential to use other a broad range of productive tree species – and climate change unlikely to improve opportunities.	• *Aim to remove all susceptible lodgepole pine stands within the next ten years. Continue to undertake routine plant health monitoring.* • *Where soils, exposure and anticipated climate change rule out productive woodland objectives reduce productive forest tree-line to better soils and areas with favourable micro-climate.*

Concept Analysis			
	increase resilience of native habitats, species and their inter-dependencies to negative impacts of climate change. • Some DNB-infected forest currently established on deep peats where removal will create a peatland restoration opportunity.	• The ability to increase the extent of DNB sanitation felling in Inchnacardoch forest is hampered in the short term by the current extent of still-fallowing or < 2 m high restocked woodland in the vicinity (a UKFS compliance "adjacency" concern). • There is a lack of forest roading to access and fell some DNB-infected coupes in Inchnacardoch, upper Dalcataig and Balnacarn and for pre-emptive larch felling around Balantoul/Jenkins Park.	• *Promote diverse species choice of non-native conifer species. Using Ecological Site Classification and Forest Development Type systems/modelling alongside site evidence/experience to influence decision-making.* • *Increase the extent and interconnectivity of native woodland habitat. Increase the amount of productive forest utilising native tree species.* • *Restore blanket bog where this has greater ecological and carbon-sinking potential over current or future afforestation.*
Native Woodland *(Prioritise conservation of important and sensitive habitat. Expand and inter-connect these areas/habitats)*	• Implementing FLS policy of restoring >85% of PAWS to native woodland composition, will result in landscape-scale native habitat restoration in Glen Moriston and along Loch Ness flanks with conservation & resilience benefits. • Incorporation of minimum intervention birch-dominant tree-line woodlands post felling of non-native conifer blocks creates important transitional habitat for black grouse.	• An increase in amount of more palatable, slower-to-establish broadleaved tree species will require rigorous deer control and monitoring to achieve success. • Establishing native woodland on post-fell non-native conifer sites, or adjacent to still-standing seed-bearing non-native conifers, will result in unwanted conifer regeneration with the potential to outcompete native trees/habitat establishment.	• *Continue following best practice deer management, engaging with local Deer Management Group and neighbouring estates and engaging and directing third party deer control effort to achieve LMP objectives and in response to monitoring evidence.* • *Promote native timber production on accessible terrain (within harvester forwarder capability) with appropriate soil types.*
Productive Woodland *(Capitalise on significant extent of mature/maturing assets and consolidate future production)*	• FLS have detailed survey knowledge of underlying soils in much of the ground intended for long-term productive forestry – aiding appropriate tree species/species mixtures choice in ongoing felling, restructuring/consolidation operations. • Increasing amount of research evidence on the use and types of tree species mixtures for increasing establishment success and yields where local growing conditions might otherwise limit monoculture crop performance. • A renewed focus on felling mature and maturing coupes in areas originally proposed for felling in the last LMP will begin to broaden the age structure of the productive forest and in turn smooth the peak/trough nature of timber production resulting from extensive afforestation programmes delivered in concerted 'pulses' over the last hundred years.	• Increasing the proportion of native woodland of the LMP area at very least decreases timber productivity (lower yield classes of SP & BLs) and loss of some currently productive forest area to minimum intervention native woodland solely for conservation. • The extent of exposed, wet and comparatively poor fertility soils impoverished – factors likely to increase in changing climate – coupled with FLS policies to reduce reliance on intensive drainage/ground prep techniques and supplementary fertiliser application, will limit (or discount) productive tree species choice in these areas. • An increased emphasis on tree felling to address current 'top heavy' age structure (and associated benefits for storm, slope and infrastructure resilience and restructuring) will result in more active and prohibitive forest operations and more timber export haulage. • There is potential for increased windthrow in maturing forest areas adjacent to clearfell coupes which may necessitate more expansive felling to address associated safety and soil/slope stability concerns. • Forest health issues or unforeseen storm damage may inadvertently create adjacency issues.	• *In PAWS areas - outwith CPI regeneration buffer zones - aim for productive densities of native species (SOK, SP, SBI, CAR, ASP etc) in restock/regeneration to reduce net loss in 'productive ground' -introducing wider spectrum of productive species (resilience) and ultimately new timber products in silvicultural management more sympathetic to native woodland ecology.* • *Use site soil and climatic evidence/predictions to direct future species choices and management prescription/objectives.* • *Incorporate more silvicultural nursing mixtures into productive forest restocking proposals.* • *Minimise timber haulage impacts at sensitive ('consultation route' and through built up areas) exits by utilising, upgrading and maintaining internal haul routes to reduce intensity of forestry-related traffic at sensitive thresholds.* • *Continue to engage with and liaise with the community – through evolution and consultation stages of new LMP preparation and thereafter through community council updates with respect to upcoming programmed operations.*
Water Quality *(Protection & Improvement)*	• High proportion of mature/maturing productive non-native conifer forests within LMP area offers a timely opportunity to implement native woodland planting in riparian zones in post-fell restocking proposals. • FLS intention is reduce reliance on fertiliser in woodland restocking – instead matching appropriate tree species to	• Anticipated warmer, drier summers will reduce freshwater habitat quality (water flow, volumes, temperature fluctuation) particular where watercourses are open ('unwooded') impacting dependent flora/fauna.	• *Plant riparian corridors with site-appropriate native woodland species where regeneration is unlikely or likely to be ineffective.* • *A presumption against ploughing and trench mounding techniques will apply. Hinge and inverted mounding will be*

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	site conditions and using mixtures/nurse species. This policy will reduce the potential for diffuse pollution of soluble nutrients into watercourses.	• Disruptive machine-based ground preparation techniques have the potential to result in siltation of watercourses from surface water run-off in adverse weather. • Several surface water catchment private water supplies still operational within LMP area – and some private boreholes at close proximity to LMP boundary.	*employed (or manual screefing) but operations halted in prolonged adverse weather (high surface run-off conditions).* • *Rigorous adherence to Forest and Water guidelines in all operations and Freshwater Pearl Mussel operational guidance with respect to river Moriston catchment.* • *Review all existing private water supplies during LMP preparation and consider operational impacts, mitigation and long term conservation of supply through future habitat design. Ensure PWS are duly considered in pre-operational work planning and relevant residents visited/notified.*
Public Access *(support & maintain)*	• Opportunity to improve trailside aesthetics in PAWS areas and at treelines as incremental felling of mature/maturing non-native conifers allows native woodland re-establishment (Scots pine, birch- and oak woodland types) in vicinity. • Development of upper and lower route choices on sections of the Great Glen Way (created during last Plan period) will ensure at least one route can remain open during any prohibitive forestry operations.	• Some core paths within LMP area do not have obvious 'contingency' routes for when periods of potentially hazardous forestry work are being implemented. • Significant storm damage (Jan 2024) in the Auchterawe/Jenkins Park area – a popular recreation and trails network area – is evidence of increased stability and safety concern of older trees/forest stands which the new LMP will aim to address through prioritised felling/replanting – with resulting temporary disruption of trail routes during operations.	• *FLS visitor staff to continue to monitor and review trail network condition, opportunities & constraints with respect to LMP's intended programme of forest management operations – liaising with community council, THC Access Officer and use on-site signage and recognised online walking/recreation sites to notify of any periods of deviation or interruption of access.* • *Ensure all forest operations are planned with consideration for forest users (recorded and implemented through work plan system), providing diversions where required to maintain access.*
Scenic Value *(improve)*	• The long term establishment of tree-line woodlands will lead to a more natural visual transition from glen floor and mid-slope high forest to open hill habitats. • Inclusion of a more diverse range of conifer species in productive woodland areas (including broadleaves) will create more varied, and seasonally variable, afforested landscapes. • UKFS compliance with the principle of 'adjacency' will ensure a more fragmented, incremental – and visually acceptable - approach to felling is taken across afforested land ensuring sufficient re-growth on adjacent restocked coupes is achieved before further felling.	• Specialist felling (skyline/winch working) needs to work at scale and directly up/down steep slopes which creates large felled coupes with straight edges – detracting from local aesthetic and in areas of Local Landscape designation. • Forest health issues (disease/pest presence and potential statutory requirement to fell trees) may result in changes to felling coupe shapes to remove pathogens rather than improve landscape aesthetics. • Compliance with UKFS adjacency principle is difficult to adhere to in continuous stands of very large trees on very steep slopes above A82 (windthrow & slope stability concerns) which may result in extensive and conspicuous areas of clear-felled ground.	• *Work with landscape architect in evolution of new felling/restocking proposals in new LMP and in felling and replanting design work in the vicinity of trailheads, car parks, scheduled heritage features and picnic sites.* • *Design felling coupes to windfirm edges and sympathetic to local topography where operationally feasible.* • *Accept that a pragmatic approach to coupe shapes may need to be taken in some very steep slope operations or instances of disease/pest outbreak.* • *Address unavoidable geometric felling edges through sensitively designed restocking 'shapes'.* • *Undertake 'hot planting' on very steep slopes i.e. restocking of clear-felled slopes without the more typical 1 to 3 year fallowing to hasten re-establishment of follow-on woodland.*

4 Management proposals and prescriptions

4.1 Silviculture/forest management proposals

4.1.1 Clear felling

Pertinent details, rationale (and working constraints) are given for all coupes scheduled for clear felling in Table 3 (section 2.2) and illustrated/labelled on Management maps (**Maps 4a** and **4b**).

Most clearfelling will employ conventional shortwood felling prescription: use of track-based harvester machinery felling, snedding and cross-cutting trees into product lengths - these being uplifted and transported by tracked forwarder to forest roadside where resultant timber stacks are subsequently uplifted for road haulage by timber lorries. The LMP area has a high proportion of steep slopes where harvester access is unsafe or impractical and where manual felling and the use of cable-crane/winch assemblies will lift and bring felled trees to forest roadside for subsequent processing/cross-cutting and forwarding to roadside stacks for export haulage.

A82/Loch Ness-side steep slopes: Many coupes along the very steep slopes of Loch Ness-side (above trunk road A82) are significantly complex sites to fell and from which to remove trees/timber. A manual felling/cable crane system is employed here preceded by deployment of roadside catch fencing to protect public road users during periods of active felling/winch work. Traffic management systems are also utilised and the local authority stipulates a winter-only working condition to limit potential impacts on the higher traffic volumes over the summer months. The work is undertaken by specialist contractors and the entire project orchestrated by FLS in collaboration with BEAR Scotland and the Highland Council as the impact and integration with trunk road use/traffic flow is a shared responsibility and concern.

Dalcataig/Coille na Feinne: This LMP includes a renewed emphasis on harvesting and restructuring operations in this area. As detailed in section 3.2. *Analysis of previous Plan* access for such operations were restricted for several years on account of new public water main installation work along internal haulage roads whilst many stands of 1920s-'40s non-native conifers afforded the forest a unique sense of place and were considered safe and windfirm for long term retention of this character. However the increasing frequency of storm events and their impacts has raised concerns over the long-term resilience of these stands as well as concern over a reactive approach to clearing these areas sensitively (within freshwater pearl mussel catchment) and safely (some difficult steep and rocky slopes) should storm damage or forest health issues re-occur – and has resulted in a more pro-active approach to the restructuring timescale. This will in turn increase future resilience (in the current and ongoing climate emergency) and supports a stronger prioritisation of restoring natural habitats/processes here (in the current and ongoing biodiversity crisis) – see also section 3.3 – *Analysis of opportunities and constraints*.

4.1.2 Thinning

Thinning maps (**Map 5a** and **5b**) and Table 5 include all coupes managed under conventional thinning (i.e. for retained tree improvement) and various shelterwood felling prescriptions for continuous cover forestry (CCF) objectives and where halo fell-to-recycle permission is sought in core CPI zones around veteran Scots pine trees. Uniform thinning will typically 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.

Young stands (15 - 30 years) on easily accessible and workable slopes where DAMS is less than 14 will be considered for thinning initiation. However there are no new coupes due to meet these conditions within the duration of this Plan period.

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

CCF potential within Dalcataig and Creag nan Eun forests is largely constrained by steep terrain that restricts working methods to skyline and winch extraction, making thinning operations uneconomical and smaller intricate felling coupes unpractical. High DAMS scores, past stand management and wet, organic soils limit CCF potential much of the remaining plan area but with sheltered ground along the Moriston and Oich river valleys. The following stands have been managed historically towards CCF principles. As most of these areas (listed below) are predicated around Scots pine as the primary crop, most stands have yet to be thinned to the point where pine regeneration is occurring freely. There is a corresponding risk when thinning mature stands to such a low density, open structure (to initiate regeneration) when prevailing DAMS scores are 10-16 rather than 4-10 and consequently some group shelterwood prescriptions are also being trialled. The January 2024 storm events have caused extensive windthrow within these shelterwood stands in "The Muir" (between Torr Dhuin, the river Oich and the Auchterawe electricity sub-station), however the restocking envisaged to restock windthrow clearance coupes is similarly envisaged as CCF – both Scots pine, and Scots pine/silver birch but also more continuous birch, oak, alder, aspen and sycamore sub-compartments too.

4.1.4 Long term retentions, Minimum Interventions and Natural Reserves

Refer to **Maps 4a** and **4b**.

In accordance with FLS Natural Reserves guidance, areas designated as **Natural Reserve** are existing, mainly semi-natural wooded areas where conservation of biodiversity is the primary objective and where there is an expectation that no (or minimal) intervention management is required in perpetuity to achieve this objective. Within Natural Reserves, natural processes predominate and the only intervention envisaged is to conserve and promote these processes. The continuity (and longevity) of habitat afforded within Natural Reserves conserves and promotes recovery of sedentary species and so they function as refugia of permanent

habitat from which more mobile species can expand into adjacent sympathetically managed forests over time. Deer management and non-native tree/shrub removal (*Rhododendron ponticum* and isolated remnant, and self-seeded, conifers) are the only pro-active management currently foreseen in these areas. Five discrete areas of semi-natural woodland are defined as Natural Reserve (total 281 ha) in the LMP area. The largest (224.3 ha) is Inverwick forest with extensive Caledonian pinewoods within the Dundreggan Core Pine Inventory area. A second area of old growth Caledonian pinewood Natural Reserve occupies 10.9 ha of very steep, south-facing, rocky tree-line slopes above Allt Sigh (part of old Creag nan Eun forest). The three remaining Natural Reserves are of native broadleaved woodland nearby Fort Augustus/Auchterawe and include 14.5 ha of riverside alder/birch/sessile oak woodland (part of original Coille Torr Dhuin), 10.2 ha long established sessile oak woodland where the LMP area bounds Jenkins Park near the Balantoul burn and a 1.2 ha stand of p1890 pedunculate oak (with younger native broadleaves and singleton p1920's non-native conifers) at the threshold of the landholding at Jenkins Park. The non-native conifers in this latter stand are proposed for felling within the Plan period in order to conserve the integrity of this otherwise broadleaved stand and to reduce their potential windthrow concern adjacent to public roads/walking trails and private property (this selective felling is incorporated into proposed thinning coupe 04908 detailed in Table 5, section 2.3).

The classification **Minimum Intervention** includes all areas of Natural Reserve and areas of land/woodland to be similarly managed for environmental benefit, but with minimal frequency or intensity of intervention, for a prescribed period of time i.e. not necessarily in perpetuity. This is primarily ground within establishing native woodland restock or natural regeneration where only routine cleaning of non-native regeneration is anticipated during establishment phase and in riparian native woodlands where adjacent non-native conifers have only recently been removed and seedbed regeneration is still anticipated and will require cleaning.

Long-term retentions have been chosen where it is considered desirable to retain existing forest stands beyond economic maturity primarily for environmental benefit but where there is no long term imperative to retain these stands once their objective has been fulfilled. Within the Fort Augustus LMP area, this classification has been applied to 111 ha of woodland in twenty three individual stands ranging in size from 0.5 to 18.5 ha (average: 4.8 ha). Forest Research's research blocks and the historic Lon Mor 1920's experimental afforestation plot (total 48 ha) are classified as additional Long Term Retention.

4.1.5 Restocking by planting

Refer to **Maps 6a** and **6b**.

Restocking by planting is considered where productive non-native conifers are to be grown for timber in a subsequent rotation and in felled coupes prescribed for native woodland establishment where there is insufficient quantity or variety of native, mature (and therefore frequently seed-bearing) trees in the vicinity to expect satisfactory levels of natural regeneration. Restocking will be to achieve minimum stem density of 2,500 per hectare (productive conifers and broadleaves) and 1,600 per hectare (native woodland for conservation). Native species transplants will be of local provenance zone or nearest adjacent zone if unavailable. The method(s) of ground preparation in advance of restocking is assessed on a site by site basis to achieve the requisite density of planting spots (see Table 7, section 2.5) and in accordance with techniques stipulated in published, UKFS-compliant Scottish Forestry guidance "*Cultivation of Upland Woodland Creation Sites – Applicants Guide (2021)*".

When restocking in areas where little clearfelling has been undertaken in recent years, a three year fallowing interval may be applied. However a 5-year fallow period between felling and restocking will typically be adopted across the LMP area to allow for a natural reduction in *Hylobius* populations on the restock site as there has been a significant rise in local *Hylobius* populations in recent years following large scale DNB-related harvesting, and is a concern. *Hylobius* monitoring will be carried out during fallowing in order to ascertain population levels and as a means of reducing insecticide applications during restocking and establishment phase. Given the drive to minimise the use of pesticides on FLS landholdings, delaying restocking operations might be the only realistic option to establish the next generation of trees. Where and when the fallowing period is likely to exceed five years, approval will be sought from Scottish Forestry and to satisfactorily address any adjacency issues introduced by such a delay. The preferred means of dealing with any adjacency issues will be through delayed felling, i.e. a coupe will not be felled until all surrounding crops are at least 2 metres tall.

A82 project/Loch Ness-side restructuring: On steep slopes where there are slope instability concerns, and ground preparation machinery cannot be operated safely, "hot" planting is undertaken i.e. restocking in the winter following felling and with ground preparation limited to manual screefing of planting spots and notch/flat planting. The incremental felling and restocking of the slopes above the A82 are seen as particularly challenging terrain for restructuring work. FLS are exploring a range of techniques to re-establish long term retention native woodland in this location including use of tubes to protect evidenced natural regeneration and 'cluster' planting wherever the terrain is accessible and amenable to manual operations. More specialist approaches may also be explored to achieve future habitat prescription (i.e. roped-access and/or direct seeding techniques) where practical and appropriate. Such operations will in addition require rigorous monitoring as well as an acceptance that restocking effort must be sustained until establishment is successful.

4.1.6 Natural regeneration

Areas of felled woodland and riparian corridors where natural regeneration is considered the most effective, low input method of establishing native woodland where there is considered to be sufficient quantity or variety of native, mature (and therefore frequently seed-bearing) trees in the vicinity to expect satisfactory levels of natural regeneration. These areas are illustrated on **Maps 6a** and **6b**. Regeneration is generally anticipated without preliminary ground preparation. Much of currently fallowing ground prescribed for natural regeneration is on peaty surface water gley soils with comparatively low fertility. Consequently establishment of native broadleaves (to greater than 2 m growth) can take upto 10 years to achieve. Routine monitoring of regeneration will be undertaken by year 3 of fallowing in order that any factors restricting recruitment success are identified and any contingency actions to be programmed. Where tree regeneration and recruitment is proving unsuccessful, or expected to be too limited to achieve at least 1,600 stems per hectare by year 5 after felling, scarification may be undertaken to create more conducive regeneration conditions for local native tree seed recruitment. Alternatively enrichment planting may be undertaken with native tree transplants where regeneration evidence is considered insufficient in either density or species variety to achieve the prescribed future woodland habitat extent and composition by year 7.

4.1.7 Woodland creation

13.5 ha of new upland birchwood (with some Scots pine) is proposed (coupe 04075, see section 2.5 Table 7 and **Map 6a**) and will adjoin the existing forest edge, in-filling open ground between two coupe edges. This area of woodland creation was proposed in the last Plan but ultimately was not progressed on account of unforeseen felling (and follow-on restocking) commitments imposed on FLS by new electricity wayleave and infrastructure projects which superceded and therefore re-prioritised FLS finite planting/restocking resources. This will be achieved in accordance with SF woodland creation guidance utilising native tree species of nearest local provenance to achieve a minimum of 1,600 stems per hectare. A woodland creation Issues Log has been completed for this proposal and is included as **Appendix 3c** as this proposal has also been outlined within the **Appendix 3** EIA Scoping Opinion Request. The site contains no designated vegetation/habitat and a contemporary (2024) walkover has determined the accuracy of previously-contracted soil survey (as per **Map 9a**) across the site and absence of deep peat. There are two small permanent watercourses (less than 1 m width) and consequently there is a diffuse pollution/water quality sensitivity. There are no downstream surface-sourced private water supplies to be considered. Black grouse habituate the open hill and one historic lek is within 600m (i.e. within 750 m buffer) of the creation site's nearest boundary. FLS Environment staff will undertake walkover surveys as part of standard FLS Work Planning process – to identify any existing and novel plant/fauna presence that will result in stipulation of relevant operational controls/mitigation in compliance with UKFS and associated guidance notes as listed in **Appendix 11**. Section 4.4.4 also lists FLS' generic protection of site-relevant species. No forest operations (ground preparation/planting) will be undertaken between March and June inclusive in observance of black grouse lek 750 m buffer zones. No ground preparation and planting will be undertaken into (identified & mapped) flushed soils to avoid higher potential diffuse pollution risk (fine particle sediment run-off) and no machine access and traverse over waterlogged, flushed areas of the site or permanent watercourses will be sanctioned. Manual ground preparation and planting techniques will be used - on soil types that support this - where this constraint on machine access precludes machine-based cultivation. Where upturned mounds prove to be predominantly stony, or reveal localised deep peat deposits, these will be replaced and manual screef/flat planting applied to the stony soils only (i.e. not localised deep peats).There will be no new fencing of this site. Appropriate mitigations and buffer zones will be applied with respect to watercourses as per LMP section 4.4.9. The woodland creation proposal was included in LMP scoping and consultation.

4.1.8 Restoration of peatland

FLS utilises a decision making protocol for consideration of potential peatland restoration sites: *FC Practice Guide 104 – Deciding future management options for afforested deep peatland (2015)*. One area is proposed for restoration within this Plan period (see section 2.6 and **Map 9a**). The underpinning rationale for its choice is outlined in **Appendix 6** and the deforestation that the restoration requires is considered in the EIA Scoping Opinion Request (**Appendix 4**) which also includes an annotated map showing the location of the site in the context of future habitat composition.

4.1.9 Forest tree health

FLS' Tree Health Governance policy was revised in 2022 – essentially switching the approach to managing pest and diseases as 'business as usual' instead of the previous approach based upon tackling specific threats with focused action groups. As a land manager FLS has Legal and Good Forestry Practice responsibilities under the UK Forestry Standard for monitoring tree health, with suspected pests and diseases reported to Plant Health Inspectors and forestry authority (Scottish Forestry) and then complying with any biosecurity measures stipulated by the authority designed to eradicate or reduce presence and potential spread.

There are several pests and diseases of national significance that are currently pertinent to the Fort Augustus LMP area:

Dothistroma Needle Blight (DNB) in pine trees is monitored by a three-yearly cycle of aerial condition surveying in line with FLS' DNB Strategy (2017) with any identified infected trees/stands subsequently visited (i.e. "ground truthed") and scored for severity of infection and – in conjunction with consideration of potential infection of other pine in the vicinity (including old veteran Caledonian pinewood) – a decision as to any requirement or prioritisation of felling can be made. The national management strategy is to slow down the spread of DNB, reduce inoculum levels in infected coupes to consequently reduce the risk of hybridisation of disease genotypes, and to minimise the economic loss incurred through infection by prioritising felling of infected sites with low mortality and of marketable value. **Appendix 1** includes a map showing the current infected stands of Lodgepole pine in the Plan area. 726 ha of lodgepole pine has been identified with DNB infection within the LMP area with a score of 2.5 or higher. Approximately 489 ha (or 67%) is scheduled for clearfelling within this LMP – leaving 235 ha of DNB-infected forest of which a further 160 ha is proposed for clearfelling in Phases 3 and 4 (2034-2044).

Phytopthera ramorum is a fungus—like pathogen that infects larch species causing needle death, shoot dieback, bleeding cankers and ultimately tree death and as such is a major health and economic threat in UK forestry. The disease is notifiable by Special Plant Health Notice stipulating an earliest-possible felling obligation (with additional sanitation buffer zone) to eliminate risk of further spread of the disease from the newly infected trees. In response to incremental (north and westward) spread of this disease from early infection areas, FLS has adopted a strategy of pre-emptive felling to hamper potential disease spread. The Fort Augustus LMP area lies within the strategy's 'Priority Risk Zone' where the following pre-emptive and – if required – reactive planning actions are to be employed:-

- Eradicate the disease by felling infected trees and areas of trees notified for felling by Scottish Forestry to the timescale enforced by Special Plant Health Notice;
- Decrease the area of larch woodland across the national forest by 20% (of a 2021 baseline) by April 2027;
- Construct access to greater than 80% of all larch coupes by April 2027;
- Fell all difficult and complex larch coupes by 2032.

This Plan's felling proposals intend removal of 112 ha (55% reduction) of the current 204 ha of larch species over the next ten years and a further 52 ha (25% reduction from 2024 extent) is scheduled for felling over the following ten years – leaving 40 ha by 2044. All larch stands chosen for retention beyond 2034 are relatively accessible locations should SPHN felling be required to a stipulated short completion timescale.

Chalara Dieback in Ash (*Hymenoscyphus fraxineus*) has been established in the area for a few decades now and causes the gradual decline and possible death of infected ash trees. FLS' response to the spread and impact of this disease is to only fell infected trees if they pose a safety threat to the public and forest users near publicly accessible places/spaces i.e. road- and trail-side trees (i.e. pre-emptive felling) as dieback can ultimately compromise a tree's structural integrity. No ash trees will be planted in native broadleaf restocking as currently there is a ban on the movement of ash trees and seed within the UK.

Large pine weevil (*Hylobius abietis*) is an insect pest affecting many species of young trees, including native broadleaves, but is especially destructive of pine and spruce seedlings and transplants. Weevil populations can build to high levels over several years after clearfelling of coniferous woodland (especially pine) and can consequently hinder the successful establishment of restocked and regenerating sites. Chemically treating transplants and young trees can kill weevils attempting to feed on vulnerable stems however the natural population dynamics of this pest sees a gradual but reliable decline in weevil numbers once felled ground is fallowed for more than three years and – by year five – weevil populations and their impact on untreated restocking can be tolerable.

Heterobasidion annosum or butt rot is a significant fungal risk to many timber-producing conifer species in the UK. The fungus can proliferate on fresh-cut stumps and favours warm, free-draining soils to spread and potentially infect follow-on conifer crops. Most afforested soils within this LMP are considered of High risk of infection for *H. annosum* and as a consequence the application of a urea solution onto fresh cut conifer tree stumps is advocated in all harvesting to reduce potential infection rates in conifer restocking.

4.1.10 Steep Ground assessment and management

The steepest slopes – often with mature/maturing productive woodland growing - are located on the loch-side slopes between Invermoriston, Alltsigh and the landholding boundary with Bunloit estate (at Bark Sheds). Other areas with at least some significant areas of steep slopes within moderately steep terrain can be found at Bhlairaidh, the Dalacataig/Coille na Feinne forest and the upper margins and tree lines of afforested ground between Fort Augustus and Invermoriston.

FLS commissioned geotechnical surveys of these slopes (2013) to arrive at an understanding of where the *hazard* of instable slopes and associated *risks* posed to infrastructure, people and the environment are and to classify these by severity. This allowed consideration of a programme of remedial restructuring work, prioritised to address and alleviate the most serious hazard zones and – in so doing – reduce the risks posed into the future. The regional and economic importance of the A82 trunk road, that runs at close proximity below many of these steep afforested slopes has resulted in the establishment of the A82 Project – a partnership-based approach to addressing threats and increasing future resilience to this road. FLS' *Technical Guidance Note for Long-term Management on Steep Slopes* (2015) is used to inform this process.

A map presented in **Appendix 1** – Background Information shows the individual geotechnical survey areas and their derived instability classification. The commissioned survey work also identified specific 'point hazards' within each survey area that will require resolution in pre-operational planning of proposed civil engineering or felling works. The survey reports also recommend each specific felling operation be preceded by more detailed operation-focused assessment of how practical works might best be orchestrated or stipulating additional mitigation measures required to ensure work is done in the safest and most effective way to achieve objectives. In addition, LMP **Maps 3a and 3b** show these instability zones in the wider context of overall objectives and management concepts for the LMP area.

4.2 Deer and herbivore management

FLS recognise that deer are capable of causing significant damage to forests and woodlands, mainly through browsing and bark stripping, and can also adversely affect biodiversity of both woodland and open ground habitats through over-grazing of ground flora and the suppression of regeneration and characteristic structure. They are however a natural component of wood- and heathland ecosystems and can provide recreational sporting opportunities and venison - whilst the presence of deer can enhance the experience of visitors in the outdoor environment. The challenge of wild deer management is therefore to balance environmental, economic and deer welfare objectives on FLS land with the objectives of private landowners undertaking forestry, agriculture, sporting and other forms of land use beyond FLS' boundaries. **Appendix 8** presents a Deer Management Plan for the Land Management Plan area (including FLS' approach to fencing and fence maintenance) which outlines how crops and habitats are to be adequately protected as well as setting out cull targets and contingencies for observed and/or monitored increases in levels of damage. **Appendix 9** presents FLS management strategy for wild feral pigs – a fairly contemporary (within the last forty years) arrival to the area.

There are currently no other known, significant herbivore threats to the forest and land within the LMP area (e.g. hares, rabbits, goats or intruding farm livestock).

4.3 Roads, quarries operations and timber haulage

The Fort Augustus LMP area is bounded by the A82 trunk road along its eastern boundary and bisected through Glen Moriston by the A87 trunk road heading west from Invermoriston. Both roads are classified as Agreed routes by Highland Timber Transport Group and as such can be used for timber haulage without restriction as regulated by the Road Traffic Act (1988). A number of lesser tributary roads linking the LMP landholding to these trunk roads are used routinely to access the area for management as well as proposed for timber haulage over specific time periods associated with approved tree felling and timber haulage. These roads all have Consultation route status (**Map 2** illustrates these roads/classifications) and requires FLS to engage with the local authority in advance of planned work to determine and agree permissible terms under which timber may be hauled (e.g. stipulation of vehicle specification, frequency of lorry movements, exclusion periods and cumulative tonnage limits).

Internal forest roads, bridges and quarries are constructed and maintained to, or within, specifications stipulated in the FLS' 'Civil Engineering Specification (version 1, 2020) and Forestry Commission's Operational Guidance Book 12 *'Managing Forest Roads'*. These documents also define planning consent protocols, the design and construction of ancillary roading infrastructure e.g. ramps, ditching and culverts as well as the competency assessment and oversight of third party contractors appointed for construction works. With respect to health and safety, all civil engineering works must be compliant with the Health & Safety at Work Act 1974, the Workplace (Health, Safety and Welfare) Regulations (1992 and 1999), the Quarries Regulations 1999 and the Construction (Design and Management) Regulations 2015 and Forestry Industry Safety

Accord (FISA) Guidelines. Compliance is also upheld with the following environmental and water quality protection regulations: Water Environment (Controlled Activities) (Scotland) Regulations 2011, Pollution Prevention and Control (Scotland) Regulations and Forestry Commission's (2019) Forest & Water Guidelines – 6th Edition. Additional over-arching legislation is detailed in **Appendix 11** – Key policies and publications.

4.4 Management of habitats and biodiversity

The UKFS guidance is to manage a minimum of 15% of any forest management unit with conservation and the enhancement of biodiversity as a major objective. The figure for this Plan is currently 53% (5,146 ha) - and will rise to 69% (6,715 ha) by 2035 upon completion of the Plan's felling and restocking/regeneration proposals. This includes all areas designated as Natural Reserve, Long Term Retention, Minimum Intervention, Managed Open as well as all felled, currently fallowing, ground destined for native woodland establishment by natural regeneration or by restocking.

4.4.1 Designated sites

There are no areas of environmentally designated land/habitat within the LMP area and consequently no requirement for a Designated Sites Plan or Habitat Regulations Appraisal. However, forest blocks within Glenmoriston occupy ground containing catchment and watercourses that flow into the River Moriston – a Special Area of Conservation – and that has the potential to be impacted by any adverse condition of tributary watercourses. Adherence to Forests and Water UKFS requirements (2023 – Chapter 9) and supplementary Forestry and Water Scotland "Know the Rules" operational booklet will be stipulated in all forestry operations to ensure no diffuse pollution enters watercourses that flow into this designated river. In addition, FLS and NatureScot have agreed a methodology stipulating more rigorous operational controls for harvesting work within freshwater pearl mussel catchments that might otherwise require specific licencing and this will be employed and adhered to in all such operations (FLS (2012) Environment Guidance Note 5 – *Managing for freshwater Pearl Mussels during harvesting operations*). This commitment is also described and re-iterated in **Appendix 2** – *Consultation Record* in respect to NatureScot's LMP scoping response. **Section 4.3** details additional environmental regulation applicable in all forest-based civil engineering works and similarly prescribed to protect the freshwater environment and, in turn, minimise potential adverse impacts on the downstream SAC and its constituent qualifying features.

4.4.2 Native woodland

FLS seeks to protect, enhance and expand all existing areas of native woodland within the LMP area. Control of herbivore browsing impacts on young and regenerating trees is seen as a critical management measure to protect existing native woodland and enhance the condition of component trees and associated constituent shrub and plant species. Similarly, control of browsing is also fundamental to the successful establishment by natural regeneration of native woodland on clear-felled, fallowing ground. Non-native natural regeneration (mostly Sitka spruce and Lodgepole pine but also Western hemlock in some specific, localised areas) is common on fallowing areas after clear felling of non-native conifers and timely cleaning of this regeneration by pole stage is required for successful restocked/regenerated native woodland establishment.

4.4.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWs) and Core Pinewood Inventory Areas (CPIs)

FLS policy is to restore a minimum of 85% of all sites classified as Plantations on Ancient Woodland Sites (PAWS) to native woodland. This is in addition to the protection and enhancement of existing ancient and semi-natural woodland remnants. Within the Fort Augustus LMP area, there are approximately 2,417 hectares of PAWS (illustrated on **Maps 7a and 7b**) with the vast majority proposed for non-native tree removal - to initiate full restoration - within the next four phases (i.e. 20 years) of conventional felling.

In general the overall approach to initiating restoration of PAWS consists of three main strategies:-

- Removal of mature non-native conifers through clearfell. Given the overall extent of PAWs in the area, focus is on areas of highest ecological potential and existing remnants first (i.e. priority areas);
- Halo thinning – where clearfell is unlikely to take place for a number of years, opportunities to halo thin (i.e. remove adjacent non-natives from around existing remnants) will be sought. It is not possible to do this on all sites due to health and safety concerns associated with tree or slope stability concerns;
- Non-native regeneration removal – ordinarily no felling permission is required as this involves clearance of small (<10 cm) stem diameter regeneration from areas previously clear-felled of non-native trees.

Significant progress has been made already in securing some remnants and encouraging native species to regenerate e.g. Bhlairidh where initially halo thinning, and then complex non-native clear felling has been completed to safeguard veteran oaks, and in parts of Inverwick where remnant Caledonian pinewood (a Core pine area) has been cleared of mature non-native conifers and of DNB-infected lodgepole pine in its immediate vicinity. Both sites will require further interventions to remove additional maturing non-native conifers as well as ongoing cleaning i.e. removal of non-native seedbed regeneration although not requiring felling permission on account of this regeneration having less than 10 cm stem diameter.

PAWS monitoring is typically undertaken on a five-yearly cycle however, within this LMP area, contracted survey work was last undertaken in 2017/18 as the Covid pandemic postponed the next programmed surveys and have yet to be successfully re-scheduled (this contract procurement/reinstatement is a current priority of the Region's Environment team). The 2017/18 surveys provided assessment of areas where intervention work should be prioritised on the basis of current native ecological abundance/value, its sensitivity and present or increasing threats. Four key priority areas were identified and the resultant map is shown in Appendix 1: section *'Key priority habitats and species'*). These priority areas: Area 1 – Inverwick; Area 2 – Bhlairidh; Area 3 - pinewood remnants around Meall a Bhuic, Upper Dalcataig; and Area 4 – Achnaconeran CPI/Crean nan Eun plateau; are all prescribed for intervention by removal of non-native trees growing in proximity and/or intimate mix with PAWS remnants and that are diminishing the extent and condition of these features. Additionally, condition surveys have been conducted on the Caledonian Pinewood inventory areas by Trees For Life and the Woodland Trust Scotland (the Caledonian Pinewood Recovery project) and the results of these surveys also used to cross check (and align with) the identified priority areas and actions prescribed at 2017/18 PAWS survey. Areas 1, 2 and 3 are all within coupes proposed for clearfelling within the duration of this LMP. Opportunities to deliver Zone 4 halo thinning and non-native removal are being actively pursued. The map also illustrates additional 'green wash' zones of lesser, still time-critical, importance to conserving natural ecological processes and will be progressed when resources allow.

Key management objectives for other PAWS sites also involve the timely removal of non-native conifers. Currently around 360 ha is classified at threat level 'Critical'. Unfortunately much of this is on very steep slopes above the A82 trunk road which are difficult to access and to work effectively and safely with the specific objective of conserving and restoring PAWS features alone. Much of the required work will consequently be implemented as an element of the broader multi-agency A82 Project: steep slope restructuring work. These complex restructuring operations are progressing incrementally from north-east to south-west along the northern flanks of Loch Ness (this sequencing determined by highest slope instability concerns) but largely constrained to winter working (i.e. outwith the busy tourist season) with short day-length and poor weather making progress on hazardous slopes slow. Nevertheless coupe 05681 (see Map 4b and also Table 3 in section 2.2 *Proposed clear felling*) contains both extensive areas, and isolated specimens, of remnant W18 pinewood and W17 oakwood and associated lower plant interest.

One additional contemporary survey (2023) under the Caledonian Pinewood Recovery project has identified potential Caledonian Pinewood remnants that were considered too small and fragmented to be included in the initial Core Pinewood inventory but which include important remnants and ecological potential for restoration. In consequence, some halo thinning (i.e. motor manual non-native conifer tree felling around remaining veteran native trees) is proposed in this LMP (section 2.3 – *Thinning* details the relevant Selective Thinning coupe 05903 – which is also illustrated on **Map 5b**) – where slopes will allow safe access in some discrete areas and felling working will not in turn result in new slope instability concerns or increased likelihood of later rock/earth/vegetation slips above the busy public trunk road corridor.

Once non-native trees have been removed from a PAWS area, it is added to a rolling programme of non-native regeneration removal. PAWS sites within CPI areas are aimed for restoration by natural regeneration if there is existing and representative component seed-producing native tree species present. Where there is a lack of seed source or major under-represented species, these sites may be restocked Section 2.4 and **Maps 6a and 6b** detail restock coupes and the regeneration/restock prescription initially envisaged. Note: Currently, FCS' Policy Guidance (2017) *'Reducing risks from Dothistroma Needle Blight'* restricts importing and planting/restocking Scots pine that has been raised outwith the CPI zone and in consequence only the native broadleaf and juniper components of these pinewood areas may be restocked – the Scots pine to be only established from natural regeneration whilst this policy stipulation is in effect. Continual control of localised grazing/browsing pressure to levels that allow sufficient natural regeneration to establish and associated monitoring programmes to check and feedback/adjust control effort or instigate restocking or enrichment planting are as described in sections 2.5, 4.1.5 and 4.1.6.

4.4.4 Protected and priority habitats and species

All forest management operations are subject to a formal Work Planning process initiated prior to commencement. This includes walkover checks for wildlife (presence or activity), and the presence of any currently unrecorded and significant natural habitat and terrain features. Details are recorded in the Work Plan document alongside control and/or mitigation measures prescribed to avoid potential for disturbance or deterioration. Opportunities to further protect vulnerable species or enhance habitats may also be proposed through Work Plan input and subsequently incorporated into contracted operations or in conditions appended to standing sales. Additionally FLS will comply with FC operational guidance with respect to European Protected Species, otters, fresh water pearl mussels, white-tailed eagle and other birds (individual Guidance Notes listed in **Appendix 11**). This guidance includes the need for prior consultation with Nature Scot with regard to potential disturbance of Schedule 1 bird species and compliance with any consequent licensing requirement. Mitigation prescribed with respect to Black Grouse, Slavonian Grebe and River Moriston SAC qualifying features in proposed peatland restoration operations is also outlined in **Appendix 3.**

The following table lists notable habitats and species recorded within the Plan area and associated management actions prescribed to conserve them.

Table 14

Notable EPS and Scottish Biodiversity Strategy Species Priorities and Actions supported by this LMP		
Species	**Status**	**Objectives**
Badger	Present. Record, protect.	*Monitor setts. Protect during operations. Work only under license within 20 m of any sett.*
Bats	Various species present.	*Integrate protection of breeding/roost sites and of species into management where/when necessary. Generally protect ancient trees: potential bat roosts.*
Beaver	NatureScot investigating possible sightings.	*Work with NatureScot.*
Otter	Species present.	*Integrate protection of holts during woodland management where necessary. Manage riparian margins to provide wetland vegetation as sheltered habitats.*
Pine Marten	Species present.	*Integrate protection of species during forestry operations if necessary by protection of dens and trees/stumps in which they breed. Retain ancient trees with holes.*
Red Squirrel	Species present.	*Diversification of tree species & age classes creating diversity of coning times and food availability.* *Pre-operational surveys to identify and protect any dreys. Subsequent felling will be done under license.*
Wildcat	Species present.	*Work with Scottish Wildcat Action to protect any existing population.*
Barn owl	Species present.	*Survey, monitor and protect from disturbance during operations.*
Black grouse	Species present. Survey, monitor, protect.	*New fences and existing fences will be marked where appropriate to prevent bird strikes.* *Counts will be conducted to inform status. Creation of variable age class, more native woodland and expansion of tree-line will create additional habitat.*
Crested tit	Species present.	*Survey, monitor and protect from disturbance during operations.*
Greenshank	Species present.	*Survey, monitor and protect from disturbance during operations.*
Golden eagle	Species present.	*Existing sites will be monitored and protected and NatureScot consulted on any forest expansion to ensure no long term habitat loss.*

Northern Goshawk	Species present.	*Survey, monitor and protect from disturbance during operations.*
Osprey	Species present.	*Survey, monitor and protect from disturbance during operations.*
Peregrine	Species present.	*Survey, monitor and protect from disturbance during operations.*
Red throated diver	Species present.	*Survey, monitor and protect from disturbance during operations.*
Slavonian grebe	Species present.	*Survey, monitor and protect from disturbance during operations.*
Adder	Species present.	*As a result of coupe check surveys or other recordings during site visits, integrate protection as part of forest operations.*
Wood ants	Species present. Survey, monitor and protect.	*Undertake surveys. As a result of coupe check surveys & other site visit recordings, integrate protection as part of forest operations.*
Freshwater Pearl Mussel	Species adjacent. Survey, monitor and protect.	*Protection and enhancement of watercourses/riparian habitats to deliver benefits to species directly and indirectly through improving conditions for salmonids.*
Aspen	Species present.	*Record and protect. Include the species in native woodland restructuring. A trial productive site has been established (p2014) at Auchterawe*
Bryophytes (schedule 8 spp)	Various species present.	*Retain veteran trees and deadwood.*
Green shield-moss	Species present.	*New records from Glen Moriston so surveys should be carried out to assess population extent. Creation of deadwood retentions will help species. Maintain existing deadwood habitat and increase general (conifer) deadwood throughout LMP area to increase suitable sites.*
Dwarf birch	Species present.	*Record and protect.*
Greater butterfly orchid	Species present.	*Record and protect.*
Intermediate wintergreen	Species present.	*Record and protect.*
Juniper	Species present.	*Identify and protect existing plants. Restoration of native woodland and expansion of montane woodland will provide opportunities for expansion of species.*
Lichens (schedule 8 species)	Various species present.	*Record and protect.*

Table 15

Notable Scottish Biodiversity Strategy habitat priorities supported by this LMP		
Habitat	**Objective**	***Actions***
Blanket bog	Survey and record to identify location and protect/restore.	*Do not plant trees on deep peat (greater than 50 cm), on active peat bogs or on areas of peat bog which can be restored as active. Undertake peat bog restoration where appropriate through removal of non-native trees, drain blocking to retain water within the site.*
Upland Heathland (wet and dry heaths)	Survey and record to identify location/extent and protect.	*Remove non-native trees from key representative wet and dry heath. Do not plant on those key areas representative of wet and dry heath. Deer control will reduce browsing pressure to improve the ground vegetation layer.*
Native Pinewood	Survey and record to identify location and protect/restore	*Work within buffer zones of CPI to remove threats from non-natives, including tree disease. Reduction in grazing pressure will protect and expand existing woodland. The options to enhance these forests with under-represented species will be examined.*
PAWS	PAWS restoration.	*Maintain a monitoring program. Complete the removal of non-native conifers from the PAWs areas.*
Montane Heath	Survey and record to identify location and protect/restore.	*Remove non-native trees from montane heath. Deer control will reduce browsing pressure to improve the vegetation layer.*
Other native woodland.	Survey, protect, restore and enhance.	*Remove non-native trees within native woodland areas. Monitor Ancient and semi-natural woodland and natural regeneration of native trees on open/woodland areas. Encourage natural regeneration of native trees through deer management.*

Notable non-native and invasive species (INNS) present within the Plan area with the potential to expand and negatively impact native habitats are listed in the following table. The previous Plan stated mink to be a present INNS – having potential negative impacts on water vole, otters and ground nesting birds – but have not been sighted or their associated evidence encountered within the Plan period.

Table 16

Non-native Invasive Species within this LMP		
Species	**Objective**	**Actions**
Rhododendron ponticum	Remove from the Plan area.	*Aim for complete removal on FLS land.*

4.4.5 Open ground

The majority of open ground habitat within the Plan area is a mosaic of wet and dry heath, mire and localised bog interspersed with bare rock outcrops located toward the upper margins of the afforested slopes of Loch Ness side and Glenmoriston – in particular the open hill ground between the Inchnacardoch to Port Clair forests and the Inverwick to Dalcataig forests. FLS has a duty to protect these priority habitats and ensure their condition does not deteriorate. For the 10-year duration of this Plan, deer control undertaken primarily to reduce herbivore impacts on regenerating native woodland will also benefit the biota of heath habitats – allowing development in dwarf shrub stature and condition as well as component (often browsed) understorey plant/lower plants – without sufficient time elapsing for these dwarf shrubs to become rank/senescent or to begin to shade out constituent species dependent on the heath's typically modest stature and open character to thrive. There is some scattered low level native and non-native tree regeneration present above the afforested tree-line and on heathland plateaus. The non-native component will be removed from areas where and when its presence and extent is considered a threat to the overall integrity of the open ground habitat types (as stated in Table 15) and prior to these trees reaching prolific coning/seeding age. Development of heath structure and regeneration of upland birchwood at and above existing the afforested tree-line is also of habitat benefit (shelter and forage) for black grouse – a Scottish Biodiversity Strategy priority species (see Table 14).

4.4.6 Dead wood

Dead wood - of varying size, origin (branch, root, trunk etc), species and stage of decay - is a vital component of a healthy, fully functioning forest ecology as well as contributing to, and positively influencing, nutrient recycling and carbon storage. FLS use deadwood management practice guides (see **Appendix 7**) in forestry work planning to identify opportunities for retaining or creating deadwood during management operations to at least meet minimum UKFS guidelines of 20 m^3 ha^{-1}. Deadwood retention may not be of uniform volumes across all areas of the forest but instead favouring retention/creation in areas with greatest ecological potential such as in, or adjacent to, existing native woodland or Natural Reserve (see section 4.1.4) and in areas where native woodland has previously been recorded/identified (e.g. PAWS – see section 4.4.3). Areas of Natural Reserve also offer some of the best opportunities for the development and long term retention of mature, large dimension standing and fallen deadwood - only being processed or removed where it presents a significant risk to the public or other forest users.

Branches and tree tops (lop and top) produced by felling and thinning operations are not considered waste in terms of this plan Some material is incorporated into 'brash mats' that aid forest machine traction and flotation and thus protect fragile soils (section 4.4.7 Soils). Other material is distributed more widely during harvesting and in situ processing operations, contributing to the functional ecology of the woodland and an important source of nutrient recycling that will increase biodiversity and assist future woodland establishment. Where felling to recycle of non-native species occurs, arisings can protect vulnerable native tree regeneration from grazing mammals, can contribute to the functional ecology of the woodland and can assist in conservation of specific species such as notable Green shield moss (see Table 15, section 4.4.4). On steep ground sites where whole tree harvesting systems are employed, lop and top arisings are typically recovered, chipped and exported as leaving them in situ can render consequent restocking operations impractical and unsafe.

4.4.7 Soils and geology

The distribution of soil types across the LMP area is illustrated in **Maps 9a** and **9b.** Soil is an essential component of forest and woodland ecosystems, helping to regulate ecosystem processes such as nutrient uptake, decomposition and water availability. In return, leaf litter and biomass from decaying trees create more soil material. The protection of soils has been written into guidance documents such as the Scottish Soils Framework, Scotland's Forestry Strategy 2019-2029 and the UK Forestry Standard and emphasise the principle of minimising soil disturbance and compaction that risk damaging soil structure and function. During mechanised harvesting operations, brash mats (or alternative flotation measures) will be used to protect sensitive soils where repetitive machine passes are planned (e.g. forwarder routes). Felling residues will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking. Where restocking is prescribed (see **Maps 6a** and **6b**) ground preparation will be by creation of discrete mounds as opposed to trench mounding or ploughing as these sites are already sufficiently well drained or sloping to limit periods of extensive waterlogging of establishing trees. On slopes too steep for machine-based ground preparation, manually screefed planting positions will be created at restock or – if hot planted – simple flat planting employed. This LMP's prioritisation of restructuring (from production to protection forest type) of afforested slopes most vulnerable to landslip is an additional pro-active soil conservation measure.

The LMP area includes two out of three component sites that together make up a Geological Conservation Review site ("Fort Augustus PA 9592") which are currently afforested: one area is Forest Research's (ongoing) trial tree nursery plots at Auchterawe; the other is occupied by minimum intervention native broadleaf woodland for long term retention at the LMP boundary in the vicinity of the A82 between Fort Augustus and Allt na Criche. This is an unnotified GCR designation (i.e. not within a SSSI so having no binding conditions for conservation or management) however – whilst neither site is proposed for deforestation – no groundworks, disturbance or compaction of soils that might negatively impact the site is planned within the Plan period e.g. no new roads, drains, excavator mounding, earthworks or any machine over-running).

4.4.8 Deep peats

Whenever trees are felled there is a presumption, supported by legislation, in favour of restocking. However, for woodland on deep peats, consideration of net carbon loss/gain and wider environmental implications of future management is more important than for other sites. For this reason, FLS can propose applications for felling without conventional restocking on peatland sites that are less suitable for second rotation forestry and where there is a clear benefit foreseen through restoration. FC Practice Guide 104 *Deciding future management options for afforested deep peatland* (2015) provides an assessment method designed to identify the most appropriate future management option for afforested peatland that is not already classed as having a presumption to restore (e.g. designated sites or where there is adjacent designated terrain where peatland is a qualifying habitat).

There is one area proposed for peatland restoration in this LMP (see section 2.6 and **Appendix 6** for decision-making analysis and **Appendix 4** for EIA determination request relating to associated deforestation.

4.4.9 Freshwater habitat

The Water Framework Directive (2000/60/EC) sets out the provision for the protection of water as both a resource and an ecosystem. This was adopted in Scotland though the Water Environment and Water Services (Scotland) Act 2003. In Scotland the delivery of the objectives within this legislation is delegated to the Scottish Environment Protection Agency (SEPA). The objective of this legislation is to deliver good water status through the implementation of river basin management plans. FLS Land Management Plans have a role to play in meeting the objectives of the Water Framework Directive by ensuring any proposed forestry activities do not cause deterioration and, where appropriate, deliver improvements to the water environment. For example, any new proposed planting, forest restructuring and felling should not lead to any deterioration of any water bodies in or adjacent to the LMP area. All planting, felling and long term forest planning must comply with the UKFS Forests and Water Requirements (5th edition, 2023: Chapter 9) and The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR) with respect to appropriate buffer strips between planting/restocking and water bodies.

FLS will consult with SEPA prior to commencing engineering works in, or in the vicinity of, inland surface waters to determine the levels of control and/or mitigation required. Site-specific mitigation for engineering works is not a matter for this Plan; however Forestry Civil Engineering will adhere to all planning protocols that apply at the time of project implementation.

Surface water drains will not discharge directly into the water environment. FLS will remediate legacy drains of this type to avoid siltation problems during and after forestry operations by using tree roots and other natural methods to install anti siltation devices during harvesting operations and addressing the drains permanently during subsequent ground preparation operations. When natural means are not available, plastic dams or semi-permeable netting might be used temporarily. When operations are finished these will be removed for re-use.

Where opportunities exist to deliver environmental improvement by the alteration or removal of inappropriately designed or redundant structures - for instance upgrading of a culvert to allow fish passage or removal of a redundant weir - this will be undertaken in consultation with the relevant stakeholders and we will register the operation on the SEPA website. Opportunities for morphological and ecological improvements may also be considered.

Flooding and private water supplies are described and considered in section 4.8 'Water' and **Appendix 7** Water and Catchment Management.

4.4.10 Control of invasive species

Rhododendron ponticum is the sole, recorded non-native invasive species present within the LMP area that presents a significant potential ecological threat particularly during native woodland restructuring but historically only at localised levels requiring concerted control effort. This has utilised glyphosate as a foliar spray on small plants and (for large *Rhododendron* bushes) cutting/dismantling and stem treatment of cut stumps with glyphosate. FLS continue to monitor the presence and expansion of these species, instigating further control measures when their spread – or novel opportunity to spread (i.e. onto newly clear-felled and fallowing sites) – is considered a significant threat. This control is in line with the Wildlife and Countryside Act 1981 (as amended by the Wildlife and Natural Environment (Scotland) Act 2012) and its corresponding Code of Practice for non-native species as well as environmental and water quality conservation legislation relevant to pesticide use, private water supplies, waterbodies and their buffer zones.

4.5 Management of historic sites

FLS' key priorities for archaeology and the historic environment are to undertake conservation management, undertake (or permit) 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 UKFS *Forests and Historic Environment Requirements* (5th Edition, 2023: Chapter 5) and FLS policy document *Scotland's Woodlands and the Historic Environment* (FCS, 2008).

There are two statutory designated – or 'scheduled' - historic sites within the Plan area: Torr Dhuin fort, by Auchterawe, Fort Augustus (SM794) and a 340-metre section of the 18th Century Fort Augustus-Bernera military road, by Achlain, Glenmoriston (SM11483). **Appendix 1** – *Background Description* provides a description of these features as well as details provided by Historic Environment Scotland (HES) at LMP scoping regarding the most recent condition surveys.

Monitoring the condition of scheduled sites is undertaken by HES on a five- to ten yearly cycle depending on the nature, and any trend in condition, of the monument. HES are a statutory consultee in the preparation of Land Management Plans and responded to this Plan's consultation with the following management recommendations which will be adhered to during the delivery of the Plan's management operations: *"We recommend that the importance of consultation with Historic Environment Scotland is highlighted in the forest plan. An application for scheduled monument consent (SMC) will be needed for any works affecting the monuments, such as felling or thinning trees within the scheduled areas. The scheduled areas would benefit from the careful removal of trees and the creation of appropriate unplanted buffer zones around them, in line with UKFS guidance. Given the risk of serious damage to the archaeological remains in the event of trees being windblown, we recommend that this work is programmed early in the term of the management plan. We also recommend that the management plan makes provision for regular monitoring and control of regenerating trees, other woody growth, and bracken on the monuments and within their buffer zones. It is important to manage and maintain open ground in line with UKFS guidance... We would also welcome provision in the plan for enhancement of public access to and interpretation of archaeological sites where feasible."* (see **Appendix 2** Consultation Record for full transcript). FLS will continue to monitor these sites in line with HES recommendations – applying for an SMC in a timely manner in advance of any requirement to control or remove regenerating woody or bracken growth from the monuments and their buffer zones. Both monuments are already interpreted in printed and on-site signboard interpretation materials: Torr Dhuin fort has a maintained access trail from a dedicated FLS car park (with interpretation) at Auchterawe. The entire old military road from Jenkins Park (Fort Augustus) as far as the LMP boundary at Achlain – including the designated/scheduled road section – is a public waymarked footpath and as such routinely inspected by FLS Visitor Services staff for safety, deterioration and obstruction issues that also indirectly serves as an aspect of ongoing monitoring.

The LMP area also includes a number of unscheduled archaeological sites. This heritage relates mainly to previous settlement associated with historic agricultural land use. With regard to all heritage features, in advance of any proposed forest management operations, the Work Plan process necessitates a pre-operational walkover survey – supplementing desk-based analysis of historic environment datasets (FLS' GIS data and local authority Historic Environment Record) - in order to identify all recorded features as well as any newly identified ones within the proposed work plan area. Features are then suitably and clearly marked on the ground, and on contract and operational maps, and appropriate control measures stipulated in work plans to protect against potential collateral damage through the delivery phase. Similarly on clear-felled and fallowing ground where tree restocking or natural regeneration of trees is envisaged, work plan prescriptions will exempt recorded historic environment features from ground disturbing operations, re-planting and/or tolerance of tree regeneration in compliance with UKFS *Forests and Historic Environment Requirements* (5th Edition, 2023 – Chapter 5).

Close to the LMP area are three additional designated historic assets: at Levishie (fort and earthworks, SM4567), Balnacarn (township remains, SM11482) and Tir Nan Og (cairn, SM11494) that are deemed by FLS to be located at such a distance (and with no likely FLS access) to the Plan area and its management that no additional consideration be required in pre-operational planning.

4.6 Landscape

The forests covered by the Fort Augustus LMP are located on the north and western side of the Great Glen and on either flank of the side valley of Glen Moriston. Comprising a number of individual and historic forest areas (Portclair, Creag nan Eun, Coille na Feine, Inverwick and Inchnacardoch Forests) it also comprises a considerable extent of connecting and interlocking contemporary, productive, coniferous forest plantation. Due to the comparatively large size of the LMP area (9,678 ha) the entirety of the afforested and open land area extends across a number of different landscape character areas (referenced below but described more fully in **Appendix 1**).

The Loch Ness corridor is designated in the Highland Structure Plan as a Special Landscape Area (SLA). Beyond the northern and western banks of Loch Ness, forestry extends not only westwards along Glen Moriston but also across the gently rising slopes to the south-west of Fort Augustus. **Map 11** illustrates the landscape character areas/classifications referenced here (and Appendix 1). This classification and nomenclature is derived from formal Landscape Character Assessment work carried out originally for Scottish Natural Heritage (1999) and revised latterly by Nature Scot (2019).

4.6.1 Landscape Character

Key landscape character areas are cited here along with an assessment by FLS' Landscape Architect of the visual impact/integration of current forestry and future management proposals upon this character.

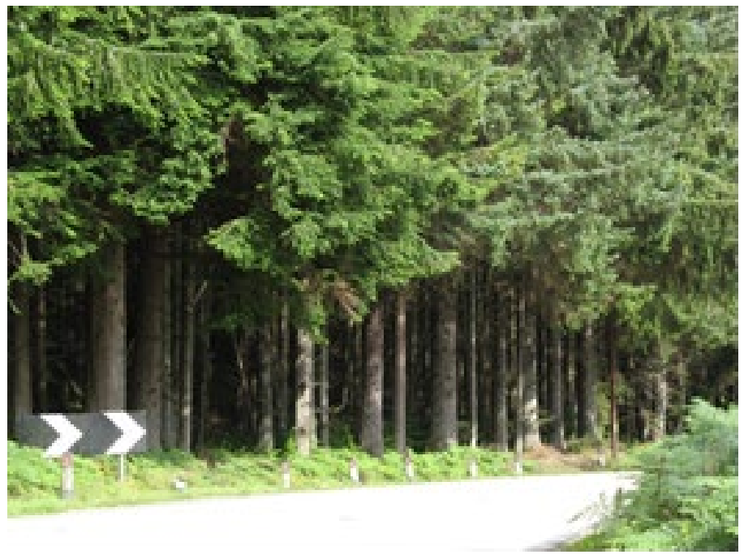
Broad steep sided glen with loch

Woodland composition and visual assessment of LMP proposals on this landscape character: The glen is characterised by it's steep-sided landform, broadly forested with rocky outcrops, creating variety and dramatic effect. The forest cover has influenced the landscape character as it alters the patterns of vegetation. Broadleaved woodland and coniferous plantations grow over much of the sides of the loch, interspersed with pasture and settlements wherever flatter, more open ground is available. Forests on the northern side of the glen have a higher concentration of conifers. The older sections of plantation, with mature Douglas fir, provide a strong sense of place that is dramatic. Recent windblow has impacted a large number of these older stands and as consequence this LMP proposes their incremental removal for road and infrastructure safety. Larch is a major species in parts of the Great Glen's forests. With the threat of disease (section 4.1.9 Forest Health) these stands are also being targeted for removal over the next ten to twenty years.

Although there will be compromises due to the limitations on the variability of felling and extraction on steep terrain, and few windfirm internal boundaries to temper the scale and geometry of felling (and soften the impact on the visual character of the area), the design of the LMP's re-structuring proposals (fell coupes, future upper margin tree lines and choice of native woodland restocking species) should in time integrate with inherent landscape characteristics, underlying ground conditions and landform to ensure the forest is unified with the rest of the landscape wherever possible. Where the felling is envisaged as single large scale felling coupes, these area will revert to non-commercial native woodland at a corresponding pace of change. Consequently the impact of immediate felling will be dramatic but limited to the short to medium term and tolerated.

Internal woodland design is important in areas where public access is encouraged, for example along the new and old routes of the Great Glen Way. Thinning of trees and scrub around the public access routes (waymarked paths, rest points and car parks) to ensure the walks remain attractive and safe and keep views open should be carried out on a regular basis.

Afforested slopes (native woodland and 20th century commercial conifers including much larch) clothe the steep slopes above Loch Ness and the lochside trunk road A82



Roadside conifer stands create an imposing sense of grandeur and permanence.

Steep slope felling operations create large scale and dramatic change over the short term

Broad Glen - around Fort Augustus

Woodland composition and visual assessment of LMP proposals on this landscape character: The forests are largely located on the side slopes. Mostly visible in part from across the strath, they drape over the landform. Restructuring to date has already begun to alter and fragment internal margins and introduce increased age and species diversity. It has followed the underlying terrain where possible however the lower slopes have been and will continue to be compromised to accommodate the significant number of powerlines which transect the forest.

Recent catastrophic windblow in the previously majestic stands of mature mixed conifers in particular near Jenkins Park and Auchterawe - and its consequent clearance felling - has and will continue to have a significant impact on the local landscape character as well as increasing the short term visibility of the substation and powerlines which dominate the area around Auchterawe to the south west of the Plan area. This is also impacting the outlook from scheduled monument and hill plateau Torr Dhùin.

Future woodland restructuring in the area should provide a better diversity of scales: increasing from small and intricate stands towards the valley floor (for example around Torr Dhùin), to medium size coupes on the mid-slopes and finally larger ones at the higher elevations where it gives way to open hill above. Where there is restocking alongside the existing Beauly Denny powerline wayleave, edge planting is to be 'feathered' with design input made prior to restocking from the FLS Landscape architect and will where possible include lower growing species closer to the lines to minimise the width of the open corridor (juniper, sloe and hawthorn, native 'shrub' willows).

Visible seasonal diversity that is currently provided by larch - the subject of concerted removal over the next ten to twenty years - will be replaced by increased deciduous broadleaves in particular birch, rowan and hazel. The upper slopes are in transition to the rugged massif where upper margin restocking should ensure forest character (afforded by species and density variation) relates more sympathetically to the scale of the hillside and the more rugged character of these open, exposed slopes. There should be sufficient open hill above the forest in proportion with the planted expanse. Internal woodland design is important in areas where access is encouraged, for example around Torr Dhuin. Thinning of regenerating trees and shrubs/scrub around public access routes and viewpoints will be particularly important following the windblow clearance and during subsequent regeneration of trail- and roadside vegetation to ensure they remain welcoming, accessible and attractive.

Steep sided Wooded Glen- Eastern end

Woodland composition and visual assessment of LMP proposals on this landscape character: Despite woodland dominating this glen, there is diversity along its length, determined by the age and species make up such as discrete plantation of even-aged spruce and larch, interspersed native broadleaved woodland, and mixed, mature/over-mature Douglas fir-dominant forest. Over the next forty years the forest is to be restored to native woodland synonymous with the area and its vestigial ecology. This will cause a change to the landscape character as very tall conifers are eventually replaced by Scots pine and oak-dominated forests. From the public roadside this change is unlikely to appear significant or extensive as most of this forest is effectively screened or at least 'broken up' by road- and riverside vegetation including mature oaks. Due to the age and size of the trees to be felled - and the steep slopes to be accessed to achieve this - practicalities need to lead the scheduling and design of most felling coupes, Shapes of coupes will be fairly rectangular using existing contoured forest roads as horizontal boundaries and streams, riparian woodland/open ground corridors as vertical boundaries. Knolls and significant landform is however can and is respected (as this also makes practical operational sense) and consequently coupe boundaries are not planned to cut across these in an incongruous manner. Although landscape principles are compromised (limited 'organic' shaping of a mosaic of intricate felling coupes) the visual impact will again be for a short to medium term only (10-20 years before replacement woodland establishes/clothes slopes once more). The permanent (and proposed continuous cover) native forests that will replace the non-native conifers here will be create a more sympathetic natural forested glen in the future.

Over much of the glen away from the settlement of Invermoriston, but still within this landscape character area, the visibility of the afforested slopes is limited due to immediate dense tree cover along the riverside and relatively narrow glen floor. As with tree felling along Loch Ness-side, the steep slopes around Invermoriston determine the method of extraction, limiting it to skyline techniques which leave straight felled edges. Coupes here are aligned with this in mind (and riparian corridors complement this to some extent) whilst working with the landform and scale of the hillsides.

View NW from Invermoriston

Looking south from Invermoriston's Riverside Park

Looking east along A87 (with roadside trees/woodland)

Steep sided Wooded Glen - Western end

Woodland composition and visual assessment of LMP proposals on this landscape character: The forests in the upper (western) parts of Glen Moriston are generally even -aged and regular with geometric shapes which disrupt the gentle flow of the undulating hillsides. The forests neighbouring Dalchreichart display intrusively shaped species margins and external boundaries. Over the next ten years the removal of larch from these blocks will help to soften the edges of pine forests to be retained. Replanting and management of natural regeneration should aim to soften and feather the forest margins so they give way more subtly to the open ground round about them. The majority of the western end of the forests of Glenmoriston are not visible from any vantage points. As such the felling shapes can be larger, taking felling coupes to watercourses

and existing open areas. As this transformation is only to occur once to allow the transition to native forest the proposal for larger felling coupes/shapes (and their limited visibility) means the pace and scale of this transformational change is considered acceptable.

Expansive conifer afforestation clothes undulating slopes. Species composition creates artificial internal geometry

Rocky Moorland Plateau / Rugged Massif/ Rolling Uplands

Woodland composition and visual assessment of LMP proposals on this landscape character: In general, woodland cover is limited within these landscape character areas, being of higher elevation where management and elevation limit tree growth. As such forest upper margins are mostly located in the transition between these landscape character areas and those of the glens below. The alignment of the forest upper margins, related to landform, and character of the woodland cover have a strong influence over appearance in the landscape, colour difference and height, shape and density. Mostly forests here are plantations, limited in species variation and age structure. Height and colour contrast markedly with upland vegetation which draws the eye. The upper margins and species boundaries will benefit from re-planting at variable densities and with non-linear margins in the next rotation, a limited and 'sporadic' amount of much is due to occur in the next ten years (see red and orange coupes on Map 4a). In Glenmoriston, an extensive area of 1960s-planted conifer forest north west of Dalreichart (Balnacarn block) is to be restored to open bog habitat with intermittent scrub birch/willow peat edge woodland. An extensive plateau (20 ha) in the upper reaches of Inverwick Forest (southside of the glen opposite Dundreggan forest) will be clear felled and replanted as a upland birchwood with some Scots pine.

Along all the upper reaches of Inverwick, Inchnacardoch and Portclair Forests as well as along the flanks of the Great Glen, a more graded and incremental felling scheduled is envisaged and that will allow a more naturalised woodland/moorland transition where currently the upper edges of dense, unform species and aged conifers represent a conspicuous and unsympathetic fit with surrounding landscape.

The Beauly Denny Powerline wayleave through Inchnacardoch Forest is of a considerable scale, intrusively dissecting the forest. To reduce the linearity of the powerline and its associated wayleave corridor, an uneven edge either side of this should be encouraged (through retained regeneration of comparatively short stature native tree/shrub species) into the future to create a more natural transition from woodland to managed open space/wayleave.

The landscape scale of these upland areas is extensive. Management coupes and upper margin alignments should wherever possible be designed to reflect the irregularity of the landform and the broad scale of the moorland. Internal woodland design is likely to be important in areas where access is encouraged, for example along the new and old routes of the Great Glen Way as well as the old military road from Fort Augustus to Achlain. Thinning of regenerating trees and scrub around the public access routes (waymarked paths and rest points) should be undertaken regularly to ensure the walks remain attractive and safe and keep key views open.

The Beauly-Denny powerline and wayleave corridor with (currently) strong linear forest edges

4.6.3 Visibility and strategic viewpoints for forest visualisation models

Due to the scale and variable topography of the LMP area, the FLS land and forests dominate both the Great Glen and Glenmoriston. Being so extensive, it is visible and often very conspicuous from numerous viewing points/angles both 'within' the Plan area but also from surrounding settlements, public road corridors and popular recreation and tourist locations. The following twelve locations have been chosen to provide coverage of the forest areas where significant change is proposed (through felling and restocking) and is believed to be most conspicuous to the public. Computer modelling allows the LMP's felling and restocking proposals to be visualised and these images are compiled and presented in **Appendix 10**. The vantage points (also shown on **Map 1**) are:

On the southern side of Loch Ness – looking towards the afforested northern and western flanks of Loch Ness:

Boleskine cemetery *Upper Foyers Falls viewpoint* *Foyers lochside/campsite* *Knockie estate boathouse road* *Glendoebeg roadside viewpoint.*

In the vicinity of Fort Augustus (the largest settlement and popular tourist destination) views across Inchnacardoch & Loch Ness western flank as well as Inchnacardoch and (internal view) at Auchterawe:

Aberchalder bridge (Caledonian canal) *Glen Tarff roadside* *Fort Augustus (A87 roadside)* *Torr Dhuin/Auchterawe.*

In Glen Moriston, including Invermoriston and two locations on the A87 road to Lochalsh/Skye with panoramic views towards FLS ground/forests:

Riverside Park houses/recreational park *Dundreggan/Red Burn café locale* *Achlain looking towards Balnacarn/Dalchriechart.*

4.7 People & stakeholders

4.7.1 Neighbours and local community

The Consultation Record (**Appendix 2**) provides a list of known community organisations as well as local and other stakeholders notified – and subsequently engaged with - during LMP development. A public consultation event was promoted and hosted at the Invermoriston Millennium Hall in June 2024 (meeting note included in Appendix 2) as this venue was deemed the most central location for communities and residents and for the two community council catchments covered by the LMP area. As a consequence of this promotional correspondence and meeting, several individual households and businesses made individual representations to FLS and were visited or corresponded with directly over specific issues raised.

Neighbours likely to be impacted by intended forest operations whether during or as a result of this work are routinely visited by FLS delivery staff as part of the pre-operational work planning process and – as requested by the Fort Augustus and Glenmoriston Community Council during the last LMP revision, the community council is notified as a matter of course in advance of any operations scheduled that are likely to affect neighbouring communities, their habitual access to the forest and where operations may result in periods of increased road transport activity. Some public roads connecting to internal forest roads are classified as Consultation Routes and as such the community council has a more formalised role in considering and agreeing satisfactory terms of use when the local authority is approached by FLS for haulage approval and terms.

4.7.2 Public access

The Land Reform (Scotland) Act 2003 ensures statutory access rights to most of Scotland's outdoors if exercised responsibly and with respect for privacy, safety, livelihoods and the environment. Equally, land managers have a duty to manage their land and water responsibly in relation to these rights. In consequence, visitors are welcome to explore FLS land and are only asked to avoid established trails or forest roads when proposed forest management work increases the potential for accident or injury (e.g. from tree felling) that might otherwise result from uncontrolled public access during operations. When forest operations are proposed in the vicinity of Core Paths and ScotWays Rights of Way (illustrated on **Map 2**) , early prior consultation is undertaken with the local authority's Access Officer to discuss and agree any temporary diversion of existing trails for the duration of the works. All felling operations are planned and implemented in adherence with FC Practice Note *'Managing public safety on harvesting sites'* (2013).

FLS' Visitor Services staff undertake routine safety checks of trails and associated features (e.g. gates, signs, overhanging trees etc) and undertake maintenance work (vegetation control, drainage improvements) in response to observed deficiencies or reports from the public of unacceptable access conditions. A number of particular comments were made during public consultation regarding the temporary (and perceived: prolonged) closure of trails at Torr Dhuin, Auchterawe and along the river Oich on account of windblown trees from storms in January 2024. Windblow clearance had already been prioritised in this area by FLS as this was not only an area of recreational importance but also where storm damage to productive timber woodland was most violent and extensive. Most trails links have subsequently been re-opened since the June 2024 public scoping meeting, however some still remain impassable as felling contactors are systematically addressing this work area by area and it may be into 2025 that all trails are reinstated to their original routes.

4.7.3 Renewables, utilities and other developments

The renewable energy and utilities infrastructure present within the LMP area is detailed in **Appendix 1** - Background Information: *Renewable energy developments, utilities and other infrastructure* and illustrated on **Map 2.** These include underground and overhead powerlines (National Grid and local distribution by public utility and private renewables connectivity), public water main pipelines and subsidiary distribution pipes, treatment and storage facilities, undergrounded pipelines ('penstocks') associated with run-of-river private hydro-electric schemes as well as telecommunications masts. This infrastructure is supported by third party access leases for maintenance. Much of the infrastructure has been installed with associated and often mandatory warning signage (permanent marker posts, energy rating/prohibited activity signs) and FLS maintains databases which allow interrogation, inclusion and display of this infrastructure on GIS maps which are then drawn into the FLS Work Plan system when defining future forest operations and corresponding constraints to working (i.e. machine over-running of undergrounded cables/pipes or the designing appropriate woodland composition in and around different wayleaves). Electricity network operator SSEN (Transmission) were included in LMP scoping and their consequent operational advice was received and will be enacted upon. All forest management within the vicinity of overhead powerlines will comply with *FISA Safety Guide 804 – Electricity at Work: Forestry* with respect to prior notification and consultation with the Network Operator to agree any safe working methodology. Works proposed by public utility companies in respect to maintaining infrastructure and associated leased ground is handled by FLS' Forest Liaison Officers (FLO) who undertake internal consultation with FLS staff to ensure pre-operational checks and any necessary constraints (e.g. seasonality of working due to environmental interests, proximity of private water supplies) are identified and communicated in relevant permissions. This can include a stipulation to notify and/or consult with neighbours potentially impacted by the proposed works whether temporarily or permanently.

As stipulated in section 2.4, prior permission is sought by this LMP in anticipation of any felling that might be required at short notice with respect to trees that may be impacting any important energy, water and public communications infrastructure – upto a threshold annual cumulative timber volume – without therefore require prior authorisation from the forestry regulator Scottish Forestry to undertake this work.

4.7.4 Support for the rural economy

At a national level, FLS aims to support a sustainable rural economy by managing the national forests and land in a way that seeks to encourage sustainable business growth, development opportunities, jobs and investment. For the Fort Augustus LMP area, support for the rural economy relates ostensibly to employment sustained directly with FLS and through contracted forest management work (felling, restocking, surveying, fencing) as well as through the export and 'downstream' processing of timber from productive woodland. Indirectly, the management of existing car parks and recreational trails including nationally renowned Great Glen Way (and FLS' promotion through printed, online and on-site interpretive materials) provides an important economic resource – drawing visitors who may potentially stay (and spend money) locally as a result. The development of renewables and public utilities infrastructure within the landholding – and its accommodation through forest re-design and revised work scheduling – is an ongoing process and has allowed both public networks (for both local and national benefit) and private renewable schemes (for economic and climate change mitigation goals) to be delivered.

FLS endeavour to maintain a professional and considerate attitude towards approaches from local communities, utilities providers and other stakeholders looking to provide wider future social and economic benefit from the LMP area e.g. accommodating new water, telecommunications and power supply infrastructure, tourism initiatives etc.

4.8 Water

4.8.1 Drinking water

Public drinking water catchments and private water supplies management are considered in **Appendix 7** – *Water and Catchment Management* and on **Maps 10a** and **10b** – *Key Water Features.* Scottish Water were consulted during LMP scoping and their consequent response and all operational controls and constraints incorporated in this appendix.

4.8.2 Watercourse condition

Watercourse condition, regulations and management for this LMP are detailed in **Appendix 7** – *Water and Catchment Management* and illustrated on **Maps 10a** and **10b** – *Key Water Features.*

4.8.3 Flooding

Flooding regulations and assessment for this LMP are detailed in **Appendix 7** – *Water and Catchment Management* and illustrated on **Maps 10a** and **10b** – *Key Water Features.*

4.9 Fire

UKFS stipulates forests should be planned to enhance their resilience and mitigate the risks posed to their sustainability by the effects of climate change. Associated management should also enhance the potential of forests to protect society and the environment from these same effects. The potential risks from fire are a particularly important consideration in the context of climate change and landscape resilience as fire can not only result in significant habitat and wildlife loss, has the potential to spread to adjacent land and property but also can represent a substantial uncontrolled release of carbon from the landholding. Whilst it is not possible to prevent wildfires completely, wildfire resilience can be improved through good forest planning and management.

In the case of the Fort Augustus LMP, wildfire resilience is considered best supported through:

- *reducing the likelihood of wildfire incidents* - through provision of precautionary signage at public thresholds, car parks and picnic areas where fire raising is likely or a proven concern;
- *reducing the potential extent of wildfire if it does occur* – through forest design – restoring peatland, planting and conserving larger riparian native woodland that bisect/sub-divide coniferous plantation into smaller areas corridors (these are less volatile or permeable to wildfire spread) .
- *reducing the potential severity of damage and impacts on people and the environment if fire does occur* – managing native or mixed, amenity woodland around settlements (less combustible and permeable habitat than uniform coniferous plantation). FLS also instigate a year-round staff Fire Duty rota system providing pro-active fire reporting, site access and fire monitoring support to Scottish Fire and Rescue Service (SFRS) in the event of fire.

Currently the risk of wildfire *starting* on land within the LMP area is low: levels of public access are moderate and largely involving access for walking (short duration loop walks for habitual local use; extensive forest roads network and Great Glen Way for longer duration/distance recreation). There is little wild camping historically within the landholding. FLS also relies on land-owning neighbours following the Muirburn Code which includes a legal requirement to reduce the possibility of fire spreading by ensuring sufficient resources are available in instances of prescribed muir burn and giving notice in writing to all landowners within 1 km of any intention to muirburn at least seven days before commencement.

The risk of wildfire potentially *spreading* on FLS land is also deemed to be comparatively low on account of the prevailing climate (comparatively mild, habitually moist/humid conditions, ground and habitats). There is however a well-established pattern and occurrence of high risk conditions in early springtime when periods of dry, bright and breezy weather can persist for weeks and accumulations of dead vegetation quickly become tinder dry at a time when new lush grass/bracken has yet to re-emerge to reduce overall combustibility. Climate change modelling predicts an increasing incidence in periods of dry weather not only likely in springtime but also with warmer summers and probability of increased dry periods. This will increase the capacity of the landholding's forests and open ground vegetation to burn if wildfire occurs. Native deciduous woodland is less volatile in both its dormant (leafless and wet) seasons and in summer "full leaf" (leaves with high water content and lower calorific value tan coniferous needles) and with a comparatively humid understorey. Accordingly – and for biodiversity gains too – this LMP prescribes establishing (or conserving/promoting) extensive networks of riparian deciduous woodland over the next twenty years which will in turn create greater resistance to potential wildfire spread. Section 2.7 presents data and pie chart representations of broadleaf/conifer composition over this time and shows an almost threefold increase in broadleaved forest (from 13 to 33% of forest area) and a corresponding drop (87 to 65%) in coniferous woodland.

Nevertheless this does not allow any degree of complacency as to monitoring and managing for fire risk as there is a corresponding trend over the same twenty year period for the forest age structure to move from (current) predominantly middle- to mature-aged woodland to (2045) a greater proportion of young and establishing woodland structure (see section 2.7 age class table/bar chart). Areas of fallowing and young restocked trees represent a greater risk of combustion on account of the higher amounts of accumulated ground vegetation amongst young trees – and with a propensity to dry out comparatively quicker than a mature woodland understorey during warm, dry and breezy conditions - and consequently representing a greater, transient fire risk than posed from established forest stands. Appendix 1 contains the current Fire Risk Assessment for the LMP area.

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