Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Ariogan

Land Management Plan 2026-2036 West Region

Plan Reference No:
Plan Approval Date:
Plan Expiry Date:

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

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

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

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

Ariogan - Land Management Plan 2026 – 2036

CONTENTS TABLE

1 Regulatory Requirements

1.1 Summary and Introduction

Ariogan is a 172 ha area of land immediately adjacent to the town of Oban on the west coast of Scotland, see Map 1. Previously grazed farmland, it extends from the southern boundary of the town down to the minor public road to Lerags glen. It is contiguous with an existing FLS forest, Cologin, to the west and for the most part is bounded by the main A816 to the east (apart from one discrete area linking the public road to Glencruitten forest). Further background information is given in Appendix II.

The land is formed of three areas each with differing features and characteristics:

- **North**: the area adjacent to the town is very visible in the landscape, features steep terrain with isolated pockets of broadleaves and an area of Long Established Plantation Origin pine along the ridge. There is a network of informal tracks linking into the other areas.
- **Central**: two burns running from the west to the Soroba burn in the east and their associated catchment areas are the main feature here. In addition public water supply infrastructure leads to water treatment works within the landholding. Pockets of existing broadleaves are scattered across the area including an Atlantic hazelwood bank facing south. This area is less visible in the landscape and popular informal tracks are also well used across this area.
- **South**: undulating landscape with very little current woodland cover other than steep Atlantic hazelwood banks on south facing slopes. A forest road is being constructed under previous permissions from the A816 to the established Cologin forest. This road will serve both forests and forms the northern boundary of this area which is a priority zone for Marsh Fritillary butterfly habitat.

There are no landscape or conservation designations across Ariogan although two scheduled monuments (cairns) are found to the south. Viewpoints were chosen to create visualisations (future representations) of how the area would look in twenty years time, see Map 4. Two well attended ‘drop in’ public consultations have been held in the town which demonstrates the interest the public holds in the area. Engagement with local and national organisations continues alongside the submission of this plan. Argyll and the Isles is an increasingly popular tourist destination for both domestic and international visitors and Oban’s importance as a sizeable ferry port has led to its moniker as the ‘Gateway to the Isles’.

Ariogan is a strategic hub for public facilities, with an SSE switching station and Scottish Water treatment works within its boundaries. There is also a private water supply within the land to the north. A glossary of all acronyms used within this plan can be found in Appendix VI and Map 9 shows the context of the forest. The plan brief can be seen in Appendix I.

The strong Gaelic heritage of the area is still seen in its placenames:
Ariogan – Àirigh Eògain (Eògan's sheiling)
Tullich – an Tulaich (hillock)
Glenshellach – Gleann Seileach (glen of the willow)
An t-Innean – (the anvil)

Objectives

- Expanding and connecting broadleaf woodland by establishing native woodland areas
- Planting a diverse commercial conifer woodland
- Maintaining important open habitats across the site for peatland, marsh fritillary butterflies, heritage and important infrastructure
- Maintaining public access and enjoyment of the recreational opportunities across the site
- Work with flood prevention opportunities to reduce upper catchment runoff with positive impacts downstream in the town of Oban

Key Challenges

- Landscape scale deer management to ensure establishment of woodland
- Identifying funding opportunities together with other local stakeholders for projects such as path improvements
- Existing public and private water and electricity infrastructure not impacted

Consultation Summary

Key points raised during consultation processes are detailed in the consultation summary, see Appendix VIII.

Ariogan - Land Management Plan 2026 – 2036

Summaries of Management Proposals

There are no felling proposals or age class composition within the plan:

The species composition over the first twenty years:

Species Group	Current – 2026		Year 20 – 2046	
	Area (ha)	%	Area (ha)	%
Sitka Spruce				
Norway Spruce				
Larches				
Mixed Conifers	0.6	1	8.6	6
Mixed Broadleaves	9	10	9	6
Scots Pine	6	7	12	9
Native Broadleaves			39	28
Internal Open Space*	53	62	53	39
Peatlands	17.4	20	17.4	12
Forested Area Total**	**86**	**100**	**139**	**100**
Open Hill	86	100	24	72
Agriculture	n/a	n/a	9	28
Open Water	n/a	n/a	n/a	n/a
Open Habitat Total	**86**	**100**	**33**	**100**
LMP area Total	**172**	**100**	**172**	**100**

* Included unplanted land & streamsides, archaeology, deer glades, linear features, recreational areas & quarries
** % is of Forested area, not Total area

UKWAS Summary for year 50

Description	% of LMP Area[1]
Total current woodland area	6
Natural Reserves – Plantation	0
Natural Reserves – Semi Natural	3
Long Term Retention, LISS, Minimum Intervention	31
Area of Conservation value: designations, AW	0
Planned Open/Other	51

Notes

1. The % may total more than 100% as the species and management categories can overlap.

Planned Roading Operations

Planned operations 10 year plan period
Road Construction Phase 1 CG2

There is one road to be constructed, which has local authority Prior Notification (PN) approval and has been approved through the EIA Scoping Opinion request process (see Map 2, Appendix X)

Any forwarder/ATV tracks to be constructed will also require local authority Prior Notification (PN) approval and will likewise be submitted to the local authority.

1.2 Activity Summary

Table of New Planting	

Coupe No.	Total Area (ha)	Species (% each species)	Open %	Year	Prescriptions: Planting Method & Density (Planting/Nat Regen)
58010	9.8	MBL	20	27/28	UPLAND BIRCHWOODS: from ESC2080 climate prediction 1. for brown earths: SBI, PBI, OAK, ROWAN, ASPEN, WYCH ELM, HOLLY (very suitable) 2. for ironpans: PBI, SBI, ROWAN (suitable)
58010	6.8	MBL	20	27/28	WET WOODLAND: favour WI/BI where W4 and CAR where W7. Minor species can include Hazel, Hawthorn, Rowan, Elder, Holly, Aspen
58011	11.6	MBL	20	27/28	WET WOODLAND (species as above)
	0.4	MBL	20	27/28	UPLAND BIRCHWOODS (species as above)
58012	5.8	MBL	20	27/28	WET WOODLAND (species as above)
	4.3	MBL	20	27/28	UPLAND BIRCHWOODS (species as above of which 2.0ha hand planting only as close to priority open habitat areas)
58015	2.8	MBL	30	27/28	UPLAND OAKWOODS (species as above for Birchwoods)
58016	5.7	SP 40% MBL 30%	30	27/28	SP / MBL mixture; some regeneration alongside planting to expand LEPO pinewood
58030	8.3	MC	30	27/28	ESC2080 for brown earths suggests for lower exposure: SS, SP, LP, MCP, PF, & RSQ, DF, WRC ESC2080 for ironpans suggests for lower exposure:

					SP, LP, MCP, PF, CP 30% open to include elements of Upland Heath priority habitat and potential marsh fritillary nesting sites No SS or WH across any of the area

1.9 Table of Civil Engineering

Proposed Activity (Road/Quarry)	OS Grid Reference	Forest/Coupe	Description (Length/Area/Construction)
CG2			Constructing previously approved road CG2

1.10 Table of Other Projects

Proposed Activity	OS Grid Reference	Forest/Coupe	Prescription / Description (Length/Area/Construction)
Drone Surveys			Twice a year – thermal drone surveys across plan area to monitor deer populations
Fencing work – upgrade existing		850m	Fencing to west, Glenshellach woodland 50/50, upgrade to deer
Fencing work – new		550m	
Recreation: RTIF		700m	Potential new car park and link path to Tullich water treatment works
Flooding links			Liaise with flooding group on potential case study area
Grazing for Environmental benefit	58150 58151		Explore options on rural skills apprentice or similar in conjunction with NFU / Argyll Agricultural Trust
Invasive species	NM 857 283		Japanese Knotweed removal

1.3 EIA Screening Determination

All EIA documents for afforestation, see Map 3 – afforestation map (also see supplementary documents submitted with SOR in Appendix X)

1.4 Other Regulations

Standards and guidance

This land management plan has been produced in accordance with a range of government and industry standards and guidance as well as recent research outputs including those below:

“Securing a green recovery on a path to net zero: climate change plan 2018–2032” (Scottish Government)

“Protecting private water supplies during forestry activities” (Confor); this includes observing the UKFS 50m buffer around abstraction points.

“River Basin Management Plan for Scotland 2021 – 2027” (SEPA)

“Deadwood Management Guidance” (FLS) - supplement to Scottish Forestry Practice Guide: ”Managing deadwood in forest and woodlands”.

“Managing forest operations to protect the water environment” (Forest Research Practice Guide)

“Building wildfire resilience into forest management planning” (FC Practice Guide).

“Strategic guide for the conservation management of open habitats on Scotland’s national forest estate.” (FLS)

“The state of Scotland’s rainforest – research report 2019.”

“Deciding Future Management Options for Afforested Deep Peatland” (FCS Practice Guide 2015)

“Planting and restocking on peat soils” (Standard Operating Procedure, FLS 2021)

“PAWS Guidance” (FLS)

"An approach to prioritising control of rhododendron" (FLS)

"Managing and controlling invasive rhododendron" (FC Practice Guide 017)

"Managing invasive and non-native forestry species" (FCS)

"Priorities for rhododendron control" (FLS)

"Deadwood Guidance" (FLS)

"Forest operations and wildlife in Scottish Forests" (FCS Guidance Notes 31)

"Forest operations and birds in Scottish Forests" (FCS Guidance Notes 32)

"Forest operations and European protected species in Scottish Forests" (FCS Guidance Note34)

"Forest operations and bats in Scotland" (FCS Guidance Notes 35a)

"Forest operations and otters in Scotland" (FCS Guidance Notes 35c)

"Managing forests for white-tailed eagles" (FCS Practice Notes 101)

"Forest operations and badger setts" (FCS Practice Guide 9)

UK Forestry Standard 5th edition: including Section 9 – Forests and Water and Section 4 – Forests and Climate Change (mitigation and adaptation to improve forest resilience, including risks from wildfire.)

Other Tree Felling in Exceptional Circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts in delaying the felling.

Felling permission is therefore sought for the LMP approval period to cover the following circumstances: Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage or impeded drainage.

* Infrastructure includes forest roads, footpaths, access (Vehicle, cycle, horse walking) routes, buildings, utilities, services and drains.

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

1.5 Tolerance Table

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

2 LMP ANALYSIS

Objective	Opportunity	Constraint	Concept
Woodland creation: establishing woodland and shrubby edge/open space habitats, encouraging silvicultural diversity to store carbon and water and improve biodiversity. Ensure sustainable herbivore population management to control and support species diversity and ground vegetation as well as encouraging natural regeneration.	LEPO pine stands on ridge and pockets of native woodland not registered as PAWS but well established. Area can act as link to neighbouring forests, both conifer (Glenshellach / Glencruitten) and broadleaves (Pulplit Hill).	Little seed source for regeneration apart from pockets of trees in northern section.	Work towards woodland creation where appropriate in conjunction with landscaping and recreational access. Potential to create a ring of woodland habitat linkages around the town for species such as squirrels / pine marten etc.
Support and enable partnership access for communities	Many local user groups interested in land for variety of projects	Potential conflict between aims of different user groups – longer term sustainability of projects	Work with community groups to explore opportunities for sustainable use of suitable areas going into the future.
Biodiversity and habitat protection: protect and enhance riparian habitats in line with UKFS; consider potential to	Basic riparian woodland present in places alongside watercourses	Ensure no exacerbation of potential for flooding downstream of area	Continue to provide good water quality / flow as provided by land currently.

improve habitat for pollinators and insects in proximity to urban areas			
Explore opportunities to reduce impacts of climate change incorporating water run-off and providing shade, cooling and shelter; contribute to partnership Flood Mitigation strategies	Liaise with forest research on Forest Catchment laboratory opportunities	Little research has been undertaken into longer term benefits of upstream catchment afforestation to mitigate flooding impacts downstream.	Work with Scottish water on improving riparian areas both to benefit flood mitigation and to ensure minimal impact on subsurface pipework infrastructure
Remain sympathetic to the landscape setting of the land; maintain recreation opportunities and explore possibilities to enhance.	Many informal routes used by community to be built into future establishment for plan area.	Lack of resources to create new any new formal provision.	Work with community groups to identify areas that would be beneficial to locals and visitors and opportunities to enhance views / access.
Develop a strategy to reduce herbivore impact across the FLS estate.	Successful use of 'in-house' rangers to ensure targets are achieved for status quo. Fencing certain areas of blocks would help overall management of forests and successful tree establishment and habitat restoration. New planting scheme to the north will have similar objectives.	Herbivore control extremely constrained in north due to proximity to town and landform. Cost of fencing often prohibitive to achieve herbivore impact reduction but may be required as part of the solution Neighbouring landowners may have differeng objectives in terms of herbivore control No local DMP at present	Work with Ranger teams to explore full range of options to manage herbivore impact on future woodlands.

3 LMP Proposals

3.1 Management

Clear Felling

No clear felling within the plan

Thinning

Whilst no thinning is planned within the Land Management Plan area, a map has been prepared showing a buffer zone around existing trails where mature broadleaves may pose a threat to members of the public (see Map 6). Hence a thinning application is included to cover any infrastructure where tree removal may be necessary to safeguard users of the trails.

Low Impact Silvicultural Systems (LISS)

This is predominantly a new woodland creation with areas of broadleaves and Scots pine being connected and expanded; these will be managed as minimum intervention areas once established.

Natural Reserves (NR)

An existing area of Long Establish Plantation Origin pine and adjacent oakwood has been identified as a natural reserve (5 ha). In addition, three important areas of existing Atlantic hazelwoods (3 ha) are also designated.

Long Term Retentions (LTR)

There are no areas of LTR identified.

Resilience

RESTRUCTURING:

This is a new planting scheme – N/A.

CLIMATE CHANGE:

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

during the summer months. In terms of species choice these figures have limited impact on species choice according to ESC models. However this level of climatic change is likely to interact in the longer term with soil characteristics and this may have a positive impact on soil structure and widen the range of species potentially suitable for the site. This needs to be reviewed and our response agreed to climate change locally.

TREE DISEASES AND PESTS

An increase in the type and scale of tree diseases and pests is increasingly impacting on species choice and forest management.

The most serious disease currently in the region is Phytophthora ramorum in Larch and the only one subject to statutory plant health notices (SPHN). Larch is no longer a viable tree species for forestry on the west coast. An accelerated programme to remove the existing stands of larch is underway in the wider landscape and it is no longer being planted. Ariogan LMP lies within the PRIORITY ACTION ZONE. A few veteran larch remain in isolation but these will not be pre-emptively removed.

Dothistroma needle blight (DNB) affects pine species. Pine stands are being monitored and potentially the long established Scots Pine in the north of the area may be affected.

Ash Dieback is working its way through the Region with the expectation that at least 90% of the ash will be lost. Pre-emptive felling of ash is not being undertaken unless compromising an existing trail in the hope of being able to identify some resistant trees

FIRE RESILIENCE

Due to climate change there is an increasing risk of fires across the National Forest Estate (NFE). The proposals within this plan aim to limit the risk through species diversity and age diversity, as well as having a large area of open land, see map 7.

FLOOD RISK

The majority of the site falls within the natural flood management area identified by Argyll and Bute council and it is the upper catchment feeding into the Soroba burn that poses a major flooding risk for the town.

Operational Access

Timber Haulage within the forest area is set out in the following protocols: The-design-and-use-of-the-structural-pavement-of-unsealed-roads-Revised-2020.pdf (timbertransportforum.org.uk)

The primary “in forest” route will be the CG2 forest road to be constructed from the main entrance onto an agreed route public road (Timber Transport Forum), the A816, to Cologin forest (see map 10). The design of the road will conform to both the Timber Transport Forum document “The design and use of the structural pavement of unsealed roads 2014” The design and use of the structural

pavement of unsealed roads and SNH's "Constructed tracks in the Scottish uplands – revised Sept 2015" Constructed Tracks in the Scottish Uplands

3.2 Establishment

(See Map 11 for Future Habitats and Species)

Restocking

In the better soils the nutrient and moisture regimes become more favourable for a wider range of alternative conifer species although softer, diverse conifers are vulnerable to deer damage.

ESC 2080 predictive tool was used to offer species choices for the two main soil types present in the Mixed Conifer planting areas. A less exposed scenario was chosen (ForestGales estimated a low wind damage risk) with no drainage and no fertilizers in line with finding the most appropriate species.

1. for brown earths: SS, SP, LP, MCP, PF (very suitable) & RSQ, DF, WRC (suitable)
2. for ironpans: SP, LP, MCP, PF, CP (suitable)

Exposure, poor nutrient status and impeded drainage can be factors limiting the choice of productive species at higher elevations eg for ironpan soils.

Mixed Conifer recommendations would be to use DF, Coastal redwood and possibly Silver Fir/NS. This would ideally follow forest development type 3.1.3 "DF and shade tolerant conifers", on an approx. 60 year rotation. As the plan area will be combined with neighbouring Cologin at next review, it is seen as advantageous to maintain some element of conifer providing there is no seed rain into priority open habitats. Conifers will be restocked to a minimum density of 2500/ha net plantable area. This is a unique opportunity and forest to try ESC2080 predictions of interesting amenity yet productive areas. The use of Sitka Spruce or Western Hemlock will not be allowed within the plan area due to the sensitivities of the open land.

Broadleaves will be established through natural colonisation to achieve a minimum stocking density of 1600ha over a 5 to 10 year period, or 1800/ha if planted. Broadleaf species selection was also run in ESC2080 which will help inform foresters at time of site specific planning.

1. for brown earths: SBI, PBI, OAK, ROWAN, ASPEN, WYCH ELM, HOLLY (very suitable)
2. for ironpans: PBI, SBI, ROWAN (suitable)

Areas above underground water pipes have been designated as open land and there will be a presumption against any natural colonization of large rooted trees in these areas.

Cultivation methods will be selected to aid the establishment of the trees which seek to balance minimising the amount of the soil disturbance and the need for herbicide treatment. Neither the area to the north of the plan area nor to the east will not have mechanized cultivation due to water, open habitat sensitivities and gradients. Provenance of trees is given in Appendix V. Access will be using the

planned road currently under construction for the southern end of the site (see Map 10, Operational Access).

Woodland Creation

This plan is primarily a woodland creation plan (see EIA scoping opinion report and Appendix X for detailed information regarding all aspects of surveys and mitigation measures employed).

Natural Regeneration and Natural Colonisation

Permanent native woodland habitats have been identified for expansion and/or establishment. Typically these areas will include open space as well as native broadleaved woodland. An assessment will be made at the time of establishment to confirm the viability of natural regeneration, but areas that tend to be within 75m of a viable seed source (usually of at least two different species) may been identified as suitable. This is dependent on browsing pressure being reduced to ensure the successful regeneration of trees which is addressed in the Deer Management Plan (see Appendix IV).

Natural Colonisation / Regeneration is a priority theme promoted in the Scottish Forestry Strategy and where feasible is seen as preferable to planting for several reasons: it offers greater biological and genetic diversity to planting; landscape scale natural regeneration provides less segregated landscapes; there are less greenhouse gas emissions without the requirement for ground preparation; and there is no plastic pollution compared to the use of tree guards with planting.

Areas being restocked through Natural Colonisation will be monitored and maintained throughout the establishment phase. Minimum stocking densities will be 1600 per ha for broadleaves. Should these densities not be met by year 5, planting may be carried out to achieve the required stocking density and species or, a further period of regeneration monitoring may be proposed beyond year 5.

The Native Woodland Survey of Scotland's measure of Semi-naturalness is used to ascertain the potential seed dispersal distance (60-100m where this is limited and 300m where there is a large seed source). In the case of Ariogan, the existing broadleaves along the fringes of the area would be within the 300m limit. However, there is very little in the way of seed source within the body of the area.

PAWS restoration

There are no ancient woodlands within the plan area.

Riparian Management

2021-2030 is the UN Decade of Ecosystem Restoration and FLS is a partner in the Riverwoods Initiative led by the Scottish Wildlife Trust to support restoration of riparian ecosystems. Riparian management is crucial to the health of both individual species and the habitats they rely on; careful adherence to Forest and Water guidelines will be strictly adhered to for any sites.

Natural regeneration of native woodland along the riparian corridors will help to alleviate flood risk by reducing the speed of run-off further down the catchment. The creation of successful riparian areas is a major objective of this plan although it will evolve over a long timescale and research into the effects of afforestation of upstream riparian areas on downstream flooding areas is still in its infancy. A detailed description of suitable tree species in held within FLS' mapping system and includes species such as willow and alder.

Deadwood

The ecological potential for deadwood is generally found within forested areas but as the majority of the site is currently open, there is currently low potential for deadwood. However going into the future, a proportion of woodland will be managed to provide deadwood habitat where it provides the greatest environmental benefit. The highest ecological potential for deadwood is found in the established woodland within ASNW, and riparian areas, also within Long Term Retentions and minimum intervention areas.

3.3 Open Land

Integral open ground within the forest area delivers a significant part of the area's ecological value and is the major component of the plan area; for much of the plantable areas 20% will be left unplanted. Open habitats have been preserved for a variety of reasons eg hill tops, wayleaves, priority open habitats such as upland heath and blanket bog. In addition, areas are open to benefit the marsh fritillary butterfly which is prevalent across areas of the site. These are shown in Appendix X, the EIA scoping documents (Priority woodland habitats are shown on Map 12).

There are small discrete areas identified as of deep peat soils (blanket bog habitat) which will remain open and unplanted as per UKFS guidance (soils >50cm peat depth).

3.4 Deer Management

(see Appendix IV, Deer Management Plan)

3.5 Visitor Zones and Public Access

The popular existing trail network provides cyclists and walkers with opportunities to enjoy and explore the wider area and offers spectacular views as you climb the hillsides. This informal access is managed under the Scottish Outdoor Access Code (SOAC) see Map 13. The addition of the planned road being constructed will link these trails with neighbouring Cologin forest.

A number of viewpoints were chosen demonstrating a view of the forest from major publicly accessed routes; predominantly public roads but also from popular or well known vantage points. Visualisations were then created for these views comparing a current photograph to a 3D version of the forest in 10 and then 20 years time (see Map 16).

Visitor zones have not been implemented as there is as yet no formal facilities, but this will be revised at a future date.

3.6 Heritage Features

There are two Monuments listed under the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), both Scheduled Ancient Monuments (cairns). In addition a complete heritage survey was undertaken which has identified any areas of heritage interest that have been taken into account when creating plans for creation of this woodland – see Map 14.

These sites will be managed in accordance with the Forests & the Historic Environment Guidelines and will be protected during operations in line with the UKFS. If new sites are found these will be mapped and recorded and protected from operations. Detailed operational workplans will be drafted and will include a full range of mitigation measures to safeguard archaeological features. Additionally the restocking proposals (open space) are sympathetic to both the features and their immediate environs. Further advice will obtained from the FLS Archaeologist if required.

West Region's Regional Historical Asset Management Plan works to ensure the historic assets' stable condition or to slow their gradual decay and details the following:

"All scrub vegetation and regenerating trees within the relevant area will be cut off at ground level using appropriate hand or power tools and removed. Bracken encroachment shall be controlled within appropriate areas as necessary through strimming, bashing and / or chemical spraying, as appropriate. Any tree felling, harvesting or thinning work within the relevant area (and including a buffer zone of 20m around it) will be planned and organised to avoid any damage to the historic asset in the course of felling and timber extraction. Scheduled Monument Clearance will be necessary in advance of any forestry works, conservation management, consolidation or repair and development that may cause damage or disturbance within the scheduled area. No replanting will take place within the scheduled area (nor usually within a buffer zone of 20m around it)."

3.7 Habitats & Species

Pine marten, red squirrels, bats, owls and raptor activity have been recorded across the area, some of which are covered by the European Protected Species regulations. The relevant guidance notes, Wildlife and Forest. Operations 31- 35d, will be adhered to if protected species are found to be present. Detailed descriptions of mitigation measures incorporated into the plan's design are available in the EIA scoping opinion report.

Priority species found within the plan area:
Red-listed lichens including Leptogium cochleatum
Small pearl-bordered fritillary and marsh fritillary butterflies and transparent burnet moths are some of the higher priority lepidoptera species recorded.

Priority habitats found within the plan area:
Woodland – Upland Oakwood, Upland birchwood, Upland Ashwood, Atlantic hazelwoods
Open – Upland Heath, Blanket bog, Fen

Nature Networks

There is only a very small area currently identified as a Conservation Area Network (CAN) – "areas where the primary… objective may be the conservation of environmental and biodiversity values (PAWS), ecosystem services and community needs (a private water supply), or cultural and heritage values.". The management proposals in this LMP are means to improve and enhance a conservation area network across the site. In addition these areas are mostly contiguous with areas of high conservation value (HCV) – ecologically important woodland and non-woodland areas and features of ecological and biodiversity interest or critical ecosystem services. A balance has been incorporated into the plan area in terms of networks. This aims to balance the needs of open habitat networks allowing connectivity for butterfly species (especially marsh fritillary) as well as woodland habitat networks connecting existing fragments of woodland with neighbouring forests at Glencruitten, Cologin and Glenshellach.

3.8 Invasive Species

There is an area of Japanese Knotweed found at NM 857 283 will be removed at the earliest opportunity. There are not currently any further invasive species identified as being present within the plan area but this will be continually monitored and mapped as reports are received by FLS.

3.9 Water Supplies

Public Water Supplies

A large amount of Scottish Water infrastructure lies within the plan area and care had been taken to ensure this is noted where underground pipes are beneath any proposed broadleaf areas. The Tullich Water Treatment Works is owned by Scottish Water but is enclosed by FLS landholding. Careful liaison has taken place with Scottish Water nationally and locally to ensure minimal impact of the proposals. The area is outwith the drinking water catchment for Loch Glenn a' Bhearraidh but a small area (12ha) to the south falls within the Loch Nell catchment. Ongoing liaison with Scottish Water has been undertaken through the plan and continues with both local and national staff.

Private Water Supplies

Private water supplies can be abstracted from a stream, spring, well or borehole, and usually consist of a series of pipes and tanks feeding one or more properties. All known supplies within FLS land are mapped (see Map 15) and this information is fed into any worksite planning well in advance of any operations to ensure there is no detrimental impact on the water supply. In addition to the individual supplies, the water catchments feeding into these abstraction points have been identified and mapped for use at an operational level where best practice Forestry and Water Guidance will be rigorously followed. The single private water source and its catchment identified at Ariogan has been excluded from any planting or change in land use within this proposal. Additional supplies are mains water fed but by independent pipework which has also been mapped.

Any changes to these supplies are discussed with the relevant properties and a plan drawn up to carefully manage the site. FLS continually endeavors to identify all supplies and any further supplies found will be added in to the database to give a comprehensive coverage.

4 List of Maps

5 List of EIA SOR documents (Appendix X)

Document 1	EIA form
Document 2	Planting proposal
Document 3	Issues log
Document 4	Establishment protection
Document 5	Heritage
Document 6	Mammals
Document 7	Breeding birds
Document 8	Open habitats
Document 9	Lichen
Document 10	Butterflies Odonata
Document 11	Soils

6 List of Appendices (separate document)

Appendix I	Land Management Plan Brief
Appendix II	Background information
Appendix III	Concept Tables
Appendix IV	Deer Management Plan
Appendix V	Provenance guidance chart
Appendix VI	Abbreviations used within this plan
Appendix VII	Unexpired PN /EIA determinations
Appendix VIII	Consultation feedback
Appendix IX	Scoping Report: SF ONLY
Appendix X	EIA afforestation documentation