Forestry Commission Scotland
Coimisean na Coillteareachd Alba

Planning

Cowal and Trossachs Forest District

Land Managment Plan

East Loch Ard

Cowal and Trossachs Forest District

EAST LOCH ARD

Land Management Plan

Forestry Commission

Third Schedule

Map relevant to Application No: .....

O.S. Grid Reference .....

Map Scale.....Map .....of.....

(Owner / Lessee)

Signature .....

Date .....

Signature .....

Date .....

(For and on behalf of The Forestry Commissioners)

Signature .....

Date .....

Approval date: 25th March 2016

Plan Reference No: 033|CaT|E|15

Plan Approval Date: 25th March 2016

Plan Expiry Date: 25th March 2026

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

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

FSC www.fsc.org FSC® C011771 The mark of responsible forestry

PEFC PEFC/15-40-1002 Promoting Sustainable Forest Management www.pefc.org

CSM 6 Appendix 1b

FOREST ENTERPRISE - Application for Land Management Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Cowal & Trossachs
Woodland or property name:	East Loch Ard
Nearest town, village or locality:	Aberfoyle
OS Grid reference:	NS 477994
Local Authority district/unitary Authority:	Loch Lomond & the Trossachs National Park

Areas for approval

	Conifer	Broadleaf
Clear felling	331.4ha.	0ha
Selective felling		
Restocking	254.6ha	221.9ha.
New planting (complete appendix 4)		

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 Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for roads, tracks and quarries as detailed in my application.

3. I confirm that the initial scoping of the plan was carried out with FC staff on 20th October 2011.

4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.

5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.

6. I confirm that consultation and scoping has been carried out with all relevant stakeholders over the content of the of the land management plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.

7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed ..... Signed .....

Forest District Manager — Conservator

District ...Cowal & Trossachs FD — Conservancy ...Perth & Argyll

Date .....25th January 2016..... **Date of approval** ...25th March 2016...

Date approval ends ...25th March 2026...

Environmental Impact Assessment

Scheme No CT/S/03-225

Determination Enquiry Form

Complete this form to find out if you need consent, from the Forestry Commission (under the EIA Regulations 1999), to carry out your proposed work.

Section 1

Please tick the box to indicate the type of work you are proposing to carry out. Give the area in hectares and where appropriate the percentage of conifers and broadleaves.

Proposed work: Afforestation ☐ ha BL% Con% Forest roads ☒ 1.8 ha

Deforestation ☐ ha BL% Con% Forest quarry ☐ ha

Location and district: Cowal and Trossachs Forest District

Please attach map(s) showing the boundary of the proposed work and also give details of the operations.

Section 2

Property details

Property name: East Loch Ard

Grid Ref: *(eg AB 123/789)* NS477994

Local authority: LLTNPA

Nearest town: Aberfoyle

Section 3

Applicant's category: *(please put a cross in one box)*

PE Personal occupier	☐	**PU** Public ownership	☒
BU Business occupier	☐	**OT** Other	☐
VO Voluntary organisation	☐	**CT** Crofting tenant	☐

Section 4

Applicant's type: *(please put a cross in one box)*

LS Lessee ☐ **TE** Tenant ☐ **OW** Owner ☒ **TR** Trust ☐

Section 5

Your agent or woodland manager's details

Title (Mr, Mrs, Ms, etc): Initials: Surname:

Organisation:

Address:

Postcode:

Tel: Mobile:

Fax: E-mail:

Is this the address for correspondence? ☐ YES ☐ NO

Forestry Commission

Section 6

Applicant's details

Title (Mr, Mrs, Ms, etc): Mr Initials: J Surname: Hair

Organisation: Forestry Commission Scotland

Position (eg partner, director etc) Planning Manager

Address: Cowal and Trossachs Forest District

Aberfoyle

Stirlingshire Postcode: FK8 3UX

Tel: 01877 382383 Mobile:

Fax: E-mail: john.hair@forestry.gsi.gov.uk

Is this the address for correspondence? [X] YES [ ] NO

Section 7

Sensitive Areas: Give the area of the proposal that is covered by any of the following designations:

Sensitive Area as listed in "Schedule 2" of the 1999 EIA Regulations		Area (ha)
a.	Sites of Special Scientific Interest (SSSI) or Proposed Sites of Special Scientific Interest (PSSSI)	0.00
b.	SSSI's with a Nature Conservation Order (Section 29 of the Wildlife and Countryside Act 1981)	0.00
c.	National Park (NP)	1.8
d.	The Broads	0.00
e.	World Heritage Site	0.00
f.	Scheduled Ancient Monument (SAM)	0.00
g.	Area of Outstanding Natural Beauty (AONB)	0.00
h.	"Natura 2000" site - *(European network of special areas of conservation and special protection areas under the Wild Birds Directive)*	0.00

Forestry Commission

 FCCS057

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Summary of Proposals

This is the first plan that Cowal and Trossachs Forest District have prepared as a Land Management, as opposed to a Forest Design, Plan. This change in name is not merely cosmetic but reflects the fact that Forestry Commission Scotland manages a diversity of land use types and habitats, including a wide variety of open ground. Although for the time being the overall outline will be similar to design plans, the land management plan will describe the management of non-forested parts of the plan area.

The East Loch Ard Land Management Plan (LMP) draws on the key themes of the Scottish Forestry Strategy (SFS) (2006), Forestry Commission Scotland's Strategic Directions and Cowal & Trossachs Forest District's Strategic Plan. It amalgamates two earlier forest design plans, South Loch Ard and Drumore and develops the broad aspirations of those plans in light of developments in National and local strategy.

The objectives of the new plan are set out below.

1. Manage and maintain the forest as a sustainable and diverse multi-purpose resource.
2. Manage the forest habitat network (FHN) to provide a diversity of habitats, including open space that will benefit a wide range of species.
3. Fully restore or enhance plantations on ancient woodland sites (PAWS), as appropriate.
4. Manage sites of special scientific interest (SSSI) in accordance with a plan agreed with SNH and seek opportunities to expand the area of native woodland around these.
5. Manage the Queen Elizabeth Jubilee Pinewood to create a diverse ecosystem centred on existing mature Scots pine stands.
6. Continue to manage large areas using continuous cover forestry (CCF) principles and seek opportunities to expand this management type where possible.
7. Seek to expand the area of broadleaved woodland and use alternative conifers to Sitka spruce, where feasible, particularly in the CCF zone.
8. Manage broadleaves for production, where feasible, and it does not conflict with conservation or recreation objectives.
9. Contribute to Forest District timber production through clearfelling and thinning.

10. Follow guidelines in managing felling and restocking in the Duchray Catchment to help achieve “good status” for this failing water body.
11. Maintain and enhance the recreational features of the forest through considered management around forest entrances and zones along promoted trails.
12. Manage timber haulage.
13. Protect heritage features.
14. Provide deer management infrastructure.

1.0 Introduction:

1.1 Setting and context

The East Loch Ard Land Management Plan area lies to the south west of the village of Aberfoyle in the heart of the Trossachs. The effective northern boundary is the B829 Aberfoyle to Inversnaid road whilst to the west and south west are other Forestry Commission woodlands. The River Forth and open farmland form the eastern and southeastern limits (Figure 1.1). The block is entirely within the Loch Lomond and The Trossachs National Park and forms a core part of the Queen Elizabeth Forest Park. It is now also a key component in the Queen Elizabeth Research Forest. Direct access is from the B829 or from the unclassified road between Gartmore and Drymen.

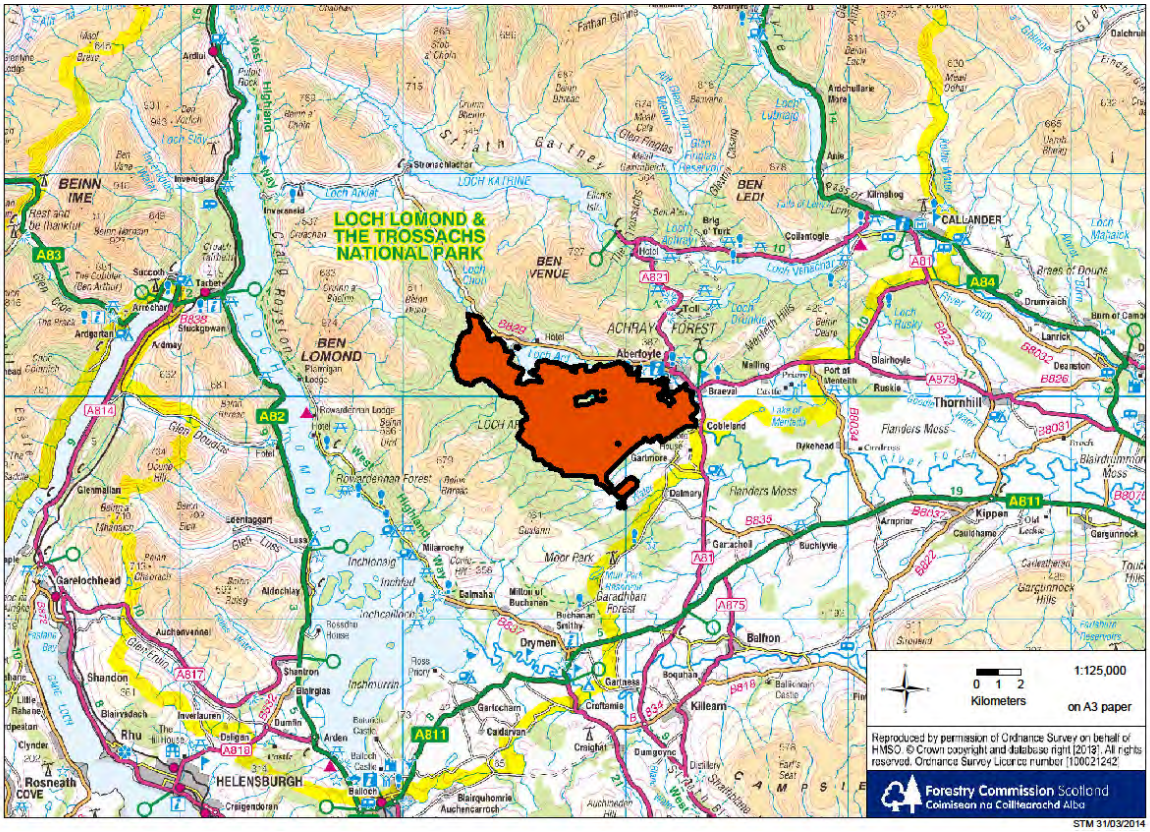


Figure 1.1 East Loch Ard: location

1.2 History of the plan

East Loch Ard is an amalgamation of two land management plans, South Loch Ard and Drumore. The combined area is 3519ha and is wholly within the upper catchment of the river Forth and is a core part of the larger Loch Ard Forest and of the Queen Elizabeth Forest Park. Although there are ancient woodland remnants, dating back to at least the 18th century (see Figure 3.3), the earliest planting took place in the 1930s and 1940s. Some of these older stands remain, particularly at lower elevations around Loch Ard itself. Some first rotation stands planted in the 1950s and 1960s also remain but many areas are now on their second rotation, clearfelling and restocking beginning in the early 1970s. This is the second design (now land management) plan for the area and continues a general aspiration to move away from production based monoculture spruce forests towards a more diverse multipurpose woodland providing a wide range of benefits.

2.0 Analysis of previous plan

2.1 Aims of previous plan and achievements

The two previous plans had similar broad objectives namely to:

- **enhance the landscape value of the area**
- **enhance the conservation potential of the area**
- **enhance the recreational potential of the area**
- **maintain economic timber production**

This was achieved through a number of initiatives. Coupe structure was revised so that coupes became smaller, organically shaped and more sympathetic to the landscape. In addition large areas were designated for continuous cover forestry (CCF). Through a programme of regular thinning and avoidance of large scale clearfelling these systems provide a range of environmental and social benefits, for example maintenance of habitat and visual amenity, whilst providing a regular timber supply. Conservation effort has been directed at establishing and expanding forest habitat networks, focusing on riparian zones. In addition there has been a programme of restoration or enhancement of ancient woodlands and work has been ongoing to improve the condition of the two sites of special scientific interest. The developing Queen Elizabeth Jubilee Pinewood ecosystem has a variety of habitats centred on established mature Scots pine stands. Timber production was concentrated in the south western parts of the plan areas where soils and elevation are less favourable for CCF and recreation pressure is less intense.

Twenty coupes were approved for felling in Drumore LMP area. Of these 13 have been felled and restocked or are being prepared for restocking. Of those not felled, one was substituted for an adjacent coupe, which had suffered wind damage; one incorporated into the CCF area; two were retained for structural reasons; one delayed because of slow growth and two because of access problems. Additional small areas were felled, with amended approval, to augment work around the SSSIs.

Ten coupes were approved for felling in South Loch Ard LMP area. All but one of these have been felled and the programme will be completed in the first phase of the new management plan period. Approximately 3ha of coupe 30032 was also felled to help secure the main electricity transmission line which runs through the LMP area. Most coupes have been restocked, following the broad aspirations of the plan. Coupe 30040 has only recently been felled and will be restocked early in the approval period of this new plan.

Thinning operations continued during the plan period in the CCF areas. However severe storms during the winter of 2011/2012 resulted in extensive damage in both LMP areas and approximately 22ha of windblown trees were cleared with approval from Forestry Commission Scotland, Perth and Argyll Conservancy. These are being restocked with alternative conifers to Sitka spruce, where appropriate, and broadleaved species. Long term management will continue to use CCF principles.

2.2 How previous plan relates to today's objectives

The broad objectives of the previous plans will be retained in the new combined plan. Landscape, conservation, recreation and timber production will all be key considerations in future management. A zonal concept will be retained with a distinction between clearfell and CCF areas. The forest habitat network (FHN) further sub-divides these creating a variable but continuous habitat zone based on, but not exclusive to, riparian areas. The QEPE is shown as a separate zone but can be considered to be part of the FHN. Some flexibility in the boundaries between zones, and the management within them, will be allowed and these will continue to be assessed using available data and taking into account future climate change scenarios. There will be added emphasis on diversification of tree species at restocking, especially at lower elevations. Also there will be increased use of broadleaved species for productive forestry. Native species will be used to enhance and expand ancient woodland sites, including those in the SSSIs. There is increasing interest in utilising riparian zones for natural flood management and these will be managed to maintain and improve water

quality and mitigate against flooding using natural management systems. Recreation facilities and visual diversity in the forest landscape will continue to be maintained and enhanced where feasible.

3.0 Background information

3.1 Physical site factors

3.1.1 Geology Soils and Landform

The Highland Boundary Fault runs through the East Loch Ard Land Management Plan area. About one third of the area lies to the south east of the fault and is underlain by sandstones and conglomerates of Devonian age. To the north west are older rocks consisting of metamorphosed fine and coarse grained sedimentary rocks. There are thin and discontinuous superficial deposits derived from and overlying the solid geology. These are largely of glacial or alluvial origin and typically consist of poorly sorted sands and gravels. There are also small areas of deep peat.

The landscape is one of rugged low hills separated by wet, often peaty hollows. The character of the hills changes from one side of the fault to the other. To the south east the features are linear and parallel with the fault. To the northwest the landscape is more broken with more rounded features or with an axis not parallel to the fault. There are also areas of flatter ground associated with the larger rivers and burns. Elevation ranges from 20m by the River Forth at Cobleland, to 259m to the west of Loch Ard.

Detailed soil surveys, at a scale of 1:10000, are available for about 2350ha of the combined plan area. The remainder is covered by the James Hutton Institute 1;250,000 survey. Given the acidic nature of the parent material the mineral soils have a tendency to podzolisation and iron pan formation. However, the soils maps suggest that, to the south of the fault line, brown earths are likely to dominate in association with gleyed and peaty soils; to the north podzols replace brown earths. Podzols are particularly likely to occur where superficial deposits are coarse and free draining. The detailed surveys suggest that surface water and peaty surface water gleys are at least as extensive as the freely draining soils. Induration occurs at variable depth in all soil types. Table 3.1 summarises the nutrient and moisture regimes of the main soil types. The brown earths are likely to be towards the poorer end of the nutrient spectrum (perhaps marginally better south of the fault), only flushed surface water gleys are likely to be medium in terms of nutrient status. Apart from areas of true podzols, moisture availability is unlikely to be a limiting factor in the plan area.

Soil type	Soil moisture	Soil nutrient
Brown earth	Slightly dry to moist	Poor to medium
Upland brown	Fresh to moist	Poor
Intergrade	Moist	Poor to very poor
Iron pan soil	Very moist	Very poor
Surface water	Very moist to wet	Poor to medium
Peaty gley	Wet to very wet	Very poor to poor
Flushed peat	Very wet	Poor to medium
Unflushed peat	Very wet	Very poor

Table 3.1 East Loch Ard: basic soil properties

3.1.2 Water

The plan area is bounded on the north side by the upper sections of the River Forth and Loch Ard from which it emanates. There are numerous small rivers and burns throughout the forest, which feed into the Forth, the largest of which is the Duchray Water. The Duchray meets the Forth at Milton to the west of Aberfoyle, and is classed as a failing catchment because of acidification. The upper part of the Kelty Water flows in and out of the southern boundary but this river enters the Forth below Aberfoyle at Flanders Moss. The flood plain of the Forth widens below its confluence with the Duchray at Milton and the land around Aberfoyle can be prone to flooding during high rainfall events. The Duchray is a steeper, faster flowing river, than the Forth, passing over several waterfalls though there are some sections with wide river terraces. Lochan Spling is the largest of several small lochans in the area.

In the latter half of the 19th century two aqueducts were constructed from Loch Katrine to Milngavie to provide Glasgow with water. These are underground tunnels and take separate routes through the area (see utilities map). The line is marked by various shafts and pillars and there are several overground sections where the aqueduct crosses deeper valleys.

3.1.3 Climate

Using the measures of warmth and wetness defined in the Ecological Site Classification (ESC, see Forestry Commission Bulletin 124) East Loch Ard, below about 175m, can be described as warm and moist. Only small areas around the highest hill tops are considered to be cool and wet. In addition

the annual temperature range is relatively small and about 60% of the annual precipitation occurs in winter. Using the Forestry Commission system of measurement, most of East Loch Ard, below about 150m – 175m, is classed as sheltered. Even at higher elevations the area is considered to be only slightly exposed, and only the highest points above 200m – 250m are classed as moderately exposed (Figure 3.1).

In practical terms these conditions suggest that, given good soil conditions, a wide range of tree species are suitable for use throughout the plan area, especially at lower elevations by Loch Ard and the River Forth. These areas also have greatest potential for continuous cover forestry principles to be used. However where soils are wet with poor nutrient status the choice of tree species and management options will be much more restricted.

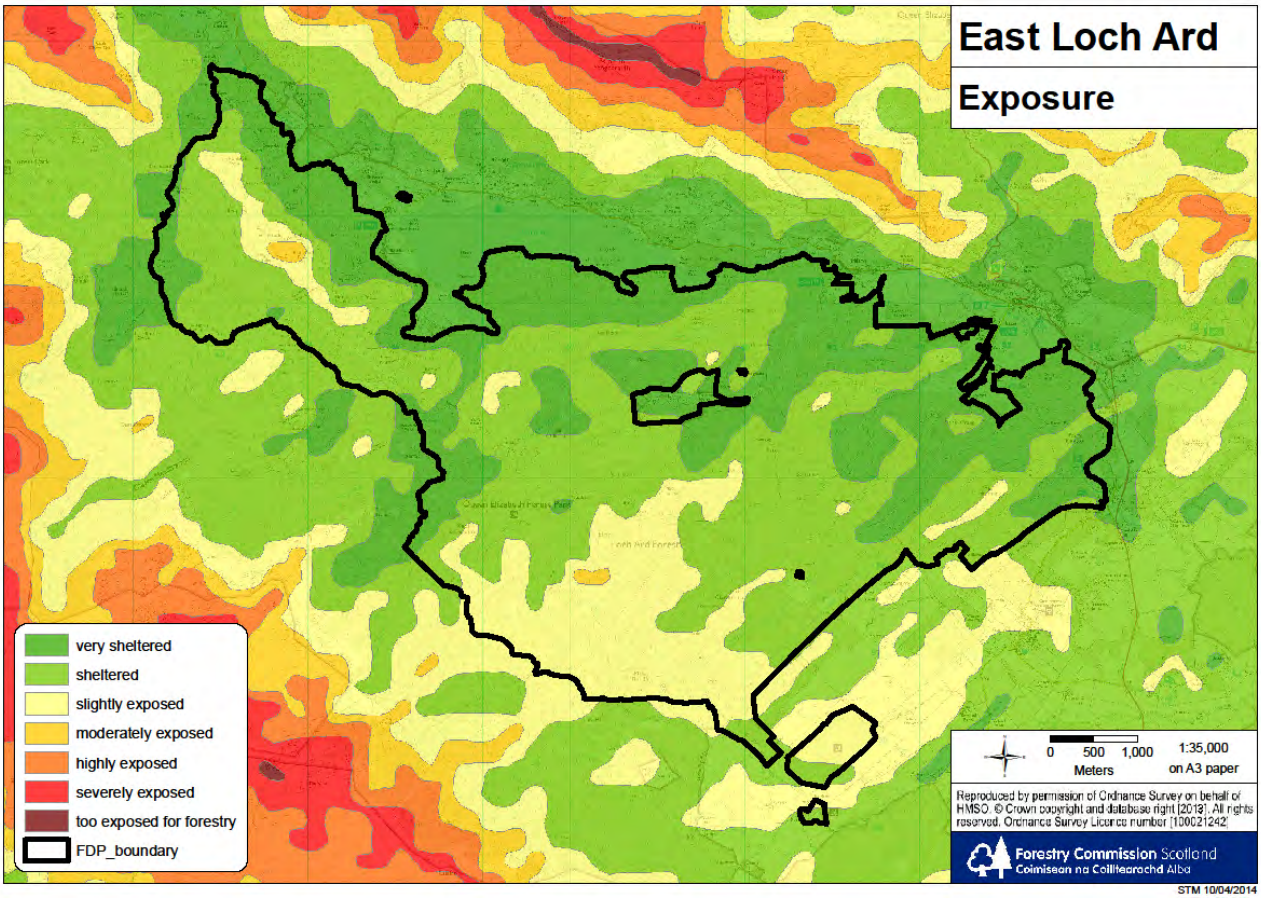


Figure 3.1 East Loch Ard: Exposure

3.1.4 Future climate

Predicting the impact of future climate change presents one of the biggest challenges in forest planning. Analysis carried out by Forest Research indicates an overall increase in average temperatures with warmer summers and milder winters (Figure 3.2). There will be regional variation in the future rainfall pattern and distribution, with a predicted decrease in summer rainfall in the east but a predicted increase in the west of the country. This will lead to more frequent drought in the east but a reduction in moisture deficit in the west (Figure 3.2).

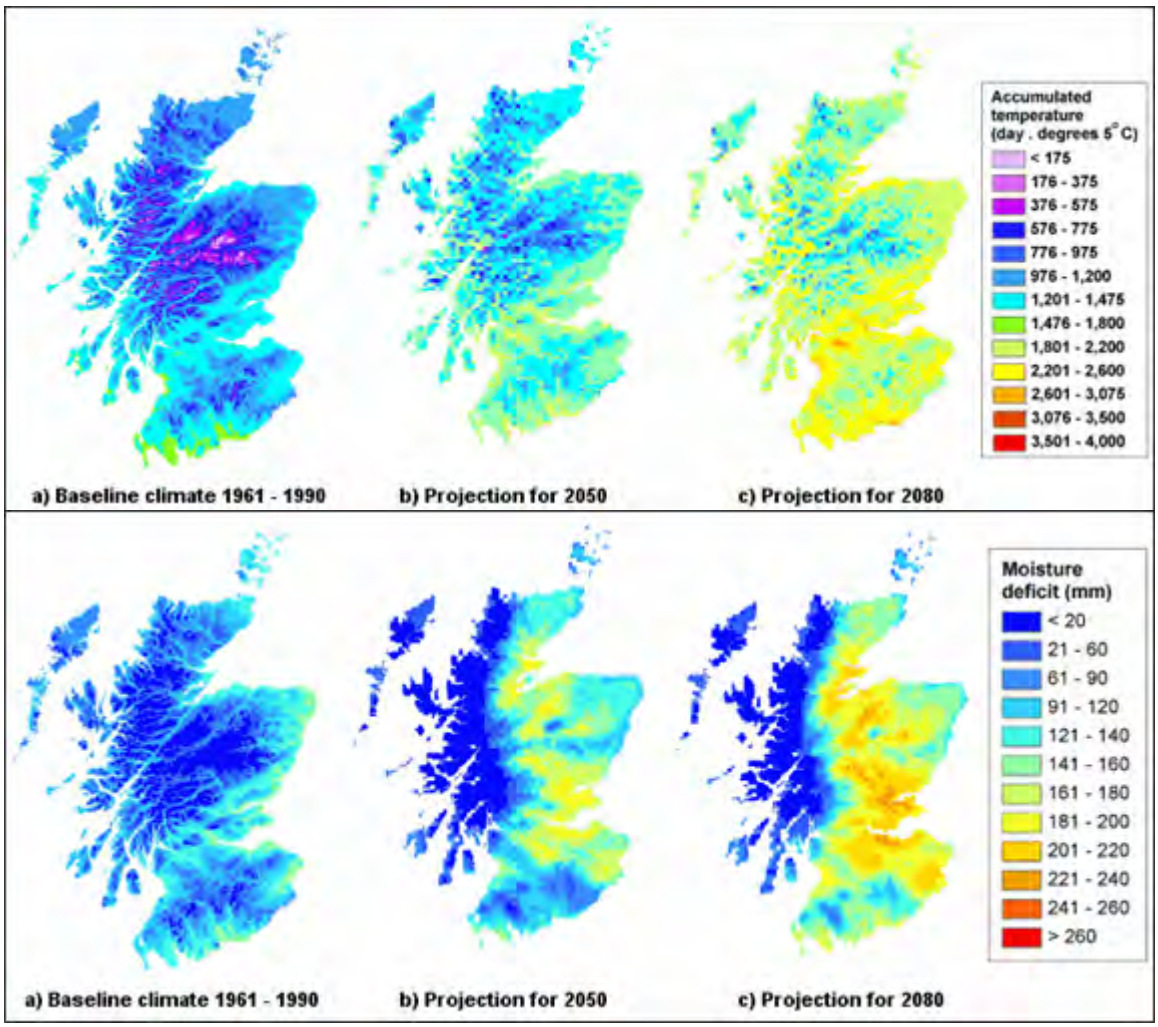


Figure 3.2 Predicted future warmth (top) and moisture deficit (bottom) – high emissions scenario

There is less confidence in predicting changes in other climatic parameters such as windiness and extreme winter cold or summer heat. However, there is a general belief that the number of frost days will decrease and that the

incidence and severity of extreme events (e.g. gales and heavy rain) will increase.

3.2 Biodiversity and environmental designations

There are a wide range of habitats in the LMP area ranging from rivers and lochans, bog habitats, and semi-natural woodlands to monoculture spruce stands. A variety of important flora and fauna is supported by these habitats. There are some 383ha of ancient woodland sites (Figure 3.3, Appendix X), though many of these have been planted with non-native conifers. Approximately 163ha of the area are SSSI designated for their upland oakwood features (see zones map). These sites have national or regional significance and the ground flora at Fairy Knowe and Doon Hill, in particular, is unusually diverse indicating more nutrient rich soils than in Drumore Wood. The sites are considered to be in "unfavourable – recovering" condition and future management will be aimed at improving this.

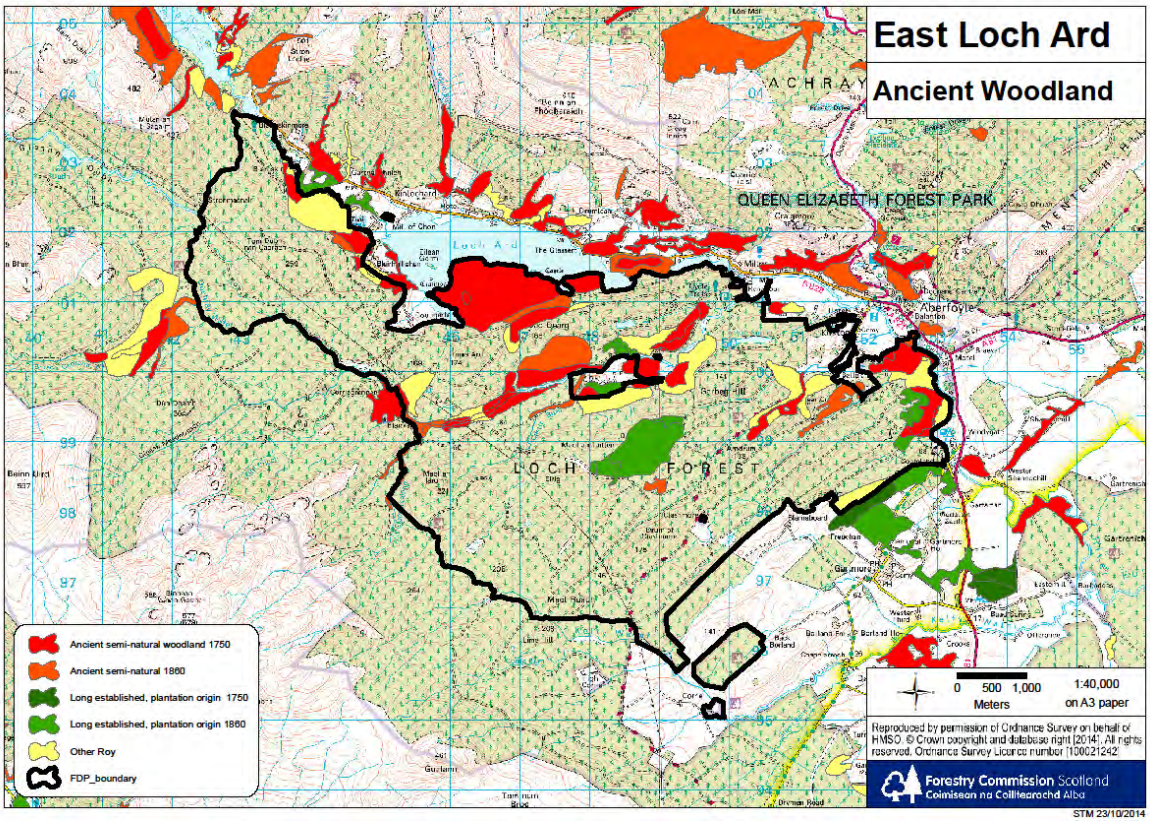


Figure 3.3 East Loch Ard: ancient woodland (see Appendix X for explanation of terms)

Rhododendron ponticum bushes are present throughout the LMP area and a programme of control is being implemented. Sitka spruce and western hemlock natural regeneration is also frequent and is being controlled where this is considered undesirable.

Notable bird species include osprey, buzzard and sparrowhawk. Black grouse are also present. The wide range of habitats provides niches for other woodland and open habitat species. The area is important for red squirrels for which Norway spruce is a beneficial species. Otters are known to be present and there has been a successful water vole re-introduction programme. This mammal is now expanding its range throughout the area. The Scottish wood ant is found at several sites, particularly in the vicinity of Drumore Wood.

Prior to operations coupes will be assessed for the presence of species of conservation interest and appropriate control measures put in place.

3.3 The existing forest

3.3.1 Species, age structure and yield class

Table 3.2 shows the species distribution for the plan area. Sitka spruce dominates the forested area and, together with a much smaller proportion of Norway spruce, makes up 66% of this. Scots pine makes up 6% of the planted area and broadleaves make up 12%.

species	Area ha	Area %
Oak	120	3.4
Birch	175.8	5.0
Mixed broadleaves	126.9	3.6
Sitka spruce	1560.3	44.3
Norway spruce	150.1	4.3
Scots pine	199.3	5.7
Larch	109.0	3.1
Lodgepole pine	83.6	2.4
Mixed conifers	57.9	1.6
Open	936.2	26.6
	3519.1	100

Table 3.2 Species diversity, East Loch Ard, 2015

The age distribution (Table 3.3) is skewed towards the older age classes and this reflects the large area devoted to CCF. Clearfelling and restocking over the past 20 years has been limited to those areas outside the CCF zone, apart from where clearance of windblow has been necessary. Of those stands greater than 60 years old, approximately 20% (4% of total wooded area) is over 100 years old.

age	Area (ha)	Area (%)
60+	601.7	23
41-60	538.0	21
21-40	737.6	29
11-20	426.3	17
1-10	261.7	10
	2565.3	100.0

Table 3.3 Age distribution (% planted area), East Loch Ard 2015

Productivity (measured as yield class, Table 3.4) is potentially high in East Loch Ard, and over half the wooded area is recorded as having yield class 16 or above. The highest yield classes are for Sitka spruce and Douglas fir, on better soils, but Norway spruce is also capable of producing yield class 20. Younger trees will not have grown sufficiently to be able to estimate yield class, accurately, but birch and aspen are known to be capable of putting on rapid height growth on good sites in the plan area. Over 50% of the area of yield class 10 or below is either broadleaved species or Scots pine, a further 25% is larch or lodgepole pine.

Yield class	Area (ha)	Area (%)
≥20	422.8	17.7
16-18	789.3	33.0
12-14	451.9	18.9
≤10	725.3	30.4
	2389.3	100.0

Table 3.4 Yield class (% forest >YC 0), East Loch Ard 2015

3.3.2 Access

There is an extensive road network throughout the forest. Some upgrading will be necessary to allow timber traffic to access certain coupes and new roads will be required before coupes 34023, 30042 and 30027 are harvested. There are restrictions on the use of some forest roads where they cross tunnels carrying water from Loch Katrine to Glasgow.

There are several access points for timber traffic and these are indicated on the road map. Timber from the southern half of the forest can be taken through Hoish Farm directly to the A81 south of Aberfoyle. This reduces the use of the B829, Aberfoyle to Kinlochard road, as well as other minor routes. However, access points such as those at Milton and Lemahamish will continue to be used. The minor roads which serve these entrances are consultation routes and the relevant authorities are kept informed of proposed usage by timber traffic. A voluntary agreement, covering timber haulage, with the community is in place and will be reviewed at regular intervals.

Several new ATV tracks have been created to facilitate restocking and deer management and it is likely that more will be built in future.

3.3.3 Potential for continuous cover forestry

Approximately 1400ha were designated for management using continuous cover forestry (CCF) principles. These are concentrated in the north and north east of the combined management plan areas. The sheltered nature of this part of the forest offers good potential for CCF, particularly where brown earth soils predominate. These are also areas of high recreation use and there are potential environmental benefits from using CCF. A thinning programme is in place, with interventions at 5-10 year intervals. Methods of regenerating the next stand will be determined as the overstorey develops and will, in part, be determined by choice of species.

There has been damage in the CCF area due to severe wind events and in the short term some of this zone will be managed by clearfelling. However opportunities have and will be taken to replant or encourage natural regeneration of desirable species and these young stands will be brought into CCF management where appropriate.

3.3.4 Current and potential markets

There is continued demand for softwood timber of all dimensions and it is expected that there will be a ready market for spruce from both clearfell and thinning. Future markets for hardwood species are uncertain but expectations are that these will develop over time; in particular the demand for biomass for the woodfuel market is expected to grow.

3.4 Landscape and landuse

3.4.1 Visibility, landscape character and value

East Loch Ard forms part of a large area of forest covering much of the upper Forth catchment between Ben Lomond and Ben Venue. Although the northern boundary is marked by the River Forth and Loch Ard to the south the LMP area merges with the remainder of the QEFP. The landscape is one of rugged low hills and hollows, linear in character to the south of the Highland Boundary Fault but more broken to the north. The wooded hills seen against the backdrop of Loch Ard and Loch Chon are an iconic part of the Trossachs landscape, which attracts thousands of visitors throughout the year.

There are distant views of the forest from the summit of Ben Lomond and the surrounding ridges but otherwise the vistas are more restricted. The Forestry Commission Scotland visitor centre at the Lodge overlooks the eastern part of the forest and there are several attractive viewpoints along the B829, particularly looking across Loch Ard. Of equal significance are the varied internal views, especially those that look out to the surrounding hills and mountains. The linearity of the way leave for the major powerline which runs through the forest is only noticeable from high positions looking directly along its line. Nonetheless, efforts are ongoing to soften the impact of this artificial feature.

3.4.2 Neighbouring land use

The surrounding land is dominated by productive forestry, most managed by Forestry Commission Scotland. There is some, mainly pastoral, agriculture to the south east and several small holdings. The River Forth is a salmon fishery and Loch Ard provides a focus for water sports. The villages of Aberfoyle and Kinlochard are important tourist destinations, benefitting from their position within the Trossachs.

3.5 Social factors

3.5.1 Recreation

The recreation map illustrates the main promoted facilities in the forest and associated visitor zones, which are used to plan the management of these facilities. East Loch Ard is a popular recreation area with facilities for walkers, cyclists and horse riders. There are parking facilities at Milton, Lemahamish and Blairhullichan with trails of various standards leading off from these. The Rob Roy Way long distance path passes through the

woodland and the area is used regular by Duke of Edinburgh groups. As well as the promoted and waymarked trails there is a sculpture trail around Lochan Spling. The extensive road and trail network means that diversions are available to avoid forest operations. The forest can also be accessed on foot from several other points.

3.5.2 Community

There is regular consultation and involvement with the local communities in regard to several issues including, timber haulage, goat and deer management, flooding and development opportunities such as small scale hydro-electricity schemes.

3.5.3 Heritage

The conservation and heritage map shows the locations of one hundred features of interest, though some of these are ill defined. The majority are associated with the City Of Glasgow Corporation Water supply aqueducts, which run from Loch Katrine to Milngavie, and include aqueduct bridges, shafts and marker pillars. Amongst other features are farmsteads, various other buildings and mine workings. There is a scheduled monument (cup and ring marked stone) just outside the LMP boundary in the vicinity of Blarnaboard (GR NS510979).

3.6 Statutory requirements and key external policies

The key policy documents influencing the LMP are the UK Woodland Assurance Standard, the UK Forestry Standard (3rd Edition), the Scottish Forestry Strategy, the Loch Lomond and The Trossachs National Park (LLTNP) Plan and the LLTNP Landscape Character Assessment.

4.0 Analysis and Concept

The analysis and concept map summarises the main constraints and aspirations for the LMP area.

4.1 Analysis

- Climatic and site conditions suggest a range of native tree species could be grown productively
- Despite being relatively sheltered, parts of the continuous cover area have been affected by windblow.
- Important for commercial conifer production.
- Loch Katrine-Milngavie aqueducts restrict movement of heavy traffic.
- A number of species of conservation interest.
- Riparian zones, particularly along Duchray Water highlighted as potential areas for flood mitigation.
- Recreation concentrated in relatively narrow zone in the north east part of the forest.
- Few prominent external viewpoints but there are several sites with interesting open views from within.
- Two sites of special scientific interest.
- Extensive sites of ancient woodland some of which are planted with non-native conifer.
- Several forest entrances provide difficult access for heavy vehicles.
- Queen Elizabeth Jubilee Pinewood an important element of previous plan as a developing ecosystem.
- Duchray Water is a failing catchment because of acidification.

4.2 Concepts of the plan

- The zone map illustrates areas, which will be managed in a broadly similar way.
- Productive conifer production will remain an important element of the management plan with silvicultural techniques varying according to site type and management zone.
- Opportunity will be taken to expand the area of productive broadleaves.
- Opportunity will also be taken to diversify productive conifers where site conditions are suitable.
- Continuous cover techniques will be regularly reviewed to ensure they are appropriate for site conditions.
- The FHN will be managed for biodiversity and, where appropriate, natural flood management will be implemented.
- SSSIs will be managed as per plans agreed with SNH.

- Queen Elizabeth Jubilee Pinewood will be retained and further developed to provide a varied ecosystem based on the existing mature stands.
- A recreation infrastructure will be maintained to provide a welcoming and diverse visitor experience.
- Known archaeological features will be protected and maintained.
- A programme to control non-native species will be established.
- Visual diversity will be maintained through careful planning of coupes and species choice.
- Management in the Duchray catchment will take account of the requirement to raise it to “good status”.

5.0 Land Management Plan Proposals

5.1 Management

A range of management techniques will be used to meet the objectives of the plan and the zones map illustrates areas where management will be broadly similar. These zones are not to be interpreted rigidly; there will be flexibility in approach within them and over time.

5.1.1 Continuous Cover Forestry

Large areas were designated as continuous cover forestry in the previous plan and the intention is to continue with this approach where site and crop conditions allow and it meets site objectives. Although shelterwood systems will remain the underlying basis for management an adaptive approach will be employed to take into account changing stand conditions. Therefore the full continuum of CCF techniques might be used within the zone, ranging from single tree selection to mini-clearfells of up to 3ha. Because of extensive wind damage, parts of the CCF zone will be managed through clearfelling in the short to medium term. Coupe size and shape has been determined in such a way that extensive wind damaged areas are cleared and future risk minimised. Introducing clearfells, of all sizes, into the CCF area will also permit a more flexible approach to species choice, for example where ancient woodland restoration or native woodland expansion is a priority in unthinned spruce stands. Where development and enhancement of native woodland remnants is an objective then gradual removal of the non-native overstorey is generally to be preferred.

Where clearfelling has taken place, the expectation is that the next generation of trees will be managed using CCF principles and the opportunity will still be taken to extend the overall area of CCF wherever possible.

5.1.2 Clearfelling

To the south and west of the CCF zone the climatic and soil conditions become more challenging; in addition there is less recreation pressure. The principle management type here will be to clearfell and restock with mainly productive, coniferous species. Coupe size and shape is designed to take account of current species distribution, landscape and topography and to maintain a diverse structure. The latter is key to building a sustainable and resilient forest in this zone. If conditions allow coupes will be thinned to improve timber quality. Expected rotation lengths are in the order of 40 – 50 years.

Coupes for which approval to fell is being sought are listed in table 5.3.

All harvesting operations will be carried out in accordance with the UK Forestry Standard Guidelines, Forests and Water (5th edition).

5.1.3 Thinning

Timely thinning is key to the success of CCF and can improve crops, which will eventually be clearfelled. In the CCF zone a regular programme of thinning will be carried on where stands are expected to remain relatively windfirm and ground conditions allow. In addition, opportunities will be taken to thin and clean regenerating stands of native broadleaves and bring these into productive management, including non-SSSI ancient woodland sites.

5.2 Future habitats and species

The future habitats map shows the restocking proposals of the plan. A range of objectives will be met using a larger variety of species than has been used in the past. Details of species to be established in the 10 year period of this plan are to be found in table 5.3.

5.2.1 Continuous Cover Forestry

Much of the CCF zone is suited to species other than Sitka spruce and both native and non-native broadleaves and conifers will be introduced. Production is still a key objective and species will include Douglas fir, Norway spruce and sycamore. Where it is hoped to achieve restocking by natural regeneration then Sitka spruce will still be the dominant species where this forms the current overstory. Species change will be more easily achieved by underplanting or planting in small clearfells.

5.2.2 Clearfell Zone

Sitka spruce will remain the dominant species within the productive clearfell zone however the percentage cover of this species will be reduced. This will meet a range of objectives including resilience to future pests and diseases and mitigation against acidification of river systems. Open space and riparian buffer zones will be incorporated into coupes, though some of these may be allowed to fill with natural regeneration, especially where this is of native species. Where climatic and site conditions are suitable alternative species to Sitka spruce, such as Norway spruce and Douglas fir will be planted, to add to the diversity of species. Scots pine will also be planted on appropriate sites.

5.2.3 Plantations on Ancient Woodland Sites

The long term objective for ancient woodlands sites is either full restoration to native species or enhancement of woodland remnants. The long term aim is to have native species dominant in the woodland, 90% in the case of restoration. Depending on the particular circumstances this may take several decades to achieve. Some older non-native conifers and broadleaves, will be retained in the medium term for landscape and environmental reasons. Similarly some natural regeneration of non-native species is acceptable but selective removal of others is desirable, in particular Sitka spruce and Western hemlock. Where planting is to be the regeneration method, then only native species will be used. Native woodland expansion will be encouraged around the SSSIs, adjacent to other ancient woodland sites and the Queen Elizabeth Jubilee Pinewood ecosystem and habitat network generally. Outwith the SSSIs these woodlands could be of a productive nature.

5.2.3 Forest Habitat Network

There will be a mix of open ground and woodland in the forest habitat network. The latter will be achieved largely through natural regeneration, which will be managed productively if possible. Parts of the riparian zone, particularly of the Duchray, will be planted, or allowed to naturally regenerate, to replicate natural flood mitigation measures used elsewhere in Loch Ard Forest. Where non-native natural regeneration occurs, within the FHN, this will be managed and restricted to a maximum of about 400 stems per hectare. Areas shown as open, e.g. major wayleaves will be maintained as such. Where possible edges will be managed to avoid a straight line effect. Open space, of variable width, will also be maintained along roadlines. Any areas of priority open habitat will also be managed to maintain their essential character.

The presence of *Rhododendron ponticum* will be monitored and appropriate action taken to control this non-native invasive species.

5.2.4 Visitor Zones

The concept of visitor zones (see recreation map) will inform management of key recreational facilities. The prime objective is to provide a safe, high quality and positive woodland experience for visitors to the forest. Welcome zones, are the key arrival and destination points and will be the most intensively managed. The aim in the interactive zone is to create a diversity of experience within the immediate vicinity of promoted routes and trails. Where the opportunity arises, the passive zone will be managed at a larger

scale but in a similar way. The promoted trails will continue to be managed to a trail grade standard.

5.3 Restructuring

This plan continues the process of restructuring developed in the previous plan. Diverse age structure is easier to achieve in the clearfell areas and some older stands have been retained. Diversity of species will be achieved in part by not planting up to streamsides and maintaining some of these as open space. Age diversity will also be increased in the CCF area as replanting and natural regeneration is achieved. More details can be found in sections 5.5 and 5.6.

5.4 Future management

Table 5.1 indicates net felling area and volume figures for the plan area. These values are approximate and coupes will be surveyed to provide more precise figures prior to felling. In addition, approximately 53000m^3 will be produced through thinning a cumulative total of 1050ha of woodland.

Phase	Area (ha)	Volume (m^3)
1	127.2	58,537
2	204.2	104,750
Totals	331.4	163,287

Table 5.1 Proposed felling

Table 5.2 summarises the establishment proposals for the plan area. The figures include areas previously felled but not yet restocked, accounting for the difference between area felled and restocked.

	Sitka spruce	Mixed conifer	Scots pine	Mixed broadleaves	Open	Totals
Phase 1	37.9	60.2	19.2	153.5	50.9	321.7
Phase 2	44.2	73.7	19.4	68.4	38.5	244.2
Totals	82.1	133.9	38.6	221.9	89.4	565.9

Table 5.2 Proposed establishment

Where production is the key objective conifers will be planted at densities of about 2700 stems per hectare and broadleaves in the region of 3500.

Target densities for native woodland regeneration will vary depending on site objectives. Regeneration will be monitored and future management reviewed depending on the results of this. Re-establishment should be achieved within ten years of felling.

Table 5.3 lists those coupes for which approval is sought and gives further detail on the species to be felled and restocked.

Coupe	Gross Area	Felling		Establishment	
		Species	Area	Species	Area
30001	9.3	SS	3.5	OK	2.6
		NS	1.1	BI	2.1
		SP	0.9	Native Broadleaves	1.9
		JL	1.1	SP/NS	1.3
				Open	1.4
30963	22.4	SS	7.8	SS	8.3
		NS	3.8	SP/NS/DF	2.3
		SP	2.2	BI	4.2
		DF	1.1	Native Broadleaves	3.3
		HL/JL	1.8	Open	4.3
		LP	2.9		
30036	40.4	SS	13.4	BI	16.2
		NS	15.4	SP	12.1
		SP	2.9	Open	12.1
		DF	1.3		
		JL	2.1		
		LP	4.4		
30942	9.1	SS	6.5	SS	1.9
		SP	1.0	NS	2.7
		JL	0.4	DF	1.8
				Mixed Broadleaves	1.8
				Open	0.9
30951	6.5	SS	3.7	OK	2.6
		NS	0.1	BI	2.6
				Native Broadleaves	0.7
				SP	0.6
30956	3.8	SS	2.6	BI	1.9
				Native Broadleaves	1.1
				Open	0.8
34805	1.5	SS	1.0	OK	0.6
				BI	0.4
				Native Broadleaves	0.2
				Open	0.3
34801	9.5	SS	9.5	OK	3.8
				BI	2.8
				Native Broadleaves	1.0
				Open	1.9

Table 5.3 Coupes for which approval for felling and restocking is being sought

Coupe	Gross Area	Felling		Establishment	
		Species	Area	Species	Area
34826	29.3	SS	18.1	OK	11.7
		NS	0.9	BI	8.8
				Native Broadleaves	5.9
				Open	2.9
34223	37.8	SS	28.4	NS	11.3
		NS	5.8	DF	11.3
		JL	0.1	Mixed Broadleaves	7.6
				Mixed Conifer	2.0
34840	20.6	n/a	n/a	NS	6.2
				DF	6.2
				Mixed Broadleaves	6.2
				Mixed Conifer	2.0
34803	15.6	SS	9.0	NS	3.2
		NS	3.4	DF	3.2
				Mixed Conifer	1.2
				Mixed Broadleaves	3.2
				BI	2.6
				OK	0.8
				Open	1.4
34802	23.4	n/a	n/a	NS	6.4
				DF	4.3
				Mixed Conifer	4.2
				Mixed Broadleaves	4.2
				BI	0.6
				Native Broadleaves	0.4
				Open	3.3
34812	36.7	SS	25.1	NS	5.6
				DF	3.3
				Mixed Conifer	2.2
				BI	7.7
				Native Broadleaves	5.1
				Open	12.8
34039	39.0	SS	8.5	NS	23.4
		NS	3.2	BI	7.8
		JL	1.2	Native Broadleaves	3.9
		LP	8.2	SP	3.9
		SP	8.3		
		WH	0.1		
34042	44.1	n/a	n/a	OK	13.3
				BI	13.2
				SP	8.8
				Open	8.8

Table 5.3 continued

Coupe	Gross Area	Felling		Establishment	
		Species	Area	Species	Area
34036	18.4	n/a	n/a	NS	7.1
				BI	4.1
				Native Broadleaves	3.6
				SP	1.4
				Open	2.2
34034	16.0	n/a	n/a	BI	7.4
				OK	2.5
				SP	2.5
				Native Broadleaves	0.7
				Open	2.9
34022	28.3	SS	17.7	SS	11.5
		JL	5.0	Mixed Broadleaves	8.0
				Mixed Conifer	4.6
				BI	1.6
				Open	2.6
34023	51.4	SS	37.9	Native Broadleaves	15.4
		HL	12.1	Mixed Broadleaves	10.3
				Mixed Conifer	10.3
				Open	15.4
34004	22.7	SS	11.1	SS	13.6
		NS	0.7	Mixed Conifer	4.4
		OMS	1.7	Mixed Broadleaves	2.4
		JL	0.2	Open	2.3
		HL	0.9		
		LP	1.5		
		SP	1.7		
34008	37.9	SS	12.0	SS	20.4
		JL	0.5	Mixed Broadleaves	4.2
		LP	15.7	Mixed Conifer	3.4
		SP	0.5	BI	1.2
		WH	1.4	SP	3.4
				Open	5.3
34016	37.2	n/a	n/a	SS	19.0
				Mixed Broadleaves	4.7
				SP	2.7
				BI	3.0
				Open	7.8
34019	10.6	n/a	n/a	SS	7.4
				SP	3.2

Table 5.3 continued

(abbreviations: OK, oak; BI, birch; SP, Scots pine; SS, Sitka spruce; NS, Norway spruce; DF, Douglas fir. Mixed conifer can include species listed individually; mixed broadleaves can include native species).

5.5 Species tables

Table 5.4 and Figure 5.1 indicate how relative species composition will change over a period of 40 years. The figures are expressed as a percentage of forested area, excluding permanent and temporary open space. Sitka spruce will remain the most important individual productive species but percentage of all broadleaves will equal that of Sitka by 2055. The relative area of all broadleaved species will rise from approximately 16% to 39% with birch being the dominant species.

Species	2015	2025	2035	2045	2055
Sitka spruce	60.3	53.0	44.7	37.1	35.2
Norway spruce	5.7	6.2	6.7	7.2	7.9
Scots pine	8.0	8.7	8.7	10.3	9.9
Larch	4.2	3.3	2.4	1.9	1.7
Mixed conifer	5.5	5.5	5.6	6.0	6.5
Birch	6.8	10.7	14.4	17.2	17.1
Oak	4.6	5.0	7.4	8.7	8.8
Native broadleaves	0.7	0.7	0.5	0.4	0.4
Other broadleaves	4.2	6.9	9.6	11.2	12.5
	100.0	100.0	100.0	100.0	100.0

Table 5.4 Change in species diversity over time in East Loch Ard (percentage of forested area)

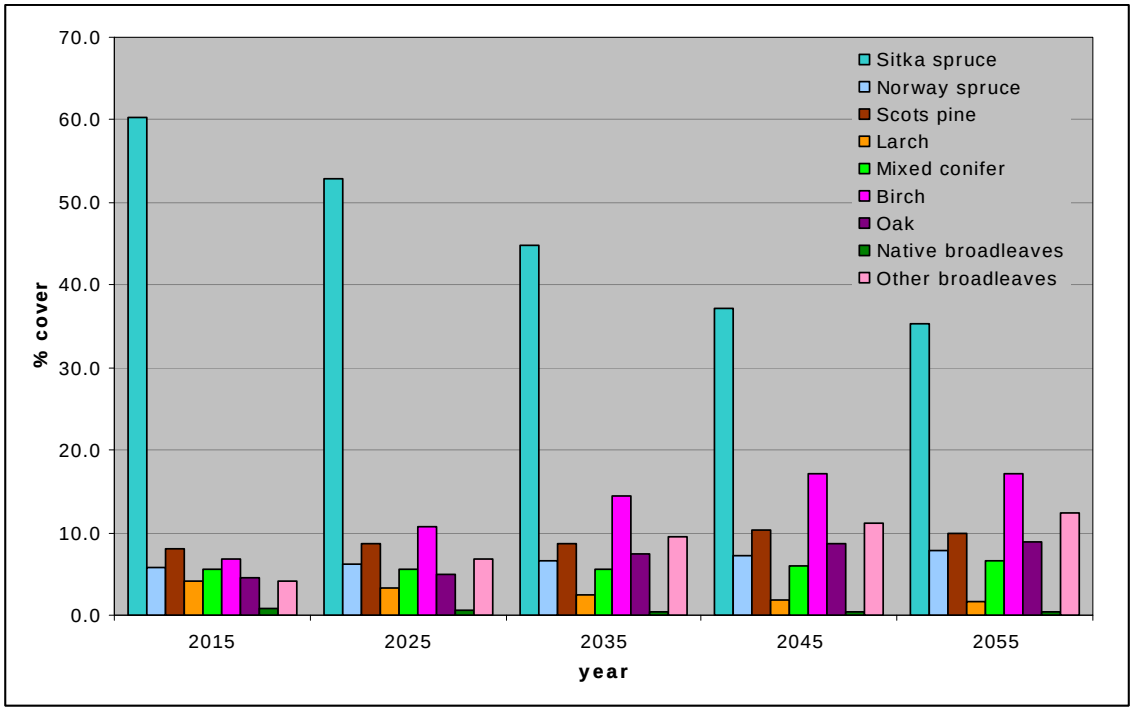


Figure 5.1 Change in species diversity over time in East Loch Ard (percentage of gross area)

5.6 Age structure

Age class	2015	2025	2035	2045	2055
0-10	10	19	20	17	15
11-20	17	11	18	17	15
21-40	29	35	26	29	33
41-60	21	14	16	15	12
60+	23	21	20	22	25
	100.0	**100.0**	**100.0**	**100.0**	**100.0**

Table 5.4 Age structure in East Loch Ard (percentage of forested area)

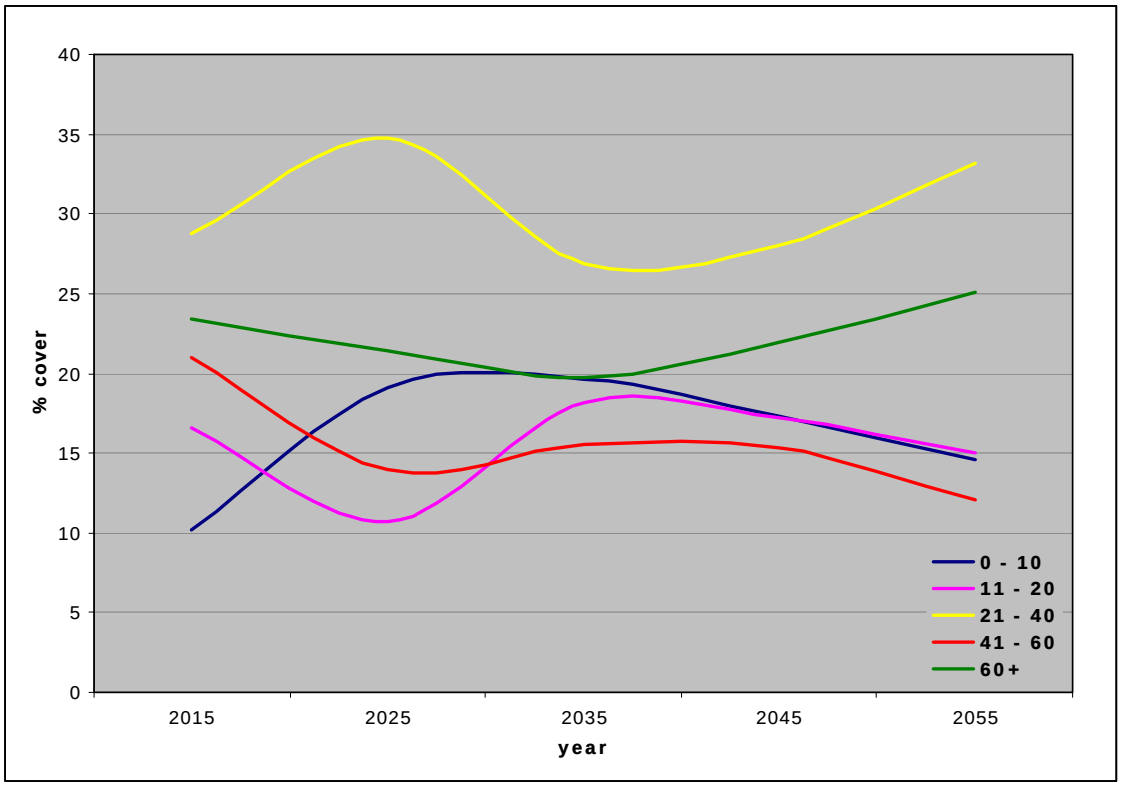


Figure 5.2 Age structure in East Loch Ard (percentage of forested area)

Table 5.4 and Figure 5.2 show the change in relative age structure over the next 40 years. By 2034 there will be a fairly even distribution of ages up to 40 years old as restocking follows clearfelling. There is a steady increase in the area of older trees explained by the extensive areas categorized as continuous cover forestry.

5.7 Management of open land

	2015	2025	2035	2045	2055	2065
Open	26.6	26.1	25.2	27.1	21.6	25.7
Forest	73.4	73.9	74.8	72.9	78.4	74.3

Table 5.4 Relative area of open ground and forest (%).

Table 5.4 indicates that the relative distribution of open space to forest will remain fairly stable over the next 50 years. Open ground includes the road system (and associated buffer), major wayleaves and a range of habitat types. Open land is also incorporated into most of the restocking coupes though these are not identified specifically in the plan. Some sites will be prioritised and an open character maintained and these will be chosen following site assessment. Non-native species will be removed from priority open space, following the limits set out in the tolerance table in appendix II. In other areas up to 20% tree cover will be considered acceptable.

5.8 Deer management

East Loch Ard is grouped with six other plan areas into the Loch Ard Deer Management Unit, which covers a total of 9000ha (see appendix IX). The Management Plan for this Unit outlines the approach to deer control in the forest. The vulnerability of broadleaved trees and “soft” conifers to deer browsing is recognised and control will aim to keep this to a minimum. Fencing may be required in some instances. Deer management is an important element in the management of SSSIs and will be reviewed when the individual SSSI management plans are updated.

5.9 Access

Two new sections of road will be required, totalling 2100m, to access coupes due to be felled during the plan period. The approximate routes are shown on the roads and quarries map. Two permanent forwarder tracks will be required in order to access coupes for felling and thinning. The approximate total length of these is 1530m. These tracks will have a similar specification to roads but without the final surface being applied. A number of ramps will be required to enable harvesting machinery to get into felling coupes. The precise location of these will be determined during operational planning but, based on an average of one ramp for every 100m of road/coupe interface, up to 117 ramps will be needed. Ramps will be approximately 3m wide and up to about 10m long and will not be retained

as permanent features. In addition about 25.2km of ATV tracks will be required to facilitate silvicultural operations and deer management on coupes to be restocked. These tracks will be approximately 2m wide and there will be a minimum amount of disturbance when they are being constructed. They will not be retained as permanent features and will be allowed to grass over once restocking is complete. Indicative positions of the tracks are shown in the roads and quarries map. Final position will be within ± 100m of the indicated positions and the nominal area amounts to 5.0ha. An EIA determination form for roads and tracks is to be found at the front of this document and a summary found in Appendix VI.

5.10 Critical success factors

To achieve the main objectives of the plan the following must be completed:

1. Construction of proposed roads to allow access to approved felling coupes.
2. Construction of ATV tracks to allow access for restocking and deer management.
3. Management to allow successful establishment of natural regeneration and protect planted species.
4. Clearfelling and restocking those coupes approved for felling in the ten year period of the plan.
5. Adaptive management within CCF zone to take account of natural disturbances.

Appendix I: Land Management Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Forestry Commission Scotland	19/08/13	Attended scoping meeting 04/09/13	How many designated sites are there and how will they be incorporated into LMP?	There are two SSSIs which will be managed in accordance with SNH approved plan. Updates to these are being synchronised with new LMPs when possible.
			What is the background to the Queen Elizabeth Jubilee Pinewood and what is its future role in the plan?	This area was recognised about 15 years ago as being unique in the LMP area. It was locally designated to mark 50 years since the Queen's coronation. Management will continue with felling non-native conifers and promoting a varied pinewood ecosystem.
			How much of the area will be felled during the 10yr approval period.	This will be finalised during LMP production but the current plan is open to revision. An isolated block in the south east of the area is due to be felled and may not be restocked.
			What viewpoints should be used to illustrate forest development over time?	The Lodge looks over the eastern part of the forest but there is limited felling and restocking here which is the main reason for using visualisations. Other vantage points are distant and would provide small and flat perspectives. Agreed that photographs

				illustrating internal and external features might be appropriate.
Loch Lomond and The Trossachs National Park	19/08/13	Attended scoping meeting 04/09/13	What is the condition of the SSSIs?	Both sites are in unfavourable recovering condition. See above re management.
			What is the current situation with mink?	Mink are present in the LMP area and there is an ongoing programme of control.
			Stressed the importance of maintaining water quality.	Planning and operations will take into account and adhere to Forest and Water Guidelines. Specific riparian management will be put in place to improve bio-diversity, water quality and flood management.
			There is a concentration of recreation and access in the northern part of the LMP area, but an aspiration to create some longer distance routes.	Concentration recognised, District Recreation team have been part of discussion on extending trail network.
			FCS should be aware of established long distance routes through forest and ensure these, and access generally, are kept open during operations.	FCS are aware of these routes. There are sufficient roads and tracks to ensure routes and access can be kept open, using diversions, if necessary.
			Are there specific plans to develop the Milton access and promote the artwork accessible from this point.	Detailed developments are not within the remit of the LMP but the concept of visitor zones helps target specific actions at detailed planning stage.

			Stressed the importance of maintaining open space and internal viewpoints to assist orientation, spatial awareness and education. Would FCS consider using volunteers to assist with management? Diversity of colour in the landscape is important. Would FCS consider species such as sycamore? How will felled timber be managed at roadside in recreation areas?	This is acknowledged and FCS will examine opportunities for incorporation of permanent open space into the LMP, though these require careful management. This will be raised with Recreation Team. A range of species will be considered for planting, including sycamore, to provide a range of environmental benefits. New roads are planned and diversions will be put in place if necessary for health and safety reasons. FCS recognises concerns of local communities. Local access for timber traffic will be retained with restrictions put in place to minimise disruption.
Stirling Council (roads)	19/08/13	No response received.		FES will continue to provide haulage details to Stirling Council.
SEPA	19/08/13	Email correspondence and meeting in January 2015.	Discussion regarding measures to improve acidification status of Duchray catchment from moderate to good.	Agreed that measures already implemented are beneficial and that this direction of travel should continue. FES to reduce overall area of Sitka spruce apply best practice guidance at restocking and continue dialogue with SEPA.

SSE	19/08/13	Did not attend scoping meeting. Email correspondence.	Request to clear any trees threatening powerlines as soon as possible and work towards developing a sterilisation strip to maintain resilience.	FCS will aim to clear powerlines and take further advice from SSE where necessary.
RSPB	19/08/13	Did not attend scoping meeting.	No issues raised	
Gartmore Community Council	19/08/13	Attended scoping meeting 04/09/13	Appreciative of work being done, would welcome improved communications regarding tracks and access. Would appreciate communications regarding operations.	Comments and suggestions are welcomed and will be passed on to Recreation Team FCS will notify forest users and communities of timber operations.
Strathard Community Council	19/08/13	Invitation not received. Relevant documentation forwarded following scoping meeting	No specific issues relating to the plan raised.	FCS will continue to talk with the local community regarding issues which might affect them.
Mountaineering Council for Scotland	19/08/13	Did not attend scoping meeting. Email correspondence.	No issues raised.	
Wild Land Group	19/08/13	No response received.		
Scottish Water	19/08/13	No response received.		
River Forth Fisheries Trust				
SNH	19/08/13	Did not attend scoping meeting.	Interested in plans for SSSIs, open space and deer management.	FES to maintain dialogue with SNH over management of sensitive areas.
Friends of Loch Lomond and the Trossachs	19/08/13	No response received.		

Appendix II: Tolerance Table

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species (including boundaries)	Windthrow response	Changes to road lines
FC Approval not normally required	Up to 1ha or 10% of coupe - whichever is less	For productive species, up to 3 planting seasons after felling Up to 10 planting seasons for natural regeneration	Change within species group i.e. diverse conifers; broadleaves; Sitka spruce. Non native conifers in native woodland areas and designated open space up to 400 stems/ha. <20% increase in area of Sitka spruce	Up to 2ha as a single unit with >50%windblow	
Approval by exchange of letters and map	1ha to 5ha or 20% of coupe - whichever is less	For productive species, 3 – 5 years after felling	>20% increase in area of Sitka spruce	2ha to 20ha as a single unit with >50% windblow	Additional felling of trees not agreed in plan Departures of >60m in either direction from centre line of road
Approval by formal plan amendment	> 5ha or 10% of coupe	For productive species, over 5 planting seasons after felling	Change from specified native species Change between species groups	>20ha as a single unit	As above, depending on sensitivity

Appendix III. Land Management Plan Brief

The land management plan will take into account the key themes of the Scottish Forestry Strategy and the objectives are outlined below:

1. Manage and maintain the forest as a sustainable and diverse multi-purpose resource.
2. Manage the forest habitat network (FHN) to provide a diversity of habitats, including open space that will benefit a wide range of species.
3. Fully restore or enhance plantations on ancient woodland sites (PAWS), as appropriate.
4. Manage sites of special scientific interest (SSSI) in accordance with a plan agreed with SNH and seek opportunities to expand the area of native woodland around these.
5. Manage the Queen Elizabeth Jubilee Pinewood ecosystem to create a diverse ecosystem centred on existing mature Scots pine stands.
6. Continue to manage large areas using continuous cover forestry (CCF) principles and seek opportunities to expand this management type where possible.
7. Seek to expand the area of broadleaved woodland and use alternative conifers to Sitka spruce, where feasible, particularly in the CCF zone.
8. Manage broadleaves for production, where feasible, and where it does not conflict with conservation or recreation objectives.
9. Contribute to Forest District timber production through clearfelling and thinning.
10. Follow guidelines in managing felling and restocking in the Duchray Catchment to help achieve “good status” for this failing water body.
11. Maintain and enhance the recreational features of the forest through considered management around forest entrances and zones along promoted trails.
12. Manage timber haulage.
13. Protect heritage features.
14. Provide deer management infrastructure.

Appendix IV. Scoping Meeting Minutes

East Loch Ard Land Management Plan

(Amalgamating South Loch Ard and Drumore Land Management Plans)

Minutes of scoping meeting held on Wednesday 4th September 2013

Attendees: Mr Kenny Auld (LLTNP); Mr Tom Davies (FCS); Ms Lisa Duggan (LLTNP); Ms Janey Fleming (Gartmore Community Council); Mr John Hair (FES); Ms Sara Melville (LLTNP); Mr Stephen Murphy (FES);Mr Chris Sheldon (Gartmore Community Council);

Apologies: Ms Yvonne Boles (RSPB); Mr Ninian Clark (SSE) Mr Alan McDonnell (SNH); Mr Alasdair Milne (SEPA); Ms Andrea Partridge (MCfS);

Invited: Forth District Salmon Fisheries Board; Friends of Loch Lomond and Trossachs; Scottish Water; Scottish Wild Land Group; Stirling Council;

An invitation was sent to Strathard Community Council but this was not received and so they were unaware of, and did not attend, the meeting. A copy of the presentation and minutes of the meeting were sent to the Council for their comments.

The meeting convened at 1.15pm.

All present introduced themselves.

TD opened the meeting and explained its purpose. The Land Management Plan is a strategic plan seeking approval for felling and restocking of the combined Land Management Plan Areas over a ten year period. The aim of the meeting is to scope out those issues affecting the land management plan area that need to be considered in developing the plan. It is not necessary to provide answers to these issues at the meeting. A scoping report will be sent to all stakeholders.

SMu gave a short presentation reviewing the current plan and highlighting the main issues concerning its revision and resubmission for approval. He stressed that the plan will be developed within the context of Scottish Government policy. Recreation, conservation, landscape and timber production are key considerations.

TD asked how many designated sites there were in the LMP area and LD wondered what their condition was.

SMu said there were two SSSIs, Drumore Wood and Fairy Knowe and Doon Hill, both notified for their biological interest. He would have to check on current condition.

TD asked how the SSSIs would be incorporated into the LMP.

JH said that the SNH management statement would be adhered to and appended to the LMP. FCS are attempting to synchronise LMP production with the publication of updated SSSI monitoring and planning.

LD responded to a request for other issues of conservation concern by highlighting the potential problem with mink, especially in relation to work re-establishing water voles into the area.

JH emphasised the presence of red squirrels which appear to be doing better than greys. This may, in part, be related to the presence of pine martens.

LD also stressed the importance of water quality and also asked about FCS's intentions regarding open space.

JH agreed that maintaining water quality in the rivers and burns was of paramount importance and that FCS would follow relevant guidelines when developing the plan and carrying out operations. He explained how, by felling exotic conifers back from watercourses and allowing a range of habitats to develop several benefits could be achieved, These include increased biodiversity, improved water quality and natural flood management. These "zones" could be up to 2km wide, for example along the Duchray Water.

TD asked about the background to the Queen Elizabeth Jubilee Pinewood and whether it would be a key part of the plan.

JH explained that the area occupied by pinewood provided a unique habitat in the LMP area, centred on stands of maturing Scots pine. Approximately 15 years ago it was decided to progressively fell other exotic conifer species, plant native pine and encourage natural regeneration of other native species. The expected result is a varied pinewood ecosystem and ground flora, for example are responding well. FCS is now in a position to extend the felling of exotic conifers.

In response to a question on rhododendron control JH described an ongoing programme of clearance work. The difficulty and long term nature of control work was acknowledged.

SM responded to a query about bird species by saying that buzzards, sparrowhawks and ospreys all nested in the LMP area and boxes were provided for tawny and barn owls.

TD asked what the main recreation issues were in this well used area of forest.

KA pointed out that, currently, promoted routes were concentrated in a narrow zone around Aberfoyle and other villages adjacent to the forest. However there is a growing aspiration towards establishing longer routes perhaps taking a full day to complete. C&T recreation team are already part of these discussions. FCS should also remain aware of the several long distance routes that run through the forest, e.g. the Rob Roy Way.

KA also stressed the importance of maintaining access during operations. Early warning of these would help minimise impacts. There are also five “gateways” into the forest and these should be maintained.

Internal viewpoints should also be maintained and the pinewood, in particular was singled out.

He suggested that there were no issues regarding access to lochs in the forest.

LD wondered how we might develop the important Milton access and the artwork associated with the trails to be found there.

JH did not think this was necessarily the remit of the LMP though broad aspirations could be incorporated. The concept of visitor zones will be useful in this respect but the way FCS communicate the plans for more detailed work on the ground may need some development.

CS was appreciative of the fact that facilities and access were much improved over years gone by, but that improvements could still be made to the way FCS communicate alterations to trails, operations etc.

JF thought the standard of mapping could be improved.

JH said that suggestions on how we can best improve communication and facilities were always welcome. He felt that the trail and road network in the LMP area was sufficient to provide suitable diversions during operations, when necessary.

SMe thought maps could be improved by emphasising specific landscape features and viewpoints.

TD wondered how much of the LMP area is likely to be felled in the next ten year period.

SMu said this was still to be determined and the current management map (which identifies areas to be felled) is open to revision.

JH said that the small isolated block in the south east of Drumore LMP is due for clearfelling but a road will be needed before this can be achieved. After felling this block may not be replanted.

TD asked those present to consider landscape issues and in particular whether there were any viewpoints from which future forest development could be analysed.

SMe thought that visitor's orientation and spatial awareness in the forest could be addressed through maintenance of internal viewpoints. For example keeping a triangle of visibility based on the Innisard viewpoint. There are several positions within the LMP area that would promote awareness of the unique landscape and provide opportunities for education. Restructuring of spruce is helping to soften the visual impact of the forest and opportunities to apply this along the major wayleave should be taken.

Open space could also be used to diversify visual interest.

JH pointed out that a large proportion of open space (approximately 20% of the LMP area) is the road system but that commitment to permanent space is difficult to achieve in practice. He explained how the LMP process manages open space though it should be remembered that the former's main function is to seek approval for felling and restocking.

LD is keen to see even small pockets of open space maintained and wondered whether volunteers would be of assistance. Changes to rules may make this so in the future.

JH said this could be raised with FCS's recreation team.

LD would like to see a broad palette of colour retained in the landscape and wondered whether FCS would consider planting sycamore outside the designated areas.

JH pointed out the potential landscape impact of felling and not planting larch because of Ramorum disease but that a range of species, including

sycamore, birch and aspen, are being considered as potential replacements.

SM showed a slide showing current viewpoints of the forest and it was agreed that it would be useful to have one from The Lodge. Although some suggestions were made (Ben Lomond, Drymen Road carpark, Rob Roy way, Ben Venue footpath), many of these are distant and the forest would also look rather flat.

JH pointed out that the purpose for the viewpoints is to illustrate the impact of felling and restocking and until felling coupes have been determined it may not be possible to decide the best viewpoints.

TD suggested that rather than producing perspectives several apt photographs could be used to simply illustrate the present appearance of the forest.

He then asked the group to consider timber production and transport.

LD said there were no particular issue for the National Park, though asked how stacking and loading areas would be managed.

JH said there was no new forest roading planned. Footpath diversions will be put in place where necessary.

He acknowledged that communities did have concerns regarding timber transport, however FCS were discussing these concerns with those affected and have agreed a number of measures which are designed to minimise disruption to those residents. Approximately 80% of timber now exits the whole of the wider Loch Ard forest through the Hoish access to the south east. However FCS will continue to use the four local access points (Milton, Covenanters, Balleich, and Lemahamish) in the future, if these are considered the most efficient exits for timber lorries.

For example, he explained the financial and other implications of taking timber from the thinning programme in South Loch Ard out through the Hoish access. Specific measures will be implemented (e.g. size of lorry, restricted haulage times) to minimise impact and disruption to local residents when other access points are used. He could recall no reported collisions involving timber lorries and pedestrians in Cowal and Trossachs Forest District.

It is not expected that there will any forest road closures except at certain times during operations.

TD asked if there were any other issues of concern.

KA wondered about a small isolated area to the south east of the main block.

JH said this was currently leased to a local farmer.

He then asked whether a further public meeting/presentation would be useful.

CS felt that this scoping process is adequate but that updates on forest operations would be useful. Written communication would be sufficient.

TD thanked everybody for their attendance and said a scoping report would be sent to all stakeholders. The land management plan itself should be ready for further consultation by the end of the calendar year.

The meeting concluded at 2.45pm

STM 9th September 2013.

NB: All forests managed by FCS are certified under the UK Woodland Assurance Scheme (UKWAS), which requires forests to be managed sustainably. The UKWAS is part of the Forest Stewardship Council (FSC) scheme, which allows timber sourced from certified forests to carry the FSC label. The combined South Loch Ard / Drumore LMP will incorporate the various requirements of UKWAS within its proposals.

Appendix V. EIA Determination request

EAST LOCH ARD LMP – roads, tracks and ramps

This is a request for an EIA determination for works covering construction of roads, tracks and ramps in East Loch Ard LMP area.

Approximately 2100m of new roads and 25.2km of tracks will be required to access harvesting sites and to facilitate harvesting, silvicultural and deer management operations. In addition up to 117 ramps will be required to allow harvester/forwarder access into coupes that are to be felled during the design plan period.

An initial survey of proposed roadlines has been carried out and their positions are shown on the roads and tracks map. A more detailed assessment of the route will be made prior to construction and a tolerance of ± 60m adhered to. The footprint of roads will be approximately 7m and the nominal area amounts to 1.5ha. Several roads will require to be upgraded prior to operations, however the nominal footprint of the road will not be increased. All work will be carried out in accordance with standards set out in "The Design and Use of the Structural Pavement of Unsealed Roads" (Timber Transport Forum, 2014).

Tracks will be constructed in line with the principles described in the SNH guidance on Constructed Tracks in the Scottish Uplands. Construction will also conform to the Forests and Water Guidelines (Fifth Edition). During construction ground disturbance will be kept to a minimum and tracks will not be treated as permanent features. Once operations are complete tracks will be allowed to grass over and track side batters will be left in a condition that will promote vegetation regeneration, as will the running surface. Tracks will be constructed with a top-side drain and will have regular drainage cut-offs to prevent erosion of the trackside drain. No water from the trackside drains will discharge directly into any watercourse.

Indicative positions of the tracks are shown on the roads and tracks map and final positions will be within ± 100m of these. The actual line will be planned to minimise landscape impact and ground disturbance, reflecting existing topography, avoiding steep gradients where possible and avoiding sensitive habitats ATV tracks will be approximately 2m wide and the nominal area amounts to 5ha. Forwarder tracks will be of similar construction to roads but without a final surfacing. They will be treated as permanent features and the nominal area amounts to 0.3ha

Ramps will be approximately 3m wide and up to about 10m long. As with tracks they will not be treated as permanent features and will be removed following operations. The final number and location of the ramps will be determined at the time of

operations but we believe one ramp per 100m of road/coupe interface will be sufficient.

During construction of tracks areas of deep peat will be avoided as far as is possible. Where deep peat has to crossed approved techniques will be used, e.g. floating road construction.

An EIA determination request form is to be found at the front of this document and a summary of proposed works in Appendix VI. A revised EIA determination will be sought if any specific sensitive issues are encountered before construction.

1	Landscape	There are no major landscape issues with either roads or tracks.
2	Watercourses	All work will conform to the 5th edition of the UK Forestry Standard Guidelines “Forests and Water”.
3	Archaeology	No major issues.
4	Biodiversity	Work carried out will be sensitive to permanent and temporary features of conservation value (e.g. spawning frogs and toads in roadside drains).
5	Access	There are no major access issues.
6	Recreation	No major issues.
7	Material	ATV tracks will use material from on site. There are several active quarries in the plan area from which suitable material will be sourced for roads and forwarder tracks.

Appendix VI. EIA Determination summary - forest tracks

Coupe	Length (m)	Area (ha.)	Purpose	Landscape	Water quality	Archaeology	Biodiversity	Access	Recreation	Material
30001	696	0.14	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
30036	1669	0.33	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
30642	738	0.15	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from new forest road	no issues	to be found on site
30951	474	0.10	crop establishment	no issues	standard protection measures	no known issues	PAWS	from forest road	no issues	To be found on site
30956	463	0.10	harvesting and crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	local quarry
30963	1474	0.29	crop establishment	Visible from Forest Hills	steep ground; standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34004	1265	0.25	crop establishment	no issues	standard protection measures	no known issues	areas of deep peat	from forest road	no issues	to be found on site
34008	1698	0.34	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from new forest road	no issues	to be found on site
34016	1070	0.21	crop establishment	no issues	standard protection measures	no known issues	areas of deep peat	from new forest road	no issues	to be found on site
34019	794	0.16	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from new forest road	no issues	to be found on site
34022	659	0.13	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from new forest road	no issues	to be found on site
34023	1974	0.40	crop establishment	no issues	standard protection measures	no known issues	areas of deep peat	from new forest road	no issues	to be found on site
34030	1068	0.21	thinning operations	no issues	standard protection measures	no known issues	no significant issues	from new forest road	no issues	local quarry
34034	1163	0.23	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road end	no issues	to be found on site

Coupe	Length (m)	Area (ha.)	Purpose	Landscape	Water quality	Archaeology	Biodiversity	Access	Recreation	Material
34036	864	0.17	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34039	2154	0.43	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34223	1787	0.36	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34801	606	0.12	crop establishment	no issues	standard protection measures	no known issues	adjacent SSSI	from new forest road	potential footpath	to be found on site
34802	1140	0.23	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34812	2249	0.45	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34826	522	0.10	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site
34840	1775	0.36	crop establishment	no issues	standard protection measures	no known issues	no significant issues	from forest road	no issues	to be found on site

Appendix VII SSSI Citations

Appendix VIII SSSI Management

DRUMORE SSSI

Start Date of Plan:- April 2011

End Date of Plan :- March 2016

Overall Management Aims & Objectives

The management of the SSSI, should through time, improve the age structure of the oak and Scot's Pine woodlands, increase the amount of regeneration and improve the ground flora. Removal of the large number of young Sitka spruce regenerating on the site, reducing deer numbers and areas covered by dense bracken, would help the overall habitat recover. The few Aspen on the site not under threat from encroaching birch at present but the situation should continue to be monitored. Osprey, Redstart, Pied Flycatcher and Wood Warbler and many other bird species are recorded in the woods and any management should be carried out to avoid disturbance at the critical breeding times. There is a large population of wood ants *Formica aquilonia.* Capercaille (Schedule II and Red Data Book species) was last reported in 2003 when one hen bird was seen, but the habitat these birds require and which is known they have used in the past, should be maintained. A small enclosure contains a few juniper bushes, these bushes need to have the rank heather removed from around their bases.

Designated Site Name	Site code	Site Type	Total Area of designated site (ha)	Area within this FDP (ha)	% Within this FDP	% on NFE	Annex containing SNH site documentation
Drumore SSSI	543	Upland Oak Wood	121.1ha	121.1ha	100%	100%	Annex 2

Site Code	Site Type	Feature description	Feature code	SCM Condition (Date assessed)	Condition on NFE	Management Classification (if relevant)
543	Broad-leaved mixed & yew woodland	Upland Oak Woodland	758	2008	Classed as unfavourable, recovering.	N/A

Pressures & Proposed Actions

Site Type	Feature description	Feature code	Pressures	Proposed action	Timescale	Location Map highlighting work & other key limiting factors
Broad-leaved mixed & yew woodland	Upland Oak Woodland	758	1. Deer pressure is high.	Deer numbers should continue to be reduced along with the erection of three deer fenced enclosures to help accelerate broad-leaved tree regeneration. (See note below *)	Ongoing deer control with most of the fences erected by March 2013.	See Main SSSI Map in Annex 1
			2. SS regen is widespread on clear-felled areas amounting to approximately	Spray small seedlings and/or cut larger trees	A rolling programme of work over the	See Map in Annex 1

			25ha. The SS regen varies in height from small seedlings to 2m.		next five years, 2011-2015.	
			3. Monitor the aspen for birch encroachment.	Monitor every three years.	Ongoing	Location NS48649886
			4. Bracken Control 1.2ha	Spray with suitable chemical, glyphosate post December 2012	2012/15	See Map in Annex 1
			5. Rank heather around the juniper bushes.	Remove with brush cutter.	2012/15	Location NS48619873

* A considerable effort has been made by the deer management team to control deer within the SSSI. Control is currently carried out by directly employed FCS Wildlife Ranger staff. All opportunities to reduce deer numbers are being taken through the use of Out of season and Night shooting, which will conform with FCS policy.

It is proposed to use Deer fencing to protect native woodland establishment in parts of the site. Outwith these fenced areas, protection of young trees and developing woodland will be through control of deer populations. An estimate of the total fencing required is 2800m. Standard red deer specification fencing will be used: 1.8m high, with high tensile net. Layout of materials will be by ATV, using pre-identified routes.

Fence lines will be chosen on the basis or practicality and to minimise visual impact and following current best practice. Wherever possible, fences will be routed down streamsides, along breaks of slope and avoiding skylines, and away from paths and viewpoints. The hummocky topography found over much of the site aids the concealment of fences. Once the areas are sufficiently established, a programme of fence removal will be instituted.

All fences considered to be more of a threat, due to the historical presence of a capercaillie, will be marked using softwood droppers at approximately one per meter length, with extra stays to support the additional weight. Locations of fence lines will be chosen to avoid good feeding sites and flight lines into leks. All fence lines will be monitored and bird strikes noted.

Operations within the FDP that could impact on the designated features on the NFE

Operation Type	Detailed description of operation and method	Mitigation measures to be applied	Timing	Map reference & other relevant comments
Bracken Control	Spraying	Follow the Forest and Water Guidelines, Nature Conservation Legislation, Heath & Safety Rules	Late July/August	See map in Annex 1
SS removal	Cutting and spraying	As above	All Year	See Map in Annex 1
Heather Control	Cutting rank heather with a Bush Cutter	As Above	All year	NS48619873

Operations within the LMP or aspects of the national forest estate within the LMP that could impact on designated sites adjacent to national forest estate

Operation Type / Aspect of forest	Detailed description of issue or operation	Proposed action &/or mitigation	Timing	Map reference & other relevant comments
None				

FAIRY KNOWE & DOON HILL SSSI

Start Date of Plan:- April 2015

End Date of Plan :- March 2020

Overall Management Aims & Objectives

The primary aim of the management of this SSSI is to conserve and improve the two neighbouring semi-natural woodlands which have communities rare throughout central Scotland and are therefore of National significance. Also to link the two woodlands by removing any remaining conifers, and to create one large stand of naturally regenerating broad-leaved woodland.

Designated Site Name	Site code	Site Type	Total Area of designated site (ha)	Area within this LMP (ha)	% Within this LMP	% on NFE	Annex containing SNH site documentation
Fairy Knowe & Doon Hill	621	Broad-leaved and mixed yew woodland	42.84 ha	42.84 ha	100%	100%	

Features on the NFE and condition

Site Code	Site Type	Feature description	Feature code	SCM Condition (Date assessed)	Condition on NFE	Management Classification (if relevant)
621	Broad-leaved, mixed and yew woodland	Upland oak woodland	758	2008	Classed as unfavourable recovering.	N/A

Pressures & Proposed Actions:

Site Type	Feature description	Feature code	Pressures	Proposed action	Timescale	Location Map highlighting work & other key limiting factors
Broad-leaved, mixed and yew woodland	Upland oak woodland	758	1. Conifers and non-native broad leaves regenerating on the site.	Remove conifers and beech within the boundary of the SSSI.	Ongoing	
			2. Stirling Council highlighted the compaction of the ground around the Scots Pine on the summit of Doon Hill. This is being caused by the pressure of people visiting the area and as a result of this stress the needles of the pine are turning	The Recreation Team in Cowal & Trossachs FD intend to support Stirling Council plans to create wood carvings on	2015	N/A

			brown. There are also many small paths meandering from the summit of Doon Hill, use of which should be discouraged.	Doon Hill, but will have discussions with the Strathard community about dealing with the litter and erecting interpretation to prevent more appearing. Solutions to protect the root system of the pine on the hill will be investigated. Unofficial paths will be blocked off.		
			3. Grazing by deer is preventing broad-leaved regeneration in parts of the SSSI	Look at deer management options and use tree tubes on saplings or deer fences to protect them from browsing were appropriate	2015	N/A

Operations within the FDP that could impact on the designated features on the NFE

Operation Type	Detailed description of operation and method	Mitigation measures to be applied	Timing	Map reference & other relevant comments
Conifer and exotic broad-leaved control.	Cutting	None	All Year	N/A

Operations within the FDP or aspects of the national forest estate within the LMP that could impact on designated sites adjacent to national forest estate

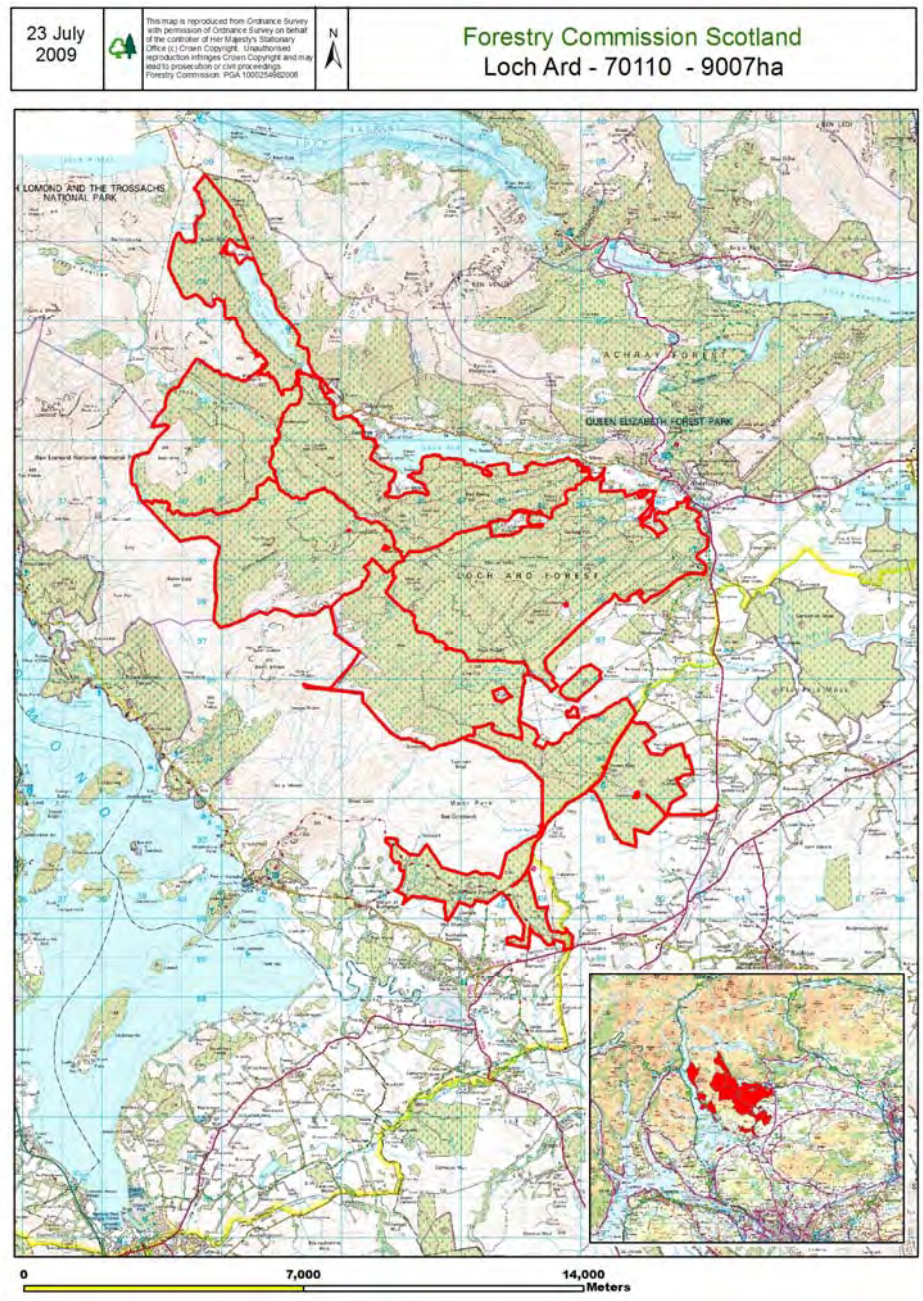
Operation Type / Aspect of forest	Detailed description of issue or operation	Proposed action &/or mitigation	Timing	Map reference & other relevant comments
None				

Appendix IX. Deer Management Plan

Deer Management Plan Name **Loch Ard**

This plan covers the following deer management units:-

70110Loch Ard



1. Description Mixed age commercial woodland with a significant area of young second rotation restocking. Much of the native woodland proposed is to be delivered through nat regen. Significant amount of open hill above tree line**,** and most internal open space concentrated on watercourses. Good forest road network forming part of the heavy

recreation use of the forest. Heavily used recreationally, extensive clearfelling and thinning on long term cycle. Very well roaded, third party access, campsites and water board infrastructure. CCF covers 20% of the area and is into the thinning cycle. Headwaters of salmon spawning range.

Total Area 9007 Ha

Designations: Drumore Wood SSSI Beinn Bhan SSSI, Lime Hill SSSI, Fairy Knowe & Doon Hill SSSI. (for detail, see the conservation plan).

Altitude: 4m to 720m

Perimiter fencing is: Mixture of stock and deer fencing (details to be found in the FD fence plan

Land Management plan areas: Beinn Bhan - 1050 Ha, Greenburn - 905 Ha, Corriegrennan - 1225 Ha, Corrie - 1176 Ha, Garadbhan - 441 Ha, South Loch Ard - 1330 Ha, Loch Chon - 693 Ha, Drumore - 2187 Ha

2. Neighbours: Mainly to the west and consists of NTS, AAGRE V JENSON Trust, Montrose Estates, Cashell Farm, Corrie Farm.

3. Main Objectives and Key Issues

Ongoing re-stocking is vulnerable to deer impacts and the target of 15% of browsing of SS and 30% on soft conifers.

Native woodland remnants are extremely vulnerable and steps will be taken to reduce adverse impacts. Duchray FHN relies on the establishment of native woodland by nat regen. CCF management will rely on nat regen of conifers in small clearfell areas (up to 2 ha) within the crop.

4. Deer Management Methods and Resources

Deer control is currently carried out by directly employed FCS Wildlife Ranger staff.

Some permit stalking will be offered where this does not detract from other objectives being achieved.

Currently there are no plans to lease deer stalking so as to maintain a high level of control.

Out of season shooting will conform with FCS policy.

Night shooting will be utilised where serious damage may occur despite having used all other methods including out of season control.

Deer fencing will be used where immigration from neighbouring deer populations cannot be reasonably controlled by shooting.

FCS attendance will be maintained at the relevant Deer Management Groups.

5. Monitoring

All year 1 re-stocking will be monitored by Nearest Neighbour assessment or subsequent newly developed methodology.

Population monitoring using the national SCL contract will be used as required. The last assessment was in 2009.

SDA assessments are conducted at years 1 and 5 by the Operations team.

All biological data will be collected via the SWMS.

SCL reports can be accessed at: ..\Strath Caulaidh

6. Cull Targets

Cull targets will be set using any previous populations data, cull data from the WMS, impact assessments and the Wildlife Rangers local knowledge.

Cull progress will be monitored via the WMS and regular reports will be produced by the deer administration hub.

7. Historic Culls

All culls are available from this hyperlink Deer Culls\Cowal and Trossachs DMP Culls.xls

Appendix X. A guide to understanding the Scottish Ancient Woodland Inventory (AWI)

Summary and policy statement

This summary is intended for developers, planners, foresters, ecologists and others who need to use the AWI in their work. It defines Ancient Woodland, briefly describes why it is important and gives the meaning of the categories in the AWI.

Ancient Woodland

In Scotland, Ancient Woodland is defined as land that is currently wooded and has been continually wooded, at least since 1750.

Ancient Woods are important because:

- They include all remnants of Scotland's original woodland; their flora and fauna may preserve elements of the natural composition of the original Atlantic forests.
- They usually have much richer wildlife than that of more recent woods.
- They preserve the integrity of soil ecological processes and associated biodiversity.
- Some have been managed by traditional methods for centuries and demonstrate an enduring relationship between people and nature.
- Woods and veteran trees are ancient monuments whose value to the local community and historians may be as great as that of the older buildings in a parish.
- Once destroyed, they cannot be recreated.

Although there is no legislation specifically protecting ancient woodland, Scottish Planning Policy identifies it as **an important and irreplaceable national resource that should be protected and enhanced**, as should other native and long established woodlands with high nature conservation value. SNH will seek to use the planning system to protect ancient woodland. The Scottish Government's policy on control of woodland removal states that there is a strong presumption against removing ancient semi-natural woodland or Plantations on ancient woodland sites, amongst other types of woodland.

Other woodlands, hedgerows and individual trees, especially veteran trees, may also have significant biodiversity value and make a significant contribution to landscape character and quality, so should be protected from adverse impacts resulting from development.

If a development would result in the severing or impairment of connectivity between important woodland habitats, workable mitigation measures should be identified and implemented, potentially linked to the creation of green networks.

The Ancient Woodland Inventory is a map-based tool that shows the location of many of our most valuable woodlands.

The Ancient Woodland Inventory

The Ancient Woodland Inventory (AWI) is a PROVISIONAL guide to the location of Ancient Woodland. It contains three main categories of woodland, all of which are likely to be of value for their biodiversity and cultural value by virtue of their antiquity:

i. Ancient Woodland (1a and 2a)
Interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century they are referred to as Plantations on Ancient Woodland Sites (PAWS).

ii. Long-established woodlands of plantation origin (LEPO) (1b and 2b)
Interpreted as plantation from maps of 1750 (1b[1]) or 1860 (2b) and continuously wooded since. **Many of these sites have developed semi-natural characteristics, especially the oldest ones, which may be as rich as Ancient Woodland.**

iii. Other woodlands on 'Roy' woodland sites (3)
Shown as unwooded on the 1st edition maps but as woodland on the Roy maps. Such sites have, at most, had only a short break in continuity of woodland cover and may still retain features of Ancient Woodland.

A note of caution
The AWI was derived from the Roy maps (c1750) and the OS 1st edition (c1860). It is not definitive and should be used with care; when evaluating woods it is important to:

a) Examine the site on the ground, looking for archaeological, biological and other indicators of antiquity and of its current biodiversity value

b) Examine old maps; the OS 1st edition and Roy maps are available on www.nls.uk. **Woods not shown on the AWI, but present on the historic maps, are likely to be ancient and should be treated as such** unless evidence is available to the contrary.

c) seek specialist advice if in doubt

Information on AWI can also be accessed form the Land Information Search (LIS) from the Forestry Commission Scotland.

[1] This category was not originally used, although the information was preserved in the database. At digitisation these sites were reclassified as 1b (Plantation on Roy map) to recognise their greater age.